## **Transportation LOP Checklist**

 $KY\ 30-Jackson\ \&\ Owsley\ Counties$ 

KYTC Item No. 10-279.61

Transportation LOP (LRL-2006-259) Complete Application Check List/Cover Sheet.

Project Name: KY 30	Corps I. D. LRL-2017-1052		Corps PM: Crystal Byrd	
Applicant: KY Transportation Cabinet	Agent: Tyler Reynolds		KYTC Item No. 10-279.61	
Application Information	Comple	eted		
	N/A	Yes	No	
D.A. Application w/signature		Х		
Maps (Topo w/project & impacts)		Х		
JD (prelim or approved)		Х		
Wetland Data Sheets (regional supplements)		Х		
RBP Sheets		Х		
EKSAP sheets		Х		
Impact Table & Mitigation Calculations		Х		
Mitigation Statement		Х		
Final Mitigation Plan (if Permittee Responsible)	Х			
Alt. Analysis		Х		
Avoidance/Minimization		Х		
Cumulative Impacts Table - if required	Х			
Section 7 Effects Determination(s)/Concurrence			X	
Section 106 Concurrence & KYSHPO checklist		Х		
Individual WQC, waiver or general certification		Х		
Electronic Copy of Submitted Documents		Х		
ORM Waters Upload Sheet (latest version)		Х		
State or Federally Funded Statement		Х		
Date of Pre-App Meeting:			X	
Public Interest/Environmental Effects	Address	sed	·	
	N/A	Yes	No	
Economics		Х		
Aesthetics		Х		
Special Aquatic Sites		Х		
Fish and Wildlife Values		Х		
Flood Hazards		Х		
Floodplain Values		Х		
Land Use Classification		Х		
Navigation		Х		
Shore Erosion/Accretion Patterns		Х		
Recreation		Х		
Existing and Potential Water Supplies; Conservation		Х		
Water Quality		Х		
Energy Needs		Х		
Safety		Х		
Food and Fiber Production		Х		
Mineral Needs		Х		
Consideration of Property Ownership		Х		
Other: evised: June 2016	Х			

# **USACE Application**

# U.S. ARMY CORPS OF ENGINEERS APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved -OMB No. 0710-0003 Expires: 30-SEPTEMBER-2015

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

#### PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)						
1. APPLICATION NO.		2. FIELD OFFICE CODE	3. DATE RECEIVED		4. DATE APPLICATION COMPLETE	
		(ITEMS BELOW TO BE	FILLED BY APPLICAN	IT)		
5. APPLICANT'S NAME			8. AUTHORIZED AGE	ENT'S NAME A	ND TITLE (agent is not required)	
First - Tyler	Middle -	Last - Reynolds	First - Steve	Middle -	Last - Rice	
Company - KYTC			Company - HMB Pr	ofessional Er	ngineers, Inc.	
E-mail Address - tyler.reynolds@ky.gov			E-mail Address - srice@hmbpe.com			
6. APPLICANT'S ADDRESS:			9. AGENT'S ADDRESS:			
Address- 200 Mero Street			Address- 3 HMB Circle			
City - Frankfort	State - KY	Y Zip - 40602 Country - USA	City - Frankfort	State - ]	KY Zip - 40601 Country -USA	
7. APPLICANT'S PHONE	NOs. w/ARE	:A CODE	10. AGENTS PHONE	NOs. w/AREA	CODE	
a. Residence	b. Business	c. Fax	a. Residence	b. Busines	ss c. Fax	
	502-564-72	150		502-695-	9800	
		STATEMENT OF	AUTHORIZATION			
11. I hereby authorize,supplemental information i	in support of t		my agent in the proces	sing of this app	olication and to furnish, upon request,	
	SIGNATURE OF APPLICANT DATE					
	5.5.a 5 2.5. /a 2.5. v 5 5 5 5 5 5					
NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY						
12. PROJECT NAME OR	TITLE (see in	nstructions)				
10-279.61 KY 30 recor	nstruction in	1 Jackson & Owsley Counties, KY				
13. NAME OF WATERBODY, IF KNOWN (if applicable)		14. PROJECT STREET ADDRESS (if applicable)				
Laurel Fk, Herd Fk, Sturgeon Cr, Little Sturgeon Cr and their tribs			Address			
15. LOCATION OF PROJ			City -	S	State- Zip-	
Latitude: •N 37.7342652		Longitude: •W 83.900162	J.,	<u>-</u>		
	DESCRIPTION	NS, IF KNOWN (see instructions)				
State Tax Parcel ID		Municipality				
Section -	Tow	nship -	Range -			

17. DIRECTIONS TO THE SITE From Lexington, KY take I75 South to Berea and then take US 421 South to Tyner. This is near the beginning of the project.
18. Nature of Activity (Description of project, include all features) Reconstruction of KY 30 from Tyner to Travellers Rest. The project involves the construction of approximately 29 culverts and 25 channel changes.
19. Project Purpose (Describe the reason or purpose of the project, see instructions)
For safety and added site distance.
USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED
20. Reason(s) for Discharge
To necessitate the construction of KY 30, the placement of culverts is required.
21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:
Type Type Type Amount in Cubic Yards Amount in Cubic Yards Amount in Cubic Yards
Native rock and soil: 3,840 CY
22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)
Acres 2.585 acres or
Linear Feet 24,012 feet
23. Description of Avoidance, Minimization, and Compensation (see instructions)  The project uses the existing highway corridor for a significant portion of the project (where feasible) to minimize impacts, and in-lieu fee will be paid to compensate for stream and wetland loss.

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24. Is Any Portion of the	e Work Already Complete? [	Yes No IF YES,	DESCRIBE THE COMPLE	TED WORK	
25. Addresses of Adjoini	ng Property Owners, Lessee	es, Etc., Whose Property A	djoins the Waterbody (if mor	e than can be entered here, please	attach a supplemental list).
a. Address-					
City -		State -	Zip -		
b. Address-					
City -		State -	Zip -		
c. Address-					
City -		State -	Zip -		
d. Address-					
City -		State -	Zip -		
e. Address-					
City -		State -	Zip -		
26. List of Other Certifica	tes or Approvals/Denials red		State, or Local Agencies fo	r Work Described in This A	Application.
AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
_					
_					
* Would include but is not	restricted to zoning, buildin	g, and flood plain permits			
	made for permit or permits further certify that I possess				
SIGNATURE	OF APPLICANT	DATE	SIGNAT	URE OF AGENT	DATE
	oe signed by the person v statement in block 11 ha			applicant) or it may be s	igned by a duly
-	1 provides that: Whoever	_		nartment or agency of the	ne I Inited States
knowingly and willfully	falsifies, conceals, or covor representations or mal	ers up any trick, schem	e, or disguises a materi	al fact or makes any fals	se, fictitious or
	or entry, shall be fined no				,

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#### **Attachment Block 25**

#### Jackson & Owsley Counties KY 30 reconstruction Item No. 10-279.61

Phillip & Linda Akemon P.O. Box 359 Gray Hawk, KY 40434

Phillip Wayne Akemon 1171 Oak Grove Church Road Tyner, KY 40486

Phillip Akemon 1410 Oak Grove Church Road Tyner, KY 40486

Christine Anderson P.O. Box 202 Tyner, KY 40486

Marlene Baldwin 2816 Hwy 1431 Tyner, KY 40486

Vernon & Nicki Baldwin 439 Peters Road McKee, KY 40447

Wilma Lee Barrett 1100 Kenneth Barrett Road Booneville, KY 41314

Michael Allen Botner Route 2 Box 105J Booneville, KY 41314

Brent & Cynthia Bingham 282 Hickory Flat Road Tyner, KY 40486

Ricky Joe & Sylvia Gale Boggs 1094 US Hwy 421 South McKee, KY 40447 Brandi Bowles 17 Zekes Point Road Tyner, KY 40486

Alan Bowling 39 Don Cunigan Road Tyner, KY 40486 Gerald & Cynthia Bowling W3145 Clearview Road Sheboygan Falls, WI 53085

Ronald Bowling 1118 Seneca Trail Georgetown, KY 40324

Anna Brewer Route 2 Box 106 Booneville, KY 41314

Glendon Brewer & Glema & James Dooley Route 2 Box 106 Booneville, KY 41314

Kathleen Brown 804 South Main Street Fairmont, IN 46928

Clayton Bank and Trust 520 W Summit Hill Drive Sw. #801 Knoxville, TN 37902

Marlon & Carla Coffey 2856 Hwy 1431 Tyner, KY 40486

Patricia Collinsworth 2985 Indian Ripple Road Xenia, OH 45385

Terry & Michelle Coomer P.O. Box 1420 London, KY 40743

Anthony R. Cunagin 219 Meadow Road Richmond, KY 40475 Donald Ray Cunigan 142 Don Cunagin Road Tyner, KY 40486

Eddy Cunigan 236 7th Ave South Sartell, MN 56377

Roy Jr. & Geraldine Davidson 125 Zekes Point Road Tyner, KY 40486

Jeff Dooley 1200 Candy Branch Road Booneville, KY 41314

Cody Dooley 1400 Candy Branch Road Booneville, KY 41314

Wallace & Rita Edwards 10334 KY 30 West Booneville, KY 41314

William & Wanda Fields 5019 Ells Branch Road Manchester, KY 40962

Bennie & Debbie Fields P.O. Box 74 Tyner, KY 40486

Tabitha Finley-Jenkins P.O. Box 671 Tyner, KY 40486

James E. & Betty Flannery Route 2 Box 91 Booneville, KY 41314

Michael Scott Flannery 80 Wright Road Tyner, KY 40486 Raymond Flannery 6807 Hwy 30 East Tyner, KY 40486

Lena Flannery 6571 Hwy 30 East 723 Hwy 1431

Lonnie Gabbard 723 Hwy 1431 Tyner, KY 40486

Lonnie Gabbard 98 Jackson Drive Tyner, KY 40486

Lonnie Gabbard 80 Jackson Drive Tyner, KY 40486

Wanda Hammons 7880 54th Ave North Lot 51 St. Petersburg, FL 33709

Sara Mae Haymons 177 Botner Road P.O. Box 16 Vincent, KY 41386

Bo D. & Shanay Hicks 2200 Hwy 30 East Tyner, KY 40486

Ronnie & Sharon Hicks 2150 Hwy 30 East Tyner, KY 40486

Sharon Hicks 2215 Hwy 30 East Tyner, KY 40486

John & Sally Hornsby 2354 Hwy 30 East Tyner, KY 40486 Claude Sr. & Adrian & Neil Hudson 2268 Hwy 30 East Tyner, KY 40486

Cassie Hudson P.O. Box 997 Booneville, KY 41314

Donald & Peggy Hurst 7259 KY 1071 Tyner, KY 40486

David Jackson 1490 Moore Road Tyner, KY 40486

Jason Wayne Flannery & Jennifer M. Wilson 6754 Hwy 30 East Tyner, KY 40486

Wendell & Linda Kilburn 175 Hickory Flat Road Tyner, KY 40486

L-M Asphalt Partners, LTD 3009 Atkinson Ave Suite 400 Lexington, KY 40509

Jessie Ledgear 314 Zekes Point Road Tyner, KY 40486

Linda Darlene Madden 70 Zekes Point Road Tyner, KY 40486

Marjorie Madden 3973 Hwy 30 East Tyner, KY 40486

Magnum Unlimited, LLC 1050 Shiloh Road STE 306 Kennesaw, GA 30144 Freda Marcum 10270 KY 30 West Booneville, KY 41314

Paul Marks 677 S.R. 89 North McKee, KY 40447

Kettisha A. McDowell Revocable Living Trust 116 Beverly Lane Dry Ridge, KY 41035

Gene & Theresa McQueen 657 South Hwy 1431 Tyner, KY 40486

Stephanie & Ivan McQueen 2322 Hwy 1431 Tyner, KY 40486

Marie Miller 9081 White Water Drive Brookville, IN 47012

David & Sandra Miller 251 Green Wright Road Tyner, KY 40486

John M. Moore 528 Hwy 1431 Tyner, KY 40486

Tim & Rhonda Neeley 1529 Privett Road Tyner, KY 40486

Annette Osborne 208 Beaumont Place Winchester, KY 40391

Donald & Lucy Pennington 490 Moores Road Tyner, KY 40486 Peters Farms, LLC P.O. Box 2043 Lexington, KY 40594

Glen Peters Route 2 Box 55-A Booneville, KY 41314

Tony, Brittany, & Connie Price Route 2 Box 105-A Booneville, KY 41314

Rena Conner & Rhnea Privett P.O. Box 1213 Stanton, KY 40380

Helen Ridnour 316 Hwy 1431 Tyner, KY 40486

Helen Ridnour 268 Hwy 1431 Tyner, KY 40486

Shannon & Rhonda Robinson 55 East Hwy 577 Manchester, KY 40962

Edna Roush Apt #10-B 3551 Tylersville Road Hamilton, OH 45011

Franklin Rowland 219 Charlie Sizemore Road Manchester, KY 40962

Glenna Sanders 669 Hwy 1431 Tyner, KY 40486

Chester Smith 669 Hwy 1431 Tyner, KY 40486 Robert Strong 1200 Candy Branch Road Booneville, KY 41314

James E. & Sheila Strong 1815 Moores Road Tyner, KY 40486

Virgil H. Thomas 177 Botner Road P.O. Box 16 Vincent, KY 41386

Randy & Teresa Whicker 7291 Hwy 421 South McKee, KY 40447

Bernard & Ruth Ann Wilson Route 2 Box 108-L Booneville, KY 41314

Michael & Wanda Wilson P.O. Box 281 Booneville, KY 41314

Jason Wayne & Jennifer M. Wilson 7303 Hwy 30 East Tyner, KY 40486

Russell Wilson 1619 Hwy 1431 Tyner, KY 40486

Jenny Yarbrough 815 Hwy 1431 Tyner, KY 40486

John & Myrtle York 62 Hwy 578 North Annville, KY 40402

## **KY Div. of Water Application**

# COMMONWEALTH OF KENTUCKY ENERGY AND ENVIRONMENT CABINET DEPARTMENT FOR ENVIRONMENTAL PROTECTION DIVISION OF WATER

# APPLICATION FOR PERMIT TO CONSTRUCT ACROSS OR ALONG A STREAM AND / OR WATER QUALITY CERTIFICATION

Chapter 151 of the Kentucky Revised Statutes requires approval from the Division of Water prior to any construction or other activity in or along a stream that could in any way obstruct flood flows or adversely impact water quality. If the project involves work in a stream, such as bank stabilization, dredging or relocation, you will also need to obtain a 401 Water Quality Certification (WQC) from the Division of Water. This completed form will be forwarded to the Water Quality Branch for WQC processing. The project may not start until all necessary approvals are received from the KDOW. For questions concerning the WOC process, contact the WQC section at 502/564-3410.

If the project will disturb one or more acres of land, or if the project is part of a larger common plan of development or sale that ultimately will disturb one or more acres, you will also need to complete a Notice of Intent for general permit coverage for storm water discharges associated with construction activities (NOI-SWCA). You may find the forms for Kentucky Pollution Discharge Elimination System (KPDES) at <a href="http://www.water.ky.gov/homepage\_repository/kpdes\_permit\_aps.htm">http://www.water.ky.gov/homepage\_repository/kpdes\_permit\_aps.htm</a> or <a href="https://dep.gateway.ky.gov/eForms/default.aspx?FormID=7">https://dep.gateway.ky.gov/eForms/default.aspx?FormID=7</a>. Return forms to the Floodplain Management Section of the KDOW. This general permit will require you to create and implement an erosion control plan for the project.

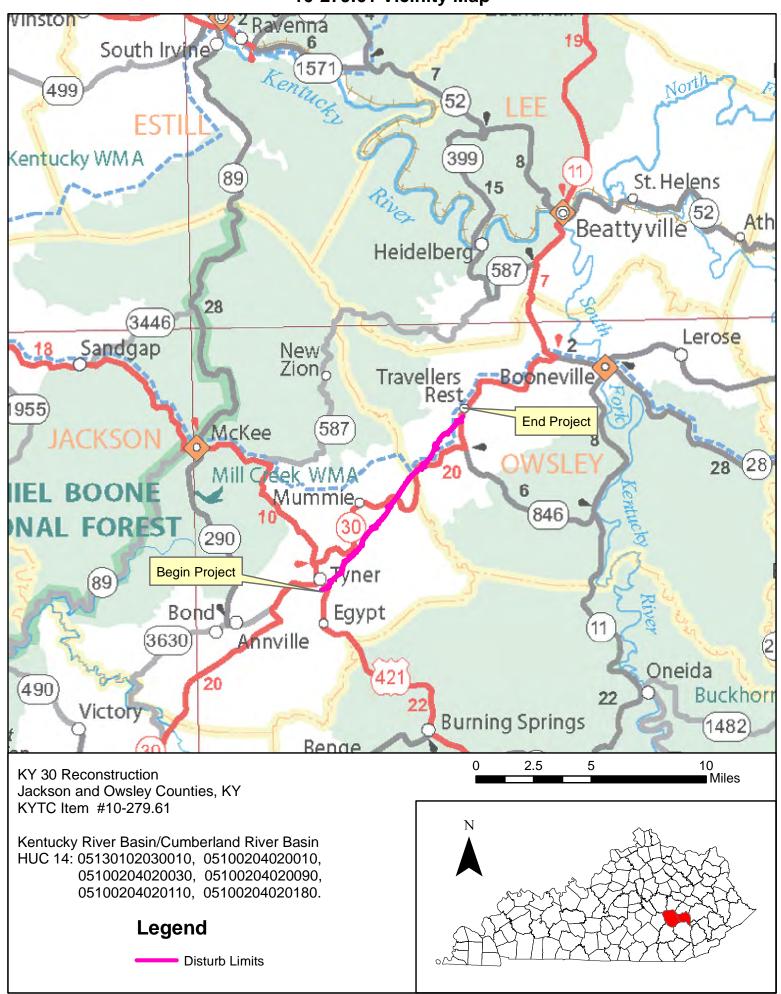
MAII	LING ADDRESS:200 Mero Street, Frankfort KY 40622
TELI	EPHONE #: _(502)564-7250 EMAIL:tyler.reynolds@ky.gov
AGE	NT:Steve RiceGive name of person(s) submitting application, if other than owner.
ADD	RESS:HMB Professional Engineers, Inc., 3HMB Circle
	Frankfort, KY 40601
TELI	EPHONE #: _502-695-9800 EMAIL:srice@hmbpe.com
ENG	INEER: P.E. NUMBER:
TELI	Contact Division of Water if waiver can be granted.  EPHONE #: EMAIL:
	CRIPTION OF CONSTRUCTION: _Reconstruction of KY 30 from Tyner to Travellers Rest  Describe the type and purpose of construction and describe stream/wetland impact
	CRIPTION OF CONSTRUCTION: _Reconstruction of KY 30 from Tyner to Travellers Rest
COU	CRIPTION OF CONSTRUCTION: _Reconstruction of KY 30 from Tyner to Travellers Rest Describe the type and purpose of construction and describe stream/wetland impact  NTY: _Jackson & Owsley NEAREST COMMUNITY: _Tyner
COU	CRIPTION OF CONSTRUCTION: _Reconstruction of KY 30 from Tyner to Travellers Rest  Describe the type and purpose of construction and describe stream/wetland impact
COU	CRIPTION OF CONSTRUCTION: _Reconstruction of KY 30 from Tyner to Travellers Rest Describe the type and purpose of construction and describe stream/wetland impact  NTY: _Jackson & Owsley NEAREST COMMUNITY: _Tyner
COULUSGS	CRIPTION OF CONSTRUCTION: _Reconstruction of KY 30 from Tyner to Travellers Rest Describe the type and purpose of construction and describe stream/wetland impact  NTY: _Jackson & Owsley NEAREST COMMUNITY: _Tyner S QUAD NAME: _Sturgeon, Tyner, Maulden_ LATITUDE/LONGITUDE: _37.7342652; -83.900162
COULUSGS	CRIPTION OF CONSTRUCTION: _Reconstruction of KY 30 from Tyner to Travellers Rest Describe the type and purpose of construction and describe stream/wetland impact  NTY: _Jackson & Owsley NEAREST COMMUNITY: _Tyner S QUAD NAME: _Sturgeon, Tyner, Maulden _ LATITUDE/LONGITUDE: _37.7342652; -83.900162  EAM NAME: _Laurel Fk, Herd Fk, Sturgeon Cr, Little Sturgeon Cr _ WATERSHED SIZE (in acres): _9,400

<ul><li>10.</li><li>11.</li></ul>	IS ANY PORTION OF THE REQUESTED PROJECT NOW COMPLETE? Yes x No If yes, identify the completed portion on the drawings you submit and indicate the date activity was completed. DATE:
12.	ESTIMATED END CONSTRUCTION DATE:2019
13.	HAS AN APPLICATION BEEN SUBMITTED TO THE US ARMY, CORPS of ENGINEERS? x Yes No
14.	AN APPLICANT FOR A PERMIT TO CONSTRUCT ACROSS OR ALONG A STREAM <u>MUST</u> ADDRESS
	PUBLIC NOTICE:
	(a) PUBLIC NOTICE HAS BEEN GIVEN FOR THIS PROPOSAL BY THE FOLLOWING MEANS:  Public notice in newspaper having greatest circulation in area (provide newspaper clipping or affidavit)  Adjacent property owner(s) affidavits (Contact Division of Water for requirements.)
	(b) I REQUEST WAIVER OF PUBLIC NOTICE BECAUSE:
	The scope of work only impacts one willing landowner
	Contact Division of Water for requirements.  * PUBLIC NOTICE FOR 401 WATER QUALITY CERTIFICATIONS IS GOVERNED BY 401 KAR 9:010
15.	I HAVE CONTACTED THE FOLLOWING CITY OR COUNTY OFFICIALS CONCERNING THIS PROJECT:
	Give name and title of person(s) contacted and provide copy of any approval city or county may have issued.
16.	LIST OF ATTACHMENTS:Please reference attached application package List plans, profiles, or other drawings and data submitted. Attach a copy of a 7.5 minute USGS
	topographic map clearly showing the project location.
17.	I, (owner) CERTIFY THAT THE OWNER OWNS OR HAS EASEMENT RIGHTS ON ALL PROPERTY ON
	WHICH THIS PROJECT WILL BE LOCATED OR ON WHICH RELATED CONSTRUCTION WILL OCCUR (
	dams, this includes the area that would be impounded during the design flood).
18.	REMARKS:
	I hereby request approval for construction across or along a stream as described in this application and any accompanying documents. To the best of my knowledge, all the information provided is true and correct.
	SIGNATURE:
	Owner or Agent sign here. (If signed by Agent, a Power of Attorney should be attached.)
	DATE:
	SIGNATURE OF LOCAL FLOODPLAIN COORDINATOR:
	Permit application will be returned to applicant if not properly endorsed by the local floodplain coordinator.
	DATE:
	SUBMIT APPLICATION AND ATTACHMENTS TO:

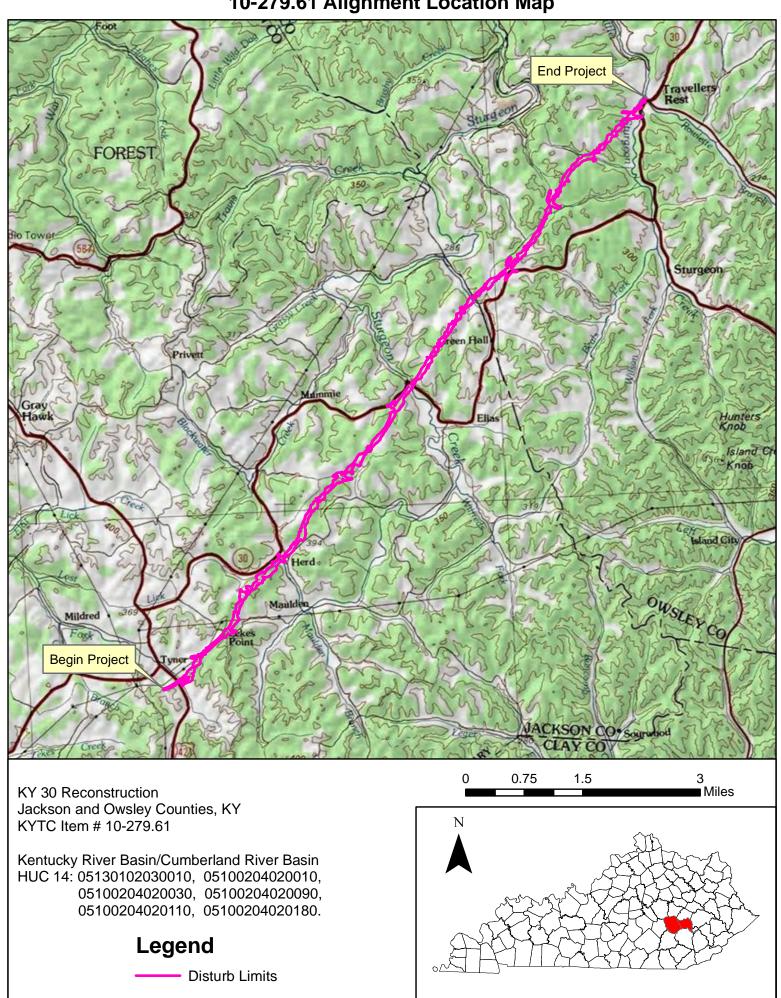
Floodplain Management Section Division of Water 200 Fair Oaks Lane Frankfort, KY 40601

## Maps

10-279.61 Vicinity Map



10-279.61 Alignment Location Map

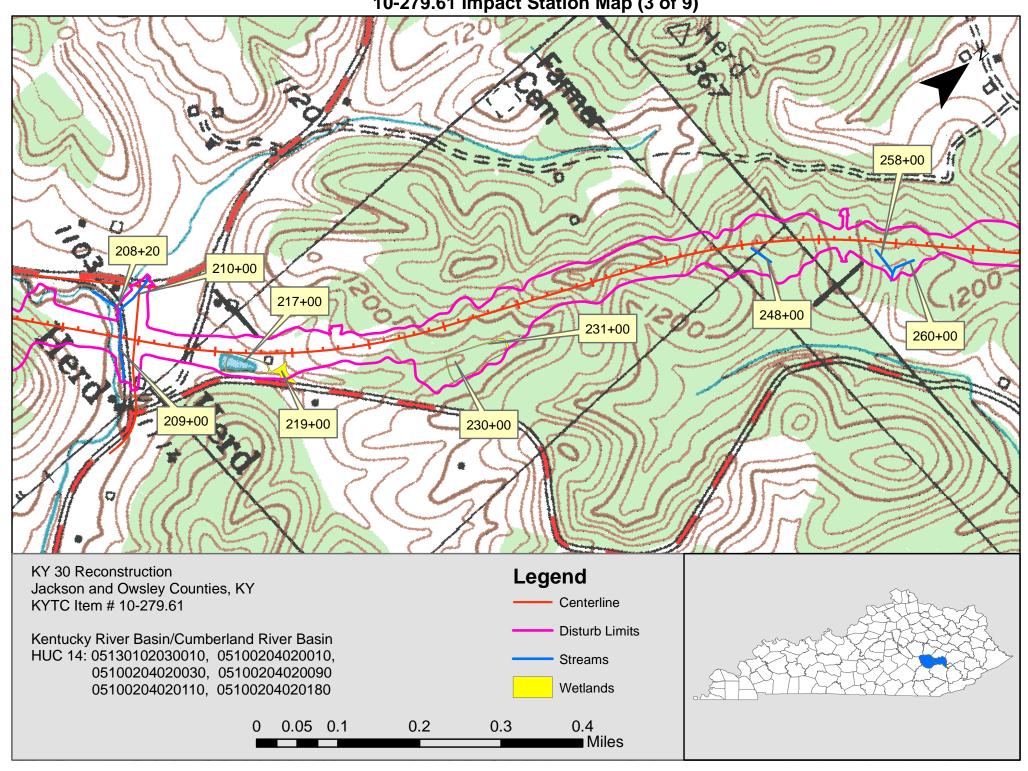


10-279.61 Impact Station Map (1 of 9) 1300 119+00 100+60 105+00 134+00 125+00 100+65 113+55 27 **KY 30 Reconstruction** Legend Jackson and Owsley Counties, KY KYTC Item #10-279.61 Centerline **Disturb Limits** Kentucky River Basin/Cumberland River Basin HUC 14: 05130102030010, 05100204020010, Streams 05100204020030, 05100204020090 Wetlands 05100204020110, 05100204020180 0.4 0.2 0.1

■ Miles

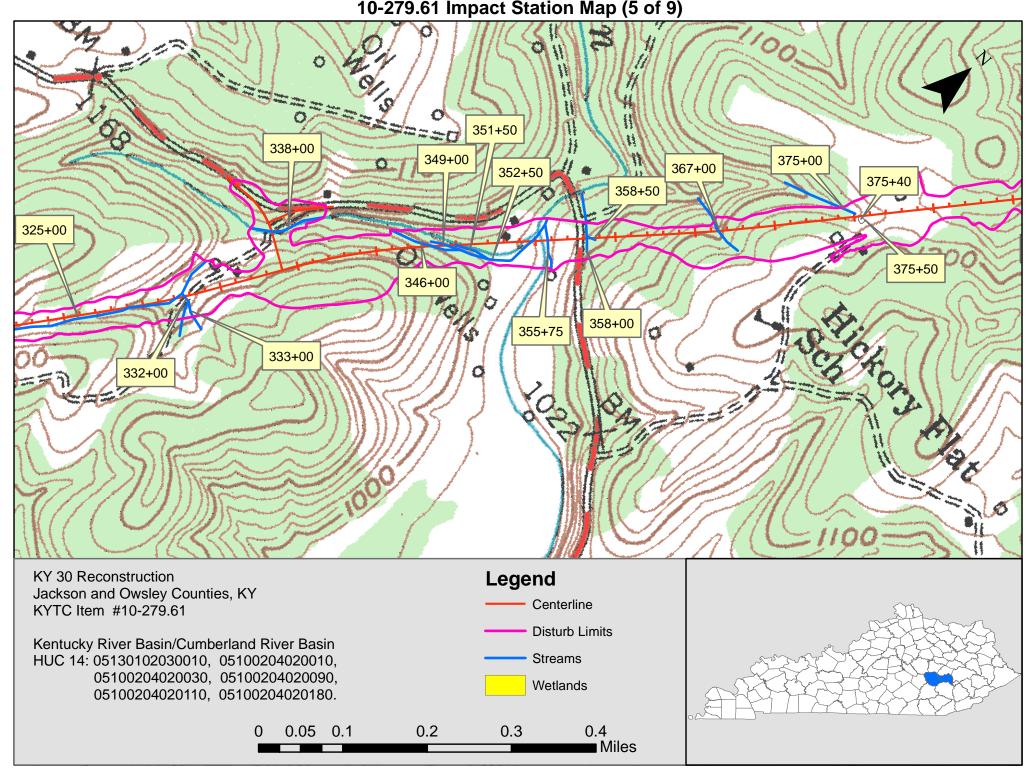
10-279.61 Impact Station Map (2 of 9) 175+00 172+00 174+00 157+50 154+50 190+00 157+75 KY 30 Reconstruction Legend Jackson and Owsley Counties, KY Centerline KYTC Item #10-279.61 **Disturb Limits** Kentucky River Basin/Cumberland River Basin HUC 14: 05130102030010, 05100204020010, **Streams** 05100204020030, 05100204020090, Wetlands 05100204020110, 05100204020180. 0.2 0.3 0.4 0.05 0.1 ■ Miles

10-279.61 Impact Station Map (3 of 9)



10-279.61 Impact Station Map (4 of 9) 274+00 325+00 286+00 275+00 KY 30 Reconstruction Legend Jackson and Owsley Counties, KY KYTC Item #10-279.61 Centerline **Disturb Limits** Kentucky River Basin/Cumberland River Basin HUC 14: 05130102030010, 05100204020010, Streams 05100204020030, 05100204020090 05100204020110, 05100204020180 Wetlands 0.2 0.3 0.05 0.1 ■ Miles

10-279.61 Impact Station Map (5 of 9)

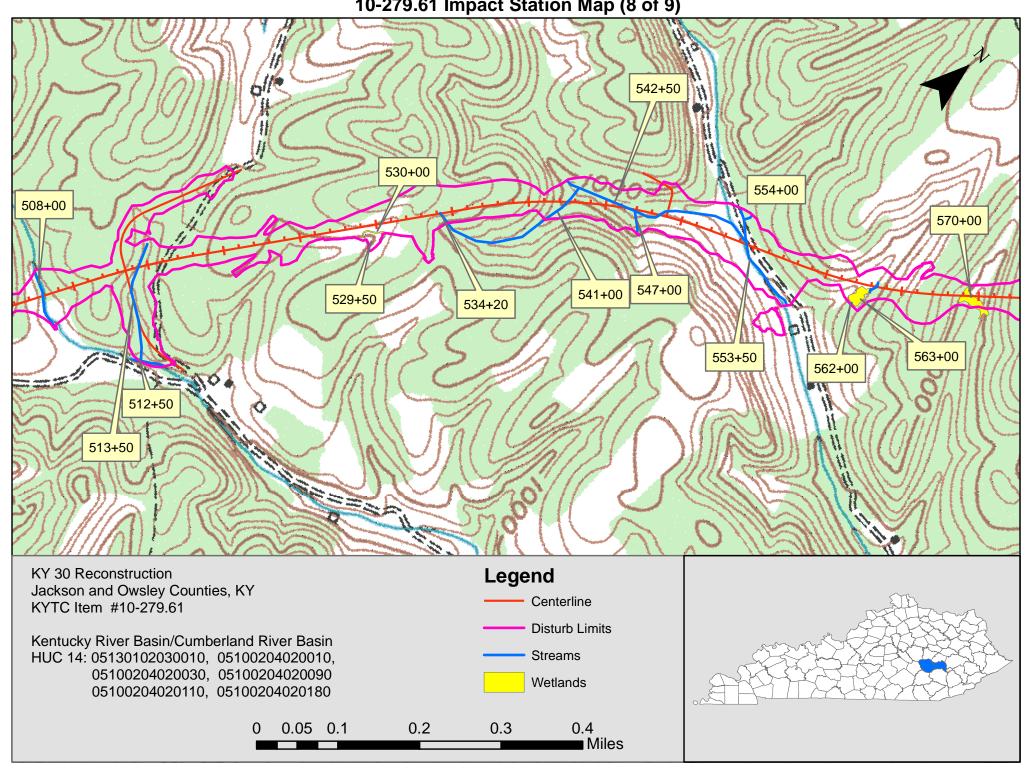


10-279.61 Impact Station Map (6 of 9) 405+50 418+00 442+00 405+00 386+00 394+00 445+00 **KY 30 Reconstruction** Legend Jackson and Owsley Counties, KY KYTC Item # 10-279.61 Centerline **Disturb Limits** Kentucky River Basin/Cumberland River Basin HUC 14: 05130102030010, 05100204020010, Streams 05100204020030, 05100204020090, Wetlands 05100204020110, 05100204020180. 0.2 0.3 0.4 0.05 0.1

■ Miles

10-279.61 Impact Station Map (7 of 9) 489+00 474+00 503+50 490+00 **KY 30 Reconstruction** Legend Jackson and Owsley Counties, KY Centerline KYTC Item #10-279.61 **Disturb Limits** Kentucky River Basin/Cumberland River Basin HUC 14: 05130102030010, 05100204020010, Streams 05100204020030, 05100204020090, Wetlands 05100204020110, 05100204020180. 0.2 0.3 0.4 0.05 0.1 Miles

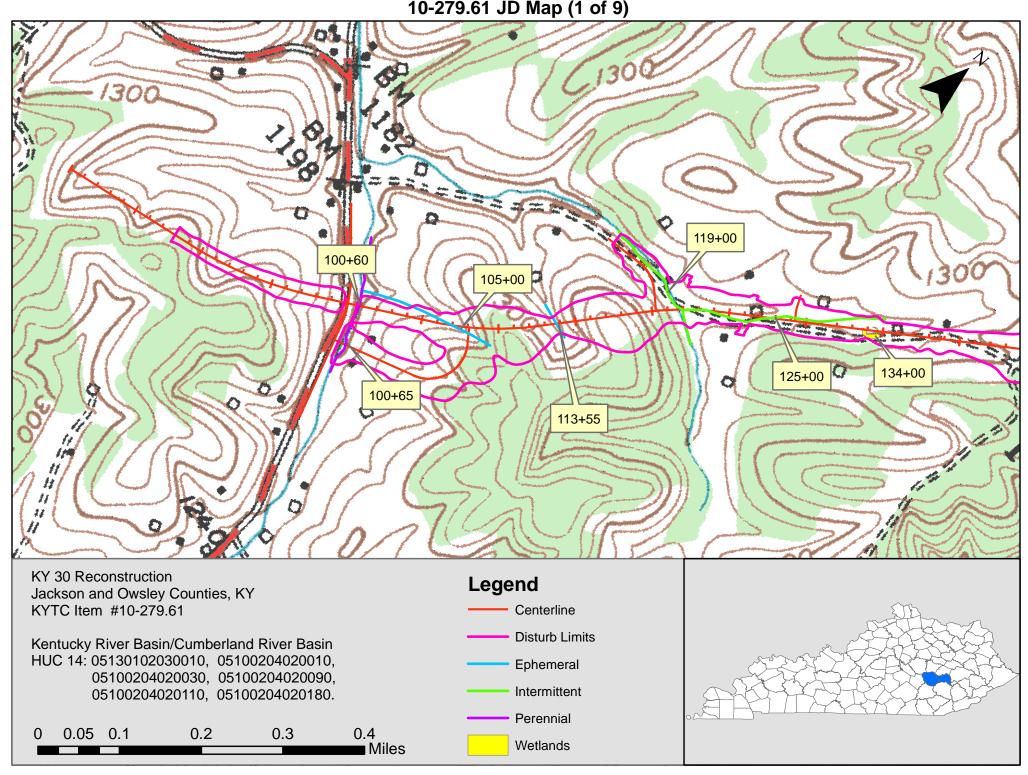
10-279.61 Impact Station Map (8 of 9)

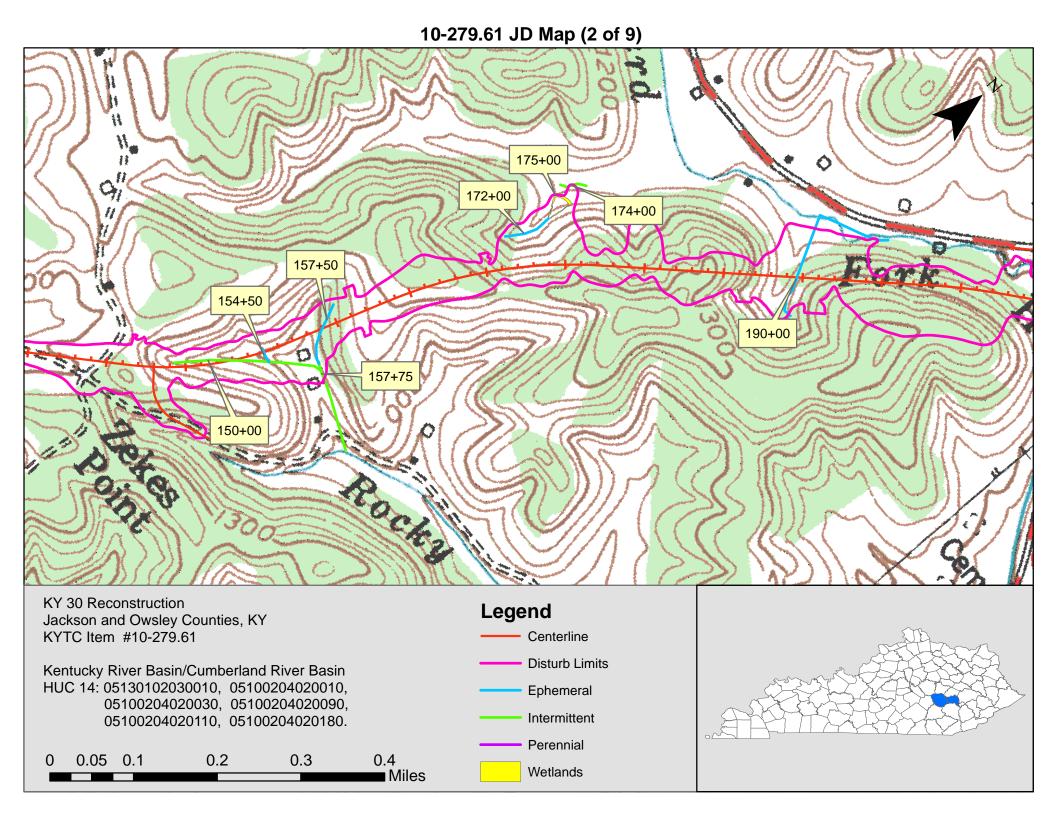


10-279.61 Impact Station Map (9 of 9) 595+70 579+00 595+50 570+00 596+00 587+50 603+50 563+00 600+00 595+00 KY 30 Reconstruction Legend Jackson and Owsley Counties, KY Centerline KYTC Item # 10-279.61 **Disturb Limits** Kentucky River Basin/Cumberland River Basin HUC 14: 05130102030010, 05100204020010, Streams 05100204020030, 05100204020090, Wetlands 05100204020110, 05100204020180. 0.2 0.3 0.4 0.05 0.1

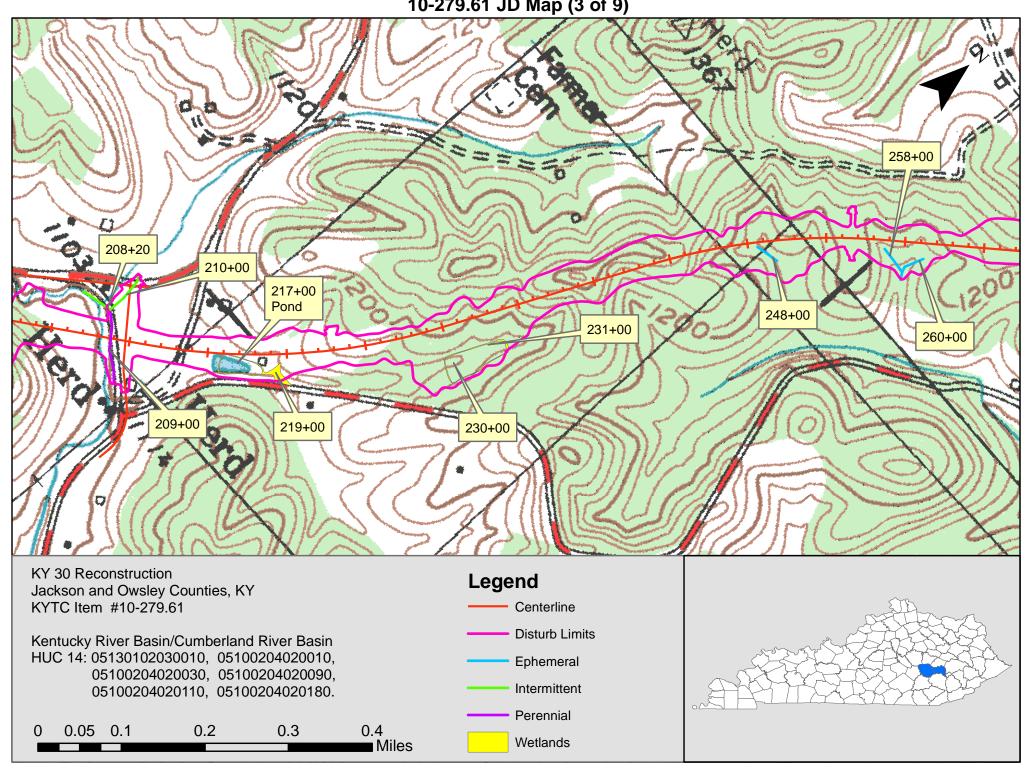
■ Miles

10-279.61 JD Map (1 of 9)

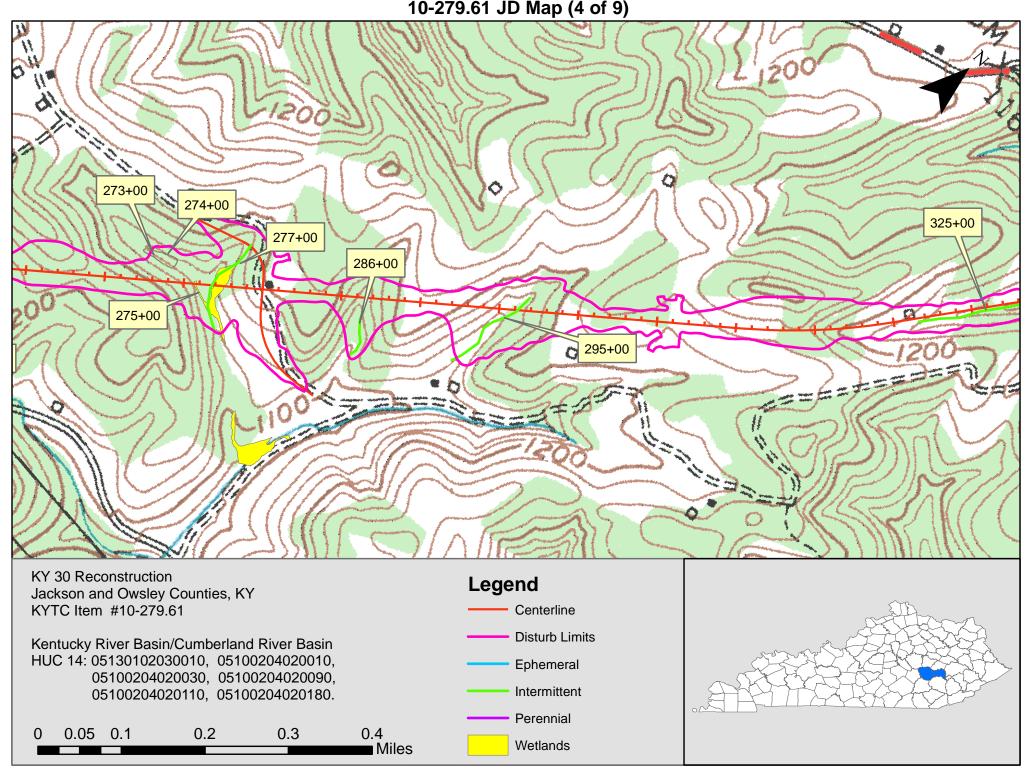




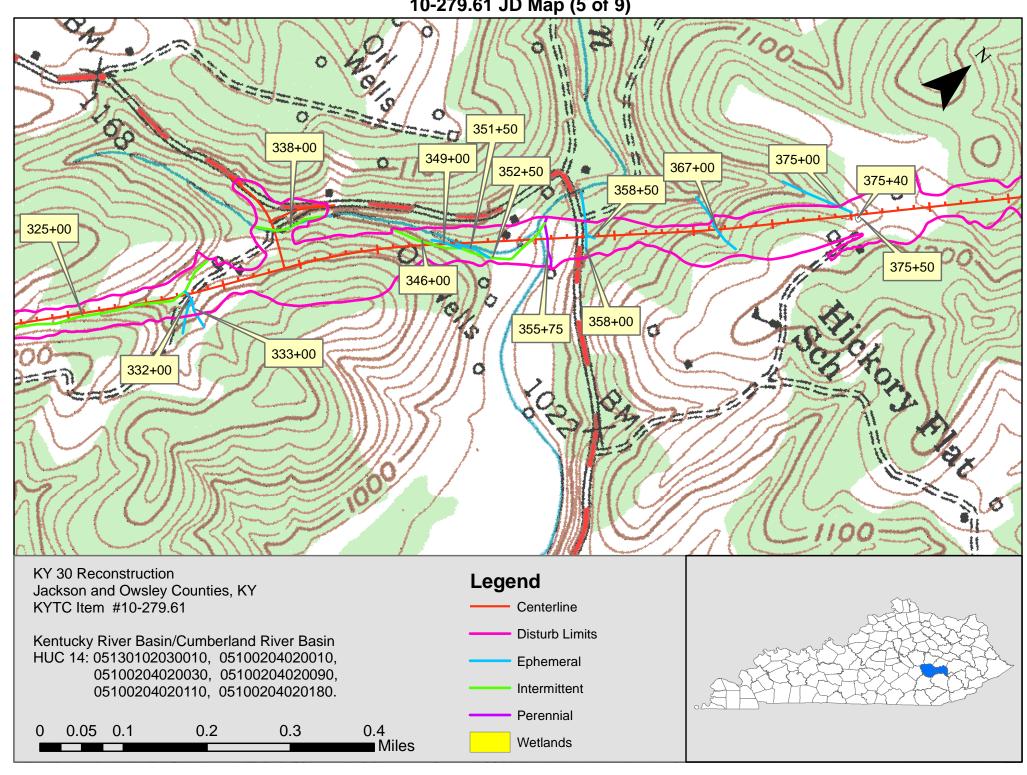
10-279.61 JD Map (3 of 9)

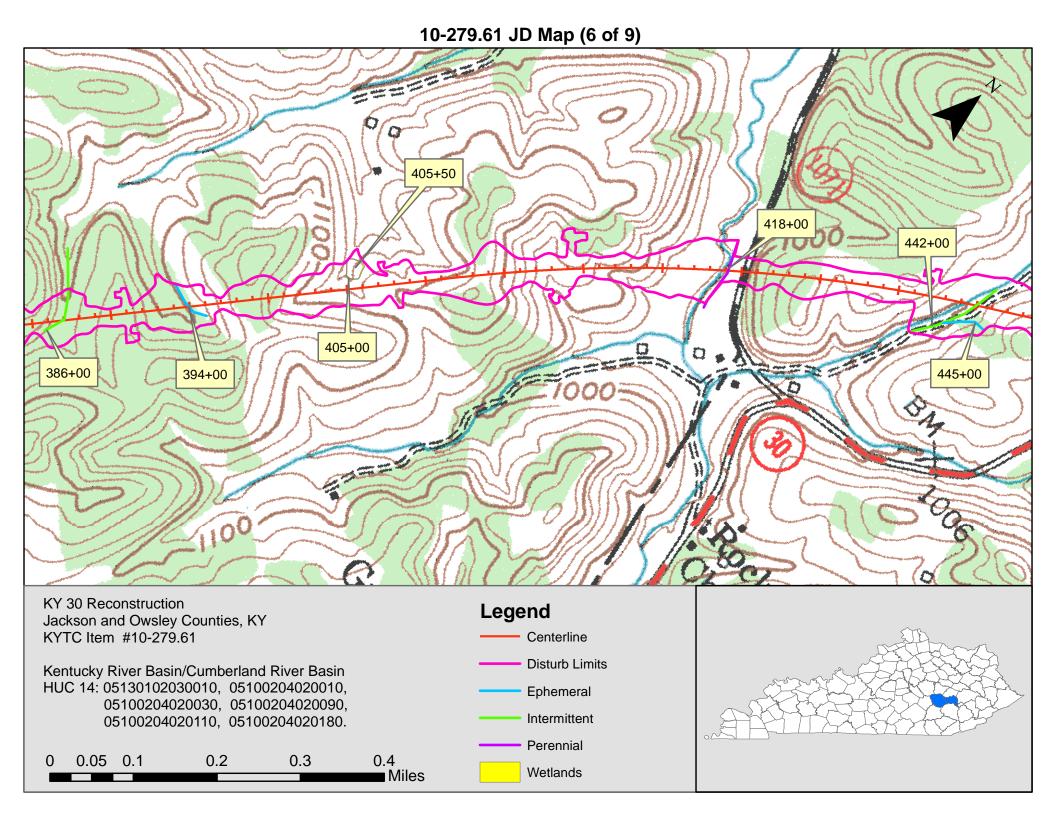


10-279.61 JD Map (4 of 9)

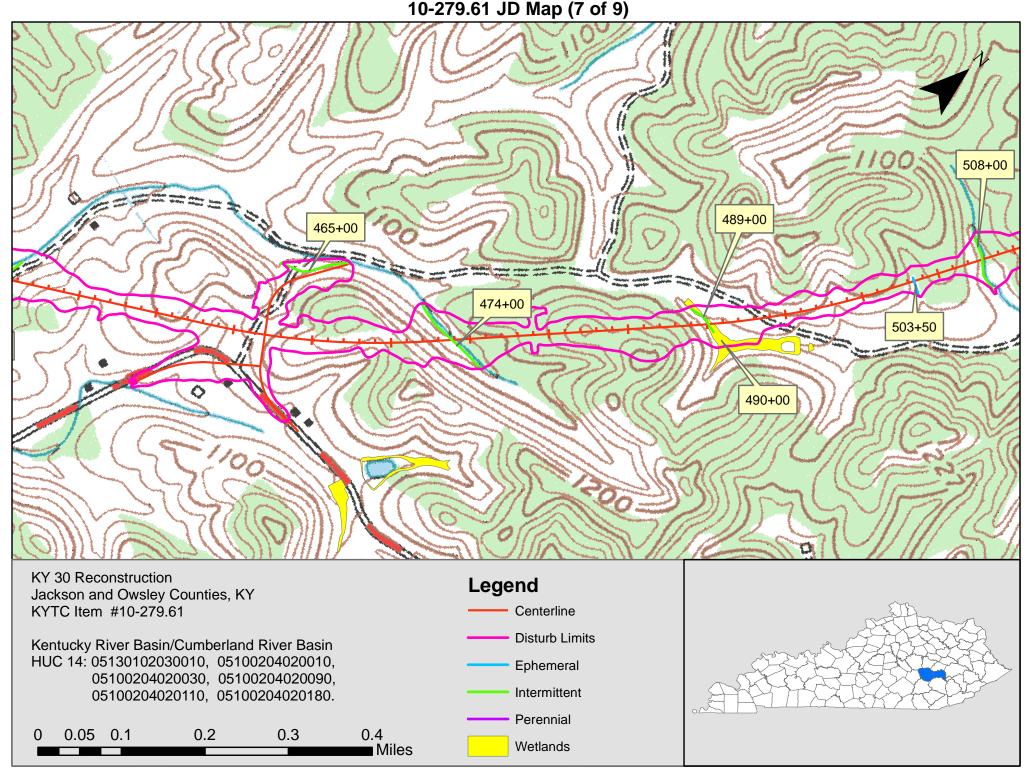


10-279.61 JD Map (5 of 9)

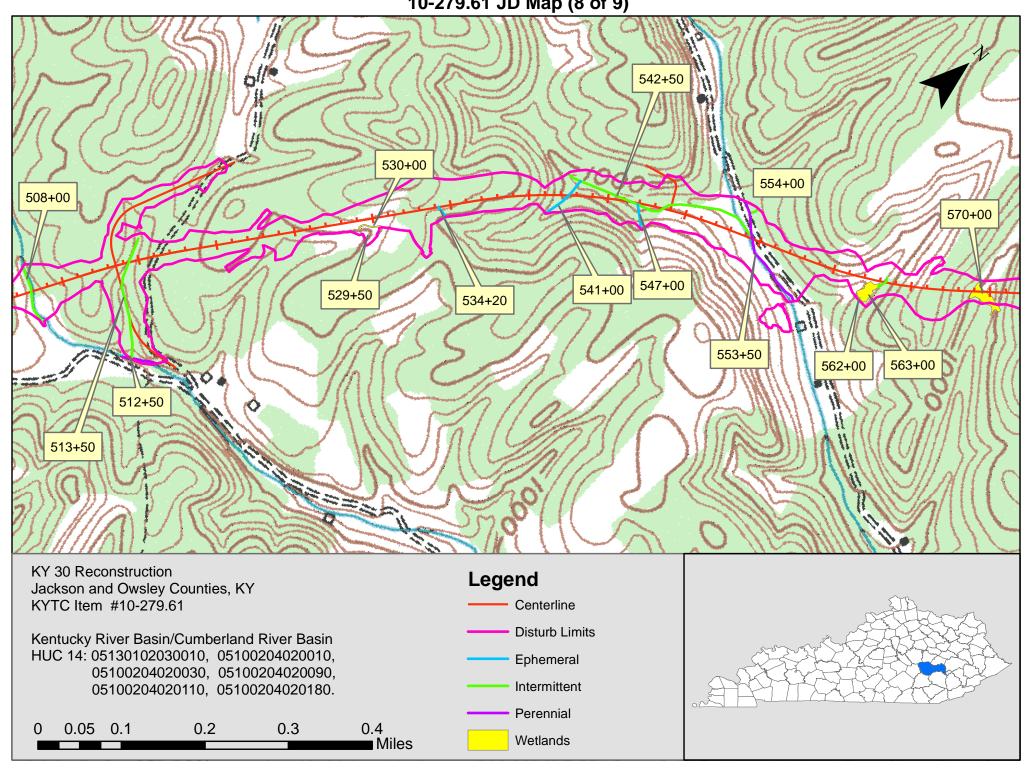




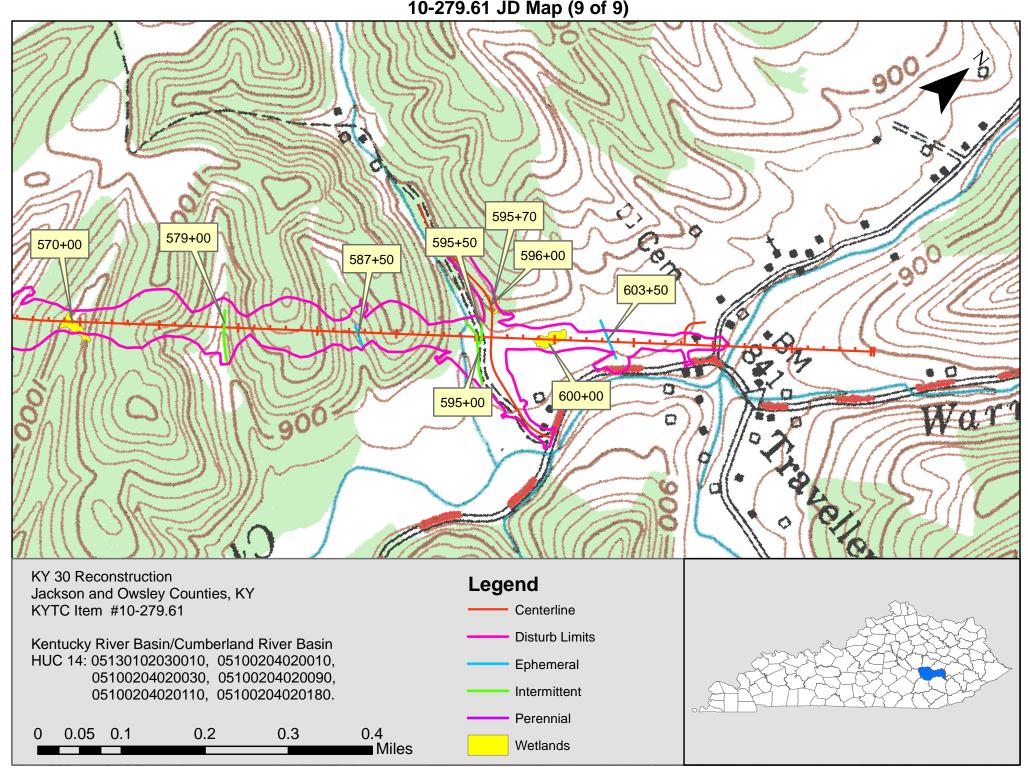
10-279.61 JD Map (7 of 9)



10-279.61 JD Map (8 of 9)



10-279.61 JD Map (9 of 9)



### **Summary of 404 Impacts**

#### **SUMMARY OF SECTION 404/401 IMPACTS**

# Jackson & Owsley Counties KY 30 reconstruction from US 421 at Tyner to KY 847 at Travellers Rest Item No. 10-279.61 LRL-2017-1052

#### Roadway

Crossing 1
Station 100+60

Construct a 240 foot long 2-span bridge. Piers will be set outside the ordinary high water mark and cyclopean rip-rap will be used around the abutment slopes to reduce scour during large flood events. A temporary crossing may be constructed. It will be built to accommodate a 2-year storm event, with excess flow designed to overtop the structure, with the structure remaining intact. A total of **0 feet** of **perennial stream** (Laurel Fork) will be impacted. This impact measures **0 acre**. The drainage area is 402 acres.

Lat./Long.: 37.342652, -83.900162

Crossing 1
Station 100+65

Construct 89 linear feet of 12' X 5' RCBC culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 200 feet. A total of **300 feet** of **perennial stream** (Laurel Fork) will be impacted. This impact measures **0.034 acre**. The drainage area at the culvert is 402 acres.

Lat./Long.: 37.342268, -83.899803

Crossing 1
Station 105+00

Construct 202 linear feet of 2 foot wide (bottom width) channel. A total of **561 feet** of **ephemeral stream** (UT to Laurel Fork) will be impacted. This impact measures **0.013 acre**. The drainage area is 9 acres.

Lat./Long.: 37.343801, -83.898646

Crossing 2
Station 113+55

Construct the new alignment and toe of slope which will fill this stream. A total of **121 feet** of **ephemeral stream** (UT to Laurel Fork) will be impacted. This impact measures **0.006 acre**. The drainage area is 7 acres.

Lat./Long.: 37.345256, -83.896992

Crossing 3
Station 119+00

Construct 463 linear feet of 6 foot wide (bottom width) channel, and 308 linear feet of 6' X 5' RCBC culvert under the road. These will replace an existing 37 foot long, 6' X 5' box culvert under the existing road. A total of **777 feet** of **intermittent stream** (UT to Laurel Fork) will be impacted. This impact measures **0.071 acre**. The drainage area at the culvert is 194 acres.

Lat./Long.: 37.347125, -83.895914

### Crossing 3 Station 125+00

Construct 1,266 linear feet of 2 foot wide (bottom width) channel, and 70 linear feet of 42 inch pipe culvert, and 63 linear feet of 42 inch pipe culvert under the road. These will replace an existing 66 foot long 48" box culvert, a 13 foot long 18" box culvert, and a 19 foot long 18" pipe under the existing road. A total of **1,224 feet** of **intermittent stream** (UT to Laurel Fork) will be impacted. This impact measures **0.056 acre**. The drainage area at the culvert is 59 acres.

Lat./Long.: 37.348418, -83.893765

# Crossing 3 Station 134+00

Construct the new alignment and toe of slope which will fill this wetland. This impact measures **0.092 acres**.

Lat./Long.: 37.349313, -83.892198

### Crossing 4 Station 150+00

Construct 533 linear feet of 2 foot wide (bottom width) channel. A total of **514 feet** of **intermittent stream** (UT to Rocky Branch) will be impacted. This impact measures **0.024 acre**. The drainage area is 16 acres.

Lat./Long.: 37.353729, -83.886931

# Crossing 4 Station 154+50

Construct the new alignment and toe of slope which will fill this stream. A total of **90 feet** of **ephemeral stream** (UT to Rocky Branch) will be impacted. This impact measures **0.003 acre**. The drainage area is 3 acres.

Lat./Long.: 37.353518, -83.887400

# Crossing 4 Station 157+50

Construct 310 linear feet of 30 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 44 feet. A total of **463 feet** of **ephemeral stream** (UT to Rocky Branch) will be impacted. This impact measures **0.011 acre**. The drainage area at the culvert is 12 acres.

Lat./Long.: 37.354480, -83.886972

# Crossing 4 Station 157+75

Construct 162 linear feet of 2 foot wide (bottom width) channel. A total of **118 feet** of **intermittent stream** (UT to Rocky Branch) will be impacted. This impact measures **0.008 acre**. The drainage area is 29 acres.

Lat./Long.: 37.353812, -83.885552

### Crossing 5 Station 172+00

Construct 618 linear feet of 2 foot wide (bottom width) channel. A total of **303 feet** of **ephemeral stream** (UT to Herd Fork) will be impacted. This impact measures **0.007 acre**. The drainage area is 12 acres.

Lat./Long.: 37.358475, -83.885571

### Crossing 5 Station 174+00

Construct the new alignment and toe of slope which will fill this pond (0.235 acre). The pond was constructed by damming an **intermittent** channel that was approximately 1' in width. The total stream estimated to be impounded by this pond is 146 feet. Total stream impact is **146 feet** of **intermittent stream** (UT to Herd Fork). Total stream area impacted is **0.003 acres**. The drainage area is 14 acres.

Lat./Long.: 37.359213, -83.885596

# Crossing 5 Station 175+00

Construct the new alignment and toe of slope which will fill this wetland. This impact measures **0.089** acres.

Lat./Long.: 37.359213, -83.885596

#### Crossing 6 Station 190+00

Construct 516 linear feet of 42 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 20 feet. A total of **593 feet** of **ephemeral stream** (UT to Herd Fork) will be impacted. This impact measures **0.020 acre**. The drainage area at the culvert is 20 acres.

Lat./Long.: 37.361535, -83.881209

# Crossing 7 Station 208+20

Construct 30 linear feet of 2 foot wide (bottom width) channel. A total of **25 feet** of **intermittent stream** (Herd Fork) will be impacted. This impact measures **0.002 acre**. The drainage area is 505 acres.

Lat./Long.: 37.365205, -83.876700

# Crossing 7 Station 209+00

Construct 325 linear feet of 30 foot wide (bottom width) channel, and 155 linear feet of double 14' X 7' RCBC culvert under the road. A total of **505 feet** of **perennial stream** (Herd Fork) will be impacted. This impact measures **0.139 acre**. The drainage area at the culvert is 871 acres.

Lat./Long.: 37.364742, -83.876020

### Crossing 7 Station 210+00

Construct 142 linear feet of 8 foot wide (bottom width) channel, and 132 linear feet of 10' X 5' RCBC culvert under the road. These will replace an existing 24 foot long 5.5' X 3.75' box culvert, and a 42 foot long 48" box culvert under the existing road. A total of **218 feet** of **intermittent stream** (UT to Herd Fork) will be impacted. This impact measures **0.04 acre**. The drainage area at the culvert is 222 acres.

Lat./Long.: 37.365573, -83.876693

### Crossing 8 Station 217+00

Construct the new alignment and toe of slope which will fill this pond (0.606 acre). The pond was constructed by damming an **intermittent** channel that was approximately 3' in width. The total stream estimated to be impounded by this pond is 270 feet. Total stream impact is **270 feet** of **intermittent stream** (UT to Herd Fork). Total stream area impacted is **0.019 acres**. The drainage area is 129 acres.

Lat./Long.: 37.366648, -83.873227

**Crossing 8 Station 219+00**  Construct the new alignment and toe of slope which will fill this wetland.

This impact measures **0.225 acres**.

Lat./Long.: 37.366648, -83.873227

**Crossing 9** 

Station 230+00

Construct the new alignment and toe of slope which will fill this pond (1.202 acre). The pond was constructed by damming an **intermittent** channel that was approximately 3' in width. The total stream estimated to be impounded by this pond is 417 feet. Total stream impact is 417 feet of intermittent stream (UT to Herd Fork). Total stream area impacted is **0.029 acres**. The drainage area is 18 acres.

Lat./Long.: 37.369517, -83.870871

**Crossing 9** Station 231+00 Construct the new alignment and toe of slope which will fill this wetland.

This impact measures **0.147 acres**.

Lat./Long.: 37.369517, -83.870871

**Crossing 10** Station 248+00 Construct 495 linear feet of 2 foot wide (bottom width) channel. A total of **601 feet** of **ephemeral stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.028 acre**. The drainage area is 11 acres.

Lat./Long.: 37.374435, -83.868151

**Crossing 11** Station 258+00

Construct 153 linear feet of 2 foot wide (bottom width) channel, and 237 linear feet of 30 inch pipe culvert under the road. A total of **184 feet** of ephemeral stream (UT to Sturgeon Creek) will be impacted. This impact measures **0.008 acre**. The drainage area at the culvert is 5 acres.

Lat./Long.: 37.376005, -83.866220

**Crossing 11** Station 260+00 Construct 310 linear feet of 24 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 25 feet. A total of **214 feet** of **ephemeral stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.010 acre**. The drainage area at the culvert is 15 acres.

Lat./Long.: 37.376181, -83.865983

**Crossing 12** Station 273+00 Construct the new alignment and toe of slope which will fill this pond (0.228 acre). The pond was constructed by damming an **intermittent** channel that was approximately 11' in width. The total stream estimated to be impounded by this pond is 224 feet. Total stream impact is 224 feet of intermittent stream (UT to Sturgeon Creek). Total stream area impacted is **0.057 acres**. The drainage area is 26 acres.

Lat./Long.: 37.379245, -83.863429

**Crossing 12** Station 274+00 Construct the new alignment and toe of slope which will fill this wetland.

This impact measures **0.052 acres**. Lat./Long.: 37.379191, -83.863335 Crossing 12 Station 275+00 Construct the new alignment and toe of slope which will fill this wetland.

This impact measures **0.563 acres**.

Lat./Long.: 37.379580, -83.862088

**Crossing 12** 

Station 277+00

Construct 562 linear feet of 2 foot wide (bottom width) channel, and 594 linear feet of 54 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 71 feet. A total of **664 feet** of **intermittent stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.168 acre**. The drainage area at the culvert is 45 acres.

Lat./Long.: 37.380158, -83.862287

Crossing 13
Station 286+00

Construct 501 linear feet of 24 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 25 feet. A total of **333 feet** of **intermittent stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.015 acre**. The drainage area at the culvert pipe is 15 acres.

Lat./Long.: 37.380905, -83.859290

Crossing 14
Station 295+00

Construct 764 linear feet of 48 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 69 feet. A total of **936 feet** of **intermittent stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.064 acre**. The drainage area at the culvert pipe is 38 acres.

Lat./Long.: 37.382589, -83.857663

Crossing 15
Station 325+00

Construct 1,330 linear feet of 2 foot wide (bottom width) channel, and 288 linear feet of 42 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 64 feet. A total of **1,535 feet** of **intermittent stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.053 acre**. The drainage area at the culvert is 44 acres.

Lat./Long.: 37.390222, -83.850220

Crossing 15
Station 332+00

Construct 354 linear feet of 2 foot wide (bottom width) channel. A total of **386 feet** of **ephemeral stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.018 acre**. The drainage area is 8 acres.

Lat./Long.: 37.390868, -83.849417

Crossing 15
Station 333+00

Construct the new alignment and toe of slope which will fill this stream. A total of **113 feet** of **ephemeral stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.004 acre**. The drainage area is 5 acres.

Lat./Long.: 37.390931, -83.849289

#### **Crossing 16 Station 338+00**

Construct 306 linear feet of 6' X 6' RCBC culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 60 feet. A total of 381 feet of intermittent **stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.035 acre.** The drainage area at the culvert pipe is 129 acres.

Lat./Long.: 37.392996, -83.849335

#### **Crossing 17** Station 346+00

Construct 974 linear feet of 2 foot wide (bottom width) channel. A total of 415 feet of intermittent stream (UT to Sturgeon Creek) will be impacted. This impact measures **0.057 acre**. The drainage area is 150 acres.

Lat./Long.: 37.394964, -83.846667

#### **Crossing 17** Station 349+00

Construct the new alignment and toe of slope which will fill this stream. A total of 192 feet of ephemeral stream (UT to Sturgeon Creek) will be impacted. This impact measures **0.004 acre**. The drainage area is 5 acres.

Lat./Long.: 37.394975, -83.846829

#### **Crossing 17** Station 351+50

Construct the new alignment and toe of slope which will fill this stream. A total of **227 feet** of **ephemeral stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.005** acre. The drainage area is 5 acres.

Lat./Long.: 37.395272, -83.846337

#### **Crossing 17**

Construct 626 linear feet of 2 foot wide (bottom width) channel. A total Station 352+50 of 703 feet of intermittent stream (UT to Sturgeon Creek) will be impacted. This impact measures **0.032 acre**. The drainage area is 161 acres.

Lat./Long.: 37.396044, -83.845607

#### **Crossing 17 Station 355+75**

Construct a 566 foot long 4-span bridge. Piers will be set outside the ordinary high water mark and cyclopean rip-rap will be used around the abutment slopes to reduce scour during large flood events. A temporary crossing may be constructed. It will be built to accommodate a 2-year storm event, with excess flow designed to overtop the structure, with the structure remaining intact. A total of **0 feet** of **perennial stream** (Sturgeon Creek) will be impacted. This impact measures **0** acre. The drainage area is 9,408 acres.

Lat./Long.: 37.396296, -83.845292

#### Crossing 17 **Station 358+00**

Construct the new alignment and toe of slope which will fill this stream. A total of **48 feet** of **ephemeral stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.002 acre**. The drainage area is 10 acres.

Lat./Long.: 37.396965, -83.844991

Crossing 17
Station 358+50

Construct the new alignment and toe of slope which will fill this stream. A total of **127 feet** of **ephemeral stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.006 acre**. The drainage area is 7 acres.

Lat./Long.: 37.396947, -83.844823

Crossing 18
Station 367+00

Construct 167 linear feet of 2 foot wide (bottom width) channel. A total of **260 feet** of **ephemeral stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.012 acre**. The drainage area at the culvert pipe is 7 acres.

Lat./Long.: 37.398682, -83.843064

Crossing 19
Station 375+00

Construct the new alignment and toe of slope which will fill this stream. A total of **121 feet** of **ephemeral stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.003 acre**. The drainage area is 8 acres.

Lat./Long.: 37.400598, -83.841543

Crossing 19
Station 375+40

Construct the new alignment and toe of slope which will fill this pond (0.037 acre). The pond was constructed by damming an **ephemeral** channel that was approximately 1' in width. The total stream estimated to be impounded by this pond is 55 feet. Total stream impact is **55 feet** of **ephemeral stream** (UT to Sturgeon Creek). Total stream area impacted is **0.001 acres**. The drainage area is 6 acres.

Lat./Long.: 37.400699, -83.841242

Crossing 19
Station 375+50

Construct the new alignment and toe of slope which will fill this wetland. This impact measures **0.010 acres**.

Lat./Long.: 37.400699, -83.841242

Crossing 20 Station 386+00 Construct 346 linear feet of 48 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 20 feet. A total of **420 feet** of **intermittent stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.019 acre**. The drainage area at the culvert pipe is 23 acres.

Lat./Long.: 37.403316, -83.839083

Crossing 21 Station 394+00 Construct 226 linear feet of 2 foot wide (bottom width) channel, and 320 linear feet of 30 inch pipe culvert under the road. A total of **537 feet** of **ephemeral stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.018 acre**. The drainage area at the culvert is 10 acres.

Lat./Long.: 37.404964, -83.837658

Crossing 22 Station 405+00 Construct the new alignment and toe of slope which will fill this wetland. This impact measures **0.049** acres.

Lat./Long.: 37.407722, -83.835586

#### **Crossing 22** Station 405+50

Construct the new alignment and toe of slope which will fill this pond (0.311 acre). The pond was constructed by damming an **ephemeral** channel that was approximately 1.5' in width. The total stream estimated to be impounded by this pond is 153 feet. Total stream impact is 153 feet of ephemeral stream (UT to Sturgeon Creek). Total stream area impacted is **0.005 acres**. The drainage area is 10 acres.

Lat./Long.: 37.407722, -83.835586

#### **Crossing 23** Station 418+00

Construct 193 linear feet of 24 inch pipe culvert and 76 linear feet of 24 inch pipe culvert under the road. The inlet/outlet area of the pipe culverts will have Class II channel lining and will extend an additional 23 feet. A total of **328 feet** of **perennial stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.053 acre**. The drainage area at the culvert pipe is 1,041 acres.

Lat./Long.: 37.411960, -83.830193

#### **Crossing 24** Station 442+00

Construct 610 linear feet of 6' X 6' RCBC culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 114 feet. A total of **745 feet** of **intermittent stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.103 acre**. The drainage area at the culvert pipe is 154 acres.

Lat./Long.: 37.415132, -83.826276

#### **Crossing 24** Station 445+00

Construct 448 linear feet of 2 foot wide (bottom width) channel. A total of **276 feet** of **ephemeral stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.006 acre**. The drainage area is 3 acres.

Construct 410 linear feet of 2 foot wide (bottom width) channel. A total

Lat./Long.: 37.414951, -83.826246

### **Crossing 25**

Station 465+00 of 410 feet of intermittent stream (UT to Sturgeon Creek) will be

impacted. This impact measures **0.019 acre**. The drainage area is 61 acres.

Lat./Long.: 37.419970, -83.821663

#### **Crossing 26** Station 474+00

Construct 505 linear feet of 42 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 65 feet. A total of 619 feet of intermittent **stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.028 acre.** The drainage area at the culvert pipe is 30 acres.

Lat./Long.: 37.420614, -83.818527

Crossing 27
Station 489+00

Construct 272 linear feet of 36 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 20 feet. A total of **182 feet** of **intermittent stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.006 acre**. The drainage area at the culvert pipe is 10 acres. **Lat./Long.: 37.424085, -83.815651** 

Crossing 27
Station 490+00

Construct the new alignment and toe of slope which will fill this wetland. This impact measures **0.483 acres**. Lat./Long.: 37.424100, -83.814946

Crossing 28
Station 503+50

Construct 158 linear feet of 18 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 45 feet. A total of **123 feet** of **ephemeral stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.004 acre**. The drainage area at the culvert pipe is 7 acres. **Lat./Long.: 37.427251, -83.813038** 

Crossing 29
Station 508+00

Construct 314 linear feet of 36 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 95 feet. A total of **553 feet** of **intermittent stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.051 acre**. The drainage area at the culvert pipe is 56 acres. **Lat./Long.: 37.428349, -83.812409** 

Crossing 30 Station 512+50

Construct 27 linear feet of 2 foot wide (bottom width) channel. A total of **28 feet** of **perennial stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.002 acre**. The drainage area is 162 acres.

Lat./Long.: 37.429044, -83.809838

Crossing 30 Station 513+50

Construct 455 linear feet of 2 foot wide (bottom width) channel, 294 linear feet of 24 inch pipe culvert, and 124 linear feet of 24 inch pipe culvert under the road. A total of **754 feet** of **intermittent stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.035 acre**. The drainage area at the culvert is 16 acres.

Lat./Long.: 37.429395, -83.810654

Crossing 31
Station 529+50

Construct the new alignment and toe of slope which will fill this pond (0.251 acre). The pond was constructed by damming an **ephemeral** channel that was approximately 1' in width. The total stream estimated to be impounded by this pond is 119 feet. Total stream impact is **119 feet** of **ephemeral stream** (UT to Little Sturgeon Creek). Total stream area impacted is **0.003 acres**. The drainage area is 4 acres.

Lat./Long.: 37.433508, -83.808810

**Crossing 31** Station 530+00 Construct the new alignment and toe of slope which will fill this wetland.

This impact measures **0.061** acres.

Lat./Long.: 37.433508, -83.808810

**Crossing 32** Station 534+20

Construct the new alignment and toe of slope which will fill this stream. A total of **80 feet** of **ephemeral stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.002 acre**. The drainage area is 12 acres.

Lat./Long.: 37.435460, -83.806516

**Crossing 33** Station 541+00

Construct 252 linear feet of 30 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 31 feet. A total of 354 feet of ephemeral stream (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.012 acre**. The drainage area at the culvert pipe is 14 acres.

Lat./Long.: 37.436621, -83.806409

**Crossing 33** Station 542+50 Construct 990 linear feet of 2 foot wide (bottom width) channel, and 165 linear feet of 36 inch pipe culvert under the road. These will replace an existing 19 foot long 36 inch pipe culvert and an existing 60 foot long 36" pipe under the existing road. A total of **1,237 feet** of **intermittent** stream (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.085** acre. The drainage area at the culvert is 79 acres.

Lat./Long.: 37.437990, -83.804493

**Crossing 33** Station 547+00

Construct 54 linear feet of 2 foot wide (bottom width) channel. A total of 180 feet of ephemeral stream (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.004 acre**. The drainage area is 5 acres.

Lat./Long.: 37.437204, -83.804983

Crossing 33 Station 553+50 Construct 603 linear feet of 8' X 7' RCBC culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 70 feet. A total of **765 feet** of **perennial** stream (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.140** acre. The drainage area at the culvert pipe is 297 acres. Lat./Long.: 37.438294, -83.802565

**Crossing 33** Station 554+00

Construct the new alignment and toe of slope which will fill this stream. A total of **85 feet** of **intermittent stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures 0.006 acre. The drainage area is 37 acres.

Lat./Long.: 37.438773, -83.803438

Crossing 34
Station 562+00

Construct 287 linear feet of 24 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 30 feet. A total of **347 feet** of **intermittent stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.008 acre**. The drainage area at the culvert pipe is 17 acres. **Lat./Long.: 37.439597, -83.800425** 

Crossing 34
Station 563+00

Construct the new alignment and toe of slope which will fill this wetland. This impact measures **0.208 acres**.

Lat./Long.: 37.439266, -83.800536

Crossing 35
Station 570+00

Construct the new alignment and toe of slope which will fill this wetland.

This impact measures **0.227 acres**. Lat./Long.: 37.440779, -83.798727

Crossing 36
Station 579+00

Construct 321 linear feet of 30 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 101 feet. A total of **339 feet** of **intermittent stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.012 acre**. The drainage area at the culvert pipe is 22 acres.

Lat./Long.: 37.442588, -83.796396

Crossing 37
Station 587+50

Construct 119 linear feet of 24 inch pipe culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 10 feet. A total of **155 feet** of **ephemeral stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.005 acre**. The drainage area at the culvert pipe is 12 acres. **Lat./Long.: 37.444444**, **-83.794641** 

Crossing 38
Station 595+00

Construct 337 linear feet of 8' X 6' RCBC culvert under the road. The inlet/outlet area of the pipe culvert will have Class II channel lining and will extend an additional 164 feet. These will replace an existing 34 foot long, 48" pipe under the existing road. A total of **467 feet** of **intermittent stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.032 acre**. The drainage area at the culvert is 182 acres.

Lat./Long.: 37.445716, -83.792514

Crossing 38
Station 595+50

Construct the new alignment and toe of slope which will fill this stream. A total of **249 feet** of **intermittent stream** (UT to Sturgeon Creek) will be impacted. This impact measures **0.017 acre**. The drainage area is 5 acres.

Lat./Long.: 37.446075, -83.792857

Crossing 38
Station 595+70

Construct the new alignment and toe of slope which will fill this wetland. This impact measures **0.062** acres.

Lat./Long.: 37.446453, -83.793091

Crossing 38
Station 596+00

Construct the new alignment and toe of slope which will fill this pond (0.082 acre). The pond was constructed by damming an **ephemeral** channel that was approximately 1' in width. The total stream estimated to be impounded by this pond is 28 feet. Total stream impact is **28 feet** of **intermittent stream** (UT to Little Sturgeon Creek). Total stream area impacted is **0.001 acres**. The drainage area is 3 acres.

Lat./Long.: 37.446453, -83.793091

Crossing 39
Station 600+00

Construct the new alignment and toe of slope which will fill this wetland. This impact measures **0.317 acres**.

Lat./Long.: 37.446845, -83.791683

Crossing 40 Station 603+50 Construct the new alignment and toe of slope which will fill this stream. A total of **115 feet** of **ephemeral stream** (UT to Little Sturgeon Creek) will be impacted. This impact measures **0.003 acre**. The drainage area is 11 acres.

Lat./Long.: 37.447615, -83.790933

### **Table 1: Stream & Wetland Impacts**

TABLE 1: Stream and Wetland Impacts - KY 30 reconstruction; Jackson & Owsley Cos.; Item No. 10-279.61; LRL-2017-1052

Crossing	Station	Name	River Basin	HUC 14	Latitude/ Longitude	Stream Type	Impact Type	Length of Impact (ft)	Stream Width (ft)	Acreage of Impact (ac)	Cubic Yards	Drainage Area (ac)	RBP score	Spec. Cond.	EII Score	Riffle/Pool Complex	EIUs Impacted
			Upper Cumberland														
	100+60	Laurel Fork	River	05130102-030-010	37.342652; -83.900162	perennial	bridge	0	5	0.000	0	402	115	840	0.18	No	
1	400.05		Upper Cumberland						-			400					
	100+65	Laurel Fork	River	05130102-030-010	37.342268; -83.899803	perennial	culvert	300	5	0.034	44	402	115	840	0.18	No	54
	105+00	UT Laurel Fork	Upper Cumberland River	05130102-030-010	37.343801; -83.898646	ephemeral	channel change	561	1	0.013	10	9	77	224	0.44	No	
2	113+55	UT Laurel Fork	Upper Cumberland River	05130102-030-010	37.345256; -83.896992	ephemeral	fill	121	2	0.006	3	7	82	224	0.44	No	
			Upper Cumberland				culvert & channel										
	119+00	UT Laurel Fork	River	05130102-030-010	37.347125; -83.895914	intermittent	change culvert &	777	4	0.071	58	194	117	224	0.53	No	411.81
3	125+00	UT Laurel Fork	Upper Cumberland River	05130102-030-010	37.348418; -83.893765	intermittent	channel change	1224	2	0.056	45	59	75	335	0.29	No	354.96
	134+00	wetland	Upper Cumberland River	05130102-030-010	37.349313; -83.892198	NA	fill	NA	NA	0.092	73	NA	NA	NA	NA	No	
	150+00	UT Rocky Branch	Upper Kentucky River	05100204-020-010	37.353729; -83.886931	intermittent	channel	514	2	0.032	11	16	86	88.7	0.55	No	282.7
-	154+50	UT Rocky Branch	Upper Kentucky River	05100204-020-010	37.353518; -83.887400	ephemeral	fill	90	1.5	0.003	1	3	80	88.7	0.55	No	202.7
4	157+50	UT Rocky Branch	Upper Kentucky River	05100204-020-010	37.354480; -83.886972	ephemeral	culvert	463	1.5	0.003	3	12	95	88.7	0.55	No	
	157+75	UT Rocky Branch	Upper Kentucky River	05100204-020-010	37.353812; -83.885552	intermittent	channel	118	3	0.008	7	29	91	88.7	0.55	No	64.9
			Upper Kentucky				channel										04.5
5	172+00 174+00	UT Herd Fork Pond/UT Herd Fork	River Upper Kentucky	05100204-020-010 05100204-020-010	37.358475; -83.885571 37.359213; -83.885596	ephemeral	change	303 146	1	0.007 pond-0.235; stream- 0.003	1	12	84 84	88.7 88.7	0.55	No No	
	175+00	wetland	River Upper Kentucky River	05100204-020-010	37.359213; -83.885596	intermittent	change	NA	NA NA	0.089	70	NA NA	NA	NA	NA	No	
6	190+00	UT Herd Fork	Upper Kentucky River	05100204-020-010	37.361535; -83.881209		culvert										
			Upper Kentucky		·	ephemeral	channel	593	1.5	0.020	10	20	62	169	0.52	No	40.5
	208+20	Herd Fork	River	05100204-020-010	37.365205; -83.876700	intermittent	change culvert &	25	3	0.002	1	505	75	160	0.54	No	13.5
7	209+00	Herd Fork	Upper Kentucky River	05100204-020-010	37.364742; -83.876020	perennial	channel change	505	12	0.139	224	871	114	160	0.61	No	308.05
	210+00	UT Herd Fork	Upper Kentucky River	05100204-020-010	37.365573; -83.876693	intermittent	culvert & channel change	218	8	0.040	32	222	83	160	0.54	No	117.72
8	217+00	Pond/UT Herd Fork	Upper Kentucky River	05100204-020-010	37.366648; -83.873227	intermittent	fill	270	3	pond-0.606; stream- 0.019	15	129	91	88.7	0.55	No	148.5
	219+00	wetland	Upper Kentucky River	05100204-020-010	37.366648; -83.873227	NA	fill	NA	NA	0.225	177	NA	NA	NA	NA	No	
9	230+00	Pond/UT Herd Fork	Upper Kentucky River	05100204-020-010	37.369517; -83.870871	intermittent	fill	417	3	pond-1.202; stream - 0.029	23	18	91	88.7	0.55	No	229.35
3	231+00	wetland	Upper Kentucky River	05100204-020-010	37.369517; -83.870871	NA	fill	NA	NA	0.147	113	NA	NA	NA	NA	No	
10	248+00	UT Sturgeon Creek	Upper Kentucky River	05100204-020-030	37.374435; -83.868151	ephemeral	channel change	601	2	0.028	9	11	68	125	0.55	No	
		_	Upper Kentucky	_			culvert & channel			_						_	_
11	258+00	UT Sturgeon Creek		05100204-020-030	37.376005; -83.866220	ephemeral	change	184	2	0.008	4	5	57	125	0.55	No	
	260+00	UT Sturgeon Creek Pond/UT Sturgeon	River	05100204-020-030	37.376181; -83.865983	ephemeral	culvert	214	2	0.010 pond-0.228;	5	15	58	125	0.55	No	
	273+00	Creek	River Upper Kentucky	05100204-020-030	37.379245; -83.863429	intermittent	fill	224	11	stream- 0.057	18	26	62	125	0.55	No	123.2
12	274+00	wetland	River Upper Kentucky	05100204-020-030	37.379191; -83.863335	NA	fill	NA	NA	0.052	40	NA	NA	NA	NA	No	
	275+00	wetland	River	05100204-020-030	37.379580; -83.862088	NA	fill culvert &	NA	NA	0.563	452	NA	NA	NA	NA	No	
	277+00	UT Sturgeon Creek		05100204-020-030	37.380158; -83.862287	intermittent	channel change	664	11	0.168	54	45	62	125	0.55	No	365.2
13	286+00	UT Sturgeon Creek	Upper Kentucky River	05100204-020-030	37.380905; -83.859290	intermittent	culvert	333	2	0.015	7	15	97	32.1	0.55	No	183.15
14	295+00	UT Sturgeon Creek	Upper Kentucky River	05100204-020-030	37.382589; -83.857663	intermittent	culvert	936	3	0.064	73	38	86	26.6	0.55	No	514.8

Crossing	Station	Name	River Basin	HUC 14	Latitude/ Longitude	Stream Type	Impact Type	Length of Impact (ft)	Stream Width (ft)	Acreage of Impact (ac)	Cubic Yards	Drainage Area (ac)	RBP score	Spec. Cond.	EII Score	Riffle/Pool Complex	EIUs Impacted
	325+00	UT Sturgeon Creek	Upper Kentucky River	05100204-020-050	37.390222; -83.850220	intermittent	culvert & channel change	1,535	1.5	0.053	26	44	94	149	0.55	No	844.25
15	332+00	UT Sturgeon Creek	Upper Kentucky River	05100204-020-050	37.390868; -83.849417	ephemeral	channel change	386	2	0.018	9	8	83	149	0.55	No	
			Upper Kentucky														
16	333+00	UT Sturgeon Creek	River Upper Kentucky	05100204-020-050	37.390931; -83.849289	ephemeral	fill	113	2	0.004	2	5	76	149	0.55	No	
10	338+00	UT Sturgeon Creek	River Upper Kentucky	05100204-020-050	37.392996; -83.849335	intermittent	culvert channel	381	4	0.035	56	129	101	140	0.56	No	213.36
	346+00	UT Sturgeon Creek	River Upper Kentucky	05100204-020-050	37.394964; -83.846667	intermittent	change	415	6	0.057	92	150	125	149	0.68	No	282.2
	349+00	UT Sturgeon Creek	River	05100204-020-050	37.394975; -83.846829	ephemeral	fill	192	1	0.004	2	5	75	149	0.55	No	
	351+50	UT Sturgeon Creek	Upper Kentucky River	05100204-020-050	37.395272; -83.846337	ephemeral	fill	227	1	0.005	3	5	92	149	0.55	No	
17	352+50	UT Sturgeon Creek	Upper Kentucky River	05100204-020-050	37.396044; -83.845607	intermittent	channel change	703	2	0.032	26	161	108	149	0.59	No	414.77
	355+75	Sturgeon Creek	Upper Kentucky River	05100204-020-050	37.396296; -83.845292	perennial	bridge	0	18	0.000	0	9,408	133	100	0.72	No	
	358+00	UT Sturgeon Creek	Upper Kentucky River	05100204-020-050	37.396965; -83.844991	ephemeral	fill	48	1.5	0.002	1	10	51	100	0.55	No	
	358+50	UT Sturgeon Creek	Upper Kentucky River	05100204-020-050	37.396947; -83.844823	ephemeral	fill	127	2	0.006	3	7	49	100	0.55	No	1
18	367+00	UT Sturgeon Creek	Upper Kentucky River	05100204-020-050	37.398682; -83.843064	ephemeral	channel change	260	2	0.012	6	7	92	100	0.55	No	
			Upper Kentucky						_			-					
19	375+00	UT Sturgeon Creek Pond/UT Sturgeon	River Upper Kentucky	05100204-020-050	37.400598; -83.841543	ephemeral	fill	121	1	0.003 pond-0.037;	1	8	70	100	0.55	No	
	375+40	Creek	River Upper Kentucky	05100204-020-050	37.400699; -83.841242	ephemeral	fill	55	1	stream- 0.001	1	6	70	100	0.55	No	
	375+50	wetland	River Upper Kentucky	05100204-020-050	37.400699; -83.841242	NA	fill	NA	NA	0.010	16	NA	NA	NA	NA	No	
20	386+00	UT Sturgeon Creek	River	05100204-020-090	37.403316; -83.839083	intermittent	culvert culvert &	420	2	0.019	9	23	97	29.4	0.55	No	231
21	394+00	UT Sturgeon Creek	Upper Kentucky River	05100204-020-090	37.404964; -83.837658	ephemeral	channel change	537	1.5	0.018	6	10	80	29.4	0.55	No	
22	405+00	wetland	Upper Kentucky River	05100204-020-090	37.407722; -83.835586	NA	fill	NA	NA	0.049	79	NA	NA	NA	NA	No	ļ
22	405+50	Pond/UT Sturgeon Creek	Upper Kentucky River	05100204-020-090	37.407722; -83.835586	ephemeral	fill	153	1.5	pond-0.311; stream- 0.005	2	10	80	29.4	0.55	No	
23	418+00	UT Sturgeon Creek	Upper Kentucky River	05100204-020-090	37.411960; -83.830193	perennial	culverts	328	7	0.053	85	1041	101	197	0.49	No	160.72
	442+00	UT Sturgeon Creek	Upper Kentucky River	05100204-020-090	37.415132; -83.826276	intermittent	culvert	745	6	0.103	166	154	127	209	0.6	No	447
24	445+00	UT Sturgeon Creek	Upper Kentucky River	05100204-020-090	37.414951; -83.826246		channel change	276	1	0.006	1	3	57	209	0.47	No	<del></del>
25			Upper Kentucky			ephemeral	channel										
26	465+00	UT Sturgeon Creek	River Upper Kentucky	05100204-020-090	37.419970; -83.821663	intermittent	change	410	2	0.019	9	61	54	382	0.23	No	94.3
25	474+00	UT Sturgeon Creek UT Little Sturgeon	River Upper Kentucky	05100204-020-090	37.420614; -83.818527	intermittent	culvert	619	2	0.028	23	30	88	640	0.1	No	61.9
27	489+00	Creek	River Upper Kentucky	05100204-020-180	37.424085; -83.815651	intermittent	culvert	182	1.5	0.006	3	10	65	576	0.1	No	18.2
	490+00	wetland UT Little Sturgeon	River Upper Kentucky	05100204-020-180	37.424100; -83.814946	NA	fill	NA	NA	0.483	387	NA	NA	NA	NA	No	
28	503+50	Creek	River	05100204-020-180	37.427251; -83.813038	ephemeral	culvert	123	1.5	0.004	2	7	82	56.9	0.55	No	
29	508+00	UT Little Sturgeon Creek	Upper Kentucky River	05100204-020-180	37.428349; -83.812409	intermittent	culvert	553	4	0.051	41	56	88	444	0.16	No	88.48
	512+50	UT Little Sturgeon Creek	Upper Kentucky River	05100204-020-180	37.429044; -83.809838	perennial	channel change	28	3	0.002	2	162	112	324	0.36	No	10.08
30		UT Little Sturgeon	Upper Kentucky				culverts & channel										·
	513+50	Creek Pond/UT Little	River Upper Kentucky	05100204-020-180	37.429395; -83.810654	intermittent	change	754	2	0.035 pond-0.251;	17	16	110	56.9	0.6	No	452.4
31	529+50	Sturgeon Creek	River Upper Kentucky	05100204-020-180	37.433508; -83.808810	ephemeral	fill	119	1	stream- 0.003	1	4	53	33.5	0.55	No	
	530+00	wetland UT Little Sturgeon	River	05100204-020-180	37.433508; -83.808810	NA	fill	NA	NA	0.061	48	NA	NA	NA	NA	No	
32	534+20	Creek UT Little Sturgeon	River	05100204-020-180	37.435460; -83.806516	ephemeral	fill	80	1	0.002	1	12	53	33.5	0.55	No	
	541+00	UT Little Sturgeon Creek	Upper Kentucky River	05100204-020-180	37.436621; -83.806409	ephemeral	culvert	354	1.5	0.012	6	14	108	33.5	0.59	No	
		UT Little Sturgeon					culvert & channel				_	_			_		
33	542+50	Creek UT Little Sturgeon	River Upper Kentucky	05100204-020-180	37.437990; -83.804493	intermittent	change channel	1237	3	0.085	69	79	96	52.7	0.55	No	680.35
	547+00	Creek UT Little Sturgeon		05100204-020-180	37.437204; -83.804983	ephemeral	change	180	1	0.004	1	5	70	33.5	0.55	No	
	553+50	Creek UT Little Sturgeon	River	05100204-020-180	37.438294; -83.802565	perennial	culvert	765	8	0.140	340	297	120	98.7	0.65	No	497.25
	554+00	Creek	River	05100204-020-180	37.438773; -83.803438	intermittent	fill	85	3	0.006	8	37	110	172	0.57	No	48.45

Crossing	Station	Name	River Basin	HUC 14	Latitude/ Longitude	Stream Type	Impact Type	Length of Impact (ft)	Stream Width (ft)	Acreage of Impact (ac)	Cubic Yards	Drainage Area (ac)	RBP score	Spec. Cond.	EII Score	Riffle/Pool Complex	EIUs Impacted
34	562+00	UT Little Sturgeon Creek	Upper Kentucky River	05100204-020-180	37.439597; -83.800425	intermittent	culvert	347	1	0.008	1	17	65	262	0.39	No	135.33
	563+00	wetland	Upper Kentucky River	05100204-020-180	37.439266; -83.800536	NA	fill	NA	NA	0.208	161	NA	NA	NA	NA	No	
35	570+00	wetland	Upper Kentucky River	05100204-020-180	37.440779; -83.798727	NA	fill	NA	NA	0.227	177	NA	NA	NA	NA	No	
36	579+00	UT Little Sturgeon Creek	Upper Kentucky River	05100204-020-180	37.442588; -83.796396	intermittent	culvert	339	1.5	0.012	6	22	90	262	0.39	No	132.21
37	587+50	UT Little Sturgeon Creek	Upper Kentucky River	05100204-020-180	37.444444; -83.794641	ephemeral	culvert	155	1.5	0.005	1	12	68	452	0.15	No	
	595+00	UT Little Sturgeon Creek	Upper Kentucky River	05100204-020-180	37.445716; -83.792514	intermittent	culvert	467	3	0.032	42	182	82	174	0.52	No	242.84
38	595+50	UT Sturgeon Creek	Upper Kentucky River	05100204-020-180	37.446075; -83.792857	intermittent	fill	249	3	0.017	8	5	98	216	0.46	No	114.54
36	595+70	wetland	Upper Kentucky River	05100204-020-180	37.446453; -83.793091	NA	fill	NA	NA	0.062	48	NA	NA	NA	NA	No	
	596+00	Pond/UT Little Sturgeon Creek	Upper Kentucky River	05100204-020-180	37.446453; -83.793091	intermittent	fill	28	1	pond-0.082; stream-0.001	1	3	46	216	0.46	No	12.88
39	600+00	wetland	Upper Kentucky River	05100204-020-180	37.446845; -83.791683	NA	fill	NA	NA	0.317	258	NA	NA	NA	NA	No	
40	603+50	UT Little Sturgeon Creek	Upper Kentucky River	05100204-020-180	37.447615; -83.790933	ephemeral	fill	115	1	0.003	1	11	46	216	0.46	No	
							TOTALS	24012		4.332	3,840						8354
								TOTAL WETLAND ACREAGE		2.585							

#### Mitigation for Impacts to Waters of U.S.

#### **Total EIUs and AMUs**

The total EIUs from all impacts is 8,007 and total AMUs is 5.2.

#### **Streams**

Table 1 lists all stream impacts, and the computed impact EIUs. Total impacted stream EIUs are 8,354. KYTC proposes to mitigate these stream impacts by in-lieu fee.

#### Wetlands

A total of 2.6 acres (5.2 AMU's) of wetland will be impacted by the project (see Table 1). KYTC proposes to mitigate these wetland impacts by payment of in-lieu fee.

### **Photographs**

#### PHOTOS OF IMPACTED STREAMS AND WETLANDS

#### Roadway:

Sta. 100+60, Perennial, RBP Score 115, Sp. Cond. 840, Ell 0.18



Sta. 100+65, Perennial, RBP Score 115, Sp. Cond. 840, EII 0.18



Sta. 105+00, Ephemeral, RBP Score 77, Sp. Cond. 224, Ell 0.44



Sta. 113+55, Ephemeral, RBP Score 82, Sp. Cond. 224, Ell 0.44



Sta. 119+00, Intermittent, RBP Score 117, Sp. Cond. 224, EII 0.53



Sta. 125+00, Intermittent, RBP Score 75, Sp. Cond. 335, EII 0.29





Sta. 150+00, Intermittent, RBP Score 86, Sp. Cond. 88.7, EII 0.55





Sta. 157+50, Ephemeral, RBP Score 95, Sp. Cond. 88.7, Ell 0.55



Sta. 157+75, Intermittent, RBP Score 91, Sp. Cond. 88.7, EII 0.55



Sta. 172+00, Ephemeral, RBP Score 84, Sp. Cond. 88.7, Ell 0.55



Sta. 174+00, Intermittent, RBP Score 84, Sp. Cond. 88.7, EII 0.55



Sta. 175+00, wetland



Sta. 190+00, Ephemeral, RBP Score 62, Sp. Cond. 169, EII 0.52



Sta. 208+20, Intermittent, RBP Score 75, Sp. Cond. 160, EII 0.54





Sta. 210+00, Intermittent, RBP Score 83, Sp. Cond. 160, EII 0.54



Sta. 217+00, Intermittent, RBP Score 91, Sp. Cond. 88.7, EII 0.55



Sta. 219+00, wetland





Sta. 231+00, wetland



Sta. 248+00, Ephemeral, RBP Score 68, Sp. Cond. 125, EII 0.55



Sta. 258+00, Ephemeral, RBP Score 57, Sp. Cond. 125, EII 0.55





Sta. 273+00, Intermittent, RBP Score 62, Sp. Cond. 125, EII 0.55



#### Sta. 274+00, wetland



Sta. 275+00, wetland





Sta. 286+00, Intermittent, RBP Score 97, Sp. Cond. 32.1, EII 0.55





Sta. 325+00, Intermittent, RBP Score 94, Sp. Cond. 149, EII 0.55



Sta. 332+00, Ephemeral, RBP Score 83, Sp. Cond. 149, EII 0.55



Sta. 333+00, Ephemeral, RBP Score 76, Sp. Cond. 149, EII 0.55





Sta. 346+00, Intermittent, RBP Score 125, Sp. Cond. 149, EII 0.68





Sta. 351+50, Ephemeral, RBP Score 92, Sp. Cond. 149, EII 0.55





Sta. 355+75, Perennial, RBP Score 133, Sp. Cond. 100, Ell 0.72





Sta. 358+50, Ephemeral, RBP Score 49, Sp. Cond. 100, Ell 0.55



Sta. 367+00, Ephemeral, RBP Score 92, Sp. Cond. 100, EII 0.55



Sta. 375+00, Ephemeral, RBP Score 70, Sp. Cond. 100, Ell 0.55



Sta. 375+40, Ephemeral, RBP Score 70, Sp. Cond. 100, EII 0.55



Sta. 375+50, wetland





Sta. 394+00, Ephemeral, RBP Score 80, Sp. Cond. 29.4, Ell 0.55





Sta. 405+50, Ephemeral, RBP Score 80, Sp. Cond. 29.4, Ell 0.55





Sta. 442+00, Intermittent, RBP Score 127, Sp. Cond. 209, Ell 0.6





Sta. 465+00, Intermittent, RBP Score 54, Sp. Cond. 382, EII 0.23





Sta. 489+00, Intermittent, RBP Score 65, Sp. Cond. 576, EII 0.1



### Sta. 490+00, wetland



Sta. 503+50, Ephemeral, RBP Score 82, Sp. Cond. 56.9, Ell 0.55





Sta. 512+50, Perennial, RBP Score 112, Sp. Cond. 324, Ell 0.36





Sta. 529+50, Ephemeral, RBP Score 53, Sp. Cond. 33.5, Ell 0.55



#### Sta. 530+00, wetland



Sta. 534+20, Ephemeral, RBP Score 53, Sp. Cond. 33.5, Ell 0.55





Sta. 542+50, Intermittent, RBP Score 96, Sp. Cond. 52.7, EII 0.55





Sta. 553+50, Perennial, RBP Score 120, Sp. Cond. 98.7, Ell 0.65





Sta. 562+00, Intermittent, RBP Score 65, Sp. Cond. 262, EII 0.39



## Sta. 563+00, wetland



Sta. 570+00, wetland





Sta. 587+50, Ephemeral, RBP Score 68, Sp. Cond. 452, EII 0.15



Sta. 595+00, Intermittent, RBP Score 82, Sp. Cond. 174, EII 0.52



Sta. 595+50, Intermittent, RBP Score 96, Sp. Cond. 216, EII 0.46



## Sta. 595+70, wetland



Sta. 596+00, Intermittent, RBP Score 46, Sp. Cond. 216, EII 0.46



### Sta. 600+00, wetland



Sta. 603+50, Ephemeral, RBP Score 46, Sp. Cond. 216, Ell 0.46



# **RBP Habitat Assessment Field Data Sheets**

STREAM NAME S	7	LOCATION Z	730	Jackse	m Owslee
STATION #RIVER	RMILE	STREAM CLASS	(PER INT	EPH )	
LAB7.392652 LONG	83.900162	RIVER BASIN	1100	ser Cus	uberland
STATION# 100+604	100+65	AGENCY	T	KYTC	
INVESTIGATORS					
FORM COMPLETED BY	ELS	DATE 4-75-7 TIME 1:36	7 AM (SV) R	EASON FOR SURV	EY.

Habitat		Condition	Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
l. Epifaunal Substrate Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and lish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transfent).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40%, mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 0 6	5 4 3 2 1 0	
2. 15mbeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by tine sediment.	Gravel, cobble, and boulder particles are me than 75% surrounded by fine sediment	
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 (	
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is = 0.3 m/s, deep is = 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).	
SCORE	20 19 18 17 16	15 (4) 13 12 11	10 9 8 7 6	5 4 3 2 1	
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased by development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.	
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1	
5. Channel Flow Status (Bars must be covered to score high bankfull)	Process of the control of the contro	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% not the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool	
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1	

3 Dominant Trees:					
Bankfull Depth:	9"	Bankfull Width:	5'	Bankfull Area:	
Max. Wetted Depth:	211	Avg. Wetted Depth:	Spec	cific Conductivity: 840	Temp: 70.29

Habitat		Conditi	on Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. C'hannel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORL	20 19 18 17 16	15 14 13 12 (11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional rifle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	.5 4 3 2: 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of crosion mostly healed over, 5-30% of bank in reach has areas of crosion	Moderately unstable: 30-60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable: many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crosional sears.
SCORE(LB)	Left Bank 10 9	8 7 /67	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9, Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs; or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not welf-represented; disruption evident but not affecting full plant growth potentiat to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambant vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORF(LB)	Left Bank 10 9	(8) 7. 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8, 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone 18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due to human activities,
SCORE(LB)	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	

Total Score 115 Along led, has convert

STREAM NAME 561	LOCATION KY 30 Tadeson Owsle
STATION #RIVERMILE	STREAM CLASS ( PER INT EPH)
LA 137.343801 LONG 83.898646	RIVERBASIN Upper, Cumbrepland
STATION# 105+00	AGENCY KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE REASON FOR SURVEY

Habitat		Condition	Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
I. Epithunal Substrate/ Available Cover	Greater than 70% and substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat: habitat availability less than desimble; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 (6)	5 4 3 2 1 0	
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Grayel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are me than 75% surrounded by fine sediment.	
SCORE.	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 1	
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is < 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5/4321	
4. Sediment Deposition  Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.		Some new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased by development; more that 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1	
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1/	

3 Dominant Trees:			-
Bankfull Depth:6	Bankfull Width:	Bankfull Area:	
Max. Wetted Depth:	Avg. Wetted Depth:	Specific Conductivity (224) Temp:	

	Habitat			Conditio	n Catego	ory.				
	Parameter	Optimal	Subopti	mal		Margi	nal	1	Poor	
	6. Channel Alteration	Channelization or dredging absent or minimal, stream with normal pattern.	Some channelization, dredging, (great past 20 yr) may present, but recochannelization in present, but recochannelization in present.	in areas ents: i.e., eer than be	or shor present and 40	ve; emb ring struc t on both to 80% hanneliz	banks; of stream	or ceme the strea channel disrupte	ent: over im reach ized and ed. Instr greatly :	l ream altered or
	SCORE	20 19 18 17 16	15 (1) 13	12 11	10	9 8	7 6	5 4	3 2	1 0
	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream =7/1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of risinfrequent; distabetween riffles of the width of the between 7 to 15	nce livided by stream is	bottom some has between the wid	contour abitat; di n riffles	divided by stream is	shallow	riffles; p distance ivided b the stre	between
	SCORE	20 19 18 17 16	15 14 13	12 11	(10)	9 8	7 6	5 4	3 2	1 0
	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable: evidence of crossion or bank failure absent or minimal: little potential for future problems, \$5\%, of bank affected.	Moderately stable; infrequent, small areas of crosion mostly healed over. 5-30% of bank in reach has areas of crosion.		Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.		Unstable: many eroded areas; "raw" areas frequent along straight sections and bends: obvious bank sloughing 60-100% of bank has erosional sears.		as traight ds: oughing;	
1	SCORE(LB)	Left Bank 10 9	8 7	6	5	4	3	2	1	0
	SCORE(RB)	Right Bank 10 9	8 7	(6)	5	4	3	2	1	0
	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes, vegetative disruption through grazing or moving minimal or not evident, almost all plants allowed to grow naturally.	70-90% of the streambank surficeovered by native vegetation, but of plants is not we represented; disrevident but not a full plant growth to any great external one-half of potential plant stheight remaining	e ne class rell- uption ffecting potential nt; more he ubble	disruption patches closely common half of a	ank surf by vege on obvic of bare s cropped i: less th he poten	tation; ous; soil or vegetation an one-	Less that streambis covered/ disruption vegetation vegetation removed 5 centime average s	tnk surfl by vege on of stro n is ver n has bo to eters or	aces tation; cambank y high; cen
1	SCORE(LB)	Left Bank 10 9	8 7	(6)	5	4	3	2	_ I	0
	SCORE(RB)	Right Bank 10 9	8 7	6	5	4	3	2	i	0
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of ripariar 12-18 meters; hu activities have in zone only minim	man pacted	Width of 12 meter activities zone a g	rs: huma s have in	npacted	Width of meters: li riparian v human ac	ttle or n egetatic	o on due to
	SCORE(LB)	Left Bank 10 9	8 7	6	5	(3	3	2	(I-	0
1	SCORE (RB)	Right Bank 10 9	8 7	6	5	(4	3	2	1	0

Total Score 77

use all form

STREAM NAME	260	LOCATION KY 30 Jackson/Ows
STATION #	RIVERMILE	STREAM CLASS ( PER INT (EPH))
LA137.3452	6LONG-83.896	992 RIVERBASIN Uppen Cumberland
STATION# 11	3+55	AGENCY KYTC
INVESTIGATORS	7 4 3	
FORM COMPLETED	ELS ELS	DATE 9-25-17 REASON FOR SURVEY

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat: habitat availability less than desirable: substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0				
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% asurrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
3. Velocity Depth Regime (At Bankfull)	All four velocity depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is = 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(3) 4 3 2 1 0				
4: Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars: 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased by development; more than 50% of the bottom changing frequently, pools almost absent due substantial sediment deposition.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(3 4 3 2 1 0				
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water tills >75% of the available channel; or 25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1(				

3 Dominant Trees:	les	Maple Tulip	Poplar	Sychonor	
Bankfull Depth:	3"	Bankfull Width:		Bankfull Area:	
Max. Wetted Depth:	-	Avg. Wetted Depth:	Spe	ecific Conductivity: $(224)_{Te}$	emp:

Habitat		Conditio	n Category			
Parameter	Optimal	Suboptimal	Marginal	Poor		
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabie or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.		
SCORE.	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream 17:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 13 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of ">25.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable: infrequent, small areas of crosion mostly healed over, 5-30% of bank in reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60-100% of bank has crosional scars.		
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0		
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes, vegetative disruption through grazing or mowing minimator not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centumeters or less in average stubble height.		
SCORE(LB)	Left Bank 10 9	8 6 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 /1/ 6	5 4 3	2 1 0		
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters: human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone of meters: little or no riparian vegetation due to human activities:		
SCORE(LB)	Left Bank 10 9	8 7 6	(5) 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 (7) 6				

Total Score 82 From Lallow into good

STREAM NAME 556	ì	LOCATION K9 3	O Jukson/Owsles
STATION #RIVER	MILE	STREAM CLASS ( PER A	
LA37.347/25 LONG	33.895914	RIVER BASIN /	non Cumberlang
STATION# 119toc		AGENCY	KYTC
INVESTIGATORS			*
FORM COMPLETED BY	ELS	DATE 4-25-17 TIME 1.05 AM (EX	REASON FOR SURVEY

Habitat	Condition Category									
Parameter	Optimal	Suboptimal	Marginal	Poor						
I. Epifaunal Substrate/ Available Cover  Available Cover  Substrate/ Available Cover  Substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).		40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).  20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.		Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.						
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0						
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.						
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1						
3, Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocit depth regime (usually slow-deep).						
SCORE	20 19 18 17 16	15 14 13 12 11	0 9 8 7 6	5 4 3 2 1						
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.						
SCORE:	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1						
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing poo						
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1						

3 Dominant Trees: _	Kel	Maple White	OUL		
Bankfull Depth:	611	Bankfull Width:	41	Bankfull Area:	
Max. Wetted Depth:	-6º	Avg. Wetted Depth:	I Speci	fic Conductivity:	224 Temp: <u>66</u>

Habitat			Co	ndition	Category	1-				
Parameter	Optimal	Sub	optimal			Aargina	1) -		Poor	
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some cham present, ust of bridge al evidence of chamelizat dredging, (a past 20 yr) present, but chamelizat present.	pally in a putments past ion, i.e., greater the may be recent	nreus E nan	Channeli, extensive or shorin present o and 40 to reach cha disrupted	zation m; emban g structu n both b 80% of nnelized	nay be kments ures anks; stream	Banks shoor cemen the stream channeliz disrupted habitat gr removed	t; over 8 n reach ed and . Instre eatly al	am tered or
SCORE	20 19 18 17 16	15 (4)	13 12	11	10 9	8	7 6	5 4	3 2	1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream \$7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence infrequent; between rif the width o between 7 t	distance fles dividently of the street of th	ded by	Occasion bottom co some hab between the width between	ontours poitat; dist riffles di rof the s	provide ance vided by tream is	Generally shallow r habitat; d riffles div width of ratio of	iffles; p istance ided by the stree	oor between the
SCORE	20 19 18 17 16	15 14	(13) 12	11	10 9	8	7 6	5 4	3 2	1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.		Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.			Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional sears.			
SCORE(LB)	Left Bank 10 9	8	7	6	5	4	3	2	1	0
SCORE(RB)	Right Bank 10 9	8	7 (	6	5	4	3	2	i	0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.		50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.		ation: us; pil or regetation in one- ial plant maining.	Less that streamba covered l disruptio vegetatio removed 5 centime average s	nk surfi by veget n of stre n is ver n has be to to eters or stubble l	ices ation; eamban y high; een less in neight.	
SCORE(LB)	Left Bank 10 9	8	7	(6)	5	4	3	2	1	0
SCORE(RB)	Right Bank 10 9	8	7	6	5	4	3	2	1	0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.		12 meter activities zone a g	s; huma have in	ipacted	Width of meters: It riparian human a	ittle or r vegetati	io on due t	
SCORE(LB)	Left Bank 10 9	8	(3)	6	5	4	3	2	1	0
and the second s	Right Bank 10 9	8	(7)		5	_		2		

STREAMNAME 558	LOCATION KY 30	Tuckson Owslee
STATION #RIVERMILE	STREAM CLASS ( PER IN	
LAB 7.348418 LONG 83.893765	RIVERBASIN Unne	Cumberland !
STATION# 125 +00	AGENCY	KYTC
INVESTIGATORS		
FORM COMPLETED BY	DATE 4-75-17 TIME 12:55 AM (N)	REASON FOR SURVEY

Habitat	Condition Category								
Parameter	Optimal	Suboptimal	Marginal	Poor					
F. Epifaunal substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and		40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).		Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 (6)	5 4 3 2 1 (					
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by line sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6)4321					
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is < 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow- are missing, score low).	Dominated by I velocit depth regime (usually slow-deep).					
SCORE	20 19 18 17 16	15 14 13 12 11	0 9 8 7 6	5 4 3 2 1					
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased by development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1					
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing poo					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(3) 4 3 2 1					

3 Dominant Trees: _	Map	(				
Bankfull Depth:	6"	Bankfull Width:	2'	Bankfull Area: _		
Max. Wetted Depth	:_ 2"	Avg. Wetted Depth:	Speci	fic Conductivity:	335 Tem	p: 66.

Habitat		Condition	n Category			
Parameter	Optimal	Suboptimal	Marginal	Poor		
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0		
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend: bottom contours provide some habitat: distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 (		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of crosion mostly healed over. 5-30% of bank in reach has areas of crosion	Moderately unstable; 30-60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crosional sears.		
SCORE(LB)	Left Bank 10 9	8 7 67	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0		
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potentia to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.		
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0		
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due human activities.		
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0		
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 /3	2 1 0		

Total Score \_\_ 75 Prainage from neighborhood

STREAM NAME 555	LOCATION KY 30 Tadeson/Chosts
STATION#RIVERMILE	STREAM CLASS ( PER INT (EPH )
LA37.353729 LONG83.88693/	RIVERBASIN Umes Kentucky
STATION# 150+00	AGENCY KYTC (
INVESTIGATORS	
FORM COMPLETED BY	DATE 1-25-17 REASON FOR SURVEY TIME 12:75 AM P)

Habitat	Condition Category						
Parameter	Optimal	Suboptimal	Marginal	Poor			
1. Epifaunal Substrate/ Available Cover	epifaunal colonization and full colonization potential		20-40% mix of stable habitat; habitat ayailability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.			
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0			
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and houlder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0			
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 1, 6	5 4 3 2 1 0			
to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or rifle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1/1			

3 Dominant Trees:	Mujo	0/6			
Bankfull Depth:	7"	Bankfull Width:	21	Bankfull Area:	
Max. Wetted Depth:	~	Avg. Wetted Depth:	Spe	cific Conductivity: (84.7) Tem	p:

Habitat		Condit	on Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
Alteration dredging absent or minimal; stream with normal pattern. present, usually in areas of bridge abutments; evidence of past channelization, i.e., extensive; embrace of present on both and 40 to 80%		Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabior or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly aftered or removed entirely.		
SCORE	20 19 18 17 16		10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided I the width of the stream i between 7 to 15.		Generally all flat water of shallow riffles; poor habitat; distance between fiffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 13 12 (	) 10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.  Moderately stable; infrequent, small areas of crosion mostly healed over, 5-30% of bank in reach has areas of crosion,		areas of erosion; high erosion potential during	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional scars.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption-evident but not affecting full plant growth potent to any great extent; mor than one-half of the potential plant stubble height remaining.	patches of bare soil or closely cropped vegetation common: less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 7 6	5) 4 3	2 1 0	
And the second second second second second		8 7 6	/5/ 4 3		

Total Score 86

STREAM NAME 556	LOCATION KY 30 Fadepon Ows Ose
STATION #RIVERMILE	STREAM CLASS ( PER INT LPH)
LAB7.353518 LONG83887400	RIVERBASIN Unner Kentucky
STATION# 154+50	AGENCY KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-12-77 REASON FOR SURVEY

Habitat	Condition Category						
Parameter	Optimal	Suboptimal	Marginal	Poor			
f. Epifaunal Substrate/ Available Cover	<ul> <li>e/ epifaunal colonization and full colonization potentia</li> </ul>		20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.			
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0			
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	boulder particles are 0- 25% surrounded by fine 50%	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5) 4 3 2 1 (			
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6 4 3 2 1 (			
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased by development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	( 4 3 2 1 0			
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water tills >7.5% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or rifle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1/			

3 Dominant Trees:	Poplar,	MAPLE		
Bankfull Depth:	4	Bankfull Width:	1.5	Bankfull Area:
Max. Wetted Depth:	- 10	Avg. Wetted Depth:	~	Specific Conductivity: (88.7) Temp:

Habitat				
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Channelization or dredging absent or minimal; stream with normal pattern.  Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not		Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	present.  15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of crosion mostly healed over. 5-30% of bank in- reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional sears.
SCORE(LB)	Left Bank 10 9	8 7 6	<b>3</b> 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	6, 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potentia to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambanl vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due thuman activities.
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 80 Core Willing and power line trent or

A-8

STREAM NAME 557	LOCATION KY 30 Jackson Owd
STATION#RIVERMILE	STREAM CLASS ( PER INT (EPEY )
LAT37.354480 LONG \$3,886977	- RIVERBASIN / ROBER / Centucky
STATION# 157750	AGENCY / KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 4-25-17 TIME 12:00 AM (5)  REASON FOR SURVEY  LOC

Habitat	Condition Category					
Parameter	Optimal	Suboptimal	Marginal	Poor		
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	G 4 3 2 1 0		
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6) 4 3 2 1 (		
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of lin- material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (		
5. Channel Flow Status (Bars must be covered to score high bankfull)	And the second of the second o	Water tills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool-		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1/		

3 Dominant Trees:	Maple	Poplar	
Bankfull Depth:	3,1	Bankfull Width:	Bankfull Area:
Max. Wetted Depth:	-	Avg. Wetted Depth:	Specific Conductivity: 88.7)Temp:

Habitat		Condition	Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	edging absent or present, usually in areas extensive; embankments or inimal; stream with of bridge abutments; or shoring structures		
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important,	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15,	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.  Moderately stable: infrequent, small areas of erosion mostly healed over, 5-30% of bank in reach has areas of erosion.		Moderately unstable; 30-60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional scars,
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely eropped vegetation common; less than one-balf of the potential plant stubble height remaining.	removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone s meters: little or no riparian vegetation due t human activities.
SCORE(LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
and the second s		8 7 6	5 <b>(A)</b> 3	2 1 0

Total Score \_\_\_ Road on right

A-8

STREAM NAME 554	LOCATION EY 30 Jackson Owsley
STATION #RIVERMILE	STREAM CLASS ( PER (N) EPH )
LAT37.3538/2LONG83.8855	52 RIVERBASIN Kener Kentucky
STATION# 157475	AGENCY //KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 1-25-17 REASON FOR SURVEY TIME 12', 21 AM PM 404

Habitat		Condition	Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
1. Epifaunal Substrate/ Available Cover	strate/ epifaunal colonization and full colonization potentia		20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat: lack of habitat is obvious; substrate unstable or lacking.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0	
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0	
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by I velocity depth regime (usually slow-deep).	
SCORE	20 19 18 17 16	15 14 13 12 11	0 9 8 7 6	5 4 3 2 1 (	
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bat development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0	
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 (1)	

3 Dominant Trees:	Silver	Maple			
Bankfull Depth:	6"	Bankfull Width:	₹"	Bankfull Area:	
Max. Wetted Depth:	<1"	Avg. Wetted Depth:	C1"	_ Specific Conductivity: <u>(88.7)</u> Temp:	

Habitat		Condition	Category	v	
Parameter	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE.	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or		Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of \$25.	
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.  Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.		Moderately unstable; 30-60% of bank in reach has areas of erosion; high crosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional sears.	
SCORE(LB)	Left Bank 10 9	8 7 6)	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone smeters: little or no riparian vegetation due thuman activities.	
SCORE(LB)	Left Bank 10 9	8 (7) 6	5 4 3	2 1 0	
SCORE (RB)	Right Bank 10 9	8 7 6	5 (4) 3	2 1 0	

Total Score \_\_\_\_\_ 9 [

A-8

STREAMNAME S53	LOCATION KY 30 Tackson Owse
STATION #RIVERMILE	STREAM CLASS ( PER INT EPH)
LA37.358475 LONG 83.885571	RIVERBASIN Unper Kentucky
STATION# 172+00	AGENCY PORTO
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-75-17 TIME 1201 AM (PM) REASON FOR SURVEY 404

Habitat		Condition	Category		
Parameter Optimal		Suboptimal	Marginal	Poor	
I. Epifaunal Sübstrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	habitat: well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at		Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6 4 3 2 1 0	
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6 4 3 2 1 0	
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0	
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 4	

3 Dominant Trees:	Red	Maple		
Bankfull Depth:	20	Bankfull Width:	11	Bankfull Area:
Max. Wetted Depth:		Avg. Wetted Depth:	-	Specific Conductivity: (88.7) Temp:

Habitat		Conditio	n Category		
Parameter	Optimal Suboptimal		Marginal	Poor	
6. Channel Channelization or dredging absent or minimal; stream with normal pattern.		Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend: bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.  Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.		Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional scars.	
SCORE(LB)	Left Bank 10 9	8 7 62	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potentia to any great extent; more than one-half of the potential plant stubble height remaining.	stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambant vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0	
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone s meters: little or no riparian vegetation due t human activities.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
	Right Bank 10 (9)	8 7 6	5 4 3		

Total Score \_ 54

not mu

channel

STREAM NAME 550	S	LOCATION K9 30	Tackson Ruse	Dec
STATION#RIVE	ERMILE	STREAM CLASS ( PER IN	NT (EP)	
LABZ.36/535 LONG	83.88/20	9 RIVERBASIN USA	Or Kentucky	
STATION# 190+	00	AGENCY //	KYTC (	
INVESTIGATORS				
FORM COMPLETED BY	ELS	DATE 9-25-17 TIME 11-04 (N) PM	REASON FOR SURVEY	

Habitat		Condition	Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
1. Epifaunal Substrate/ Available Cover	substrate favorable for epifaunal colonization and fish cover: mix of snags, adequate habitat for desirable;		desirable; substrate frequently disturbed or	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
2, Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 nvs, deep is < 0.5 m.)	gimes present (slow- pep, slow-shallow, fast- pep, fast-shallow). present (if fast-shallow is missing, score lower than if missing other regimes).		Dominated by 1 velocity depth regime (usually slow-deep).	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0	
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of line material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 (	
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or rifle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool	
SCORE.	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1	

3 Dominant Trees:	Hickory	y Sucamore	0		
Bankfull Depth:	3"	Bankfull Width:	15	Bankfull Area:	
Max. Wetted Depth:	-	Avg. Wetted Depth:	Spe	cific Conductivity: (169) To	emp:

Habitat		Condition	Category		
Parameter	Optimal	Optimal Suboptimal		Poor	
6. Channel Channelization or dredging absent or minimal; stream wi normal pattern.		Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles intrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream:	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.		Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional sears.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
Vegetative     Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 7 6	(5) 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each- bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due human activities.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 0 0	
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	

Total Score 62

A-8

Lossins Currently

STREAM NAME 546	LOCATION KY 30 Jackson Owsle
STATION #RIVERMILE	STREAMCLASS ( PER (V EPH )
LAT37.365205 LONG-83,876700	RIVERBASIN Unner Kentricky
STATION# 208+28	AGENCY 1297C
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-15-17 TIME 170 AM (FA) REASON FOR SURVEY

Habitat		Condition	Category				
Parameter	Optimal	Suboptimal	Marginal	Poor			
1. Epifaunal Substrate Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or facking.			
SCORE:	20 19 18 17 16	15 14 13 12 11	Ø 9 8 7 6	5 4 3 2 1 0			
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% a surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if flast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).			
SCORI:	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0			
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased ba development more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 (			
5. Channel Flow Status (Bars must be covered to score high bankfull)	Condition of the party of	Water fills >75% of the available channel; or >25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or rifle substrates are mostly exposed.	Very little water in channel and mostly present as standing poo			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1			

3 Dominant Trees:	Black	e willow			
Bankfull Depth:	6"	_ Bankfull Width: _	31	Bankfull Area;	
Max. Wetted Depth: _	2"	Avg. Wetted Depth: _	1 1	Specific Conductivity: 160 Temp:	

Habitat		Condition	Condition Category										
Parameter	Optimal	Suboptimal	Marginal	Poor									
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabin or cement, over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered of removed entirely.									
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0									
7. Frequency of Riffles (or bends	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream=7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional rifle or bend: bottom contours provide some habitat, distance between rifles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.									
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (									
8. Bank Stability (score each bank Note: determine lor right side by facing downstream	absent or minimal; little potential for future problems. 5% of bank affected.	Moderately stable: infrequent, small areas of crosion mostly healed over. 5-30% of bank in reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high crusion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60-100% of bank has crosional sears.									
SCORE(LB		8 7 6	5 4 3										
SCORE(RB	Right Bank 10 9	8 7 6	5 4 (3)	2 1 0									
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	removed to									
SCORE(LB	Left Bank 10 9	8 7 6	Ø 4 3	2 1 0									
SCORE(RB	Right Bank 10 9	8 7 6	<i>(5)</i> 4 3	2 1 0									
10. Riparian Vegetative Zone Width (score each bank riparian zon		Width of riparian zone 12-18 meters: human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal	Width of riparian zone meters: little or no riparian vegetation due to human activities.									
SCORE(LB	Left Bank 10 9	8 7 6	5 4 3	(2) 1 0									
SCORE(RB	Right Bank 10 9	8 7 6		A 1 0									

Total Score 75

Channelized

STREAM NAME 545	LOCATION KY 30 Juckson Ow	2
STATION #RIVERMILE	STREAM CLASS (PER) INT EPH )	,
LA137.364742 LONG 83.8	020 RIVERBASIN Upply /Contruct	EL
STATION# 209+60	AGENCY (1) 27TC	(
INVESTIGATORS		
FORM COMPLETED BY	DATE 9-19-17 TIME 1: 15 AM (1) REASON FOR SURVEY (1) 0 4	

Habitat		Condition	Category				
Parameter	Optimal	Suboptimal	Marginal	Poor Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.			
I. Epitaunal Substrate Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, underent banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.				
SCORE.	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% a surrounded by fine sediment:	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Grayel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.			
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0			
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is = 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow ure missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).			
SCORE	20 19 18 17 16	(15) 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.			
SCORÍ:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and or riffle substrates are mostly exposed.	channel and mostly			
SCORE	20 19 18 17 (6)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			

3 Dominant Trees:	Red	Muple white	Gale	Sycamore	
Bankfull Depth:	11	Bankfull Width:	12	Bankfull Area:	
Max. Wetted Depth:	611	Avg. Wetted Depth:	50	Specific Conductivity: 160	Temp:69.89

Habitat	Condition Category										
Parameter	Optimal	Suboptimal	Marginal	Poor  Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly aftered or removed entirely.							
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abunments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.								
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0							
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream = 7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.							
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0							
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems, ~5% of bank affected.	Moderately stable: infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable: many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional sears.							
SCORE(LB)	Left Bank 10 9	8 7 6	(3) 4 3	2 1 0							
SCORE(RB)	Right Bank 10 9	8 7 6	(3) 4 3	2 1 0							
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	k surfaces and criparian zone covered by native vegetation, but one class of plants is not welf-represented; disruption evidem but not affecting full plant growth potential to any great extent; more mowing mot evident; plants allowed streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.									
SCORE(LB)	Left Bank 10 9	8 7 6	6) 4 3	2 1 0							
SCORE(RB)	Right Bank 10 9	8 6 6	5 4 3	2 1 0							
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due to human activities.							
SCORE(LB)	Left Bank 10 9	8 7 6	(5) 4 3	2 1 0							
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 6								

Total Score 114

STREAM NAME 547	LOCATION KY 30 Jacknow Owsle
STATION#RIVERMILE	STREAM CLASS ( PER (NT) EPH )
LAB7.365 573 LONOS 3.876693	RIVERBASIN Upper Kleetucky
STATION# 210+00	AGENCY KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-14-17 TIME 1'25 AM (FM) REASON FOR SURVEY

Habitat		Condition	Category	negory						
Parameter	Optimal	Suboptimal	Marginal	Poor						
1. Epifaunal Substrate Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover: mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat: well-suited for full colonization potential: adequate habitat for maintenance of populations, presence of additional substrate in the form of new full, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable babitat; lack of habitat is obvious; substrate unstable or lacking.						
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0						
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% a surrounded by fine sediment.	Gravel, cobble, and boulder particles are \$0- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.						
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0						
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is < 0.5 m.)	gimes present (slow- ep, slow-shallow, fast- ep, fast-shallow). low is < 0.3 m/s, deep is		Dominated by 1 velocity depth regime (usually slow-deep).						
SCORE	20 19 18 17 16	15 14 13 12 11	19 9 8 7 6	5 4 3 2 1 0						
4. Sediment of islands or point bars and less than \$7% of the bottom affected by sediment deposition.  (in pools)		Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bat development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.						
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 0 6	5 4 3 2 1 0						
5. Channel Flow Status (Bars must be covered to score high bankfull)	The state of the s	Water tills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and or rifle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool						
SCORE.	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1						

3 Dominant Trees:	Whin	le oak R	el y	Maple	
Bankfull Depth:	611	Bankfull Width:	8'	Bankfull Area:	
Max. Wetted Depth:	411	Avg. Wetted Depth:	2 1 Sp	ecific Conductivity: 169 Temp:	

	Habitat			_	-		Conditio	n Catego	ry	Condition Category										
Ш	Parameter 6. Channel		ptima)		2	Suboptin	nal	1 7	Margi	nal	Poor									
6. Channel Alteration		Channelization or dredging absent or minimal; stream with normal pattern.			Some channelization present, usually in areas of bridge abutments; evidence of past channelization, r.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.			or shori present	e; emb ng strue on both o 80% anneliz	banks: of stream	Banks shored with gabin or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.									
S	CORE	20 19	18 1	7 16	15 1	4 13	12 11	10 (	) 8	7 6	5 4	3 2	1 (							
7. Frequency of Riffles (or bends)		Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream = 7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.			infreque between the widt	Occurrence of riftles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.			Occasional riffle or bend: bottom contours provide some habitat: distance between riffles divided by the width of the stream is between 15 to 25.			Generally all flat water of shallow riffles; poor habital; distance between riffles divided by the width of the stream is a ratio of >25.								
S	CORE	* A 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	18 1	1000	15 1	1 13	12 11	10 9	8	(7) 6	5 4	3 2	1 (							
No or	Bank Stability core each bank) ote: determine left right side by cing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5%, of bank affected.			Moderately stable: infrequent, small areas of crosion mostly healed over, 5-30% of bank in reach has areas of crosion.		Moderately unstable; 30-60% of bank in reach has areas of crosion; high crosion potential during floods.			Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional sears.										
SC	ORE(LB)	Left Bank	10	9	- 8	7	6	5	4	3)	2	1	0							
S	CORE(RB)	Right Bank	10	9	8	7	6	5	4	3	2	1	0							
9. Vegetative Protection (score each bank)  More than 90 streambank streamban		surface riparian native includin story shi ly s; vegeti hrough nowing not evid	s and zone ng rubs, ative	70-90% streamb; covered vegetatic of plants represent evident bill plan to any grithan one potential height re	ink surfi by native on, but or is not we ted; disru- out not a t growth reat exter -half of t plant str	e ne class cll- aption ffecting potential nt; more he ubble	common half of th	ink suri by vego on obvious of bare ropped ; less the	etation: ous; soil or vegetation	Less than streambe covered distuption vegetation vegetation removed 5 centum averages	onk surf by vege on of str on is ver on has be to eters or	itees tation: camban y high: cen								
SC	CORE (LB)	Left Bank	10	9	8	7	6	5	4	(3)	2	1	0							
SC	ORE(RB)	Right Bank	10	9	8	7	6	5	4	3	2	1	0							
V.	. Riparian egetative Zone idth (score each nk riparian zone)	ee Zone activities (i.e., parking lots, roadbeds, clear-cuts.		human 12-18 meters; human activities have impacted zone only minimally.		Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.			Width of riparian zone meters; little or no riparian vegetation due to human activities.											
SC	ORE(LB)	Left Bank	10	9	8	7	6	5	4	3	ø	1	0							
80	ORE(RB)	Right Bank	100	9	-8	7	6	(5)	4	3	2	1	0							

Total Score 43

joins 540 to form SUE

STREAM NAME 544	LOCATION KY 30 Tackson News
STATION#RIVERMILE	STREAM CLASS ( PER INT (EPH))
LAT37.374935 LONG 83.868/5	RIVERBASIN Upper Klutucky
STATION# 348+00	AGENCY 1277
INVESTIGATORS	
FORM COMPLETED BY	DATE 4-16-17 TIME 11-35 AM (B) REASON FOR SURVEY 404

Habitat		Condition	Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble of other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% a surrounded by fine sediment.	Gravel, cobble, and houlder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 60 2 1 (
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is < 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low),	Dominated by 1 velocity depth regime (usually slow-deep).
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6 4 3 2 1 0
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or tine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin- material, increased bat development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 6 3 2 1 (
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water tills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (

3 Dominant Trees:	Red	Maple			
Bankfull Depth:	211	Bankfull Width:	7 1	Bankfull Area:	
Max. Wetted Depth:	_	Avg. Wetted Depth:		Specific Conductivity: (125) Temp:	

Habitat		Conditio	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabid or cement: over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of \$25.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; fittle potential for future problems. <5% of bank affected.	Moderately stable: infrequent, small areas of crosion mostly healed over, 5-30% of bank in reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional sears.
SCORI:(LB)	Left Bank 10 9	8 7 6	(5) 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5, 4 3	2 1 0
9. Vegetarive Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone eovered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation, disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambant vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	8 7 6	6 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	/S 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone;	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due to human activities.
SCORE(LB)	Left Bank 10 9	8 7 (6)	5 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6		

Total Score 68

STREAM NAME 543	LOCATION KY 3	30 Jackson Owsk
STATION#RIVERMILE	STREAM CLASS ( PER IN	
LA137.376 005 LONG 83, 866220	RIVERBASIN Un	ner Kentricky
STATION# 258+00	AGENCY (M	16476
INVESTIGATORS		
FORM COMPLETED BY	DATE 4-19-17 TIME 11:15 6 PM	REASON FOR SURVEY

	Habitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epitaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover: mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 ,3 2 1 0
	2. Limbeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% a surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment	Gravel, cobble, and boulderparticles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
ers to be evaluate	3, Velocity Depth Regime (At Bankfull)	All four velocity depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is = 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by I velocity depth regime (usually slow-deep).
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5,43210
	4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition,	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due t substantial sediment deposition.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	3 4 3 2 1 0
	5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or -25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1/0

3 Dominant Trees:	White	oak	Popler			
Bankfull Depth:	3"	Bankf	ull Width:	2	Bankfull Area:	
Max. Wetted Depth:	-	Avg. Wette	d Depth:	Spe	cific Conductivity: <u>(125)</u> Tem	np:

Habitat		Conditio	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabid or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10, 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream \$7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riflle or hend; bottom contours provide some habitat; distance between rifles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of +25.
SCORE	20 19 18 17 16	15 14 13 12 11	10, 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable: many croded areats, "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60-100% of bank has crosional sears.
SCORE(LB)	Left Bank 10 9	8 7 6	5 60 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 /4, 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation: disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambanl vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Lefi Bank 10 9	8 7 6	(5) 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	6, 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone *18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal	Width of riparian zone of meters: little or no riparian vegetation due to human activities.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 6
SCORE(RB)	Right Bank 10 9	8 7 6		

Total Score 57 Almost completely gone from bullde

STREAMNAME S 47	LOCATION KY 30 Jackness/Owslee
STATION #RIVERMILE	STREAM CLASS ( PER INT (EPLP))
LA 137.326/8/ LONG 83,86598	3 RIVERBASIN Uppen Kentucky
STATION# 260+00	AGENCY (1247C)
INVESTIGATORS	
FORM COMPLETED BY	TIME 11:16 W PM REASON FOR SURVEY

Habitat		Condition	Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations, presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% stirrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% a surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine- sediment.	Gravel, cobble, and boulder particles are me than 75% surrounded by fine sediment.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocit depth regime (usually slow-deep).
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6 4 3 2 1
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars: 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4/3 2 1 (
5. Channel Flow Status (Bars must be covered to score high bankfull)	TO ACM AND EAST MAKE A COMPANY AND A STATE OF	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and or rifle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1/1

3 Dominant Trees: _	Red	Maple, Poplar		
Bankfull Depth:	3'	Bankfull Width:	21	Bankfull Area:
Max. Wetted Depth:	_	_ Avg. Wetted Depth:	-	Specific Conductivity: <u>(125</u> )Temp:

Habitat		Condition	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6, Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern,	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORI:	20 19 18 17 16	15 14 13 12 11	(18) 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend: bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratto of >25.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. ~5% of bank affected.	Moderately stable: infrequent, small areas of crosion mostly healed over. 5-30% of bank in reach has areas of crosion,	Moderately unstable: 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60-100% of bank has crosional sears.
SCORE(LB)	Left Bank 10 9	8 7 6	62 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or moving minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambant vegetation is very high; vegetation has been removed to 5 centimeters or less maverage stubble height.
SCORE(LB)	Left Bank 10 9	8 7 6	(5) 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters, human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due to human activities.
SCORE(LB)	Left Bank 10 9	8 7 6	5 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 (4) 3	

New buildozed path crosses stream Total Score 58

STREAM NAME 541	LOCATION KY 30 Zackson Ousley
STATION #RIVERMILE	STREAM CLASS ( PER INT )
LA137,380158 LONG 3862287	RIVERBASIN Uppla Kentucky
STATION# 277+00	AGENCY OF KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 4-19-17 TIME 10'51 6 PM REASON FOR SURVEY 404

Habitat	Condition Category								
Parameter	Optimal	Suboptimal	Marginal	Poor					
1. Epifaunal substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and		40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat, habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% a stable habitat; lack of habitat is obvious; substrate unstable or lacking.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 0 6	5 4 3 2 1 0					
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by tine sediment.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0					
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is = 0.3 m/s, deep is = 0.5 m.)  Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).		Dominated by 1 velocity depth regime (usually slow-deep).						
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 (					
4, Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation; mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bat development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6) 4 3 2 1 0					
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or 25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 10					

3 Dominant Trees:				-
Bankfull Depth:	211	Bankfull Width:1	Bankfull Area:	3
Max. Wetted Depth: _	~	Avg. Wetted Depth:	Specific Conductivity:( Temp:	

Habitat		Conditie	n Category		
Parameter	Optimal	Optimal Suboptimal Marginal			
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement: over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE.	20 19 18 17 16	15 14 13 12 11	10 9 8 1 6	5 4 3 2 1 0	
7. Frequency of Riffles (or hends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream =7;1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	latively frequent; ratio distance between riffles divided by width of the ream 7;1 (generally 5, 7); variety of habitat is yellon files are continuous, acement of boulders or her large, natural		Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for fature problems. <5% of bank affected.	infrequent, small areas of erosion mostly healed over; 5-30% of bank in reach has areas of erosion.		Unstable; many croded areas; "raw" areas frequent along straight sections and bends, obvious bank sloughing; 60-100% of bank has crosional scars.	
SCORE(LB)	Left Bank 10 9	8 7 (6)	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident, almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambank vegetation is very high: vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORL(LB)	Left Bank 10 9	8 7 6	5 4 (3)	2 1 0	
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone of meters: little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	Ø 1 0	

Total Score 62 Road through stream in cleaning

STREAM NAME 5 39	LOCATION KY 30 Jack son Ows
STATION#RIVERMILE	_ STREAM CLASS ( PER (NT) EPH )
LAB7.386905 LONG 838592	90 RIVERBASIN / LAMPER Kentucky
STATION# 286+00	AGENCY J KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 4-15-17 TIME 5:43 & PM REASON FOR SURVEY 404

Habitat	Condition Category								
Parameter	Optimal	Suboptimal	Marginal	Poor					
I. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epitiannal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization, potential (i.e., logs/snags that are not new fall and not transient).	latinal colonization and cover; mix of snags, merged logs, undercut ks, cobble or other old habitat and at stage allow full colonization. If the colonization is the colonization in the colonization is the colonization is the colonization in the colonization is the colonization in the colonization is the colonization in the colonization in the colonization is the colonization in the colonization in the colonization is the colonization in the colonization in the colonization potential; adequate habitat for maintenance of populations in the colonization potential; adequate habitat for maintenance of populations in the colonization potential; adequate habitat for maintenance of populations in the colonization potential; adequate habitat for maintenance of populations in the colonization in the colon		Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0					
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6 4 3 2 1 0					
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	regimes present (slow- eep, slow-shallow, fast- eep, fast-shallow), Slow is < 0.3 m/s, deep is		Dominated by 1 velocity, depth regime (usually slow-deep).					
SCORE	20 19 18 17 16	15 14 13 12 11	(6) 9 8 7 6	5 4 3 2 1 0					
4: Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar tormation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased but development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0					
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or rillle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 (					

3 Dominant Trees:	Red	Maple			
Bankfull Depth:	4"	Bankfull Width:	Z	Bankfull Area:	
Max. Wetted Depth:	4"	Avg. Wetted Depth:	<1"	Specific Conductivity:	27.1 Temp: 64.6

Habitat		Condition Category				
Parameter	Optimal	Suboptimal	Marginal	Poor		
6. Channel Alteration Channelization or dredging absent or minimal: stream with normal pattern.		on dredging absent or present, usually in areas of bridge abutments;		Banks shored with gabior or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.		
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0		
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	infrequent; ratio of distance between riffles livided by width of the tream 17:1 (generally 5 to 7); variety of habitat is teey. In streams where iffles are continuous, blacement of boulders or other large, natural		Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal: little potential for future problems. <5% of bank affected.	Moderately stable: infrequent, small areas of crosion mostly healed over. 5-30% of bank in reach has areas of crosion	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional sears.		
SCORE(LB)	Left Bank 10 9	8 7 6	S 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	6) 4 3	2 1 0		
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented: disruption evident but not affecting full plant growth potentia to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-lhalf of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambant vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.		
SCORE(LB)	Left Bank 10 9	8 🕖 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 (7) 6	5 4 3	2 1 0		
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone -18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due thuman activities		
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	/8) 7 6	5 4 3	2 1 0		

Total Score 97

STREAMNAME 538	LOCATION KY 30 Juckson Owse
STATION #RIVERMILE	STREAM CLASS ( PER (ST) EPH )
LAT37.382589 LONG83.857663	RIVERBASIN / CAMPE Kentucky
STATION# 295+00	AGENCY PYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 4-10-17 TIME 9:30 (AN) PM REASON FOR SURVEY

Habitat	Condition Category								
Parameter	Optimal	Suboptimal	Marginal	Poor					
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epitaunal colonization and fish cover; mix of snags, submerged logs, underent banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0					
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by line sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% a surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.					
SCORE.	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0					
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow- are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).					
SCORE	20 19 18 17 16	15 14 13 12 11	(0) 9 8 7 6	5 4 3 2 1 0					
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased but development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0					
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or rifle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9) (8) 7 6	5 4 3 2 1 (					

3 Dominant Trees:	White	004 101	W. K.	ed NIAPIE			
Bankfull Depth:		Bankfull Width:	5	Bankfull Ar	ea:		
Max. Wetted Depth:	Avg	. Wetted Depth:	-\"	Specific Conductivity	76.6	Temp:	6494

Habitat							
Parameter	Optimal	Suboptimal	Marginal	Poor			
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0			
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream = 7:1 (generally 5-10-7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water shallow riffles; poor habitat; distance betwee riffles divided by the width of the stream is a ratio of >25.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (			
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.  Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion affected.		Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable: many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60-100% of bank has crosional scars.			
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0			
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0			
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.  70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potentia to any great extent; more than one-half of the potential plant stubble height remaining.		stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation: disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.			
SCORE(LB)	Left Bank 10 9	8 7 6	(5) 4 3	2 1 0			
SCORE(RB)	Right Bank 10 9	8 (7) 6	5 4 3	2 1 0			
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due human activities.			
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 (3)	2 1 0			
SCORE (RB)	Right Bank 10 9	8 (7) 6	5 4 3	2 1 0			

New buildozed rate on eff

Total Score <u>\$4</u>

STREAM NAME 535	LOCATION JET 30 Jacknew Owska
STATION#RIVERMILE	_ STREAM CLASS ( PER ( EPH )
LA37390222 LONG-83,85022	20 RIVERBASIN Unace Kentucky
STATION# 325+00	AGENCY PICTO
INVESTIGATORS	
FORM COMPLETED BY	TIME 9:04 My PM REASON FOR SURVEY

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
f. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not s yet prepared for		Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0-25% surrounded by fine section 5 largest rocks in		Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	re 50- boulder particles are me				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).				
SCORE	20 19 18 17 16	15 14 13 12 11	19 9 8 7 6	5 4 3 2 1 0				
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars: 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 🐼 7 6	5 4 3 2 1 (				
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1				

3 Dominant Trees:	Red	Maple Poplar			
Bankfull Depth:	411	Bankfull Width:	1.5	Bankfull Area:	
Max. Wetted Depth:	7"	Avg. Wetted Depth:	Spe	cific Conductivity:	49/ Temp:

Habitat		Condition	Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems, <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over, 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has erosional sears.	
SCORE(LB)	Left Bank 10 9	8 7 6	<b>(5)</b> 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	ß 4 3	2 1 0	
9. Vegetative Protection (score each bank)  More than 90% of the streambank surfaces are immediate riparian zon covered by native vegetation, including trees, understory shrubs or nonwoody macrophytes; vegetative disruption through grazing or mowing iminimal or not evident almost all plants allowed to grow naturally.		70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	stubble height remaining,	Less than 50% of the streambank surfaces covered by vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 7 69	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6,	5 4 3	2 1 0	
10, Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts; lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters: human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone s meters: little or no riparian vegetation due t human activities.	
SCORE(LB)	Left Bank 10 9	8 G) 6	5 4 3	2 1 0	
Service August and August	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0	

Total Score 94 upstream of 534

STREAMNAME 536	LOCATION 169 30 Lackson Owsk
STATION# RIVERMILE_	STREAM CLASS ( PER INT PPH )
LAB7.390868 LONG 83.849917	RIVERBASIN Upper Kentricky
STATION# 332+00	AGENCY KYTC
INVESTIGATORS	T T =
FORM COMPLETED BY	DATE 9-19-17 TIME 9-10 (AN) PM REASON FOR SURVEY

1	Habitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	I, Epitaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat: well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional; substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
20 C C C C C C C C C C C C C C C C C C C	2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
	3, Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by I velocit depth regime (usually slow-deep).
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
	4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	S 4 3 2 1 1
	5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or rifle substrates are mostly exposed.	Very little water in channel and mostly present as standing poo
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1/

3 Dominant Trees:	Red	Mode			
Bankfull Depth:	3"	Bankfull Width:	2"	Bankfull Area:	
Max. Wetted Depth:	£	Avg. Wetted Depth:	Spe	ecific Conductivity: 149 1	Гетр:

Habitat		Condition	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	hannel Channelization or 5		Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 (11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 12 11	(19) 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems, <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over, 5-30% of bank in reach has areas of erosion	Moderately unstable; 30-60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many eroded areas, "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has erosional sears.
SCORE(LB)	Left Bank 10 9	8 7 6	09 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	B 4 3	2 1 0
9. Vegetative Protection (score each bank)  Where than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.		70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potentiat to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	8 7 (6)	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters; little or no riparian vegetation due human activities.
SCORE(LB)	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 (7) 6	5 4 3	2 1 0

Total Score 83

Road on left

STREAM NAME 537	LOCATION KY 30 Jack son Own
STATION # RIVERMILE	STREAM CLASS ( PER INT (PP)
LATS 7.390931 LONG 83,84925	89 RIVERBASIN Upper Kentucky
STATION# 333+00	AGENCY KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-14, 17 TIME 11:13 Syl PM REASON FOR SURVEY

Habitat		Condition	Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercutbanks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat: well-suited for full colonization potential: adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat: lack of habitat is obvious; substrate unstable or lacking.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	riffles – estimated m 5 largest rocks in sediment. Layering of		Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by tine sediment.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0	
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of line material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6) 4 3 2 1 0	
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or rifle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool-	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1/1	

3 Dominant Trees: _	Red	maple white	cale		
Bankfull Depth:	3"	Bankfull Width:	15	Bankfull Area:	
Max. Wetted Depth:	-	Avg. Wetted Depth:	_	Specific Conductivity: 149	

Habitat		Condition	1 Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	teration dredging absent or minimal; stream with normal pattern.  dredging absent or present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than		Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 12 /1/	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of ritfles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional rifile or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water o shallow riffles; poor habitat; distance between	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable: evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable: infrequent, small areas of erosion mostly healed over, 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of crosion; high erosion potential during thoods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional scars.	
SCORE(LB)	Left Bank 10 9	8 7 6	6, 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	\$ 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambant vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 75 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 f, 6	5 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due fi human activities.	
SCORE(LB)	Left Bank 10 9	8) 7 6	5 4 3	2 1 0	
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	

Total Score <u>76</u>

A-8

flows into 536

STREAM NAME 534	LOCATION KY 30 Nackson Owsle
STATION #RIVERMILE	STREAM CLASS ( PER (NT) EPH )
LAT37.392996 LONG83.849335	RIVERBASIN Unnext Chitricky
STATION# 338+00	AGENCY LYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-19-17 GV PM REASON FOR SURVEY UOU

Habitat	Condition Category										
Parameter	Optimal	Suboptimal	Marginal	Poor							
I. Epifaunal Substrate/ Available Cover	te/ epifaunal colonization and full colonization potential		20-40% mix of stable habitat: habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.							
SCORE	20 19 18 17 16	15 14 13 12 11	19 9 8 7 6	5 4 3 2 1 (							
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1							
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocit depth regime (usually slow-deep).							
SCORE	20 19 18 17 16	15 14 13 12 11	10) 9 8 7 6	5 4 3 2 1							
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fit material, increased by development; more that 50% of the bottom changing frequently; pools almost absent dustibstantial sediment deposition.							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1							
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffe substrates are mostly exposed.	Very little water in channel and mostly present as standing poo							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1							

3 Dominant Trees:	SYC	amore	Red	Ook	We de oak	
Bankfull Depth:	10	Bankful	l Width: _	41	Bankfull Area:	
Max. Wetted Depth:	4	Avg. Wetted	Depth:	3/1	Specific Conductivity: 140	Temp: 60, 4 of

Habitat		Conditio	Category			
Parameter	Optimal	Suboptimal	Marginal	Poor		
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.		
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0		
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.		
SCORE	20 19 18 17 16	15 14 13 12 11)	10 9 8 7 6	5 4 3 2 1 0		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. ~5% of bank affected.	Moderately stable: infrequent, small areas of crosson mostly healed over, 5-30% of bank in- reach has areas of crosson	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional sears.		
SCORE(LB)	Left Bank 10 9	8 (7) 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	(5) 4' 3	2 1 0		
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potentia to any great extent; more than one-half of the potential plant stubble height remaining.	stubble height remaining,	Less than 50% of the streambank surfaces covered by vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.		
SCORE(LB)	Left Bank 10 9	8 0 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 <i>f</i> ) 6	5 4 3	2 1 0		
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters: human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due thuman activities.		
SCORE(LB)	Left Bank 10 9	8 7 (6)	5 4 3	2 1 0		
	Right Bank 10 9	8 7 6	5 4 3	2 1 0		

Total Score 101 road they widdle of seel-

A-8

STREAM NAME 531	LOCATION KY 30 Judeson Owsle
STATION #RIVERMILE	STREAM CLASS ( PER (N) EPH )
LA137.394964 LONG 83.846667	RIVERBASIN Upper Kentucky
STATION# 346+00	AGENCY PYLYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE G-16-17 TIME 3 36 AM (C) REASON FOR SURVEY

Habitat	Condition Category										
Parameter	Optimal	Suboptimal	Marginal	Poor							
I. Epifaunal Substrate/ Available Cover  Substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, underent banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags, that are not new fall and not transient).		40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.							
SCORE	20 19 18 17 16	15 14 13 12 1	10 9 8 7 6	5 4 3 2 1 0							
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0							
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is < 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low),	Dominated by T velocity depth regime (usually slow-deep).							
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0							
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of line material, increased bat development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0							
5, Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (							

3 Dominant Trees:	ed o	on Red Mippl	e		
Bankfull Depth:	1	Bankfull Width:	61	Bankfull Area:	
Max. Wetted Depth: _	4"	Avg. Wetted Depth: _	$\hat{\mathbf{f}}_{tt}$	Specific Conductivity: (149) Temp:	

Habitat			-	Condition	Category								
Parameter	Optimal	St	iboptim	al		Aargina	ď	Poor					
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some chi present, i of bridge evidence channeliz dredging past 20 y present, I channeliz present.	abutme of past vation, i., (greate r) may b	n areas nts; e., r than e	Channeli extensive or shorin present of and 40 to reach cha disrupted	: emban g structi n both b 80% of nnelized	kments ires anks; stream	Banks shoor cemen the stream channeliz disrupted habitat gr removed	t: over 8 n reach ed and . Instrea eatly alt	0% of am ered or			
SCORE	20 19 18 17 16		13	12 11	10 9	8	7 6	5 4	3 2	1 0			
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream = 7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	the width between	nt; distan riffles di n of the s	ce vided by	Occasion bottom c some hab between the width between	ontours pitat: dis riffles di rof the s	provide tance vided by tream is	Generally shallow r habitat; d riffles div width of ratio of	iffles; po istance h ided by he strea	oor between the			
SCORE	20 19 18 17 16	15 14	(13)	12 11	10 9	8	7 6	5 4	3 2	1 0			
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems, <5% of bank affected.	infrequence erosion r over. 5-	Moderately stable; infrequent, small areas of erosion mostly bealed over, 5-30% of bank in reach has areas of erosion.			Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.			Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional sears.				
SCORE(LB)	Left Bank 10 9	8	7	0	5	- 4	3	2	1	0			
SCORE(RB)	Right Bank 10 9	8	7	6	5	4	3	2	1/	0			
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	evident l full plan to any gr than one potentia height re	onk surfi- by nativ- on, but or is not we ted; disri- out not a t growth reat exter- l-half of t l plant st maining	e ne class ell- uption ffecting potential nt: more he ubble	streambank surfaces streambace covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant streambace streambace covered disruption vegetation removed 5 centimes.			Less than streamba covered t disruptio vegetatio vegetatio removed 5 centime average s	nk surfa by veget; n of stre n is very n has be to eters or l nubble h	ices ation; cambanl phigh; cen less in neight.			
SCORE(LB)	Left Bank 10 (9)	8	7	6	5	4	3	2	. 1,	0			
SCORE(RB)	Right Bank 10 (9)	8	7	6	5	4	3	2	1	0			
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds; clear-cuts, lawns, or crops) have not impacted zone;		eters; hu s have in	man ipacted	Width o 12 meter activities zone a g	rs; huma s have in	ipacted	Width of meters: I riparian human a	ittle or n vegetatio	o on due t			
SCORE(LB)	Left Bank 10 (9	8	7	6	5	4	3	2	11	0			
	Right Bank 10 (9					_		_	_				

Total Score 125

A-8

wooded section of 538

STREAM NAME 533	LOCATION K930 Jackson Cust
STATION#RIVERMILE	STREAM CLASS ( PER INT (EPH')
LAB2.394975 LONG-83.84682	29 RIVERBASIN Upple Kentucky
STATION# 349+00	AGENCY LYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-18-17 TIME 3: 45 AM (S)  REASON FOR SURVEY 404

Habitat	Condition Category										
Parameter	Optimal	Suboptimal	Marginal	Poor							
1. Epifaunal substrate favorable for Substrate/ epifaunal colonization and		40-70% mix of stable habitat; well-stuted for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 69 2 1 (							
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	particles are 0- rrounded by fine nt. Layering of sediment.		Grayel, cobble, and boulder particles are more than 75% surrounded by fine sediment.							
SCORE.	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 1							
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocit depth regime (usually slow-deep).							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 1							
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased by development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 1 6	5 4 3 2 1							
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water tills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (							

3 Dominant Trees: _	But	6 Rajs			
Bankfull Depth:	3	Bankfull Width:	1	Bankfull Area:	
Max. Wetted Depth		Avg. Wetted Depth:	-	_ Specific Conductivity: (149) Temp:	

Habitat	Condition Category Optimal Suboptimal Marginal Poor									
Parameter	Optimal	Marginal	Poor							
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabior or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.						
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0						
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riftle or bend: bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.						
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0						
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. ≤5% of bank affected.	infrequent, small areas of crosion or bank failure besent or minimal; little botential for future broblems. \$5% of bank in reach has areas of crosion, high crosion potential during the following the								
SCORE(LB)	Left Bank 10 9	8 7 6	6 4 3	2 1 0						
SCORE(RB)	Right Bank 10 9	8 7 6	S 4 3	2 1 0						
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potentiat to any great extent; more than one-half of the potential plant stubble height remaining.	stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.						
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0						
SCORE(RB)	Right Bank 10 9	8 7 6)	5 4 3	2 1 0						
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due thuman activities.						
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0						
SCORE(RB)	Right Bank 10 9	/8/ 7 6	5 4 3	2 1 0						

Total Score 75

STREAMNAME 5 32	LOCATION KY 30 Judyson Dwsle
STATION # RIVERMILE	STREAM CLASS ( PER INT (EPH) )
LAB 7.395272LONG 83.846337	RIVERBASIN Upper Klutucky
STATION# 35/+ 50	AGENCY JETTC (
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-18-17 TIME 3: 40 AM (BY) REASON FOR SURVEY 404

Habitat		Condition	Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
l. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged fogs, undereut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5, 4 3 2 1 0	
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).	
SCORE	20 19 18 17 16	15 14 13 12 11	6 9 8 7 6	5 4 3 2 1 0	
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars: 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bat development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.	
SCORE.	20 19 18 17 16	15 14 13 12 🛈	10 9 8 7 6	5 4 3 2 1 0	
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 (	

3 Dominant Trees:	Ked	MLDP BULLEY	U		
Bankfull Depth:	311	Bankfull Width: _	1.	Bankfull Area:	
Max. Wetted Depth: _	111	Avg. Wetted Depth: _	<1"	_ Specific Conductivity: 149) Temp:	

Habitat		Condition	Category			
Parameter	Optimal	Suboptimal	Marginal	Poor		
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.		
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0		
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9 8 7 6	5 4 3 2 1 (		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of crosion mostly healed over, 5-30% of bank in reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crosional sears.		
SCORE(LB)	Left Bank 10 9	8 7 6	(3, 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0		
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.		
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0		
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due human activities.		
SCORE(LB)	Left Bank 10 9	8 (7) 6	5 4 3	2 1 0		
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0		

Total Score 92

A-8

runs parallel to 531
looks like it was possible broaded

STREAM NAME \$ 30	LOCATION KY 30 Jackson Class
STATION #RIVERMILE	_ STREAM CLASS ( PER (N) EPH )
LA 137.396 044 LONG 83,845 6	27 RIVERBASIN Uppey Kentucky
STATION# 352+56	AGENCY PYZYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE G-17 REASON FOR SURVEY

Habitat		Condition	Category			
Parameter	Optimal	Suboptimal	Marginal	Poor		
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifamal colonization and fish cover: mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags, that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 🕖 6	5 4 3 2 1 (		
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep)		
SCORE	20 19 18 17 16	15 14 13 12 11	0 9 8 7 6	5 4 3 2 1 0		
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or line sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased ba development, more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.		
SCORE	20 19 18 17 16	15 14 (3) 12 11	10 9 8 7 6	5 4 3 2 1 0		
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool		
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1		

3 Dominant Trees:	Pople	Sycamore			
Bankfull Depth:	611	Bankfull Width:	21	Bankfull Area:	
Max. Wetted Depth: _	211	Avg. Wetted Depth:	100	Specific Conductivity: 149	Temp: 68 764

Habitat			(	Condition	Categor	y					
Parameter	Optimal	Sul	boptim	al	Marginal Poor						
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some char present, us of bridge a evidence of channeliza dredging, past 20 yr present, by channeliza present.	sually in butment of past ation, i.e (greater) may b at recen	n areas nts; than e	Channel extensive or shorin present c and 40 to reach chan disrupted	e; embar ng struct on both l o 80% o annelize	nkments ures banks; of stream	Banks sh or cemen the streat channeliz disrupted habitat g removed	t: over 8 n reach red and l. Instre reatly al	am tered or	
SCORE	20 19 18 17 16	15 14	13	12 (1)	10 9	8	7 6	5 4	3 2	1 - 0	
7. Frequency of Riffles (or bends)  Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.		Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.		Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.			Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.				
SCORE	20 19 18 17 16	15 14	(13)	12 11	10 9	8	7 6	5 4	3 2	1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crossion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable: infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.		Moderately unstable: 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.		reach bas : high	Unstable: many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60-100% of bank has crosional sears.				
SCORE(LB)	Left Bank 10 9	(8)	7	6	5	4	3	2	1	0	
SCORE(RB)	Right Bank 10 9	(8)	7	6	5	4	3	2	1	0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% o streambar covered b vegetation of plants i represente evident bu full plant to any gre than one-l potential height ren	nk surfa y native i, but or s not we d; disru it not af growth at exter- nall of it blant su maining	e class ell- ption fecting potential it; more he ibble	common half of the stubble i	ank surf by vege on obvious of bare stropped; cropped; cless the poten eight re	nation: ous; soil or vegetation an one- trial plant emaining.	Less than streamba covered/ disruptic vegetatio vegetatio removed 5 centim average	ink surfi by veget on of stre in is very in has be to eters or	ices ation; camban y high; cen less in aeight.	
SCORE(LB)	Left Bank 10 9	8	7	6)	5	4	3	2	1	0	
SCORE(RB)	Right Bank 10 9	8	7	6	5	4	3	2	1	0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of 12-18 me activities zone only	ters; hu have im minim	man pacted	Width o 12 mete activitie zone a g	rs; hum s have it	mpacted d.	Width o meters: I riparian human a	ittle or n vegetatio	io on due t	
SCORE(LB)	Left Bank 10 9	8	7	6	5	4	3	2	1	0	
A CONTRACTOR OF THE PROPERTY O											

Total Score 108

A-8

from woods through field to stu

STREAM NAME \$29	LOCATION 169 30 Jackson Owsle
STATION #RIVERMILE	STREAM CLASS (PER) INT EPH )
LAB7.396296 LONG83.84529	22 RIVERBASIN UNDER Keisturky
STATION# 355+75	AGENCY (V KYTC (
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-19-17 REASON FOR SURVEY TIME 3:16 AM (FII)

ı	Habitat		Condition	Category		
	Parameter	Optimal	Suboptimal	Marginal	Poor	
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
	SCORE	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
to be evaluated in samplin	2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by line sediment.	
	SCORE	20 19 18 17 16	15 14 (3) 12 11	10 9 8 7 6	5 4 3 2 1 0	
	3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).	
	SCORE.	20 19 18 17 16	(13) 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
	4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% a of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due t substantial sediment deposition.	
	SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0	
The second second	5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Waterfills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
1	SCORE	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0	

3 Dominant Trees:	FCa	MUPIC Sycam	are	Birch		
Bankfull Depth:	3'	Bankfull Width: _	16	Bankfull Area:		
Max. Wetted Depth:	1,5	Avg. Wetted Depth: _	6"	Specific Conductivity:	100	Temp: 71.9 '

Habitat	Condition Category										
Parameter	Optimal	Suboptimal	Marginal	Poor							
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.							
SCORE	20 19 18 17 16	15 14 (13 12 1	10 9 8 7 6	5 4 3 2 1 0							
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided I the width of the stream i between 7 to 15.		Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.							
SCORE	20 19 18 17 16	15 (3) 13 12 1	10 9 8 7 6	5 4 3 2 1 0							
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over, 5-30% of bank in reach has areas of erosion	areas of erosion; high erosion potential during	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crosional scars.							
SCORE (LB)	Left Bank 10 9	8 7 67	5 4 3	2 1 0							
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0							
9. Végetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potent to any great extent; mor than one-half of the potential plant stubble height remaining.	patches of bare soil or closely cropped vegetation common; less than one- al half of the potential plant stubble height remaining.	removed to 5 centimeters or less in average stubble height.							
SCORE (LB)	Left Bank 10 9	8 6 6	5 4 3	2 1 0							
SCORE(RB)	Right Bank 10 9	8 / 6	5 4 3	2 1 0							
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	zone a great deal.	Width of riparian zone of meters: little or no riparian vegetation due thuman activities.							
SCORE(LB)	Left Bank 10 9	8 7 6	© 4 3	2 1 0							
SCORE (RB)	Right Bank 10 9	8 7 6.	<i>(5)</i> 4 3	2 1 0							

Total Score 133

Between fields

STREAMNAME S28	LOCATION BY 30 Jackson Ours
STATION #RIVERMILE	STREAM CLASS ( PER INT EPH)
LA37.396965 LONG 83.84499/	RIVERBASIN Unner Kleetucky
STATION# 358+00	AGENCY PLYTC
INVESTIGATORS	
FORM COMPLETED BY	TIME 3 0 7 AM (2) REASON FOR SURVEY

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0				
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.				
SCORE.	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by I velocity depth regime (usually slow-deep).				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0				
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	@ 4 3 2 1 0				
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool-				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 6				

3 Dominant Trees:					_
Bankfull Depth:	4"	Bankfull Width:	1,51	Bankfull Area:	
Max. Wetted Depth: _		Avg. Wetted Depth:	1	Specific Conductivity: 100 Temp:	

Habitat		Conditio	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabin or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 (6)	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riftle or bend: bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance betweer riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream,	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems, <5% of bank affected.  Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.		Moderately unstable; 30-60% of bank in reach has areas of crosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has erosional sears.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3)	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evidents almost all plants allowed to grow naturally.  70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.		stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 0	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 /3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone waters: little or no riparian vegetation due thuman activities.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 (1) 0
	Right Bank 10 9			1 0

Total Score 5/

A-8

Alons 1000 (K"130)

STREAMNAME 527	LOCATION /CY30 Lackson Owsle
STATION #RIVERMILE	STREAM CLASS ( PER INT (EPH)
LAB7.396947LONG83.844823	RIVERBASIN Upper Klutucky
STATION# 350+50	AGENCY 1497C
INVESTIGATORS	
FORM COMPLETED BY ELS	DATE 9-18-17 REASON FOR SURVEY TIME 5.04 AM (M)

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
1 - Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, underent banks, cobble or other stable habitat and at stage to allow full colonization, potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat: well-suited for full colonization potential: adequate habitat for maintenance of populations: presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat: fack of habitat is obvious; substrate unstable or lacking.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 (3) 2 1 0				
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.				
SCORE:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow- are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 (				
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from grayel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bat development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 (3) 2 1 (				
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1/				

3 Dominant Trees:	Rod	oule			
Bankfull Depth:	4"	Bankfull Width:	Z*	ankfull Area:	
Max. Wetted Depth:		Avg. Wetted Depth:	Specific Co	nductivity: 160)	Temp:

Habitat		Conditio	n Category			
Parameter	Optimal	Suboptimal	Marginal	Poor		
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural		Generally all flat water shallow riffles; poor habitat, distance betwee ritfles divided by the width of the stream is a ratio of >25.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over, 5-30% of bank in reach has areas of erosion	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable: many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has erosional sears.		
SCORE (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	5 A 3	2 1 0		
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potentia to any great extent; more than one-half of the potential plant stubble height remaining.	stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.		
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 /3/	2 1 0		
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots; roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due human activities.		
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	6 1 0		
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	6 1 0		

Total Score 49

A-8

from weeks to reads the

STREAM NAME 526	1	LOCATION K	4 30	Jarles	on Newson
STATION #RIVER	MILE	STREAM CLASS ( )	PER INT EP		
LA37.398682 LONG	83.843064	RIVERBASIN	Unne	n Kow	tucky
STATION# 367+0	0	AGENCY		KYTC	(
INVESTIGATORS					
FORM COMPLETED BY	ELS	DATE 9-18-17 TIME 2 42	AM EM	SON FOR SURVE	Y

Habitat		Condition	Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
I. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover: mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags, that are not new fall and not transient).	40-70% mix of stable habitat: well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 (3) 2 1 0
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0
4, Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0
5. Channel Flow Status (Bars must be covered to score high bankfull)	The State of the S	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 /

3 Dominant Trees:	Kel,	Maple, Koul o	ale	tulis peplat	
Bankfull Depth:	411	Bankfull Width:	21	Bankfull Area:	
Max. Wetted Depth:	-	Avg. Wetted Depth:	-	Specific Conductivity: (100) Temp:	

Habitat		Conditio	n Category			
Parameter	Optimal	Suboptimal	Marginal	Poor		
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabior or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely,		
SCORE:	20 19 18 17 16	(13) 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitatis key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water o shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.		
SCORE	20 19 18 17 16	15 14 13 (12 11	10 9 8 7 6	5 4 3 2 1 0		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. *5% of bank affected.  Moderately stable; infrequent, small areas of crosion mostly healed over. 5-30% of bank in reach has areas of crosion.		Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods	Unstable: many croded areas: "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60-100% of bank has crosional scars.		
SCORE(LB)	Left Bank 10 9	8 7 6	(3) 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	<i>(</i> 3) 4 3	2 1 0		
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody, macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potentia to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambant vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.		
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0		
SCORE (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2. 1 1 0		
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts; lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters: human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due t human activities.		
SCORE(LB)	Left Bank 10 9	/8 <sub>7</sub> 7 6	5 4 3	2 1 0		
Laborate Control	Right Bank 10 9	8 7 6	5 4 3	2 1 0		

Total Score <u>92</u>

STREAMNAME \$25	LOCATION KY 30 Jacken Ourse
STATION #RIVERMILE	STREAM CLASS ( PER INT (EDM)
LAB7.400598 LONG83.841543	RIVERBASIN Upman Kentrecker
STATION# 375+00	AGENCY LYTC
INVESTIGATORS	
FORM COMPLETED BY EUS	TIME 2:37 AM (M) REASON FOR SURVEY

Habitat	Condition Category						
Parameter	Optimal	Suboptimal	Marginal	Poor			
I. Epifaumal Substrate/ Available Cover	Epifaunal substrate favorable for chistrate epifaunal colonization and desirable Cover fish cover; mix of snags.		availability less than desirable; substrate frequently disturbed or	habitat; lack of habitat obvious; substrate unstable or lacking.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 (2) 1 0			
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 1			
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	s present (slow- low-shallow, fast- ist-shallow). s $< 0.3$ m/s, deep is		Dominated by 1 velocity depth regime (usually slow-deep).			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6 4 3 2 1			
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
5. Channel Flow Status (Bars must be covered to score high bankfull)	The second secon	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 10			

3 Dominant Trees:	WI	rite out Red 14	Inplo	
Bankfull Depth:	3,1	Bankfull Width:	Bankfull Area:	
Max. Wetted Depth:	-	Avg. Wetted Depth:	Specific Conductivity: 100 Temp:	

Habitat		Condition	Category			
Parameter	A CONTRACTOR OF THE PROPERTY O				Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.		
SCORE	20 19 18 17 16	15 14 13 12/11)	10 9 8 7 6	5 4 3 2 1 0		
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.		
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crossion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	osion or bank failure infrequent, small areas of erosion mostly healed over 5-30% of bank in reach has areas of erosion.		Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional sears.		
SCORE (LB)	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	5 3 3	2 1 0		
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble, height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	removed to 5 centimeters or less in average stubble height.		
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 (6)	5 4 3	2 1 0		
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone smeters: little or no riparian vegetation due thuman activities.		
SCORE(LB)	Left Bank 10 9	8 7 6	(5) 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0		

from pond, through woods

Total Score 70

A-8

STREAM NAME \$23	LOCATION KY 30 Zaykson Ous
STATION# RIVERMILE	STREAM CLASS ( PER (NX EPH )
LAB1,403316 LONG 83,839083	RIVERBASIN Uppen Kontucky
STATION# 386+60	AGENCY (PV X YTC
INVESTIGATORS	
FORM COMPLETED BY	TIME 1 35 AM PAY REASON FOR SURVEY

Habitat	Condition Category								
Parameter	Optimal	Suboptimal	Marginal	Poor					
I. Epifaunal Sübstrate/ Available Cover	abstrate/ epifaunal colonization and		20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious: substrate unstable or lacking.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0					
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Embeddedness riffles – estimated m 5 largest rocks in sediment. Layering of sediment.		Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 0 6	5 4 3 2 1 0					
3. Velocity/Depth Regime (At Bankfull)	deep, slow-shallow, fast- deep, fast-shallow). missing, score lower than if missing other regimes).		Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0					
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools,	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the hottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0					
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 (6)	5 4 3 2 1 0					

3 Dominant Trees: _	HIELD	ry ked	NIGPIP	Luip Topla	r	
Bankfull Depth:	3"	Bankfull Width	ı:2 '	Bankfull Are	a:	
Max. Wetted Depth:		Avg. Wetted Depth:	<11	Specific Conductivity:	29.9	Temp: <u>69.6</u>

Habitat		Condition	Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
6, Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern,	Some channelization present, usually in areas of bridge abutments: evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabior or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 13 12	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional sears.	
SCORE(LB)	Left Bank 10 9	8 /19 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 6 6	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambant vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	6) 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters: human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due thuman activities.	
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0	
SCORE (RB)	Right Bank 10 9	8 7 6	3 4 3	2 1 0	

Trail along right bank

Total Score 97

A-8

STREAMNAME 524		LOCATION KY 30 Tackson Ows
STATION #RIVERMI	LE	STREAM CLASS ( PER INT (EPH )
LAB7.404964 LONGS	3.837652	3 RIVERBASIN / Open Klutucky
STATION# 394+00		AGENCY ( KYTC
INVESTIGATORS		
FORM COMPLETED BY	ELS	DATE 9-18-17 TIME 1554 AM (W) REASON FOR SURVEY

Habitat	Condition Category						
Parameter	Optimal	Suboptimal	Marginal	Poor			
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 🛈 6	5 4 3 2 1 0			
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	or riffles – estimated at 125% surrounded by fine sediment. Luyering of sediment sediments are sediments.		Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment,			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 6 3 2 1 0			
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 (			
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstractions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	G 4 3 2 1 (			
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1/			

3 Dominant Trees:	Hickory	Red Maple	white	ale	
Bankfull Depth:	2	Bankfull Width:	1.5	Bankfull Area:	
Max. Wetted Depth:	-	Avg. Wetted Depth:	- Spe	ecific Conductivity $(29.4)$ Te	mp:

Habitat		Conditio	n Category			
Parameter	Optimal	Suboptimal	Marginal	Poor		
6, Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely,		
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0		
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are confinuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles relatively frequent; ratio of distance between riffles livided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are confinuous, placement of boulders or		Generally all flat water shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.		
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 (		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	osion or bank failure infrequent, small areas of erosion mostly healed over, 5-30% of bank in reach has areas of erosion.		Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional sears.		
SCORE(LB)	Left Bank 10 9	8 7 @	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6)	5 4 3	2 1 0		
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potentia to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.		
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 6 6	5 4 3	2 1 0		
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal:	Width of riparian zone meters: little or no riparian vegetation due human activities.		
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	5 (4) 3	2 1 0		

Total Score 80

A-8

Trail along 1.9

+ 501

STREAM NAME SZI	LOCATION KY 30 Jackson Oursley
STATION #RIVERMILE	STREAM CLASS (PER) INT EPH)
LAB7.411960 LONG83.830193	RIVERBASIN Unner Kentucky
STATION# 4/8+00	AGENCY // 1697C (
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-18-17 TIME 12: 12 AM (PM) REASON FOR SURVEY 404

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
1. Epifaunal Substrate/ Available Cover	substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut habitat; well-suited for fixed declaration potential; and equate habitat for declaration maintenance of fixed declaration potential; and provide the provided declaration potential; and provided declaration potential;		20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.				
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0				
2. Limbeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.		Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.				
SCORE	20 19 18 17 16	15 14 (3) 12 11	10 9 8 7 6	5 4 3 2 1 0				
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by I velocity depth regime (usually slow-deep).				
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0				
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.				
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0				
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools				
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 (				

3 Dominant Trees:	Walno	of Birch					
Bankfull Depth:	1	Bankfull Width:	7'	Bankfull Area			
Max. Wetted Depth:	8"	Avg. Wetted Depth: _	3"	Specific Conductivity: _	197	_ Temp:	6920

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
6. Channel Channelization or dredging absent or minimal; stream winormal pattern.		Iredging absent or present, usually in areas of bridge abutments;		Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0				
7: Frequency of Riffles (or bends)	relatively frequent; ratio of distance between riffles divided by width of the stream < 7:1 [generally 5] infrequent; distance between riffles divided by the width of the stream is between 7 to 15.		Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	on or bank failure infrequent, small areas of tor minimal; little tial for future over. 5-30% of bank in reach has areas of erosion.		Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional scars.				
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0				
SCORE(RB)	Right Bank 10 9	8 0 6	5 4 3	2 1 0				
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potentiat to any great extent; more than one-half of the potential plant stubble height remaining.	stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambant vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.				
SCORE(LB)	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0				
SCORE(RB)	Right Bank 10 9	8 7 6	5 3	2 1 0				
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due t human activities.				
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0				
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 B	2 1 0				

Total Score 10/ Between two fields

A-8

STREAMNAME 519	LOCATION KY30 Jackson/Ousle
STATION #RIVERMILE	STREAM CLASS ( PER (ND EPH )
LA 137.415732 LONG 83.826276	RIVERBASIN Washen Kentucky
STATION# 442+00	AGENCY KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-7-17 REASON FOR SURVEY TIME 1 25 M M YOU

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
L Epifaunal Substrate/ Available Covers	Greater than 70% of substrate favorable for epifaumal colonization and tish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate amstable or lacking.				
SCORE	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0				
2: Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.				
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1				
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is < 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).				
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1				
4. Sediment Deposition (in paols)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from grayel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased by development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.				
SCORE.	20 19 18 17 16	15 14 13 12 11	(18) 9 8 7 6	5 4 3 2 1				
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or rifile substrates are mostly exposed.	Very little water in channel and mostly present as standing pool				
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1				

3 Dominant Trees: _	Ked	Maple Ked	sak,	Into Toplet		
Bankfull Depth:	1	Bankfull Width: _	61	Bankfull Area:		
Max. Wetted Depth:	611	Avg. Wetted Depth: _	7"	Specific Conductivity: 209	Temp:	66.8°F

Habitat		Condition	on Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabie or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles, relatively frequent; ratio of distance between riffles divided by width of the stream \$7;1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riflle or bendal bottom contours provide some habitat; distance between rifles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of \$25.	
SCORE	20 19 18 17 16	(15)14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream,	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over _5-30% of bank in reach has areas of erosion	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60-100% of bank has erosional sears.	
SCORE(LB)	Left Bank 10 9	8 7 69	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented: disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambant vegetation is very high: vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due to human activities:	
SCORE(LB)	Left Bank 10 9	8 7 (9	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0	

Total Score \_\_\_127

STREAM NAME 570	LOCATION KY 30 Jackson Owesle
STATION # RIVERMILE	STREAM CLASS ( PER INT (EPH )
LA137414951 LONG-83.826246	RIVERBASIN Unnen Kentucky
STATION# 445 +00	AGENCY KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-7-16 REASON FOR SURVEY TIME 1.30 AM FM 404

Habitat	Condition Category						
Parameter	Optimal	Suboptimal	Marginal	Poor			
Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).		40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).		Less than 20% stable habitat, lack of habitat is obvious; substrate unstable or lacking.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are ()- 25% surrounded by line sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 @ 1 0			
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is < 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low),	Dominated by 1 velocity depth regime (usually slow-deep).			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	@ 4 3 2 1 1			
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or line sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased ba development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(3) 4 3 2 1 (			
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel; substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1			

3 Dominant Trees:	Red	Maple Beer	4	
Bankfull Depth:	jec	Bankfull Width:	1914	Bankfull Area:
Max. Wetted Depth:	-	Avg. Wetted Depth:	-	Specific Conductivity: [201] Temp:

Habitat		Condition	n Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	Source Chainten		Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabin or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream ~7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; hottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable: infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high erosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60-100% of bank has crosional sears.	
SCORE(LB)	Left Bank 10 9	8 7 6	(5) 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing iminimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambank vegetation is very high: vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 0	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 /3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone -18 meters, human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 (3)	2 1 0	
SCORE (RB)	Right Bank 10 9	8 7 6			

Total Score 57 stream down trail

STREAM NAME 518	LOCATION K.9	30 Jackson Ours
STATION #RIVERMILE	STREAM CLASS ( PER (IN	P EPH )
LAB7.419970 LONG 83.82/663	RIVER BASIN 1/2	per Kentucky
STATION# 465+00	AGENCY	KYTC
INVESTIGATORS		
FORM COMPLETED BY	DATE 9-7-15 TIME 11, 10 (2) PM	REASON FOR SURVEY

Habitat	Condition Category											
Parameter	Optimal	Suboptimal	Marginal	Poor								
1, Epifaunal Substrate Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat: well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.								
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0								
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	The state of the s	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.								
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0								
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is = 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).								
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5) 4 3 2 1 0								
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars, and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from grayel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.								
SCORE:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4) 3 2 1 0								
5. Channel Flow Status (Bars must be covere to score high bankful		Water fills >75% of the available channels or = 25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools								
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 /7/ 6	5 4 3 2 1 0								

3 Dominant Trees:	Red	Maple	Burch			
Bankfull Depth:	411	Bankf	ull Width: _	2 1	Bankfull Area:	
Max. Wetted Depth:	3"	_ Avg. Wette	d Depth: _	T''	Specific Conductivity: 387 Temp: 67	<u>.</u> 4 =

Habitat		Condition	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabie or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 /8) 7 6	5 4 3 2 1 (
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent, ratio of distance between riffles divided by width of the stream <7.1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of -25.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 (
8. Bank Stability (score each bank) Note; determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of crosion mostly healed over. 5-30% of bank in reach has areas of crosion.	Moderately unstable; 30-60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crosional sears.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	② 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	(2) 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation, disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 0	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 (3)	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human netivities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters: human activities have impacted zone only minimally,	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters; little or no riparian vegetation due to human activities.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 0 0

Total Score 54 Pushed to Road, con parture

STREAM NAME 5 17	LOCATION K930 Jackson/Owsler
STATION #RIVERMILE	STREAM CLASS ( PER (N) EPH )
LAT37.420614 LONG 83.8185	27 RIVERBASIN Under Kentucky
STATION# 474+00	AGENCY PLYTCE
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-7-17 TIME 10:50 (M) PM REASON FOR SURVEY

Habitat	Condition Category												
Parameter	Optimal	Suboptimal	Marginal	Poor									
l. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, underent banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% amix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat: lack of habitat is obvious; substrate unstable or lacking.									
SCORE	20 19 18 17 16	15 14 13 12 1	10 9 8 7 6	5 4 3 2 1 0									
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% a surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.									
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0									
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is = 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).  Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).  Dominated by 1 v depth regime (usu slow-deep).											
SCORE.	20 19 18 17 16	15 14 13 12 11	(1) 9 8 7 6	5 4 3 2 1 0									
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars: 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased by development: more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.									
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0									
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water tills >75% of the available channel; or <25% of channel substrate is exposed.	Water tills 25-75% of the available channel, and/or rifle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools									
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 /8) 7 6	5 4 3 2 1 0									

3 Dominant Trees:	Rel	Muple, Talle 0	polar				
Bankfull Depth:	611	Bankfull Width:	2	Bankfull Area:			
Max. Wetted Depth:	611	Avg. Wetted Depth:	14	Specific Conductivity:	140	Temp:	60 4

Habitat		Condition	n Category						
Parameter	Optimal	Suboptimal	Marginal	Poor					
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Banks shored with gabi- or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered o removed entirely.							
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 (					
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15,	Occasional riffle or bend: bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of 25.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 /9 8 7 6	5 4 3 2 1 0					
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems, $<5^{\alpha}$ <sub>b</sub> of bank affected.	rosion or bank failure infrequent, small areas of coson mostly healed over. 5-30% of bank in reach has areas of erosion.  infrequent, small areas of 60% of bank in reach has areas of erosion.  60% of bank in reach has areas of erosion.							
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	erosional scars.					
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 8)	2 1 0					
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or moving minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.					
SCORE(LB)	Left Bank 10 9	8 7 <b>©</b>	5 4 3	2 1 0					
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0					
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone -18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone - meters: little or no riparian vegetation due thuman activities.					
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0					
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	@ 1 0					

Total Score 88 Chancel along hillside

STREAM NAME \$16	LOCATION KY30 Jackson/Owsle
STATION #RIVERMILE	STREAM CLASS ( PER (N) EPH )
LAT37.424085 LONE83.815651	RIVERBASIN Uppen Kentucky
STATION# 489+00	AGENCY PKYTC
INVESTIGATORS	
FORM COMPLETED BY  ELS	DATE 9-1-17 TIME TO 35 OPM REASON FOR SURVEY 404

Habitat	Condition Category											
Parameter	Optimal	Suboptimal	Marginal	Poor								
1. Epitaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-stated for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking,								
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 (3) 2 1 0								
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50° a surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by tine sediment.								
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0								
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Dominated by 1 velocity depth regime (usually slow-deep).									
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	8/4 3 2 1 0								
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or tine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends, moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.								
SCORI;	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0								
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel; substrate is exposed.	Water fills 25-75% of the available channel, and/or rtille substrates are mostly exposed.	Very little water in channel and mostly present as standing pools								
SCORE.	20 19 18 17 16	15 14 13 12 11	10 9 8 7 (6)	5 4 3 2 1 0								

SCORE:	2	0	19 18	17	16	1.5	14 13	12	11	10	9	8	1	(6)	5	4	3	2	1	0
3 Dominant Trees:	Blo	ck	W,	1104		Red	1	40	le.											
Bankfull Depth:	3'	Ŧ		Bank	cfull '	Width	:_1	5	1		Bar	nkful	l Are	ea:						
Max. Wetted Depti	n; <u>I</u>		Avg.	Wett	ed D	epth:	_	11	Spe	cific (	Conc	lucti	vity:	5	16	_ :	Ten	ip:	6	1.7

Habitat		Condition	Condition Category								
Parameter	Optimal	Suboptimal	Marginal	Poor							
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabi- or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly aftered of removed entirely.							
SCORE	20 19 18 17 16	15 14 13 12 11	10/9 8 7 6	5 4 3 2 1 (							
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat iskey. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water shallow riffles; poor habitat; distance betwee riffles divided by the width of the stream is a ratio of >25							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (							
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems, *5% of bank affected.	Moderately stable: infrequent, small areas of crosion mostly healed over. 5-30% of bank in- reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable: many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crosional sears.							
SCORE(LB)	Left Bank 10 9	8 7 6	5 49 3	2 1 0							
SCORE(RB)	Right Bank 10 9	8 7 6	5 (4) 3	2 1 0							
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.							
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 8	2 1 0							
SCORE(RB)	Right Bank 10 9	8 7 (6)	5 4 3	2 1 0							
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone- meters: little or no riparian vegetation due to human activities.							
SCORF:(LB)	Left Bank 10 9	8 7 6	5 4 (3)	2 1 0							
SCORE(RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0							

Total Score \_\_\_\_ 65

Stream into wetland 5, dismpted by contri

STREAM NAME 5/5	LOCATION KY30 Jackson-Ousle
STATION #RIVERMILE	STREAM CLASS ( PER INT (DP)
LAT 37.42725/ LONG 83.813038	RIVERBASIN Uppen Kentricky
STATION# 503+50	AGENCY KYTC
INVESTIGATORS	
FORM COMPLETED BY	TIME 10. 03 GV PM REASON FOR SURVEY

Habitat	Condition Category								
Parameter	Optimal	Suboptimal	Marginal	Poor					
I. Epifaunal Substrate/ Available Cover	substrate/ epifaunal colonization and		20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 🗘 6	5 4 3 2 1 0					
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine- sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 @ 3 2 1 0					
Velocity/Depth Regime  (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is = 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fust-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	6/4 3 2 1 0					
4, Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected: slight deposition in pools.	Moderate deposition of new gravel, sand or fine- sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0					
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (					

3 Dominant Trees:	Beech	Silver Map	10		
Bankfull Depth:	410	Bankfull Width:	14"	Bankfull Area:	
Max. Wetted Depth:		Avg. Wetted Depth:	Spe	cific Conductivity: (56.4)	Temp:

Habitat		Condition	n Category		
Parameter	Optimal	Optimal Suboptimal Marginal			
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.  Some channelization present, usually in areas of bridge abutments: exidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.  Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.		Banks shored with gabie or cement: over \$0% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.		
SCORE	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 (	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 (	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	osion or bank failure sent or minimal; little tential for future oblems. <5% of bank reach has areas of crosion.		Unstable: many croded areas: "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crosional sears.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 (4) 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by Vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone  18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE (RB)	the contract of the contract o	6 7 6			

Total Score 87

A-8

bulldozel at so Hom

STREAM NAME \$14	LOCATION 14430 Lackson/Clush
STATION #RIVERMILE	STREAM CLASS ( PER (N) EPH )
LABT 428349LONG83.812409	RIVERBASIN Maple Klutucky
STATION# 508100	AGENCY KYTC
INVESTIGATORS	And the second s
FORM COMPLETED BY ELS	DATE 9-7-7 REASON FOR SURVEY 404

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
	faunal substrate favorable for epifaunal colonization and lish cover; mix of snags, submerged logs, underent submerged logs, under submerged logs		20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0				
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 6/6	5 4 3 2 1 0				
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is < 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).				
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0				
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently, pools almost absent due to substantial sediment deposition.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(3) 4 3 2 1 0				
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or >25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				

3 Dominant Trees:	White	e out, silver	Maple	Beech	
Bankfull Depth: 611		Bankfull Width:	4'	Bankfull Area:	
Max. Wetted Depth:	2" A	wg. Wetted Depth:	)" Speci	fic Conductivity: 444 Ten	ip: 60.6°

Habitat	0.7	Condition Category						
Parameter	Optimal	Suboptimal	Marginal	Poor				
6. Channel Alteration	Boilie Cimi		Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabi or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly aftered o removed entirely.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1				
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream—7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	relatively frequent; ratio of distance between riffles divided by width of the stream 7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural		Generally all flat water shallow riffles; poor habitat; distance betwee riffles divided by the width of the stream is a ratio of >25.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1				
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. \$50°a of bank affected.	ossion or bank failure infrequent, small areas of crosion mostly healed over. 5-30% of bank in reach has areas of crosion.		Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has erosional sears.				
SCORE(LB)	Left Bank 10 9	8 7 6	5 4) 3	2 1 0				
SCORE(RB)	Right Bank 10 9	8 7 6	5 6/ 3	2 1 0				
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes, vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.				
SCORE (LB)	Left Bank 10 9	8 7 6	(3) 4 3	2 1 0				
SCORE(RB)	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0				
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due thuman activities.				
A STATE OF THE STA	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0				
SCORE(LB)			V.					

STREAMNAME 513	LOCATION KY30 Julyson/Owsle
STATION #RIVERMILE	STREAM CLASS ( PER INT ENT)
LAB7.429395 LONG83.810654	RIVERBASIN Unner Kentricky
STATION# 5/3+50	AGENCY TLYTC
INVESTIGATORS	
FORM COMPLETED BY  ELS	TIME 4:30 O PM REASON FOR SURVEY

Habitat	Condition Category						
Parameter	Optimal	Suboptimal	Marginal	Poor			
1, Epitaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undereut banks, cubble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat: well-stated for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	s – estimated 25% surrounded by fine sediment. Layering of sediment.		Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low),	Dominated by 1 velocit depth regime (usually slow-deep).			
SCORE	20 19 18 17 16	15 14 13 12 11	10/9876	5 4 3 2 1			
4 Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased by development, more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.			
SCORE	20 19 18 17 16	15 14 13 (2) 11	10 9 8 7 6	5 4 3 2 1			
5. Channel Flow Status (Bars must be covered to score high bankfull)	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water tills >75% of the available channel; or -25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool			
SCORE	20 19 18 17 16	15 14 13 12 11	10, 9 8 7 6	5 4 3 2 1			

3 Dominant Trees: _	Beech	white oak	Water	Mapo		
Bankfull Depth:	3"	Bankfull Width:	2'	Bankfull Are	a:	
Max. Wetted Depth	: 2"	Avg. Wetted Depth:	610	_ Specific Conductivity:	56,4	Temp: 60.4°

Habitat		Conditi	on Category		
Parameter	Optimal	Optimal Suboptimal Marginal			
6. Channel Alteration Channelization or dredging absent or minimal; stream with normal pattern.		Some channelization, present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabi or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered o removed entirely.	
SCORL	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or		Generally all flat water of shallow riffles; poor habitat: distance between riffles divided by the width of the stream is a ratio of ~25.	
SCORE	20 19 18 17 16	15 14 13/12 11	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable: evidence of crosion or bank failure absent or minimal; little potential for future problems: #5% of bank affected.	Moderately stable: infrequent, small areas of crosion mostly healed over, 5-30% of bank in reach has areas of crosion	Moderately unstable; 30- 60% of bank in reach has areas of crosion, high crosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing, 60-100% of bank has erosional scars.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-balf of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambanl vegetation is very high: vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 Ø 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 G 6	5 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 7 Q	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0	

Total Score\_ 110

STREAM NAME 512	LOCATION 4730 Jackson/Owsla
STATION #RIVERMILE	STREAM CLASS (PER INT EPH )
LAB7.429044LONG63.809838	RIVERBASIN Ushen Kentucky
STATION# 5/2+50	AGENCY KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE TIME AN PM REASON FOR SURVEY 404

Habitat		Condition Category					
Parameter	Optimal	Suboptimal	Marginal	Poor			
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epitaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat: habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% a stable habitat; lack of habitat is obvious; substrate unstable or lacking.			
SCORE	20 19 18 17 16	15 14 13 12 11	0 9 8 7 6	5 4 3 2 1 0			
from 5 largest rocks in	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% a surrounded by line sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine- sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.			
SCORE	(20) 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow, are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep)			
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0			
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar- formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.			
SCORE	20 19 18 17 16	13 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
5. Channel Flow Status (Bars must be covered to score high bankfull)	Contract Con	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools			
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0			

3 Dominant Trees:	Sycar	more red out						-
Bankfull Depth:	9"	Bankfull Width: _	21	Bankfull Area	ı			
Max Wetted Depth:	1,	Avg. Wetted Depth:	10	Specific Conductivity:	324	Temp:	57.	701

Habitat		Condition	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80%, of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 ①	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend: bottom contours provide some habitat: distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable: infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional sears.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 6	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 Q	2 1 0
9, Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes, vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented, disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambank vegetation is very high: vegetation has been removed to 5 centimeters or less in average stubble height,
SCORE(LB)	Left Bank 10 9	8 7 6	(S) 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	G 4 3	2 1 0
10. Riparian Vegetative Zone Width (seorg each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation due to human activities.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	

Total Score 112 flows from woods to cleared section by grand drive

STREAMNAME 511	LOCATION KY30 Jackson	Cusley
STATION #RIVERMILE	STREAM CLASS ( PER INT (PP))	, 0
LA137.435460LONG 83,806516	RIVERBASIN MODER Kentuck	ty
STATION# 534+20	AGENCY PLYTC	(
INVESTIGATORS		
FORM COMPLETED BY	DATE G-6-17 TIME 32.5 AM PY REASON FOR SURVEY 404	

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat: habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or fackings				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
3. Velocity/Depth Regime (At Bankfull)	All four velocity depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	O 4 3 2 1 0				
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from grayel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars: 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bat development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (				
5. C'hannel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 10				

3 Dominant Trees:	Water	Maple Red	Maple	6 White	one	
Bankfull Depth:	3"	Bankfull Width		Bankfull	W27-E-2)	
Max. Wetted Depth:		Avg. Wetted Depth:	_	Specific Conductiv	ity: 33.5)	Temp:

Habitat		Conditie	n Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement: over \$0^{9a} of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 (12 11	10 9 8 6 6	5 4 3 2 1 (	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent, ratio of distance between riffles divided by width of the stream = 7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	sion or bank failure infrequent, small areas of erosion mostly healed over, 5-30% of bank in reach has areas of erosion.		Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crostonal sears.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.  70-90% of the streambank surfaces covered by native vegetation, but one clas of plants is not well-represented; disruption evident but not affecting full plant growth potent to any great extent; more than one-half of the potential plant stubble height remaining.		50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambanl vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 49 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 1 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone [2-]8 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone meters; little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	G 1 0	

A-8 Appendix A-1: Habitat Assessment and Physicochemical Characterization Field Data Sheets - Form 2

Chernel

STREAM NAME 510	LOCATION K130 -2	uckson Dwsla
STATION #RIVERMILE	STREAM CLASS ( PER INT (PH))	(
LAT32.436621 LONG 83,806409	RIVERBASIN Unple	Rentrecky
STATION# 541+00	AGENCY	YTC 1
INVESTIGATORS	1	
FORM COMPLETED BY	DATE 4-6-17 TIME 3:03 AM (A)	OR SURVEY 404

Habitat		Condition Category			
Parameter	Optimal	Suboptimal	Marginal	Poor	
I. Epifaunal Substrate Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, underent banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by line sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.	
SCORE	20/19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow), (Slow is = 0.3 m/s, deep is = 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by I velocity depth regime (usually slow-deep).	
SCORI:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	S 4 3 2 1 0	
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently, pools almost absent due substantial sediment deposition.	
SCORE	20 19 18 17 16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	

3 Dominant Trees:	Whi	te oak Black	Walna	+ Box Elder		
Bankfull Depth:	3"	Bankfull Width:	1.5	Bankfull Area:	<u></u>	
May Wetted Denth	1"	Avg Wetted Denth	=1"	Specific Conductivity	335 Temr	67.10

Habitat		Conditio	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 (1) 11	10 9 8 7 6	5 4 3 2 1 0
7 Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream = 7:11 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 6 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable: evidence of erosion or bank failure absent or minimal; fittle potential for future problems. <5% of bank affected.	Moderately stable: infrequent, small areas of crosion mostly healed over. 5-30% of bank in reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crosional sears.
SCORE(LB)	Left Bank 10 9	8 7 6	5 40 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9_Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.  70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.		50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streamban vegetation is very high: vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	8 6 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 0 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters, human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone of meters: little or no riparian vegetation due to human activities.
SCORE(LB)	Left Bank 10	8 7 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10	8 7 6		

Total Score 108 From Cleared area, bed rock

STREAM NAME 56 8	LOCATION KY30 Lackson / Owsley
STATION #RIVERMILE	STREAM CLASS ( PER ( ) EPH )
LAT37.437990 LONG 83,804493	RIVERBASIN Upper Kentucky
STATION# 542-50	AGENCY KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-6-17 TIME 2: 40 AN CAY REASON FOR SURVEY 404

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
i. Epifaunal Substrate: Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).  20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.		Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and houlder particles are mor than 75% surrounded by fine sediment.				
SCORE:	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0				
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is < 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes)	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0				
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bat development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
5. Channel Flow Status (Bars must be covered to score high bankfull)	Service of the Control of the Contro	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool				
SCORE	20 19 18 17 16	15 14 13 12 11	(0) 9 8 7 6	5 4 3 2 1				

3 Dominant Trees: _	Water	Maple,					
Bankfull Depth:	611	Bankfull Width:	31	Bankfull Area	a:		
Max. Wetted Depth:	2"	Avg. Wetted Depth:	$\mathbf{L}^n$	Specific Conductivity:	527	Temp:	65.19

Habitat		Condition	n Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80%, of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream 12:1 (generally 5 to 7); variety of habitat is key. In streams where rittles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable: many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crosional sears.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 (4, 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high: vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 7	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone -18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone of meters: little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 (7) 6	5 4 3	2 1 0	
SCORE (RB)	Right Bank 10 9	8 // 6	5 4 3	2 1 0	

Total Score\_\_\_\_96

STREAM NAME 509	LOCATION K430 Jackson Owsley
STATION #RIVERMILE	STREAM CLASS ( PER INT (PP))
LAT37.437204LONG83.804983	RIVERBASIN MARIE Klutucke
STATION# 547+00	AGENCY ( ZYTC /
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-6-17 TIME 1/56 M (F) REASON FOR SURVEY

Habitat		Condition	Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags, that are not new fall and not transient).	40-70% mix of stable habitat; well-stated for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 1 6	5 4 3 2 1 0
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% a surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Ciravel, cobble, and boulder particles are mo than 75% surrounded by fine sediment.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Velocity Depth Regime  (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is = 0.3 m/s, deep is = 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 C
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fin material, increased by development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1
5. Channel Flow Status (Bars must be covered to score high bankfull)	THE STATE OF THE PARTY OF THE P	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing poo
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 /

3 Dominant Trees: _	White	ook, Tulip	Poplar, Water Made
Bankfull Depth:	2"	Bankfull Width:/	Bankfull Area:
Max. Wetted Depth	ست	Avg. Wetted Depth:	Specific Conductivity: 33.5 Temp:

Habitat		Conditie	n Category	· ·	
Parameter	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement: over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable: infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has- areas of erosion; high erosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crostonal sears.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 0	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORF (LB)	Left Bank 10 9	8 7 6	5 4) 3	2 I 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 (4) 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone so meters: little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	

Total Score\_\_\_\_\_70

interupt

by train

STREAM NAME 506	LOCATION KY	30 Tackson/Owsle
STATION #RIVERMILE	STREAM CLASS ( PER) IN	NT EPH)
LA137.438244 LONG 83.80256	5 RIVERBASIN //O	ner Kentucky
STATION# 553+50	AGENCY	124TC
INVESTIGATORS		
FORM COMPLETED BY	DATE 4-(-1) AM (PM)	REASON FOR SURVEY  404

1	Habitat		Condition	Category		
	Parameter	Optimal	Suboptimal	Marginal	Poor	
	1. Epifaunat Substrate Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat: habitat availability less than desnrable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
	SCORE	20 19 18 17 16	15 14 (13)12 11	10 9 8 7 6	5 4 3 2 1 0	
	2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble; and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.	
Parameters to be evaluated in sampling reach	SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0	
	3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow), (Slow is < 0.3 m/s, deep is < 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).	
	SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0	
	4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or tine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.	
	SCORE	20 19 18 17 16	15 14 13 12 11	10) 9 8 7 6	5 4 3 2 1 0	
	5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or >25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools	
	SCORE	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1	

3 Dominant Trees: _	water	Maple Sycami	re		
Bankfull Depth:	1.51	Bankfull Width:	8	Bankfull Area:	
Max. Wetted Depth	-11	Avg. Wetted Depth: _	2"	Specific Conductivity: <u>\$ 7</u>	Temp: <u>64.5</u>

Habitat		Condition	1 Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
6, Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach, channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 12/1/	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7; I (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note; determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little-potential for future problems. <5% of bank-affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crosional sears.	
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0	
9, Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparion zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE (LB)	Left Bank 10 9	8 7 6)	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
to. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters, human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 7 (6)	5 4 3	2 1 0	
SCORE (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0	

Total Score\_ 120 along 166d

STREAM NAME 507	LOCATION KY30 Jayeson Owslay
STATION #RIVERMILE	STREAM CLASS ( PER (IN) EPH )
LAT 37.438773 LONG 83.803438	RIVERBASIN Upper Kentucky
STATION# 554+00	AGENCY 1697C
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-6-17 TIME 2:50 MM PM REASON FOR SURVEY

Habitat	Condition Category								
Parameter	Optimal	Suboptimal	Marginal	Poor					
I. Epifaunal Substrate Available Cover	ireater than 70% of abstrate favorable for pifaunal colonization and ish cover; mix of snags, ubmerged logs, underent ands, cobble or other table habitat and at stage of allow full colonization potential (i.e., logs snags that are not new fall and tot transient).  40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).		20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.					
SCORE	20 19 18 17 16	15 14 13 12 ①	10 9 8 7 6	5 4 3 2 1 0					
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0+ 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder panieles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.					
SCORE	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0					
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	s present (slow- low-shallow, fast- ist-shallow). s $\leq 0.3$ m/s, deep is		Dominated by 1 velocity depth regime (usually slow-deep).					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(3) 4 3 2 1 0					
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of lim material, increased ba development: more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.					
SCORI:	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0					
5. Channel Flow Status (Bars must be covered to score high bankfull)	The state of the s	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools					
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0					

3 Dominant Trees:	Been	ch. Water M	aple	White out	=
Bankfull Depth:	9"	Bankfull Width: _	5'	Bankfull Area:	
Max. Wetted Depth:	2	Avg. Wetted Depth: _	120	Specific Conductivity: 172 Temp: 64	180 F

Habitat		Condition	Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments, evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of ritfles relatively frequent; ratio of distance between riffles divided by width of the stream =7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend: bottom contours provide some habitat: distance between riffles divided by the width of the stream is between 1540 25.	Generally all flat water of shallow rifiles; poor habitat; distance between rifles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems, <5% of bank affected.	rosion or bank failure bsent or minimal; little otential for future roblems. <5% of bank in reach has areas of erosion.		Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has crosional sears.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 (6)	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining,	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambant vegetation is very high: vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 (7) 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 (7) 6	5 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human acts ties have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 7 6	⟨S⟩ 4 3	2 1 0	
SCORE (RB)	Right Bank 10 9	8 (7) 6			

Total Score 110 flows into 506 trail along left bank

STREAMNAME 505	LOCATION K430 Lackson Owsla
STATION # RIVERMILE	STREAM CLASS ( PER (N) EPH )
LA137,439597 LONGS 800425	RIVERBASIN Upper Kentucky
STATION# 562+00	AGENCY (TY KYTC
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-6-17 TIME 1 50 AM (SI) REASON FOR SURVEY 404

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
1. Epifaunal Substrate/ Available Cover	Epifannal substrate favorable for epifannal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and		40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 (3, 2 1 0				
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0= 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% a surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine-sediment.				
SCORE:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 (4 ,3 2 1 0				
3. Velocity Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow- are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 (3)2 1 0				
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water tills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very httle water in channel and mostly present as standing pools				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 10				

3 Dominant Trees: _	White	oak,	Bluck	Willow.	Virginia	Pino
Bankfull Depth:	10	_ Bankfull V	Vidth:	1.1	Bankfull Area:	
Max. Wetted Depth:	=	Avg. Wetted D	epth:	Specific C	Conductivity: <u>6</u> 6	<u> Z)</u> Temp:

Habitat		Condition	Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12/11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream =7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crossion or bank failure absent or minimal; little potential for future problems. ≤5% of bank affected.	Moderately stable; infrequent, small areas of crosion mostly healed over. 5-30% of bank in reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high crosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has erosional sears.
SCORE(LB)	Left Bank 10 9	8 7 6	Ø 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	6 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or moving minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambank vegetation is very high: vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	8 (2) 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 (4) 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone 18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone simeters: little or no riparian vegetation due to human activities.
SCORE(LB)	Left Bank 10 9	(8)7 6	5 4 3	2 1 0
	Right Bank 10 9	8 7 6	5 4 (3)	

Total Score

65

flows into wetland 5, pushed against side of hollow

STREAM NAME SOU	LOCATION K930 Jackson/Owsley
STATION #RIVERMILE	STREAM CLASS ( PER (IN) EPH )
LAB7.442588 LONG 83.796396	RIVERBASIN Upper Kentucky
STATION# 579+00	AGENCY I KYTC I
INVESTIGATORS	
FORM COMPLETED BY	DATE 9-6-17 TIME AM PM REASON FOR SURVEY 404

166	Condition Category								
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor					
L. Epifaunal Substrate/ Substrate/ Available Cover  Substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization		40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of seale).		Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(3) 4 3 2 1 0					
2. Embeddedness (In riffles – estimated from 5 largest rocks in	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0					
Velocity Depth Regime  (At Bankfull)	All four velocity depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0					
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 (6)	5 4 3 2 1 0					
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	channel and mostly present as standing pool					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1					

3 Dominant Trees:						
Bankfull Depth:	411	Bankfull Width:	1811	Bankfull Area:		
Max. Wetted Depth:	3"	Avg. Wetted Depth: _	<1"	Specific Conductivity:	762	Temp: <u>64.9</u> *

Habitat		Conditio	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	redging absent or present, usually in areas ninimal; stream with of bridge abutments;		Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream =7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems, <5% of bank affected.	Moderately stable: infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60-100% of bank has crosional sears.
SCORE(LB)	Left Bank 10 9	8 7 6	Ø 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 (3)	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	8 7 6)	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns; or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deaf.	Width of riparian zone of meters: little or no riparian vegetation due to human activities.
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	(8) 7 6	5 4 3	

Total Score 90 + Lrough hollow logged 204 years 0150

STREAM NAME \$03	LOCATION KY30	Jackson Owsley
STATION #RIVERMILE	STREAM CLASS ( PER INT PH	
LA \$7,44444 LONG \$3,794641	RIVERBASIN Usher	Kentucky
STATION# 587+50	AGENCY	KYTC
INVESTIGATORS		
FORM COMPLETED BY	DATE 9-6-17 TIME 172: 53 NI &	ON FOR SURVEY 404

Habitat		Condition	Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs snags that are not new fall and not transient).	40-70% mix of stable habitat: well-suited for full colomization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than destrable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORI:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 (2) 1 0
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and houlder particles are mor than 75% surrounded by fine sediment.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is - 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow- are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 (
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.
SCORE.	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(3) 4 3 2 1 (
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pool
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1

3 Dominant Trees: _	B1414	Willow Virginia	1 rine	
Bankfull Depth:	$I_{B}$	Bankfull Width:1 5	Bankfull Area:	
Max. Wetted Depth:	10	Avg. Wetted Depth: <a>!"</a>	Specific Conductivity:	457 Temp: 67.8 9

Habitat		Condition	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabio or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of rittles infrequent; distance between riffes divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. #5% of bank affected.	Moderately stable: infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious hank sloughing; 60-100% of bank has crossonal sears.
SCORE(LB)	Left Bank 10 9	8 7 6	(5) 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	6 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	8 7 6	<b>3</b> 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < 0 meters: little or no riparian vegetation due to human activities.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 8	2 1 0
SCORE (RB)	Right Bank 10 9			

Total Score\_ 68 down hollow, cleared within 70 x is

STREAM NAME SG 7	LOCATION 14930 Jackson/Owsle
STATION #RIVERMILE	STREAM CLASS ( PER (NT) EPH )
LAB7.445716 LONG-83,792574	RIVERBASIN Upper Kentucky
STATION# 595+60	AGENCY (1 KYTC
INVESTIGATORS	
FORM COMPLETED BY	TIME 12:12 AM (EM) REASON FOR SURVEY 404

trine to a		Condition	Category	
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
I. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undereut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mor than 75% surrounded by fine sediment.
SCORE	20 19 18 17 16	15 14 13 12 ①	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is >0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	3 4 3 2 1 0
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars: 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bat development; more than 50% of the bottom changing frequently; pools almost absent due substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0
5. Channel Flow Status (Bars must be covered to score high bankfull)		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1

3 Dominant Trees: _	Black	Willow. Syc	amore			
Bankfull Depth:	9"	Bankfull Width:	31	Bankfull Area: _		
Max. Wetted Depth:	3"	Avg. Wetted Depth:	Spec	ific Conductivity:	174	Temp: 68

Habitat		Conditi	on Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffes relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15,	Occasional riffle or bend; bottom contours provide	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >28.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of crosion mostly healed over. 5-30% of bank in reach has areas of crosion	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60-100% of bank has erosional sears.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-balf of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-balf of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambanl vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 (6)	5 4 3	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters; little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0	
SCORE (RB)	Right Bank 10 9	8 7 6		Q 1 0	

Total Score 82 Stream next to drive way

HAK FIRE DUT OF BAD POSSIBLY INT. TS/C

# HABITAT ASSESSMENT FIELD DATA SHEET-HIGH GRADIENT STREAMS (FRONT) POND SECONS

70 BE SPRING FED.

563 LOCATION JACKES OUSLEY STREAM NAME STREAM CLASS ( PER INT (EPH) RIVERMILE STATION # RIVER BASIN LONG LAT AGENCY STATION# INVESTIGATORS REASON FOR SURVEY DATE 11-15-17 FORM COMPLETED BY 404 (AM) PM TIME MITM

		Condition	Category	
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal	Greater than 70% of substrate favorable for epitiunal colonization and fish cover; mix of snags, submerged logs, undercur banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0
2. Embeddedness (In riffles – estimated from 5 largest rocks in 4 quads)	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE	20 19 18 17 16	15 14 (13)12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity depth regime (usually slow-deep).
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	pools almost absent due substantial sediment deposition.
SCORE	20 19 18 17 1	6 15 14 (13)12 11	10 9 8 7 6	5 4 3 2 1 (
5. Channel Flow Status (Bars must be covered		Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostl exposed.	channel and mostly
to score high bankfu SCORE		6 15 14 13 12 11	1 10 9 8 7 6	5 4 3 (2) 1

3 Dominant Trees: _	VIRENIE	PINE MULTE DAIR			_
Bankfull Depth:	411	Bankfull Width: _	3'	Bankfull Area:	
Max. Wetted Depth	:-10	Avg. Wetted Depth: _	.5"	Specific Conductivity: (216) Temp: _	-

Habitat		Conditio	n Category	
Parameter	Optima)	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abuttments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive: embankments or shoring structures present on both banks: and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems, <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over: 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has erosional sears.
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streamban vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking) lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of ripatian zone 12-18 meters: human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters: human activities have impacted zone a great deal.	Width of riparian zone < meters: fittle or no riparian vegetation due thuman activities.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	② 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	(2) 1 0

Total Score 98

STREAM NAME SO 1	LOCATION KY30 Tackson/ Owsley
STATION# RIVERMILE	_ STREAM CLASS ( PER INT (PH)
LAB7.447615 LONG-83,79093	3 RIVERBASIN Upper Kentucky
STATION# 603+50	AGENCY LYTC
INVESTIGATORS ELS M.	56
FORM COMPLETED BY	TIME 1145 OF PM REASON FOR SURVEY

2070.0		Condition	Condition Category				
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor			
1. Epitaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal cotonization and lish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(3) 4 3 2 1 0			
3. Velocity/Depth Regime (At Bankfull)	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0			
4, Sediment Deposition (in pools)	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or time sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	pools almost absent due substantial sediment deposition.			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0			
5. Channel Flow Status (Bars must be covered to score high bankfull)	The state of the s	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	channel and mostly present as standing pools			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 /3 1			

3 Dominant Trees:						
Bankfull Depth:	41	Bankfull Width:	1	Bankfull Area		
Max. Wetted Depth:	2"	Avg. Wetted Depth: _	<11,	Specific Conductivity:	216	Temp: <u>66.9</u> ]

Habitat	1	Conditio	n Category		
Parameter	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabic or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7;1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend: bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of crosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over, 5-30% of bank in reach has areas of crosion.	Moderately unstable; 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional scars.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.  70-90% of the streambank surface covered by native vegetation, but one of plants is not well represented; disrupt evident but not affect full plant growth put to any great extent; than one-half of the potential plant stuble height remaining.		50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE (LB)	Left Bank 10 9	8 7 6	5 4 (3)	2 1 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 (3)	2 1 0	
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone < meters: little or no riparian vegetation due to human activities.	
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 () 0	
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 / 0	

Total Score 46 Channelized stream through Field into

#### **EII Forms**

## Ell Calculation for High Gradient Streams in Eastern Kentucky Coalfield (VERSION 2002.6) \*\*(Genus/species Level Taxonomy - All Habitats)\*\*

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 100+60

Assessment Objectives:

NA Ecological Integrity Index (MBI + Habitat Integrity + Conductive Variables  Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness  # of taxa sampled # of EPT species sampled
Variables  Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. On units (0-20) 10. Riparian Width (both combined) 11. On units (0-20) 11. Total Habitat Score 11. Genus/species Taxa Richness 12. Genus/species EPT Richness  # of taxa sampled # of EPT species sampled
RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. In ounits (0-20) 7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 7. Freq. Of Riffles (bends) 8. Bank stability (bends) 8. Bank stability (bends) 9. Freq. Of Riffles (bends) 9. Freq. Of Riffles (bends) 9. Freq. Of Riffles
RBP Habitat Parameters
Epifaunal Substrate
Embeddedness
Velocity/Depth Regime
. Sediment Deposition . Channel Flow Status . Channel Alteration . Freq. Of Riffles (bends) . Bank stability (both combined) . Veg. Protection (both combined) 0. Riparian Width (both combined) 10 no units (0-20) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 no units (0-20) 16 no units (0-20) 17 otal Habitat Score 18 115 no units 19 Subindex 19 Incroinvertebrate Data - Genus/species Level (All Habitats) 10 Genus/species Taxa Richness 20 Genus/species EPT Richness 3 for taxa sampled 4 of EPT species sampled
1. Channel Flow Status 1. Channel Alteration 1. Freq. Of Riffles (bends) 1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Total Habitat Score 1. Total Habitat Score 1. Genus/species Taxa Richness 2. Genus/species EPT Richness 1. Genus/species Level (All Habitats) 1. Genus/species EPT Richness 1. Genus/species Sampled 1. In ounits (0-20) 1. no units (0-20) 1
. Channel Alteration . Freq. Of Riffles (bends) . Bank stability (both combined) . Veg. Protection (both combined) . Riparian Width (both combined) . Riparian Width (both combined) . Total Habitat Score . Total Habitat Score . Total Habitat Integrity Index . Lacroinvertebrate Data - Genus/species Level (All Habitats) . Genus/species Taxa Richness 2. Genus/species EPT Richness . In o units (0-20) . Total Habitat Score . Total Habitat Sco
Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) D. Riparian Width (both combined)  otal Habitat Score  115 no units (0-20)  no units (0-20)  no units (0-20)  solution (0-20)  solution (0-20)  otal Habitat Score  115 no units  subindex  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness  # of taxa sampled # of EPT species sampled
Veg. Protection (both combined)  16
D. Riparian Width (both combined) 10 no units (0-20)  Otal Habitat Score 115 no units Subindex  abitat Integrity Index 0.25  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled # of EPT species sampled
otal Habitat Score  115 no units  Subindex  abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of taxa sampled # of EPT species sampled
labitat Integrity Index  lacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of EPT species sampled # of EPT species sampled
acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of taxa sampled # of EPT species sampled
acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled
1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled
1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled
2. Genus/species EPT Richness # of EPT species sampled
2. Genus/species EPT Richness # of EPT species sampled
3. % Ephemeroptera % Mayflies (0-100)
4. % Chironomidae & Oligochaeta % Midges & Worms (0-100)
5. % Clingers % Clingers (0-100)
6. mHBI no units
acroinvertebrate Bioassessment NA no units NA
actionive tebrate bloassessment NA III0 units NA
andustivity 940 missall (Co. 0.10
Conductivity 840 microMHOs 0.10

## Ell Calculation for High Gradient Streams in Eastern Kentucky Coalfield (VERSION 2002.6) \*\*(Genus/species Level Taxonomy - All Habitats)\*\*

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 100+65

Assessment Objectives:

EII		Model	
NA		l Integrity Index (MBI + Habita	
0.18	Ecologica	I Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
Inter quantitative or categorical measure from Fig	eld Data Sheet ii	n shaded cells	
RBP Habitat Parameters  1. Epifaunal Substrate	7	Jan	
2. Embeddedness	11	no units (0-20) no units (0-20)	
. Velocity/Depth Regime	14	no units (0-20)	
l. Sediment Deposition	11	no units (0-20)	
. Channel Flow Status	10	no units (0-20)	
. Channel Alteration	11	no units (0-20)	
. Freq. Of Riffles (bends)	13	no units (0-20)	
. Bank stability (both combined)	12	no units (0-20)	
. Veg. Protection (both combined)	16	no units (0-20)	
0. Riparian Width (both combined)	10	no units (0-20)	
otal Habitat Score	115	no units	Subindex
abitat Integrity Index			0.25
lacroinvertebrate Data - Genus/specie	es Level (All	Habitats)	
		=	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera 4. % Chironomidae & Oligochaeta		% Mayflies (0-100) % Midges & Worms (0-100)	
5. % Clingers		% Nildges & Worms (0-100) % Clingers (0-100)	
6. mHBI		no units	
flacroinvertebrate Bioassessment	NA	no units	NA
	0.40	1	0.40
Conductivity	840	microMHOs	0.10
		Junioomii (CC	
	Insert Photo	Horo	

## Ell Calculation for High Gradient Streams in Eastern Kentucky Coalfield (VERSION 2002.6) \*\*(Genus/species Level Taxonomy - All Habitats)\*\*

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 105+00

Assessment Objectives:

0.44 E	Ecological	Integrity Index (MBI + Habita Integrity Index ( Habitat Integrity Index ( Habitat Integrity Index ( Habitat Integrity Index ( Habitat Integrity Index ( Habitat Index ( Habita	
Variables  Inter quantitative or categorical measure from Field Internation or c	Measure Data Sheet in  6 5 5 0 14 10 12 12	units n shaded cells no units (0-20)	grity + Conductivi
RBP Habitat Parameters  I. Epifaunal Substrate  I. Embeddedness I. Velocity/Depth Regime I. Sediment Deposition I. Channel Flow Status I. Channel Alteration I. Freq. Of Riffles (bends) I. Bank stability (both combined) I. Veg. Protection (both combined) I. Riparian Width (both combined)	Data Sheet in  6 5 5 0 14 10 12 12	no units (0-20)	
RBP Habitat Parameters  Epifaunal Substrate  Embeddedness  Velocity/Depth Regime  Channel Flow Status  Channel Alteration  Freq. Of Riffles (bends)  Bank stability (both combined)  Riparian Width (both combined)	6 5 5 5 0 14 10 12	no units (0-20)	
Epifaunal Substrate Embeddedness Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) Riparian Width (both combined)	5 5 0 14 10 12 12	no units (0-20)	
Embeddedness Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) Riparian Width (both combined)	5 5 0 14 10 12 12	no units (0-20)	
. Velocity/Depth Regime . Sediment Deposition . Channel Flow Status . Channel Alteration . Freq. Of Riffles (bends) . Bank stability (both combined) . Veg. Protection (both combined) 0. Riparian Width (both combined)	5 5 0 14 10 12 12	no units (0-20)	
. Sediment Deposition . Channel Flow Status . Channel Alteration . Freq. Of Riffles (bends) . Bank stability (both combined) . Veg. Protection (both combined) 0. Riparian Width (both combined)	5 0 14 10 12 12	no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20)	
c. Channel Flow Status d. Channel Alteration T. Freq. Of Riffles (bends) d. Bank stability (both combined) d. Veg. Protection (both combined) O. Riparian Width (both combined)	0 14 10 12 12	no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20)	
Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) Riparian Width (both combined)	14 10 12 12	no units (0-20) no units (0-20) no units (0-20) no units (0-20)	
Bank stability (both combined) Veg. Protection (both combined) D. Riparian Width (both combined)	12 12	no units (0-20) no units (0-20) no units (0-20)	
Veg. Protection (both combined)  D. Riparian Width (both combined)	12	no units (0-20)	
D. Riparian Width (both combined)			
. , ,	8	no units (0-20)	
otal Habitat Score			
otal Habitat Score		1	
	77	no units	Subindex
abitat Integrity Index			0.10
acroinvertebrate Data - Genus/species	Lovol (All	Unhitata)	
acronivertebrate Data - Genus/species i	Level (All	<u>nabilals)</u>	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
1. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
6. mHBI		no units	
acroinvertebrate Bioassessment	NA	no units	NA
Conductivity	224	microMHOs	0.79

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 113+55

NA 0.44 Variables	Ecologic		
-	Ecologica	al Integrity Index (MBI + Habit	at Integrity + Conduc
Variables	Ecologica	al Integrity Index ( Habitat Inte	egrity + Conductivity
	Measure	Units	
ter quantitative or categorical measure from F	ield Data Sheet	in shaded cells	
BP Habitat Parameters		T : (0.00)	
Epifaunal Substrate	5	no units (0-20)	
Embeddedness Velocity/Depth Regime	<u>4</u> 5	no units (0-20)	
Sediment Deposition	5	no units (0-20) no units (0-20)	
Channel Flow Status	0	no units (0-20)	
Channel Alteration	14	no units (0-20)	
Freq. Of Riffles (bends)	7	no units (0-20)	
Bank stability (both combined)	16	no units (0-20)	
Veg. Protection (both combined)	14	no units (0-20)	
D. Riparian Width (both combined)	12	no units (0-20)	
. ,			
otal Habitat Score	82	no units	Subindex
abitat Integrity Index			0.10
acroinvertebrate Data - Genus/spec	ios Lovol (A)	II Habitate)	
acionivertebrate Data - Genus/spec	ies Level (Al	T Habitats)	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
B. % Ephemeroptera		% Mayflies (0-100)	
1. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
6. mHBI		no units	
acroinvertebrate Bioassessment	NA	an maite	NA
acromvertebrate bloassessment	NA	no units	NA
onductivity	224	microMHOs	0.79
			00

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 119+00

NA 0.53  Variables  Iter quantitative or categorical measure from Fie	Ecological	Integrity Index (MRI + Habi	
Variables			tat Integrity + Conductivi
	Ecological	Integrity Index ( Habitat Int	egrity + Conductivity)
iter quantitative or categorical measure from Fie	Measure	Units	
	ld Data Sheet in	shaded cells	
BP Habitat Parameters	10	1	
Epifaunal Substrate	12	no units (0-20)	
Embeddedness Velocity/Depth Regime	10 10	no units (0-20)	
Sediment Deposition	13	no units (0-20) no units (0-20)	
Channel Flow Status	7	no units (0-20)	
Channel Alteration	<u>.</u> 14	no units (0-20)	
Freq. Of Riffles (bends)	13	no units (0-20)	
Bank stability (both combined)	12	no units (0-20)	
Veg. Protection (both combined)	12	no units (0-20)	
D. Riparian Width (both combined)	14	no units (0-20)	
otal Habitat Score	117	no units	Subindex
nai Habitat Geore		ino units	Gubinack
abitat Integrity Index			0.27
acroinvertebrate Data - Genus/specie	es Level (All	<u>Habitats)</u>	
		1	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera 4. % Chironomidae & Oligochaeta		% Mayflies (0-100) % Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
6. mHBI		no units	
		ine anne	
acroinvertebrate Bioassessment	NA	no units	NA
onductivity	224	microMHOs	0.79
Shadoavity	LLT	THICIONII 103	0.73

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 125+00

y Index (MBI + Habitat Integrity + Conductivit y Index ( Habitat Integrity + Conductivit ells 0-20) 0-20) 0-20) 0-20) 0-20) 0-20) 0-20) 0-20) 0-20) 0-20)
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0-20) 0-20) 0-20)
0-20) 0-20)
0-20)
Subindex
0.10
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sampled
species sampled
s (0-100)
s & Worms (0-100)
rs (0-100)
NA
2.42
Os <b>0.48</b>
5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 150+00

EII		Model	
NA	Ecological	Integrity Index (MBI + Habita	t Integrity + Conductiv
0.55	Ecological	Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
Enter quantitative or categorical measure from Fie	eld Data Sheet ir	shaded cells	
1. Epifaunal Substrate	10	no units (0-20)	
2. Embeddedness	5	no units (0-20)	
3. Velocity/Depth Regime	10	no units (0-20)	
4. Sediment Deposition	7	no units (0-20)	
5. Channel Flow Status	0	no units (0-20)	
6. Channel Alteration	11	no units (0-20)	
7. Freq. Of Riffles (bends)	11	no units (0-20)	
B. Bank stability (both combined)	10 12	no units (0-20)	
9. Veg. Protection (both combined) 10. Riparian Width (both combined)	10	no units (0-20) no units (0-20)	
o. Riparian Width (both combined)	10	110 utilis (0-20)	
Fotal Habitat Score	86	no units	Subindex
		•	0.40
labitat Integrity Index			0.10
Macroinvertebrate Data - Genus/speci	es Level (All	Habitats)	
11. Genus/species Taxa Richness		# of taxa sampled	
12. Genus/species EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. % Clingers		% Clingers (0-100)	
16. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	88.7	microMHOs	1.00
Somulating	00.1	THISTONII 100	1100
Conductivity	88.7	microMHOs	1.00
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 154+50

EII		Model	
NA	Ecological	Integrity Index (MBI + Habita	t Integrity + Conductiv
0.55	Ecological	Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
Enter quantitative or categorical measure from Fie	eld Data Sheet in	n shaded cells	
1. Epifaunal Substrate	10	no units (0-20)	
2. Embeddedness	5	no units (0-20)	
3. Velocity/Depth Regime	5	no units (0-20)	
4. Sediment Deposition	5	no units (0-20)	
5. Channel Flow Status	0	no units (0-20)	
6. Channel Alteration	11	no units (0-20)	
7. Freq. Of Riffles (bends)	10 10	no units (0-20)	
B. Bank stability (both combined) D. Veg. Protection (both combined)	12	no units (0-20)	
10. Riparian Width (both combined)	12	no units (0-20) no units (0-20)	
ro. Alpanan Width (Both Combined)	12	110 driits (0-20)	
Total Habitat Score	80	no units	Subindex
		-	0.40
Habitat Integrity Index			0.10
Macroinvertebrate Data - Genus/speci	es Level (All	Habitats)	
•	-	<u>-</u>	
11. Genus/species Taxa Richness		# of taxa sampled	
12. Genus/species EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. % Clingers		% Clingers (0-100)	
16. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	88.7	microMHOs	1.00
Sondacavity	00.7	IIIICIONI 103	1.00
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 157+50

NA 0.55		I Integrity Index (MBI + Habita	t Integrity + Cond
0.55			
	Ecologica	l Integrity Index ( Habitat Integ	rity + Conductivit
Variables	Measure	Units	
inter quantitative or categorical measure from F	ield Data Sheet i	in shaded cells	
RBP Habitat Parameters			
. Epifaunal Substrate	9	no units (0-20)	
P. Embeddedness B. Velocity/Depth Regime	<u>5</u>	no units (0-20)	
l. Sediment Deposition	6	no units (0-20) no units (0-20)	
5. Channel Flow Status	0	no units (0-20)	
6. Channel Alteration	11	no units (0-20)	
7. Freq. Of Riffles (bends)	14	no units (0-20)	
3. Bank stability (both combined)	16	no units (0-20)	
D. Veg. Protection (both combined)	16	no units (0-20)	
0. Riparian Width (both combined)	13	no units (0-20)	
Total Habitat Score	95	no units	Subindex
		_	
labitat Integrity Index			0.10
Macroinvertebrate Data - Genus/spec	ies Level (All	Habitats)	
		<b>7</b>	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness 3. % Ephemeroptera		# of EPT species sampled % Mayflies (0-100)	
4. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
6. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	88.7	microMHOs	1.00
Conductivity	88.7	microMHOs	1.00

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 157+75

Secological Integrity Index (MBI + Habitat Integrity + Conductivity)   Variables	Variables  Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. no units (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. no units (0-20) 10. Riparian Width (both combined) 11. no units (0-20) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment NA no units  NA			Model	
Variables  Measure Units  Inter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  I. Epifaunal Substrate  B. mo units (0-20)  I. Epifaunal Substrate  I. Embeddedness  I. Enibeddedness  I. Color Intervention  I. Color Intervention  I. Color Intervention  I. Enibeddedness  I. Enibeddedness  I. Enibeddedness  I. Intervention  I.	Variables   Measure Units	NA	Ecologica	l Integrity Index (MBI + Habi	at Integrity + Conductivi
REP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 7. In o units (0-20) 7. Freq. Of Riffles (bends) 7. Protection (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 8. Weg. Protection (both combined) 8. Weg. Protection (both combined) 8. Weg. Protection (both combined) 8. Riparian Width (both combined) 8. Weg. Protection (both combined) 8. Namerical Subindex 8. No units (0-20) 8. Subindex 9. Veg. Protection (both combined) 9. New (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. Veg. Prote	REP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. In ounits (0-20) 7. Freq. Of Riffles (bends) 7. Protection (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 7. Rounits (0-20) 7. Freq. Of Riffles (bends) 7. Protection (both combined) 7. Protection (bot	0.55	Ecologica	I Integrity Index ( Habitat Int	egrity + Conductivity)
REP Habitat Parameters  Epifaunal Substrate Epifaunal Substrate Epifaunal Substrate Enterprocess Embeddedness Solument Deposition Channel Flow Status Channel Flow Status Channel Alteration Enterprocess Enterproces	REP Habitat Parameters  Epifaunal Substrate  Epifaunal Substrate  Netocity/Depth Regime  Sediment Deposition  Channel Flow Status  Channel Flow Status  Epifaunal Substrate  Sediment Deposition  Channel Flow Status  Channel Alteration  Epifaunal Substrate  Sediment Deposition  Channel Flow Status  Ino units (0-20)  Program Of Riffles (bends)  Epifaunal Substrate  Ino units (0-20)  Regression  I	Variables	Measure	Units	
Epifaunal Substrate Embeddedness Subindex Embeddedness Sediment Deposition Channel Flow Status Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Chans stability (both combined) Chans Riparian Width (both combined) Channel Flow Status To no units (0-20) Total Habitat Score Total Habitat Score  Total Habitat Sc	Epifaunal Substrate Embeddedness Solvelocity/Depth Regime Channel Flow Status Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Channel Statility (both combined) Channel Flow Status Channel Flow Status Channel Flow Status Channel Alteration Channel Flow Status Channel Alteration Chan		eld Data Sheet i	n shaded cells	
Embeddedness   5   no units (0-20)	1. Embeddedness 5 no units (0-20) 1. Velocity/Depth Regime 10 no units (0-20) 1. Sediment Deposition 7 no units (0-20) 1. Channel Flow Status 1 no units (0-20) 1. Channel Alteration 11 no units (0-20) 1. Freq. Of Riffles (bends) 10 no units (0-20) 1. Veg. Protection (both combined) 12 no units (0-20) 1. Veg. Protection (both combined) 16 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 10 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 11 no units (0-20) 1. Veg. Protection (both combined) 12 no units (0-20) 1. Veg. Protection (both combined) 12 no units (0-20) 1. Veg. Protecti		0	1	
1. Velocity/Depth Regime 3. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. no units (0-20) 7. Freq. Of Riffles (bends) 7. In on units (0-20) 7. Freq. Of Riffles (bends) 7. In on units (0-20) 8. Bank stability (both combined) 8. Veg. Protection (both combined) 9. New York (Combined) 9. Veg. Protection (both combined) 9. New York (Combined) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. Veg.	1. Velocity/Depth Regime 2. Sediment Deposition 3. Schannel Flow Status 4. No units (0-20) 5. Channel Flow Status 5. Channel Alteration 7. In ounits (0-20) 6. Channel Alteration 7. In ounits (0-20) 7. Freq. Of Riffles (bends) 7. In ounits (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. Riparian Width (both combined) 9. Riparian Width (both combined) 9. Total Habitat Score 9. In ounits (0-20) 9. Total Habitat Score 9. In ounits 9. Subindex 9. Consider the Subindex 9. Subindex 9. Consider the Subindex 9. Ounits (0-20) 9. Cotal Habitat Score 9. In ounits (0-20) 9. Cotal Habitat Score 9. In ounits (0-20) 9. Cotal Habitat Score 9. In ounits (0-20) 9. Veg. Protection (both combined) 9. Veg.	•			
1. Sediment Deposition 1. Channel Flow Status 1. Channel Alteration 1. Freq. Of Riffles (bends) 1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  To units (0-20) 1. no uni	1. Sediment Deposition 1. Channel Flow Status 1. Channel Alteration 1. Freq. Of Riffles (bends) 1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Total Habitat Score 1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI 1. no units (0-20) 1. veg. Protection (both combined) 1. no units (0-20) 1. ounits			1 /	
1 no units (0-20) 1 channel Alteration	1 no units (0-20) 1			1 /	
Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) Riparian Width (both combined)  In o units (0-20)	1. Channel Alteration 1. Freq. Of Riffles (bends) 1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Total Habitat Score 1. Genus/species Taxa Richness 2. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI 1. no units (0-20) 1. no units (0-20) 1. no units (0-20) 1. on units (0-20				
Treq. Of Riffles (bends)	Treq. Of Riffles (bends)			1 /	
. Veg. Protection (both combined)  0. Riparian Width (both combined)  16	. Veg. Protection (both combined)  16	Freq. Of Riffles (bends)	10	` '	
no units (0-20)  In a units (0-2	acroinvertebrate Bioassessment  11 no units (0-20)  11 no units (0-20)  11 no units (0-20)  12 no units (0-20)  13 no units (0-20)  14 no units (0-20)  15 Subindex  16 Subindex  17 On units (0-20)  18 Subindex  19 On units (0-20)  10 On units (0-20)  11 no units (0-20)  12 Subindex  13 On units (0-20)  14 On units (0-20)  15 Subindex  16 On units (0-20)  17 On units (0-20)  18 On units (0-20)  19 On units (0-20)  10 On units (0-20)  10 On units (0-20)  11 On units (0-20)  12 On units (0-20)  13 On units (0-20)  14 On units (0-20)  15 On units (0-20)  16 On units (0-20)  17 On units (0-20)  18 On units (0-20)  19 On units (0-20)  10 On uni	Bank stability (both combined)	12	no units (0-20)	
abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  acroinvertebrate Bioassessment  NA  no units  Subindex  0.10  And the properties of the properties	abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  acroinvertebrate Bioassessment  NA  no units  Subindex  0.10  4. 0.10  4. of taxa sampled 4. of EPT species sampled 5. Mayflies (0-100) 6. Widges & Worms (0-100) 7. Clingers (0-100) 8. NA	Veg. Protection (both combined)	16	no units (0-20)	
labitat Integrity Index  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  0.10  # of taxa sampled # of EPT species sampled % Mayfiles (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA	labitat Integrity Index  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Data - Genus/species Level (All Habitats)  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA  NA	0. Riparian Width (both combined)	11	no units (0-20)	
abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  acroinvertebrate Bioassessment  0.10  # of taxa sampled # of EPT species sampled % Mayfiles (0·100) % Midges & Worms (0·100) no units  NA	abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  acroinvertebrate Bioassessment  NA  0.10  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units				
# of taxa sampled # of EPT species sampled # o	acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled 3. % Ephemeroptera % Mayflies (0-100) 4. % Chironomidae & Oligochaeta % Midges & Worms (0-100) 5. % Clingers 6. mHBI no units  NA no units	otal Habitat Score	91	no units	Subindex
acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled 3. % Ephemeroptera % Mayflies (0-100) 4. % Chironomidae & Oligochaeta % Midges & Worms (0-100) 5. % Clingers 6. mHBI no units  NA	acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled 3. % Ephemeroptera % Mayflies (0-100) 4. % Chironomidae & Oligochaeta % Midges & Worms (0-100) 5. % Clingers 6. mHBI no units  NA no units	abitat Integrity Index			0.10
# of taxa sampled  # of EPT species sampled	# of taxa sampled  # of EPT species sampled  # of EPT species sampled  # of EPT species sampled  # wayflies (0-100)  # wayflies (0-100)  # widges & Worms (0-100)  # clingers  # of taxa sampled  # of EPT species sampled  # wayflies (0-100)  # widges & Worms (0-100)  # clingers  # of taxa sampled  # of EPT species sampled  # of EP				
2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI    Mayflies (0-100)   Midges & Worms (0-100)   Clingers (0-100)   no units   Macroinvertebrate Bioassessment   NA	2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI    Mayflies (0-100)   Midges & Worms (0-100)   Midges & Worms (0-100)   no units   Mayflies (0-100)   Midges & Worms (0-100)   no units	acroinvertebrate Data - Genus/speci	es Level (All	<u>Habitats)</u>	
2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI    Mayfiles (0-100)	2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI    Mayflies (0-100)   Midges & Worms (0-100)   Midges & Worms (0-100)   no units   NA			-	
3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Mayriies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA  no units  NA	3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA  NA  NA			' '	
4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI    Clingers   Maiges & Worms (0-100)   % Clingers (0-100)   no units    Clingers   NA     NA	4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  lacroinvertebrate Bioassessment  Midges & Worms (0-100) % Clingers (0-100) no units  NA NA				
5. % Clingers (0-100) 6. mHBI no units NA no units NA	5. % Clingers 6. mHBI				
no units  acroinvertebrate Bioassessment  NA  no units  NA	no units    Continuente   Cont				
lacroinvertebrate Bioassessment NA no units NA	lacroinvertebrate Bioassessment NA no units NA			-	
onductivity 88.7 microMHOs 1.00	onductivity 88.7 microMHOs 1.00				NA
onductivity 88.7 microMHOs 1.00	onductivity 88.7 microMHOs 1.00	acroinvertebrate Bioassessment	NA	no units	
		facroinvertebrate Bioassessment	NA	no units	
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Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 172+00

ty Index (MBI + Habitat Integrity + Conductivity Index ( Habitat Integrity + Conductivity  cells  (0-20) (0-20) (0-20) (0-20) (0-20) (0-20) (0-20) (0-20) (0-20) (0-20) (0-20) (0-20) (0-20)
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sampled
species sampled les (0-100)
es & Worms (0-100)
ers (0-100)
NA
1.00
i -

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 174+00

EII		Model	
NA		Integrity Index (MBI + Habita	
0.55	Ecological	Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
nter quantitative or categorical measure from Fig	old Data Shoot in	shadad calls	
BP Habitat Parameters	eid Data Stieet ii	i siladed cells	
Epifaunal Substrate	6	no units (0-20)	
Embeddedness	5	no units (0-20)	
Velocity/Depth Regime	5	no units (0-20)	
Sediment Deposition	5	no units (0-20)	
Channel Flow Status	0	no units (0-20)	
Channel Alteration	10	no units (0-20)	
Freq. Of Riffles (bends)	10	no units (0-20)	
Bank stability (both combined)	12	no units (0-20)	
Veg. Protection (both combined)	16	no units (0-20)	
0. Riparian Width (both combined)	15	no units (0-20)	
		_	
otal Habitat Score	84	no units	Subindex
abitat Integrity Index			0.10
ibitat integrity index			0.10
acroinvertebrate Data - Genus/specie	es Level (All	Habitats)	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
		% Midges & Worms (0-100)	
э. тны		no units	
acroinvertebrate Bioassessment	NA	no units	NA
	00.7	1	4.00
onauctivity	88.7	microMHOs	1.00
14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  Conductivity	NA 88.7	% Midges & Worms (0-100) % Clingers (0-100) no units no units microMHOs	1.00

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 190+00

EII		Model	
NA		Integrity Index (MBI + Habita	
0.52	Ecological	Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
Enter quantitative or categorical measure from Fie	eld Data Sheet in	shaded cells	
1. Epifaunal Substrate	13	no units (0-20)	
2. Embeddedness	6	no units (0-20)	
3. Velocity/Depth Regime	10	no units (0-20)	
4. Sediment Deposition	5	no units (0-20)	
5. Channel Flow Status	12	no units (0-20)	
6. Channel Alteration	9	no units (0-20)	
7. Freq. Of Riffles (bends)	5	no units (0-20)	
8. Bank stability (both combined) 9. Veg. Protection (both combined)	16 12	no units (0-20)	
10. Riparian Width (both combined)	6	no units (0-20) no units (0-20)	
io. Riparian Width (both combined)	U	110 utilis (0-20)	
Total Habitat Score	94	no units	Subindex
labitat Intervity Index			0.40
Habitat Integrity Index			0.10
Macroinvertebrate Data - Genus/speci	es Level (All	Habitats)	
11. Genus/species Taxa Richness		# of taxa sampled	
12. Genus/species EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. % Clingers 16. mHBl		% Clingers (0-100)	
то. пппы		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	169	microMHOs	0.95
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 208+20

	Cologica Measure	=		
Variables Inter quantitative or categorical measure from Field ItBP Habitat Parameters Inter price Epifaunal Substrate Inter Embeddedness Inter Quantitative or categorical measure from Field ItBP Habitat Parameters Inter Quantitative or categorical measure from Field ItBP Habitative or categoric	Measure Data Sheet i	Units n shaded cells	rity + Conductiv	vity)
REP Habitat Parameters  a. Epifaunal Substrate  b. Embeddedness  c. Velocity/Depth Regime  d. Sediment Deposition  d. Channel Flow Status	Data Sheet i	n shaded cells		
RBP Habitat Parameters  Epifaunal Substrate  Embeddedness  Velocity/Depth Regime  Sediment Deposition  Channel Flow Status	10 8	=		
. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status	8	T		
2. Embeddedness 2. Velocity/Depth Regime 3. Sediment Deposition 5. Channel Flow Status	8	no units (0-20)		
S. Sediment Deposition Channel Flow Status	10	no units (0-20)		
i. Channel Flow Status		no units (0-20)		
h	5	no units (0-20)		
. Channel Alteration	8	no units (0-20)		
	<u>8</u>	no units (0-20)		
7. Freq. Of Riffles (bends) 8. Bank stability (both combined)	6	no units (0-20) no units (0-20)		
. Veg. Protection (both combined)	10	no units (0-20)		
0. Riparian Width (both combined)	4	no units (0-20)		
otal Habitat Score	75	no units	Subindex	
otal Habitat Score	73	no units	Jubilluex	
labitat Integrity Index			0.10	
Macroinvertebrate Data - Genus/species	Level (All	Habitats)		
A Commetencia Tour Bishasa		٦.,		
1. Genus/species Taxa Richness 2. Genus/species EPT Richness		# of taxa sampled # of EPT species sampled		
3. % Ephemeroptera		% Mayflies (0-100)		
4. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)		
5. % Clingers		% Clingers (0-100)		
6. mHBI		no units		
Macroinvertebrate Bioassessment	NA	no units	NA	
	400	1	0.07	
Conductivity	160	microMHOs	0.97	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 209+00

NA Ecological Integrity Index (MBI + Habitat Integrity +  0.54 Ecological Integrity Index (Habitat Integrity + Cond  Variables Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 6 no units (0-20) 2. Embeddedness 6 no units (0-20) 3. Velocity/Depth Regime 10 no units (0-20) 4. Sediment Deposition 7 no units (0-20) 5. Channel Flow Status 11 no units (0-20) 6. Channel Alteration 9 no units (0-20) 7. Freq. Of Riffles (bends) 7 no units (0-20) 8. Bank stability (both combined) 6 no units (0-20) 9. Veg. Protection (both combined) 11 no units (0-20) 10. Riparian Width (both combined) 7 no units (0-20)  Total Habitat Score 83 no units  Subindex  Habitat Integrity Index # of taxa sampled # of taxa sampled # of taxa sampled # of EPT species sampled	uctivity)
Variables  Measure Units  Inter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  I. Epifaunal Substrate  I. Epifaunal Substrate  I. Embeddedness  I. Epifaunal Substrate  I. Embeddedness  I. Epifaunal Substrate  I. Embeddedness  I. Epifaunal Substrate  I. Ounits (0-20)  I. Velocity/Depth Regime  I. Ounits (0-20)  I. Sediment Deposition  I. Ounits (0-20)  I. Channel Flow Status  I. Ounits (0-20)  I. Channel Alteration  I. Freq. Of Riffles (bends)  I. Bank stability (both combined)  I. Veg. Protection (both combined)  I. Riparian Width (both combined)  I. Genus/species Taxa Richness  # of taxa sampled	
The quantitative or categorical measure from Field Data Sheet in shaded cells  TEP Habitat Parameters  Epifaunal Substrate  Embeddedness  Ounits (0-20)  Velocity/Depth Regime  Sediment Deposition  Channel Flow Status  Channel Alteration  Freq. Of Riffles (bends)  Bank stability (both combined)  Veg. Protection (both combined)  Riparian Width (both combined)  Riparian Width (both combined)  Total Habitat Score  Total Habitat Score  Riparian Viden Data - Genus/species Level (All Habitats)  # of taxa sampled	· ·
RBP Habitat Parameters  I. Epifaunal Substrate  I. Embeddedness I. Sediment Deposition I. Channel Flow Status I. Channel Flow Status I. Ene, Of Riffles (bends) I. Bank stability (both combined) I. Riparian Width (both combined) I. Riparian Width (both combined) I. Riparian Width Integrity Index  Macroinvertebrate Data - Genus/species Level (All Habitats)  II. Genus/species Taxa Richness  In o units (0-20)	· ·
BP Habitat Parameters   9	· ·
Epifaunal Substrate	<b>K</b>
Embeddedness	<b>K</b>
Velocity/Depth Regime	<b>K</b>
1. Sediment Deposition	· ·
1	· ·
7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 7. Riparian Width (both combined) 7. Riparian Width (both combined) 7. Rounits (0-20) 7. Rounits (0-20) 7. Rounits (0-20) 83. Rounits (0-20) 84. Rounits (0-20) 85. Rounits (0-20) 86. Rounits (0-20) 87. Rounits (0-20) 88. Rounits (0-20) 89. No units (0-20) 89.	<b>C</b>
7. Freq. Of Riffles (bends) 7. In ounits (0-20) 7. Bank stability (both combined) 7. Veg. Protection (both combined) 7. In ounits (0-20) 7. In ounits (0-20) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 9. Riparian Width (both combined) 9. Total Habitat Score 9. In ounits (0-20) 9. Subindex 9. In ounits (0-20) 9. In ounit	<b>C</b>
1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Total Habitat Score 1. Bank stability (both combined) 1. Total Habitat Score 1. Genus/species Taxa Richness	<b>C</b>
7 no units (0-20)  Total Habitat Score  83 no units  Subindex  dabitat Integrity Index  1. Genus/species Taxa Richness  # of taxa sampled	<b>C</b>
Total Habitat Score  83 no units  Subindex  Habitat Integrity Index  0.10  Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness # of taxa sampled	<b>(</b>
Alabitat Integrity Index  O.10  Macroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled	(
Alacroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness # of taxa sampled	(
# of taxa sampled  1. Genus/species Taxa Richness # of taxa sampled	
Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness # of taxa sampled	
1. Genus/species Taxa Richness # of taxa sampled	
11. Genus/species Taxa Richness # of taxa sampled	
2 Genus/species FPT Richness # of FPT species sampled	
3. % Ephemeroptera % Mayflies (0-100)	
4. % Chironomidae & Oligochaeta % Midges & Worms (0-100)	
5. % Clingers	
O. IIII IBI	
Macroinvertebrate Bioassessment NA no units NA	
Conductivity 160 microMHOs 0.97	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 210+00

RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. In ounits (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. In ounits (0-20) 12. Total Habitat Score 13. We phemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 18. In ounits (0-20) 19. Veg. Protection (both combined) 11. In ounits (0-20) 12. Subindex 13. We phemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 18. In ounits 19. In ounits (0-20) 19. Veg. Protection (both combined) 11. In ounits (0-20) 12. In ounits (0-20) 13. We phemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. In ounits (0-20) 18. In ounits (0-20) 19. Veg. Protection (both combined) 11. In ounits (0-20) 11. In ounits (0-20) 12. In ounits (0-20) 13. We phemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. In ounits (0-20) 18. In ounits (0-20) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 11. no units (0-20) 12. Total Habitat Score 13. We phemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. In ounits (0-20) 18. In ounits (0-20) 19. Veg. Protection (both combined) 19. no units (0-20) 19. Veg. Protection (both combined) 19. no units (0-20) 19. Veg. Protection (both combined) 19. no units (0-20) 19. Veg. Protection (both combined) 19. no units (0-20) 19. Veg. Protection (both combined) 19. no units (0-20) 19. Veg. Protection (both combined) 19. no units (0-20) 19. Veg. Protection (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 11. no units (0-20) 11. no units (0-20) 12. Veg. Protection (both combined) 19. No units (0-20) 19. Veg. Protection (both combined) 19. No units (0-20) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. No units (0-20) 19. Veg. Protection (both combined) 19. No units (0-20) 19. Veg. Protecti	Variables  Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate  2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 10. Macroinvertebrate Bioassessment  NA no units  Macroinvertebrate Bioassessment  NA no units  Units  Measure Units  9 no units (0-20)  11. Genus/species Taxa Richness 14 of taxa sampled 15. % Clingers 16. mHBI	EII		Model	
Variables  Measure Units  The quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 5. Channel Alteration 7. Freq. Of Riffles (bends) 7. Preq. Of Riffles (bends) 8. Bank stability (both combined) 11. Riparian Width (both combined) 12. Veg. Protection (both combined) 13. Was predicted by the properties of taxa Richness 14. Genus/species Taxa Richness 15. Channel Alteration 16. mHBI  Macroinvertebrate Bioassessment  NA no units NA	Variables   Measure   Units	NA	Ecologica	l Integrity Index (MBI + Habita	t Integrity + Conductiv
Riber quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 5. Channel Flow Status 6. no units (0-20) 7. Freq. Of Riffles (bends) 7. Freq. Of Riffles (bends) 7. Proq. Of Riffles (bends) 7. Proq. Of Riffles (bends) 7. Prod. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 11. no units (0-20) 10. Riparian Width (both combined) 11. no units (0-20) 10. Riparian Width (both combined) 11. Of Riparian Width (both combined) 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment NA no units NA	Renter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 5. Channel Alteration 7. In ounits (0-20) 7. Freq. Of Riffles (bends) 7. Preq. Of Riffles (bends) 8. Bank stability (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. Veg.	0.54	Ecologica	l Integrity Index ( Habitat Integ	grity + Conductivity)
RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. no units (0-20) 6. Channel Alteration 7. no units (0-20) 7. Freq. Of Riffles (bends) 7. no units (0-20) 7. Preq. Of Riffles (bends) 7. no units (0-20) 7. Preq. Of Riffles (bends) 7. no units (0-20) 7. Preq. Of Riffles (bends) 7. no units (0-20) 7. Preq. Of Riffles (bends) 7. no units (0-20) 7. Preq. Of Riffles (bends) 7. no units (0-20) 7. Preq. Of Riffles (bends) 7. no units (0-20) 7. Preq. Of Riffles (bends) 7. no units (0-20) 7. Preq. Of Riffles (bends) 7. no units (0-20) 7. Preq. Of Riffles (bends) 7. no units (0-20) 7. No units (0-	RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 5. Channel Flow Status 6. no units (0-20) 7. Freq. Of Riffles (bends) 7. Preq. Of Riffles (bends) 7. Preq. Of Riffles (bends) 7. Protection (both combined) 8. Bank stability (both combined) 9. Protection (both combined) 10. Riparian Width (both combined) 11. On units (0-20) 12. Riparian Width (both combined) 13. No units 14. Genus/species Taxa Richness 14. Genus/species EPT Richness 15. Chironomidae & Oligochaeta 16. Wellingers 17. Wellingers 18. Wellingers 18. Wellingers 19. No units (0-20) 19. No units (0-20) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. On units 12. Genus/species Taxa Richness 13. Wellingers 14. Of EPT species sampled 15. Wellingers 16. mHBI 18. No units 19. No	Variables	Measure	Units	
Description   Substrate   Su	Description   Substrate   Su	Enter quantitative or categorical measure from Fig.	eld Data Sheet i	n shaded cells	
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7 no units (0-20) 8 Bank stability (both combined) 9 Veg. Protection (both combined) 10 Riparian Width (both combined) 11 no units (0-20) 10 Riparian Width (both combined) 11 no units (0-20) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 Babitat Score 15 Subindex 16 Subindex 17 no units (0-20) 18 no units (0-20) 19 No units (0-20) 10 No units (0-20) 10 No units (0-20) 11 no units (0-20) 12 No units (0-20) 13 No units (0-20) 14 Subindex 15 Subindex 16 Subindex 17 no units (0-20) 18 No units (0-20) 19 No units (0-20) 10 No units (0-20) 11 No units (0-20) 11 No units (0-20) 12 No units (0-20) 13 No units (0-20) 14 No units (0-20) 15 No units (0-20) 16 No units (0-20) 17 No units (0-20) 18 No units (0-20) 19 No units (0-20) 19 No units (0-20) 10 No units (0-20) 10 No units (0-20) 11 No units (0-20) 11 No units (0-20) 12 No units (0-20) 13 No units (0-20) 14 No units (0-20) 15 No units (0-20) 16 No units (0-20) 17 No units (0-20) 18 No units (0-20) 19 No units (0-20) 19 No units (0-20) 10 No units	7 no units (0-20) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 no units (0-20) 16 no units (0-20) 17 no units (0-20) 18 no units (0-20) 19 no units (0-20) 10 units (0-20) 11 no units (0-20) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 abitat Integrity Index 15 Integrity Index 16 Integrity Index 17 no units (0-20) 18 Integrity Index 19 Integrity Index 20 Integrity Index 21 Integrity Index 22 Integrity Index 23 Integrity Index 24 of EPT species sampled 25 Integrity Index 26 Integrity Index 27 Integrity Index 28 Integrity Index 29 Integrity Index 20 Integrity Index 21 Integrity Index 21 Integrity Index 22 Integrity Index 23 Integrity Index 24 Integrity Index 25 Integrity Index 26 Integrity Index 26 Integrity Index 27 Integrity Index 28 Integrity Index 29 Integrity Index 30 Integrity Index 30 Integrity Index 30 Integrity Index 30 Integrity Index 31 Integrity Index 32 Integrity Index 33 Integrity Index 34 Integrity Index 35 Integrity Index 36 Integrity Index 36 Integrity Index 37 Integrity Index 38 Integrity Index 38 Integrity Index 39 Integrity Index 30 Integri				
1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Veg. Protection (both combined) 1. In ounits (0-20) 1. Riparian Width (both combined) 1. In ounits (0-20) 1. Cotal Habitat Score 1. Riparian Width (both combined) 1. Genus/species In Indiana	Bank stability (both combined)   6   no units (0-20)				
1. Veg. Protection (both combined)  0. Riparian Width (both combined)  7 no units (0-20)  7 ounits (0-20)  7 ounits (0-20)  7 ounits (0-20)  83 no units  84 subindex  85 subindex  86 subindex  87 subindex  88 ounits  88 subindex  89 subindex  90 subind	1. Veg. Protection (both combined)  0. Riparian Width (both combined)  7 no units (0-20)  Total Habitat Score  83 no units  Subindex  dabitat Integrity Index  1. Genus/species Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  NA no units  NA				
7 no units (0-20)  Total Habitat Score  83 no units  Subindex  Habitat Integrity Index  1. Genus/species Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  NA no units  Subindex  Subindex  0.10  Modisers  # of taxa sampled # of EPT species sampled  % Mayflies (0-100)  % Clingers (0-100) no units  NA	7 no units (0-20)  Total Habitat Score  83 no units  Subindex  Habitat Integrity Index  1. Genus/species Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  NA no units  Subindex  # of units  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Kidges & Worms (0-100) no units  NA			, ,	
Total Habitat Score  ### Babitat Integrity Index  ### Indeptor Index    1. Genus/species Taxa Richness	Total Habitat Score  83 no units  Subindex  Habitat Integrity Index  0.10  Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA no units  Subindex  1 of taxa sampled 4 of EPT species sampled 5 % Mayflies (0-100) 6 Clingers (0-100) 7 no units				
# of taxa sampled   Commonstrate   C	# of taxa sampled # of EPT species sampled # o	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
# of taxa sampled  # of EPT species sampled	# of taxa sampled # of EPT species sampled # o	otal Habitat Score	83	no units	Subindex
Comparison of taxa sampled   Figure 1	1. Genus/species Taxa Richness # of taxa sampled # of EPT species sampl	labitat Integrity Index			0.10
1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera	1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) no units  NA				0.10
2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units	2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA	lacroinvertebrate Data - Genus/speci	ies Level (All	Habitats)	
2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units	2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA	1 Ganus/species Tava Pichness		# of taxa sampled	
3. % Ephemeroptera	3. % Ephemeroptera			•	
4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBl  Macroinvertebrate Bioassessment  NA  No units  NA	4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  NA  NA  No units  NA				
5. % Clingers   % Clingers (0-100)   no units   NA	5. % Clingers (0-100)				
6. mHBI no units  Acroinvertebrate Bioassessment NA no units NA	6. mHBI no units  Macroinvertebrate Bioassessment NA no units NA				
		•			
Conductivity 160 microMHOs 0.97	Conductivity 160 microMHOs 0.97	Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity 160 microMHOs 0.97	Conductivity 160 microMHOs 0.97				
		Conductivity	160	microMHOs	0.97
	Insert Photo Here		Incart Dhoto	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 217+00

Secological Integrity Index (MBI + Habitat Integrity + Conductivity)   Variables   Measure   Units
Variables  Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. no units (0-20) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers  Manual Shaet in shaded cells  8. no units (0-20) 10. no units (0-20) 10. no units (0-20) 11. on units (0-20) 12. no units (0-20) 13. on units (0-20) 14. of EPT species sampled 15. % Clingers  Wayfles (0-100)  % Midgles & Worms (0-100) 16. Oligochaeta 17. Genus/species EV Richness 18. on ounits (0-20) 19. on units (0-20) 19
Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 5 no units (0-20) 3. Velocity/Depth Regime 10 no units (0-20) 4. Sediment Deposition 7 no units (0-20) 5. Channel Flow Status 6. Channel Alteration 7 no units (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11 no units (0-20) 10. Riparian Width (both combined) 11 no units (0-20) 11 no units (0-20) 12 no units (0-20) 15 Total Habitat Score 91 no units 91 no units 91 October 14 Abitats 91 October 15 Ava Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 91 No units 92 October 15 Ava Sampled 93 October 16 EPT species sampled 94 October 17 October 18 October 19 O
RBP Habitat Parameters
Epifaunal Substrate Embeddedness Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) CRiparian Width (both combined) Riparian Width (both combined) Cotal Habitat Score  In ounits (0-20) In ouni
Embeddedness
3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 7 no units (0-20) 7. Freq. Of Riifles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11 no units (0-20) 10. Riparian Width (both combined) 11 no units (0-20) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 Catal Habitat Score 91 no units 91 no unit
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1
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10 no units (0-20) Bank stability (both combined) Veg. Protection (both combined) D. Riparian Width (both combined)  10 no units (0-20) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 otal Habitat Score  91 no units  16 subindex  17 subindex  18 decroinvertebrate Data - Genus/species Level (All Habitats) 19 september Septem
Bank stability (both combined) Veg. Protection (both combined) Riparian Width (both combined) Riparian Width (both combined)  Total Habitat Score  91 no units  Subindex  Rabitat Integrity Index  Racroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers  1. Clingers
11
Subindex   Subindex     Subindex   Subindex     Subindex   Subindex     Subindex   O.10     Subindex   O
dabitat Integrity Index
labitat Integrity Index  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers  0.10  0.10  0.10
1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled 3. % Ephemeroptera % Mayflies (0-100) 4. % Chironomidae & Oligochaeta % Midges & Worms (0-100) 5. % Clingers
1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled 3. % Ephemeroptera % Mayflies (0-100) 4. % Chironomidae & Oligochaeta % Midges & Worms (0-100) 5. % Clingers
# of taxa sampled  # of taxa sampled  # of EPT species sampled  # of EPT species sampled  # was sampled  # of EPT species sampled  # was sampled  # of EPT species sampled  # was sampled
2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers  # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100)
2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers  # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100)
3. % Ephemeroptera       % Mayflies (0-100)         4. % Chironomidae & Oligochaeta       % Midges & Worms (0-100)         5. % Clingers       % Clingers (0-100)
4. % Chironomidae & Oligochaeta       % Midges & Worms (0-100)         5. % Clingers       % Clingers (0-100)
5. % Clingers (0-100)
, miles
facroinvertebrate Bioassessment NA no units NA
Conductivity 88.7 microMHOs 1.00

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 230+00

NA Ecological Integrity Index (MBI + Habitat Integrity + Conduct  Variables Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 5 no units (0-20) 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. no units (0-20) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 14. of EPT species sampled  Weasure Units  Becological Integrity Index (Habitat Integrity + Conduct (Habitat Integrity + Conduct (Habitat Integrity Index)  Measure Units  Becological Integrity Index (Habitat Integrity + Conduct (Habitat Integrity Index)  No units (0-20)  1. Genus/species Taxa Richness 12. Genus/species EPT Richness 14. of EPT species sampled	
Variables  Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. no units (0-20) 13. no units (0-20) 14. no units (0-20) 15. Channel Flow Status 15. no units (0-20) 16. Channel Alteration 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. no units (0-20) 12. no units (0-20) 13. no units (0-20) 14. Total Habitat Score 15. no units (0-20) 16. no units (0-20) 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 11. no units (0-20) 12. no units (0-20) 13. No units (0-20) 14. Sediment (0-20) 15. Channel Flow Status 16. Channel Flow Status 17. no units (0-20) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 11. no units (0-20) 12. no units (0-20) 13. Nellocombined 14. no units (0-20) 15. no units (0-20) 16. no units (0-20) 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 10. no units (0-20) 11. no units (0-20) 12. no units (0-20) 13. no units (0-20) 14. No units (0-20) 15. no units (0-20) 16. no units (0-20) 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. No units (	ivity)
Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. no units (0-20) 13. No units (0-20) 14. Sediment Deposition 7. In ounits (0-20) 15. Channel Flow Status 15. On units (0-20) 16. Channel Alteration 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. no units (0-20) 13. No units (0-20) 14. Sediment Data - Genus/species Level (All Habitats) 15. Channel Flow Status 16. On units (0-20) 17. Total Habitat Score 19. no units 18. Subindex 19. Macroinvertebrate Data - Genus/species Level (All Habitats) 19. Veg. Protection (Both Combined) 10. Riparian Width (Both Combined) 11. Genus/species Taxa Richness 14. of taxa sampled	
RBP Habitat Parameters	
Epifaunal Substrate	
2. Embeddedness   5	
3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (b	
4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 10. Veg. Protection (both combined) 11. Riparian Width (both combined) 12. no units (0-20) 13. no units (0-20) 14. no units (0-20) 15. Total Habitat Score 91 no units (0-20) 16. Riparian Width (both combined) 17. Total Habitat Score 91 no units 18. Subindex 19. National Subindex 19. National Subindex 19. National Subindex 19. Su	
5. Channel Flow Status 5. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11	
6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11	
7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11	
7. Veg. Protection (both combined) 7. O. Riparian Width (both combined) 7. O. Riparia	
70. Riparian Width (both combined)  11	
Total Habitat Score  91 no units  Subindex  dabitat Integrity Index  0.10  Acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled	
Alabitat Integrity Index  0.10  Alacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled	
1. Genus/species Taxa Richness # of taxa sampled	
1. Genus/species Taxa Richness # of taxa sampled	
1. Genus/species Taxa Richness # of taxa sampled	
3. % Ephemeroptera % Mayflies (0-100)	
4. % Chironomidae & Oligochaeta % Midges & Worms (0-100)	
5. % Clingers % Clingers (0-100)	
no units	
Macroinvertebrate Bioassessment NA no units NA	
Conductivity 00.7 control	
Conductivity 88.7 microMHOs 1.00	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 248+00

NA Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)  Variables Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 5 no units (0-20) 4. Sediment Deposition 5 no units (0-20) 5. Channel Flow Status 0 no units (0-20) 6. Channel Alteration 10 no units (0-20) 7. Freq. Of Riffles (bends) 10 no units (0-20) 9. Veg. Protection (both combined) 10 no units (0-20) 10. Riparian Width (both combined) 10 no units (0-20) 11. Genus/species Taxa Richness 12. Genus/species Level (All Habitats) 11. Genus/species Taxa Richness 4 of EPT species sampled 14. % Chironomidae & Oligochaeta 15. % Clingers (1-00) 10 no units 15. % Clingers (1-00) 10 no units 16. mHBI no units  Macroinvertebrate Bioassessment NA no units NA  Conductivity 125 microMHOs 1.00	EII		Model	
Variables  Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate  2. Embeddedness 5 no units (0-20) 3. Velocity/Depth Regime 5 no units (0-20) 4. Sediment Deposition 5 no units (0-20) 6. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10 no units (0-20) 10. Riparian Width (both combined) 10 no units (0-20)  Total Habitat Score 57 no units  Macroinvertebrate Data - Genus/species Level (All Habitats)  # of taxa sampled # of taxa sampled # of taxa sampled # of tePT species sampled # of				
Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA  no units  NA  NA  NA  NA  NA  NA  NA  NA  NA  N	0.55	Ecological	Integrity Index ( Habitat Integ	grity + Conductivity)
REP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 5. Nelocity/Depth Regime 5. No units (0-20) 6. Sediment Deposition 6. Channel Flow Status 7. Freq. Of Riffles (bends) 7. Freq. Of Riffles (bends) 7. Protection (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 8. Do units (0-20) 9. No units (0-20) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection	Variables	Measure	Units	
1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA  No units (0-20)  10. No units (0-20)  No units (	inter quantitative or categorical measure from Fi	eld Data Sheet ir	shaded cells	
Embeddedness   5   no units (0-20)			-	
1. Velocity/Depth Regime 2. Sediment Deposition 3. Sediment Deposition 5. Channel Flow Status 0 no units (0-20) 6. Channel Alteration 10 no units (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 10. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. Sephemeroptera 14. Sephemeroptera 15. Wayflies (0-100) 16. Macroinvertebrate Bioassessment 17. Genus/species Taxa Richness 18. Subindex 19. Veg. Protection (both combined) 10. No units (0-20) 10. No units (0-20) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. Sephemeroptera 14. Sephemeroptera 15. Sephemeroptera 16. Mayflies (0-100) 17. Freq. Of Riffles (0-100) 18. Deposition on units (0-20) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. No units (0-20) 19. No units (0-20) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. No units (0-20) 19. Veg. Protection (both combined) 19. No units (0-20) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. No units (0-20) 19. Veg. Protection (both combined) 19. No units (0-20) 19. No units (0-20) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. No units (0-20) 19. No units (0-20) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. No units (0-20) 19. No units	•			
1. Sediment Deposition 3. Channel Flow Status 3. Channel Alteration 4. Freq. Of Riffles (bends) 5. Bank stability (both combined) 6. Veg. Protection (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 7. Riparian Width (both combined) 7. Total Habitat Score 7. In ounits (0-20) 7. Total Habitat Score 7. In ounits (0-20) 7. In ounits			, ,	
Channel Flow Status				
10 no units (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10 no units (0-20) 10 no units (0-20) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 no units (0-20) 16 no units (0-20) 17 no units (0-20) 18 no units (0-20) 19 no units (0-20) 10 no units (0-20) 10 no units (0-20) 11 no units (0-20) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 no units (0-20) 16 no units (0-20) 17 no units (0-20) 18 no units (0-20) 19 no units (0-20) 10 no units (0-20) 10 no units (0-20) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 no units (0-20) 16 no units (0-20) 17 no units (0-20) 18 no units (0-20) 19 no units (0-20) 10 no units (0-20) 10 no units (0-20) 10 no units (0-20) 10 no units (0-20) 11 no units (0-20) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 no units (0-20) 16 no units (0-20) 17 no units (0-20) 18 no units (0-20) 19 no units (0-20) 10 no units	•			
1. Freq. Of Riffles (bends) 2. Bank stability (both combined) 3. Veg. Protection (both combined) 4. Veg. Protection (both combined) 5. Total Habitat Score 57 no units  Subindex  Subindex  Indicate Integrity Index  Indicate Int				
Bank stability (both combined)   8				
1. Veg. Protection (both combined) 0. Riparian Width (both combined) 0 no units (0-20)				
7. Riparian Width (both combined) 0 no units (0-20)  Total Habitat Score 57 no units Subindex  Rabitat Integrity Index 0.10  1. Genus/species Taxa Richness # of taxa sampled # of EPT species sampl			` '	
# of taxa sampled # of EPT species sampled # o		0		
Alabitat Integrity Index				
Alacroinvertebrate Data - Genus/species Level (All Habitats)   1. Genus/species Taxa Richness   # of taxa sampled     2. Genus/species EPT Richness   # of EPT species sampled     3. % Ephemeroptera   % Mayflies (0-100)     4. % Chironomidae & Oligochaeta   % Clingers (0-100)     5. % Clingers   % Clingers (0-100)     6. mHBI   mo units   NA   NA	otal Habitat Score	57	no units	Subindex
acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled 3. % Ephemeroptera % Mayflies (0-100) 4. % Chironomidae & Oligochaeta % Midges & Worms (0-100) 5. % Clingers 6. mHBI no units  NA no units	star rrabitat Goorg	ŭ.	no dimo	Cubindox
1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBl  Macroinvertebrate Bioassessment  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA	abitat Integrity Index			0.10
1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBl  Macroinvertebrate Bioassessment  # of taxa sampled % Mayflies (0-100) % Mayflies (0-100) % Clingers (0-100) no units  NA			11.15.2.3	
2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units	iacroinvertebrate Data - Genus/speci	es Levei (All	<u>Habitats)</u>	
2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBl  Macroinvertebrate Bioassessment  # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA	1 Conus/anasias Taya Bishness		14 -4	
3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  Makuriis (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA  NA				
4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBl  Macroinvertebrate Bioassessment  NA  No units  NA				
5. % Clingers 6. mHBI no units  NA no units  NA				
flacroinvertebrate Bioassessment NA no units NA			, ,	
	6. mHBI		no units	
Ponductivity 125 microMHOs 1.00	lacroinvertebrate Bioassessment	NA	no units	NA
conductivity 125 microMHOs 1.00				
	Conductivity	125	microMHOs	1.00
	·		•	
		Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 258+00

Variables  Variables  Noter quantitative or categorical measure from Field Discription  BP Habitat Parameters  Epifaunal Substrate  Embeddedness  Velocity/Depth Regime  Sediment Deposition  Channel Flow Status  Channel Alteration  Freq. Of Riffles (bends)	deasure ata Sheet in  4 5 5 0	no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
Variables  Inter quantitative or categorical measure from Field D BP Habitat Parameters  Epifaunal Substrate  Embeddedness  Velocity/Depth Regime  Sediment Deposition  Channel Flow Status  Channel Alteration  Freq. Of Riffles (bends)	Measure ata Sheet in  4 5 5 0	Units shaded cells no units (0-20) no units (0-20) no units (0-20) no units (0-20)	egrity + Conductivit	<u>y)</u>
ter quantitative or categorical measure from Field D BP Habitat Parameters  Epifaunal Substrate  Embeddedness  Velocity/Depth Regime  Sediment Deposition  Channel Flow Status  Channel Alteration  Freq. Of Riffles (bends)	4 5 5 5 0	no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
BP Habitat Parameters  Epifaunal Substrate  Embeddedness  Velocity/Depth Regime  Sediment Deposition  Channel Flow Status  Channel Alteration  Freq. Of Riffles (bends)	4 5 5 5 0	no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
BP Habitat Parameters  Epifaunal Substrate  Embeddedness  Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends)	4 5 5 5 0	no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
Epifaunal Substrate Embeddedness Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends)	5 5 5 0	no units (0-20) no units (0-20) no units (0-20)		
Embeddedness Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends)	5 5 5 0	no units (0-20) no units (0-20) no units (0-20)		
Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends)	5 5 0	no units (0-20) no units (0-20)		
Channel Flow Status Channel Alteration Freq. Of Riffles (bends)	0	, ,		
. Channel Alteration . Freq. Of Riffles (bends)		:4- (0.00)		
Freq. Of Riffles (bends)		no units (0-20)		
	10	no units (0-20)		
Book and the district to the	10	no units (0-20)		
Bank stability (both combined)	8	no units (0-20)		
Veg. Protection (both combined)  D. Riparian Width (both combined)	0	no units (0-20)		
. Riparian Width (both combined)	U	no units (0-20)		
		1		
otal Habitat Score	57	no units	Subindex	
abitat Integrity Index			0.10	
			0.110	
acroinvertebrate Data - Genus/species L	evel (All	<u>Habitats)</u>		
		-		
1. Genus/species Taxa Richness		# of taxa sampled		
2. Genus/species EPT Richness		# of EPT species sampled		
8. % Ephemeroptera		% Mayflies (0-100)		
l. % Chironomidae & Oligochaeta i. % Clingers		% Midges & Worms (0-100) % Clingers (0-100)		
5. mHBI		no units		
		ino dilito		
acroinvertebrate Bioassessment	NA	no units	NA	
onductivity	125	microMHOs	1.00	
onaddanty	120	THIS ON TO	1.00	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 260+00

NA   Ecological Integrity Index (MBI + Habitat Integrity + Conductivit
Variables  Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera  Mounits (0-20)  no units (0-20)  no units (0-20)  no units (0-20)  no units (0-20)  10. Riparian Width (both combined) 10. No units (0-20) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 14. of EPT species sampled 13. % Ephemeroptera  9. Mayfiles (0-100)
RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera  3. no units (0-20) 10. Riparian Width (both combined) 10. National Macroinvertebrate Data - Genus/species Level (All Habitats) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera  3. no units (0-20)
RBP   Habitat   Parameters
1. Epifaunal Substrate   3
2. Émbeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera  15. no units (0-20) 10. no units (0-20) 10. no units (0-20) 10. no units (0-20) 11. no units (0-20) 12. no units (0-20) 13. no units (0-20) 14. no units (0-20) 15. channel Alteration 16. no units (0-20) 17. Freq. Of Riffles (bends) 18. no units (0-20) 19. no units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 10. Riparian Width (both combined)
3. Velocity/Depth Regime
1.   Sediment Deposition   4
0
6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 10
7. Freq. Of Riffles (bends) 3. Bank stability (both combined) 3. Veg. Protection (both combined) 40. Riparian Width (both combined) 40. Riparian Width (both combined) 50. Veg. Protection (both combined) 6
10. No units (0-20) 10. Veg. Protection (both combined) 10. Niparian Width (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 10. No units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 10. No units (0-20) 11. Genus/species Level (All Habitats) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. Genus/species sampled 15. Wayfies (0-100)
70. Veg. Protection (both combined) 10. Riparian Width (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 11. Genus/species Data - Genus/species Level (All Habitats) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. Genus/species sampled 15. Wayflies (0-100)
70. Riparian Width (both combined)  8 no units (0-20)  Fotal Habitat Score  58 no units  Subindex  Habitat Integrity Index  0.10  Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera  # of taxa sampled # of EPT species sampled % Mayflies (0-100)
# of taxa sampled #Idenus/species EPT Richness #Idenus/species Sampled #Idenus/sp
# of taxa sampled # of EPT species sampled # o
# of taxa sampled #Idenus/species EPT Richness #Idenus/species Sampled #Idenus/sp
1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera  # of taxa sampled # of EPT species sampled % Mayflies (0-100)
1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera # of taxa sampled # of EPT species sampled % Mayflies (0-100)
# of taxa sampled # of EPT species sampled # of EPT species sampled # of EPT species sampled # Mayflies (0-100)
12. Genus/species EPT Richness # of EPT species sampled % Mayflies (0-100)
# of EPT species sampled   # of EPT species sampled   # Mayflies (0-100)
13. % Ephemeroptera % Mayflies (0-100)
4. % Chironomidae & Oligochaeta % Midges & Worms (0-100)
15. % Clingers (0-100)
16. mHBI no units
Macroinvertebrate Bioassessment NA no units NA
Conductivity 125 microMHOs 1.00
120 111100

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 273+00

EII		Model	
NA	Ecologica	al Integrity Index (MBI + Habita	t Integrity + Conductivi
0.55	Ecologica	al Integrity Index ( Habitat Integ	rity + Conductivity)
Variables	Measure	Units	
enter quantitative or categorical measure from Fig.	eld Data Sheet	in shaded cells	
RBP Habitat Parameters			
I. Epifaunal Substrate	7	no units (0-20)	
2. Embeddedness	<u>7</u> 5	no units (0-20)	
3. Velocity/Depth Regime 4. Sediment Deposition	5	no units (0-20) no units (0-20)	
5. Channel Flow Status	0	no units (0-20)	
6. Channel Alteration	7	no units (0-20)	
7. Freq. Of Riffles (bends)	9	no units (0-20)	
B. Bank stability (both combined)	12	no units (0-20)	
9. Veg. Protection (both combined)	6	no units (0-20)	
10. Riparian Width (both combined)	4	no units (0-20)	
Fotal Habitat Score	62	no units	Subindex
	<u> </u>		Cubinack
labitat Integrity Index			0.10
Macroinvertebrate Data - Genus/speci	ies Level (Al	l Habitats)	
1 Canua/anasias Tava Biohness			
11. Genus/species Taxa Richness 12. Genus/species EPT Richness		# of taxa sampled # of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. % Clingers		% Clingers (0-100)	
16. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
		_	
Conductivity	125	microMHOs	1.00
	Insert Photo	. Hara	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 277+00

EII		Model	
NA	Ecologica	al Integrity Index (MBI + Habita	t Integrity + Conductivi
0.55	Ecologica	al Integrity Index ( Habitat Integ	rity + Conductivity)
Variables	Measure	Units	
enter quantitative or categorical measure from Fig.	eld Data Sheet	in shaded cells	
RBP Habitat Parameters			
I. Epifaunal Substrate	7	no units (0-20)	
2. Embeddedness	<u>7</u> 5	no units (0-20)	
3. Velocity/Depth Regime 4. Sediment Deposition	5	no units (0-20) no units (0-20)	
5. Channel Flow Status	0	no units (0-20)	
6. Channel Alteration	7	no units (0-20)	
7. Freq. Of Riffles (bends)	9	no units (0-20)	
B. Bank stability (both combined)	12	no units (0-20)	
9. Veg. Protection (both combined)	6	no units (0-20)	
10. Riparian Width (both combined)	4	no units (0-20)	
Fotal Habitat Score	62	no units	Subindex
	<u> </u>		Cubinack
labitat Integrity Index			0.10
Macroinvertebrate Data - Genus/speci	ies Level (Al	l Habitats)	
1 Canua/anasias Tava Biohness			
11. Genus/species Taxa Richness 12. Genus/species EPT Richness		# of taxa sampled # of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. % Clingers		% Clingers (0-100)	
16. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
		_	
Conductivity	125	microMHOs	1.00
	Insert Photo	. Hara	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 286+00

NA Ecological Integrity Index (MBI + Habitat Integrity + Conductive    Variables Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells   RBP Habitat Parameters   1. Epifaunal Substrate
Variables  Measure Units  Inter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  I. Epifaunal Substrate  I. Ounits (0-20)  I. Sediment Deposition  I. Sediment Deposition  I. Sediment Deposition  I. Ounits (0-20)  I. Channel Flow Status  I. Channel Alteration  I. Ounits (0-20)  I. Freq. Of Riffles (bends)  I. Bank stability (both combined)  I. Veg. Protection (both combined)  II. Riparian Width (both combined)  II. Ounits (0-20)  Macroinvertebrate Data - Genus/species Level (All Habitats)  II. Genus/species Taxa Richness  II. Genus/species EPT Richness  III. Genus/species EPT Richness
RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 7. Veg. Protection (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both
RBP Habitat Parameters   8
Epifaunal Substrate
Embeddedness
1. Velocity/Depth Regime 2. Sediment Deposition 3. Channel Flow Status 4. Channel Flow Status 5. no units (0-20) 6. Channel Alteration 7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 7. Veg. Protection (both comb
Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Veg. Protection (both combined) Riparian Width (both combined) Riparian Width (both combined)  Total Habitat Score  Total Habitat Integrity Index  1. Genus/species Taxa Richness Cenus/species EPT Richness  # of taxa sampled # of EPT species sampled
Channel Flow Status
. Channel Alteration . Freq. Of Riffles (bends) . Bank stability (both combined) . Veg. Protection (both combined) . Riparian Width (both combined) . Riparian Width (both combined) . Total Habitat Score . Total Habitat Score . Total Habitat Integrity Index . In Genus/species Taxa Richness 2. Genus/species EPT Richness . Total Habitat Integrity Index . Total Habitat Integrity Inde
1. Freq. Of Riffles (bends) 1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Genus/species Taxa Richness 1. Genus/species Taxa Richness 2. Genus/species EPT Richness 1. Genus/species EPT Richness
Bank stability (both combined) Veg. Protection (both combined) D. Riparian Width (both combined)  In ounits (0-20) In ounits
Veg. Protection (both combined)  14
no units  Subindex  abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of taxa sampled # of EPT species sampled
labitat Integrity Index  0.10  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of taxa sampled # of EPT species sampled
abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of taxa sampled # of EPT species sampled
abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of taxa sampled # of EPT species sampled
# of taxa sampled # of EPT species EPT Richness # of EPT species sampled
# of taxa sampled # of EPT species sampled # of EPT species sampled
1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled
2. Genus/species EPT Richness # of EPT species sampled
2. Genus/species EPT Richness # of EPT species sampled
1. % Chironomidae & Oligochaeta % Midges & Worms (0-100)
5. % Clingers (0-100)
6. mHBI
acroinvertebrate Bioassessment NA no units NA
onductivity 32.1 microMHOs 1.00
onductivity 32.1 iniciowinos 1.00

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 295+00

EII		Model	
NA	Ecological	Integrity Index (MBI + Habitat	t Integrity + Conductivi
0.55	Ecological	Integrity Index ( Habitat Integ	rity + Conductivity)
Variables	Measure	Units	
nter quantitative or categorical measure from Fig.	eld Data Sheet ir	shaded cells	
BP Habitat Parameters		1	
. Epifaunal Substrate	8	no units (0-20)	
. Embeddedness . Velocity/Depth Regime	6 10	no units (0-20)	
. Velocity/Deptil Regime . Sediment Deposition	6	no units (0-20) no units (0-20)	
. Channel Flow Status	8	no units (0-20)	
Channel Alteration	9	no units (0-20)	
Freq. Of Riffles (bends)	9	no units (0-20)	
Bank stability (both combined)	6	no units (0-20)	
Veg. Protection (both combined)	12	no units (0-20)	
0. Riparian Width (both combined)	10	no units (0-20)	
		_	
otal Habitat Score	84	no units	Subindex
abitat Integrity Index			0.10
acroinvertebrate Data - Genus/speci	es Level (All	<u>Habitats)</u>	
		1	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera 4. % Chironomidae & Oligochaeta		% Mayflies (0-100) % Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
6. mHBI		no units	
acroinvertebrate Bioassessment	NA	no units	NA
Conductivity	26.6	microMHOs	1.00
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 325+00

nits naded cells o units (0-20)
nits  naded cells  o units (0-20)
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o units (0-20)
o units (0-20) o units (0-20) o units (0-20) o units (0-20) o units (0-20)
o units (0-20) o units (0-20) o units (0-20) o units (0-20)
o units (0-20) o units (0-20) o units (0-20)
o units (0-20) o units (0-20)
o units (0-20)
• •
o units Subindex
dunis
0.10
abitats)
of taxa sampled
of EPT species sampled Mayflies (0-100)
Midges & Worms (0-100)
Clingers (0-100)
o units
o units NA
icroMHOs 1.00
0

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 332+00

EII		Model	
NA		Integrity Index (MBI + Habita	
0.55	Ecological	Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
inter quantitative or categorical measure from Fie	eld Data Sheet in	n shaded cells	
RBP Habitat Parameters  I. Epifaunal Substrate	0	] ··-it- (0.20)	
2. Embeddedness	<u>8</u> 6	no units (0-20) no units (0-20)	
B. Velocity/Depth Regime	10	no units (0-20)	
l. Sediment Deposition	5	no units (0-20)	
5. Channel Flow Status	0	no units (0-20)	
. Channel Alteration	11	no units (0-20)	
'. Freq. Of Riffles (bends)	10	no units (0-20)	
. Bank stability (both combined)	10	no units (0-20)	
. Veg. Protection (both combined)	12	no units (0-20)	
0. Riparian Width (both combined)	11	no units (0-20)	
otal Habitat Score	83	no units	Subindex
		Ino unito	
abitat Integrity Index			0.10
acroinvertebrate Data - Genus/specie	es Level (All	Habitats)	
		-	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
4. % Chironomidae & Oligochaeta 5. % Clingers		% Midges & Worms (0-100) % Clingers (0-100)	
6. mHBI		no units	
lacroinvertebrate Bioassessment	NA	no units	NA
	4.40	1	4.00
Conductivity	149	microMHOs	1.00
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 333+00

ological easure	Integrity Index (MBI + Hab Integrity Index ( Habitat Ir Units shaded cells no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
easure ta Sheet in 6 3 5 0	Units shaded cells no units (0-20) no units (0-20) no units (0-20) no units (0-20)	tegrity + Conductivit	<u>(y)</u>
6 3 5 5	no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
6 3 5 5	no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
6 3 5 5	no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
3 5 5 0	no units (0-20) no units (0-20) no units (0-20)		
3 5 5 0	no units (0-20) no units (0-20) no units (0-20)		
5 5 0	no units (0-20) no units (0-20)		
0	, ,		
	no units (0-20)		
11			
	no units (0-20)		
8	no units (0-20)		
10	no units (0-20)		
	1		
14	no units (0-20)		
	-		
76	no units	Subindex	
		0.10	
		0.10	
vel (All I	<u>Habitats)</u>		
	_		
	# of taxa sampled		
	# of EPT species sampled		
	1		
	1		
	no units		
NA	no units	NA	
140	:MIIO-	1.00	
149	microiviHOs	1.00	
	14 14 76 evel (All )	no units (0-20) no units (0-20) no units (0-20)  no units  evel (All Habitats)  # of taxa sampled # of EPT species sampled % Mayfiles (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA no units	no units (0-20)  no units (0-20)  no units (0-20)  no units Subindex  0.10  evel (All Habitats)  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA  no units  NA

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 338+00

EII		Model	
NA	Ecological	Integrity Index (MBI + Habita	t Integrity + Conductivi
0.56	Ecological	Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
nter quantitative or categorical measure from Fig.	eld Data Sheet in	shaded cells	
RBP Habitat Parameters	10	1	
. Epifaunal Substrate	10	no units (0-20)	
. Embeddedness . Velocity/Depth Regime	6 10	no units (0-20)	
. Velocity/Deptil Regime . Sediment Deposition	7	no units (0-20) no units (0-20)	
. Channel Flow Status	8	no units (0-20)	
. Channel Alteration	11	no units (0-20)	
Freq. Of Riffles (bends)	11	no units (0-20)	
Bank stability (both combined)	12	no units (0-20)	
Veg. Protection (both combined)	14	no units (0-20)	
0. Riparian Width (both combined)	12	no units (0-20)	
otal Habitat Score	101	no units	Subindex
abitat Integrity Index			0.11
, and			-
acroinvertebrate Data - Genus/speci	es Level (All	<u>Habitats)</u>	
		1	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera 4. % Chironomidae & Oligochaeta		% Mayflies (0-100) % Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
6. mHBI		no units	
lacroinvertebrate Bioassessment	NA	no units	NA
Conductivity	140	microMHOs	1.00
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 346+00

Integrity Index (MBI + Habitat Integrity Index ( Habitat Integrity Ind	
Units  no units (0-20)	rity + Conductivity)
no units (0-20)	
no units (0-20)	
no units (0-20)	
no units (0-20)	
no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20)	
no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20)	
no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20)	
no units (0-20) no units (0-20) no units (0-20) no units (0-20)	
no units (0-20) no units (0-20)	
no units (0-20)	
no units (0-20)	
_	
no units	Subindex
	0.35
<u>Habitats)</u>	
# of taxa campled	
·	
% Clingers (0-100)	
no units	
]	NA
no units	INA
1	4.00
microMHOs	1.00
	# of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100)

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 349+00

EII		Model	
NA		Integrity Index (MBI + Habita	
0.55	Ecological	Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
Enter quantitative or categorical measure from Fig	eld Data Sheet ir	n shaded cells	
RBP Habitat Parameters		_	
1. Epifaunal Substrate	3	no units (0-20)	
2. Embeddedness	3	no units (0-20)	
3. Velocity/Depth Regime	5	no units (0-20)	
4. Sediment Deposition	7	no units (0-20)	
5. Channel Flow Status 6. Channel Alteration	10	no units (0-20) no units (0-20)	
7. Freq. Of Riffles (bends)	9	no units (0-20)	
B. Bank stability (both combined)	10	no units (0-20)	
9. Veg. Protection (both combined)	12	no units (0-20)	
10. Riparian Width (both combined)	16	no units (0-20)	
Total Habitat Score	75	no units	Subindex
otal Habitat Score	73	Ino units	Subilidex
labitat Integrity Index			0.10
<u> Macroinvertebrate Data - Genus/speci</u>	es Level (All	<u>Habitats)</u>	
		•	
11. Genus/species Taxa Richness		# of taxa sampled	
12. Genus/species EPT Richness		# of EPT species sampled	
13. % Ephemeroptera 14. % Chironomidae & Oligochaeta		% Mayflies (0-100) % Midges & Worms (0-100)	
15. % Clingers		% Clingers (0-100)	
16. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	149	microMHOs	1.00
Sonauouvity	140	Interest 100	1100
Conductivity	149	microMHOs	1.00
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 351+50

ologica leasure	Integrity Index (MBI + Habitat Integrity Index ( Habitat Integ Units  n shaded cells  no units (0-20)		
10 11 5 12	Units  n shaded cells  no units (0-20)	rity + Conduct	ivity)
5 4 10 11 5	n shaded cells  no units (0-20)		
5 4 10 11 5 12	no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
4 10 11 5 12	no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
4 10 11 5 12	no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
10 11 5 12	no units (0-20) no units (0-20) no units (0-20) no units (0-20)		
11 5 12	no units (0-20) no units (0-20) no units (0-20)		
5 12	no units (0-20) no units (0-20)		
12	no units (0-20)		
	1		
9	no units (0-20)		
10	no units (0-20)		
12	no units (0-20)		
14	no units (0-20)		
		0.11.1.	
92	no units	Subindex	
		0.10	
evel (All	Habitats)		
	<u>.</u>		
	# of taxa sampled		
	<b>-</b>		
NA	no units	NA	
1.10	I	4.00	
149	microMHOs	1.00	
	92 evel (All	no units (0-20)  92 no units  evel (All Habitats)  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA no units	92 no units  Subindex  0.10  evel (All Habitats)  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA no units  NA

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 352+50

Variables  Me  Enter quantitative or categorical measure from Field Data RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)	ological Integrity Index	(MBI + Habitat Integrity + Conducti	
Variables  Me Enter quantitative or categorical measure from Field Data RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)	ta Sheet in shaded cells  10		ivity)
Enter quantitative or categorical measure from Field Data RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)	10 no units (0-20) 7 no units (0-20) 10 no units (0-20) 11 no units (0-20) 10 no units (0-20) 11 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 no units (0-20) 16 no units (0-20) 17 no units (0-20) 18 no units (0-20) 19 no units (0-20) 10 no units (0-20) 11 no units (0-20)		
RBP Habitat Parameters  1. Epifaunal Substrate  2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)	10 no units (0-20) 7 no units (0-20) 10 no units (0-20) 13 no units (0-20) 10 no units (0-20) 11 no units (0-20) 13 no units (0-20) 14 no units (0-20) 16 no units (0-20) 17 no units (0-20) 18 no units (0-20) 19 no units (0-20) 10 no units (0-20)		
1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)	7 no units (0-20) 10 no units (0-20) 13 no units (0-20) 10 no units (0-20) 11 no units (0-20) 13 no units (0-20) 16 no units (0-20) 16 no units (0-20) 17 no units (0-20) 18 no units (0-20) 19 no units (0-20)		
2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)	7 no units (0-20) 10 no units (0-20) 13 no units (0-20) 10 no units (0-20) 11 no units (0-20) 13 no units (0-20) 16 no units (0-20) 16 no units (0-20) 17 no units (0-20) 18 no units (0-20) 19 no units (0-20)		
3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)	10 no units (0-20) 13 no units (0-20) 10 no units (0-20) 11 no units (0-20) 13 no units (0-20) 16 no units (0-20) 17 no units (0-20) 18 no units (0-20) 19 no units (0-20) 10 no units (0-20)		
5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank Stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)	10 no units (0-20) 11 no units (0-20) 13 no units (0-20) 16 no units (0-20) 12 no units (0-20) 10 no units (0-20) 11 no units (0-20)		
6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)  Total Habitat Score	11 no units (0-20) 13 no units (0-20) 16 no units (0-20) 12 no units (0-20) 6 no units (0-20)		
7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)	13 no units (0-20) 16 no units (0-20) 12 no units (0-20) 6 no units (0-20)		
8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)  Total Habitat Score	16 no units (0-20) 12 no units (0-20) 6 no units (0-20)		
9. Veg. Protection (both combined) 10. Riparian Width (both combined)  Total Habitat Score	12 no units (0-20) 6 no units (0-20)		
10. Riparian Width (both combined)	6 no units (0-20)		
Total Habitat Score			
	108 no units		
	no unito	Subindex	
Habitat Integrity Index			
		0.18	
Macroinvertebrate Data - Genus/species Le	evel (All Habitats)		
11. Genus/species Taxa Richness	# of taxa sampled		
12. Genus/species EPT Richness	# of EPT species s		
13. % Ephemeroptera	% Mayflies (0-100)		
14. % Chironomidae & Oligochaeta	% Midges & Worm	, ,	
15. % Clingers 16. mHBI	% Clingers (0-100) no units	)	
io. IIII Bi	no units		
Macroinvertebrate Bioassessment	NA no units	NA	
Conductivity	149 microMHOs	1.00	
			Ī

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 355+75

Conduct uctivity)

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 358+00

EII		Model	
NA	Ecologica	al Integrity Index (MBI + Habita	t Integrity + Conductiv
0.55	Ecologica	al Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
Enter quantitative or categorical measure from Fig	eld Data Sheet	in shaded cells	
RBP Habitat Parameters		<u></u>	
1. Epifaunal Substrate	5	no units (0-20)	
2. Embeddedness	10	no units (0-20)	
3. Velocity/Depth Regime	5	no units (0-20)	
4. Sediment Deposition	5	no units (0-20)	
5. Channel Flow Status	0	no units (0-20)	
6. Channel Alteration	6	no units (0-20)	
7. Freq. Of Riffles (bends)	5	no units (0-20)	
B. Bank stability (both combined)	6	no units (0-20)	
9. Veg. Protection (both combined) 10. Riparian Width (both combined)	3	no units (0-20)	
io. Riparian Width (both combined)	3	no units (0-20)	
Total Habitat Score	51	no units	Subindex
			0.40
Habitat Integrity Index			0.10
Macroinvertebrate Data - Genus/speci	es Level (Al	l Habitats)	
		_	
11. Genus/species Taxa Richness		# of taxa sampled	
12. Genus/species EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. % Clingers		% Clingers (0-100)	
16. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
0	400	T	4.00
Conductivity	100	microMHOs	1.00
Conductivity	100	microMHOs	1.00
	Insert Photo	, Horo	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 358+50

NA Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)  Variables Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 5 no units (0-20) 2. Embeddedness 5 no units (0-20) 3. Velocity/Depth Regime 5 no units (0-20) 5. Channel Flow Status 0 no units (0-20) 6. Channel Alteration 9 no units (0-20) 7. Freq. Of Riffles (bends) 6 no units (0-20) 8. Bank stability (both combined) 9 no units (0-20) 10. Riparian Width (both combined) 4 no units (0-20) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI no units  Macroinvertebrate Bioassessment NA no units  NA	EII		Model	
Variables  Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate  2. Embeddedness 5 no units (0-20) 3. Velocity/Depth Regime 5 no units (0-20) 4. Sediment Deposition 6. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9 no units (0-20) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment NA no units  NA				
Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA no units  NA  NA  NA  NA  NA  NA  NA  NA  NA  N	0.55	Ecologica	l Integrity Index ( Habitat Integ	grity + Conductivity)
RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA no units  3. no units (0-20)  8. no units (0-20) no units (0-20) 9. Veg. Protection (both combined) 16. no units (0-20) 17. Total Habitat Score  49 no units  4 of taxa sampled 4 of EPT species sampled 5 no units 9 no units 9 no units (0-20) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI	Variables	Measure	Units	
1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. Welocity/Depth Regime 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBl 18. In o units (0-20) 19. no units (0-20) 19. Total Habitat Score 19. no units 19. Subindex 19. On units (0-20) 19.		eld Data Sheet i	n shaded cells	
2. Émbeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)  Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA  no units (0-20) no units (0-20) no units (0-20) no units (0-20)  8. no units (0-20) no units (0-20) 9. veg. Protection (both combined) 16. no units (0-20) 17. Freq. Of Riffles (bends) 8. no units (0-20) 9. veg. Protection (both combined) 18. no units (0-20) 19. veg. Protection (both combined) 10. Riparian Width (both combined) 10. Ripa		2	Tit- (0.20)	
3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. Welocity/Depth Regime 5 no units (0-20) 10. no units (0-20) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. Welocity/Depth Regime 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 18. In units (0-20) 19. no units (0-20) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. Neg. Protection (both combined) 19. No units (0-20) 19. No units (0-20) 19. No units (0-20) 19. Veg. Protection (both combined) 10. veg. Protection (both combined)	•			
4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. **Ephemeroptera* 14. **Chironomidae & Oligochaeta* 15. **C Clingers* 16. mHBI  Macroinvertebrate Bioassessment  NA  no units (0-20)  8. mo units (0-20) no units (0			, ,	
5. Channel Flow Status 5. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA no units (0-20) no units (0-				
7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. Freq. Of Riffles (bends) 8 no units (0-20) 18. no units (0-20) 19. no	-			
Bank stability (both combined)   8	. Channel Alteration	9		
7. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. Macroinvertebrate Bioassessment 18. NA 19. Na ounits 1	'. Freq. Of Riffles (bends)		no units (0-20)	
7. Riparian Width (both combined)  4 no units (0-20)  Total Habitat Score  49 no units  Subindex  Habitat Integrity Index  7. Genus/species Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment NA no units  NA			no units (0-20)	
Total Habitat Score  49 no units  Subindex  0.10  Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA no units  Subindex  0.10  Onits  Volume of EPT species sampled Volume of EPT s		_		
Habitat Integrity Index  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  10. 10  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA	0. Riparian Width (both combined)	4	no units (0-20)	
Abbitat Integrity Index  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  0.10  1. Genus/species Level (All Habitats)  # of taxa sampled # of EPT species sampled % Mayfiles (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA	otal Habitat Score	40	no unite	Subindey
Internal Continuer Conti	otal nabital Score	49	no units	Subilidex
1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) no units  NA	abitat Integrity Index			0.10
1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Clingers (0-100) no units  NA	lacroinvertebrate Data - Genus/speci	es Level (All	Habitats)	
2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units			<del></del>	
3. % Ephemeroptera	1. Genus/species Taxa Richness		# of taxa sampled	
14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA  NA  Midges & Worms (0-100) % Clingers (0-100) no units  NA				
5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  NA  no units  NA			- · · · · ·	
6. mHBI no units  Acroinvertebrate Bioassessment NA no units NA				
Macroinvertebrate Bioassessment NA no units NA			• • •	
	6. тны		no units	
Conductivity 100 microMHOs 1.00	lacroinvertebrate Bioassessment	NA	no units	NA
Conductivity 100 microMHOs 1.00				
	Conductivity	100	microMHOs	1.00

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 367+00

EII		Model	
NA		Integrity Index (MBI + Habita	
0.55	Ecological	Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
inter quantitative or categorical measure from Fig	eld Data Sheet in	n shaded cells	
RBP Habitat Parameters	0	1	
I. Epifaunal Substrate	3	no units (0-20)	
P. Embeddedness B. Velocity/Depth Regime	10 5	no units (0-20) no units (0-20)	
l. Sediment Deposition	5	no units (0-20)	
. Channel Flow Status	0	no units (0-20)	
. Channel Alteration	15	no units (0-20)	
. Freq. Of Riffles (bends)	12	no units (0-20)	
. Bank stability (both combined)	10	no units (0-20)	
. Veg. Protection (both combined)	16	no units (0-20)	
0. Riparian Width (both combined)	16	no units (0-20)	
otal Habitat Score	92	no units	Subindex
labitat Integrity Index			0.10
<u>lacroinvertebrate Data - Genus/speci</u>	es Level (All	<u>Habitats)</u>	
4 . O		1	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness 3. % Ephemeroptera		# of EPT species sampled % Mayflies (0-100)	
4. % Chironomidae & Oligochaeta		% Mayriles (0-100)  % Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
6. mHBI		no units	
		_	
lacroinvertebrate Bioassessment	NA	no units	NA
Conductivity	100	microMHOs	1.00
Macroinvertebrate Bioassessment  Conductivity	NA 100		1.00
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 375+00

EII		Model	
NA		I Integrity Index (MBI + Habita	
0.55	Ecologica	l Integrity Index ( Habitat Integ	rity + Conductivity)
Variables	Measure	Units	
inter quantitative or categorical measure from Fi	eld Data Sheet i	n shaded cells	
1. Epifaunal Substrate	7	no units (0-20)	
2. Embeddedness	7	no units (0-20)	
3. Velocity/Depth Regime	10	no units (0-20)	
I. Sediment Deposition	7	no units (0-20)	
5. Channel Flow Status	6	no units (0-20)	
. Channel Alteration	11	no units (0-20)	
7. Freq. Of Riffles (bends) 8. Bank stability (both combined)	11 14	no units (0-20)	
. Veg. Protection (both combined)	11	no units (0-20) no units (0-20)	
0. Riparian Width (both combined)	13	no units (0-20)	
o. rapanan waan (boan combined)	10		
Fotal Habitat Score	97	no units	Subindex
labitat Integrity Index			0.10
		_	
Macroinvertebrate Data - Genus/spec	ies Level (All	<u>Habitats)</u>	
1. Genus/species Taxa Richness		# of taxa sampled	
12. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
4. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
16. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
		_	
Conductivity	100	microMHOs	1.00
			l

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 375+40

EII		Model	
NA		Integrity Index (MBI + Habita	
0.55	Ecological	Integrity Index ( Habitat Integ	rity + Conductivity)
Variables	Measure	Units	
nter quantitative or categorical measure from Fig	eld Data Sheet ir	n shaded cells	
BP Habitat Parameters  Epifaunal Substrate	7	] ··-i+- (0, 20)	
. Embeddedness	7	no units (0-20) no units (0-20)	
. Velocity/Depth Regime	10	no units (0-20)	
. Sediment Deposition	7	no units (0-20)	
. Channel Flow Status	6	no units (0-20)	
Channel Alteration	11	no units (0-20)	
Freq. Of Riffles (bends)	11	no units (0-20)	
Bank stability (both combined)	14	no units (0-20)	
Veg. Protection (both combined)	11	no units (0-20)	
0. Riparian Width (both combined)	13	no units (0-20)	
otal Habitat Score	97	no units	Subindex
tai Habitat Score	31	no units	Subilidex
bitat Integrity Index			0.10
acroinvertebrate Data - <i>Genus/speci</i> e	es Level (All	Habitats)	
		<u>/</u>	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
4. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers 6. mHBI		% Clingers (0-100) no units	
. III 161		Ino units	
acroinvertebrate Bioassessment	NA	no units	NA
onductivity	100	microMHOs	1.00
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 386+00

EII		Model	
NA	Ecologica	al Integrity Index (MBI + Habita	t Integrity + Conductiv
0.55	Ecologica	al Integrity Index ( Habitat Integ	rity + Conductivity)
Variables	Measure	Units	
enter quantitative or categorical measure from Fig.	eld Data Sheet	in shaded cells	
RBP Habitat Parameters			
I. Epifaunal Substrate	7	no units (0-20)	
2. Embeddedness	7 10	no units (0-20)	
3. Velocity/Depth Regime 4. Sediment Deposition	7	no units (0-20) no units (0-20)	
5. Channel Flow Status	6	no units (0-20)	
6. Channel Alteration	11	no units (0-20)	
7. Freq. Of Riffles (bends)	11	no units (0-20)	
B. Bank stability (both combined)	14	no units (0-20)	
9. Veg. Protection (both combined)	11	no units (0-20)	
10. Riparian Width (both combined)	13	no units (0-20)	
Fotal Habitat Score	97	no units	Subindex
labitat Integrity Index			0.10
Macroinvertebrate Data - Genus/speci	es Level (Al	<u>ll Habitats)</u>	
1. Genus/species Taxa Richness		# of taxa sampled	
12. Genus/species FAXA Nichness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. % Clingers		% Clingers (0-100)	
16. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
2	20.4		1.00
Conductivity	29.4	microMHOs	1.00
	Insert Photo	o Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 394+00

NA Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)  Variables Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 5 no units (0-20) 4. Sediment Deposition 5 no units (0-20) 5. Channel Flow Status 0 no units (0-20) 6. Channel Alteration 10 no units (0-20) 7. Freq. Of Riffles (bends) 11 no units (0-20) 9. Veg. Protection (both combined) 12 no units (0-20) 10. Riparian Width (both combined) 12 no units (0-20) 11. Genus/species Taxa Richness 12. Genus/species Level (All Habitats) 11. Genus/species Taxa Richness 13. % Ephemeroptera	EII		Model	
Variables  Measure Units  Inter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. no units (0-20) 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. no units (0-20)  Total Habitat Score 80. no units 8 Subindex  Habitat Integrity Index  Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment NA. no units NA.	NA	Ecologica	al Integrity Index (MBI + Habita	t Integrity + Conductivi
Riber quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 7. no units (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 8. Protection (both combined) 8. Riparian Width (both combine	0.55	Ecologica	al Integrity Index ( Habitat Inte	grity + Conductivity)
RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 7. Freq. Of Riffles (bends) 7. Protection (both combined) 7. Pr	Variables	Measure	Units	
1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 10. Riparian Width (both combined) 11. no units (0-20) 12. no units (0-20) 13. Bank Stability (both combined) 14. no units (0-20) 16. Riparian Width (both combined) 17. Freq. Of Riffles (bends) 18. Bank Stability (both combined) 19. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. no units (0-20) 12. no units (0-20) 13. Bank Stability (both combined) 14. no units (0-20) 15. Cancel Stability (both combined) 16. Riparian Width (both combined) 17. Freq. Of Riffles (bends) 18. Bank Stability (both combined) 19. Veg. Protection (both combined) 19. No units (0-20) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. Veg. Cancel Ca		eld Data Sheet	in shaded cells	
2. Émbeddedness 3. Velocity/Depth Regime 4. no units (0-20) 5. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. no units (0-20) 12. no units (0-20) 13. Bank stability (both combined) 14. no units (0-20) 19. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. quantity (0-20) 12. no units (0-20) 13. Subindex 14. no units (0-20) 15. Subindex 16. Genus/species Taxa Richness 17. Genus/species Taxa Richness 18. Genus/species Taxa Richness 19. Genus/species Taxa Richnes				
1. Velocity/Depth Regime 1. Sediment Deposition 2. Channel Flow Status 3. Channel Alteration 3. Channel Alteration 4. Preq. Of Riffles (bends) 5. Bank stability (both combined) 6. Veg. Protection (both combined) 7. Figure (bends) 7. Figure (bends) 8. Bank stability (both combined) 8. Bank stability (both combined) 8. Protection (both combined) 8. Riparian Width (both combined) 9. Veg. Protection (both combined) 12 no units (0-20) 14 no units (0-20) 15 no units (0-20) 16 no units (0-20) 17 oral Habitat Score 18 no units (0-20) 19 no units (0-20) 10 No units (0-20) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 oral Habitat Score 16 no units (0-20) 17 oral Habitat Score 18 no units (0-20) 19 oralis (0-20) 10 No units (0-20) 11 oralis (0-20) 12 no units (0-20) 13 oralis (0-20) 14 no units (0-20) 15 oral Habitat Score 16 no units (0-20) 17 oral Habitat Score 18 oralis (0-20) 18 oralis (0-20) 19 oralis (0-20) 19 oralis (0-20) 10 Oral Habitat Score 10 Oral Habitat Score 10 Oral Habitat Score 11 oralis (0-20) 12 oralis (0-20) 13 oralis (0-20) 14 oralis (0-20) 15 oralis (0-20) 16 oralis (0-20) 17 oralis (0-20) 18 oralis (0-20) 19 oralis (0-20) 19 oralis (0-20) 10 Oralis (0-100) 10 Oralis (0-100) 10 Oralis (0-100) 11 oralis (0-20) 12 oralis (0-20) 13 oralis (0-20) 14 oralis (0-20) 15 oralis (0-20) 16 oralis (0-20) 17 oralis (0-20) 18 oralis (0-20) 19 oralis (0-20) 19 oralis (0-20) 10 Oralis (0-20) 11 oralis (0-20) 12 oralis (0-20) 13 oralis (0-20) 14 oralis (0-20) 15 oralis (0-20) 16 oralis (0-20) 17 oralis (0-20) 18 oralis (0-20) 19 oralis (0-20) 10 Oral	•			
1. Sediment Deposition 1. Channel Flow Status 1. Channel Flow Status 1. Channel Alteration 1. Freq. Of Riffles (bends) 1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Comparis Width (both combined) 1. Comparis Width (both combined) 1. Comparis Width (both combined) 1. Genus/species Level (All Habitats) 1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI Macroinvertebrate Bioassessment NA no units NA				
Channel Flow Status Channel Alteration Channel Flow Status Channel Alteration Channel Flow Status			, ,	
3. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. In ounits (0-20) 18. Bank stability (both combined) 19. no units (0-20) 19. no units (0	•			
7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 112 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 oral Habitat Score 16				
1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Total Habitat Score  80 no units (0-20) 1. Total Habitat Score 80 no units  8. Subindex  1. Genus/species Data - Genus/species Level (All Habitats) 1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. Sephemeroptera 4. Sephemeroptera 5. Clingers 6. mHBI  Macroinvertebrate Bioassessment NA no units NA				
1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Cotal Habitat Score 1. Replace				
12 no units (0-20)  Total Habitat Score  80 no units  Subindex  Habitat Integrity Index  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  NA no units  Subindex  9.10  1. Genus/species Taxa Richness 4 of taxa sampled 6 it EPT species sampled 9. Mayflies (0-100) 9. Clingers (0-100) 9. Clingers (0-100) 9. Clingers (0-100) 9. NA			, ,	
# of taxa sampled  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  NA  0.10  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units		12		
# of taxa sampled # of EPT species sampled # of EPT species sampled # of EPT species sampled # of Mayflies (0-100) # Midges & Worms (0-100) # Midges & Worms (0-100) # Macroinvertebrate Bioassessment  NA no units	Total Habitat Score	80	no units	Subindex
# of taxa sampled  2. Genus/species EPT Richness # of EPT species sampled  3. % Ephemeroptera % Mayflies (0-100)  4. % Chironomidae & Oligochaeta % Clingers  6. mHBI NA no units	otal Habitat Georg		no units	Oubillucx
1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) no units  NA	labitat Integrity Index			0.10
# of EPT species sampled   % Mayflies (0-100)   % Midges & Worms (0-100)   % Clingers   % Clingers   % Clingers   % Clingers   % Mayflies (0-100)   % Clingers	Macroinvertebrate Data - Genus/spec	ies Level (Al	<u>ll Habitats)</u>	
# of EPT species sampled   % Mayflies (0-100)   % Midges & Worms (0-100)   % Clingers   % Clin			_	
3. % Ephemeroptera   % Mayflies (0-100)   % Midges & Worms (0-100)   % Midges & Worms (0-100)   % Clingers (0-10			-	
4. % Chironomidae & Oligochaeta   % Midges & Worms (0-100)   % Clingers (0-100)   % Clinger				
15. % Clingers   % Clingers (0-100)   no units   NA   no units   NA				
no units  Macroinvertebrate Bioassessment  NA  no units  NA				
	<u> </u>			
	Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity 29.4 microMHOs 1.00				
	Conductivity	29.4	microMHOs	1.00
	•	-		
Insert Photo Here				

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 405+50

NA Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)  Variables Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 5 no units (0-20) 4. Sediment Deposition 5 no units (0-20) 5. Channel Flow Status 0 no units (0-20) 6. Channel Alteration 10 no units (0-20) 7. Freq. Of Riffles (bends) 11 no units (0-20) 9. Veg. Protection (both combined) 12 no units (0-20) 10. Riparian Width (both combined) 12 no units (0-20) 11. Genus/species Taxa Richness 12. Genus/species Level (All Habitats) 11. Genus/species Taxa Richness 13. % Ephemeroptera	EII		Model	
Variables  Measure Units  Inter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. no units (0-20) 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. no units (0-20)  Total Habitat Score 80. no units 8 Subindex  Habitat Integrity Index  Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment NA. no units NA.	NA	Ecologica	al Integrity Index (MBI + Habita	t Integrity + Conductivi
Riber quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 7. no units (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 8. Protection (both combined) 8. Riparian Width (both combine	0.55	Ecologica	al Integrity Index ( Habitat Inte	grity + Conductivity)
RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 7. Freq. Of Riffles (bends) 7. Protection (both combined) 7. Pr	Variables	Measure	Units	
1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 10. Riparian Width (both combined) 11. no units (0-20) 12. no units (0-20) 13. Bank Stability (both combined) 14. no units (0-20) 16. Riparian Width (both combined) 17. Freq. Of Riffles (bends) 18. Bank Stability (both combined) 19. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. no units (0-20) 12. no units (0-20) 13. Bank Stability (both combined) 14. no units (0-20) 15. Cancel Stability (both combined) 16. Riparian Width (both combined) 17. Freq. Of Riffles (bends) 18. Bank Stability (both combined) 19. Veg. Protection (both combined) 19. No units (0-20) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. Veg. Cancel Ca		eld Data Sheet	in shaded cells	
2. Émbeddedness 3. Velocity/Depth Regime 4. no units (0-20) 5. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. no units (0-20) 12. no units (0-20) 13. Bank stability (both combined) 14. no units (0-20) 19. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. quantity (0-20) 12. no units (0-20) 13. Subindex 14. no units (0-20) 15. Subindex 16. Genus/species Taxa Richness 17. Genus/species Taxa Richness 18. Genus/species Taxa Richness 19. Genus/species Taxa Richnes				
1. Velocity/Depth Regime 1. Sediment Deposition 2. Channel Flow Status 3. Channel Alteration 3. Channel Alteration 4. Preq. Of Riffles (bends) 5. Bank stability (both combined) 6. Veg. Protection (both combined) 7. Figure (bends) 7. Figure (bends) 8. Bank stability (both combined) 8. Bank stability (both combined) 8. Protection (both combined) 8. Riparian Width (both combined) 9. Veg. Protection (both combined) 12 no units (0-20) 14 no units (0-20) 15 no units (0-20) 16 no units (0-20) 17 oral Habitat Score 18 no units (0-20) 19 no units (0-20) 10 No units (0-20) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 oral Habitat Score 16 no units (0-20) 17 oral Habitat Score 18 no units (0-20) 19 oralis (0-20) 10 No units (0-20) 11 oralis (0-20) 12 no units (0-20) 13 oralis (0-20) 14 no units (0-20) 15 oral Habitat Score 16 no units (0-20) 17 oral Habitat Score 18 oralis (0-20) 18 oralis (0-20) 19 oralis (0-20) 19 oralis (0-20) 10 Oral Habitat Score 10 Oral Habitat Score 10 Oral Habitat Score 11 oralis (0-20) 12 oralis (0-20) 13 oralis (0-20) 14 oralis (0-20) 15 oralis (0-20) 16 oralis (0-20) 17 oralis (0-20) 18 oralis (0-20) 19 oralis (0-20) 19 oralis (0-20) 10 Oralis (0-100) 10 Oralis (0-100) 10 Oralis (0-100) 11 oralis (0-20) 12 oralis (0-20) 13 oralis (0-20) 14 oralis (0-20) 15 oralis (0-20) 16 oralis (0-20) 17 oralis (0-20) 18 oralis (0-20) 19 oralis (0-20) 19 oralis (0-20) 10 Oralis (0-20) 11 oralis (0-20) 12 oralis (0-20) 13 oralis (0-20) 14 oralis (0-20) 15 oralis (0-20) 16 oralis (0-20) 17 oralis (0-20) 18 oralis (0-20) 19 oralis (0-20) 10 Oral	•			
1. Sediment Deposition 1. Channel Flow Status 1. Channel Flow Status 1. Channel Alteration 1. Freq. Of Riffles (bends) 1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Comparis Width (both combined) 1. Comparis Width (both combined) 1. Comparis Width (both combined) 1. Genus/species Level (All Habitats) 1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI Macroinvertebrate Bioassessment NA no units NA				
Channel Flow Status Channel Alteration Channel Flow Status Channel Alteration Channel Flow Status			, ,	
3. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. In ounits (0-20) 18. Bank stability (both combined) 19. no units (0-20) 19. no units (0	•			
7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 112 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 oral Habitat Score 16				
1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Total Habitat Score  80 no units (0-20) 1. Total Habitat Score 80 no units  8. Subindex  1. Genus/species Data - Genus/species Level (All Habitats) 1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. Sephemeroptera 4. Sephemeroptera 5. Clingers 6. mHBI  Macroinvertebrate Bioassessment NA no units NA				
1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Cotal Habitat Score 1. Replace				
12 no units (0-20)  Total Habitat Score  80 no units  Subindex  Habitat Integrity Index  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  NA no units  Subindex  9.10  1. Genus/species Taxa Richness 4 of taxa sampled 6 it EPT species sampled 9. Mayflies (0-100) 9. Clingers (0-100) 9. Clingers (0-100) 9. Clingers (0-100) 9. NA			, ,	
# of taxa sampled  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  NA  0.10  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units		12		
# of taxa sampled # of EPT species sampled # of EPT species sampled # of EPT species sampled # of Mayflies (0-100) # Midges & Worms (0-100) # Midges & Worms (0-100) # Macroinvertebrate Bioassessment  NA no units	Total Habitat Score	80	no units	Subindex
# of taxa sampled  2. Genus/species EPT Richness # of EPT species sampled  3. % Ephemeroptera % Mayflies (0-100)  4. % Chironomidae & Oligochaeta % Clingers  6. mHBI NA no units	otal Habitat Georg		no units	Oubillucx
1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) no units  NA	labitat Integrity Index			0.10
# of EPT species sampled   % Mayflies (0-100)   % Midges & Worms (0-100)   % Clingers   % Clingers   % Clingers   % Clingers   % Mayflies (0-100)   % Clingers	Macroinvertebrate Data - Genus/spec	ies Level (Al	<u>ll Habitats)</u>	
# of EPT species sampled   % Mayflies (0-100)   % Midges & Worms (0-100)   % Clingers   % Clin			_	
3. % Ephemeroptera   % Mayflies (0-100)   % Midges & Worms (0-100)   % Midges & Worms (0-100)   % Clingers (0-10			-	
4. % Chironomidae & Oligochaeta   % Midges & Worms (0-100)   % Clingers (0-100)   % Clinger				
15. % Clingers   % Clingers (0-100)   no units   NA   no units   NA				
no units  Macroinvertebrate Bioassessment  NA  no units  NA				
	<u> </u>			
	Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity 29.4 microMHOs 1.00				
	Conductivity	29.4	microMHOs	1.00
	•	-		
Insert Photo Here				

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 418+00

EII		Model	
NA		l Integrity Index (MBI + Habita	
0.49	Ecologica	l Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
Inter quantitative or categorical measure from Fig	eld Data Sheet i	n shaded cells	
RBP Habitat Parameters  1. Epifaunal Substrate	10	no unito (0.20)	
2. Embeddedness	13	no units (0-20) no units (0-20)	
B. Velocity/Depth Regime	10	no units (0-20)	
1. Sediment Deposition	12	no units (0-20)	
5. Channel Flow Status	12	no units (0-20)	
. Channel Alteration	9	no units (0-20)	
7. Freq. Of Riffles (bends)	10	no units (0-20)	
. Bank stability (both combined)	11	no units (0-20)	
. Veg. Protection (both combined)	8	no units (0-20)	
10. Riparian Width (both combined)	6	no units (0-20)	
otal Habitat Score	101	no units	Subindex
labitat Integrity Index			0.11
Macroinvertebrate Data - Genus/speci	es Level (All	Habitats)	
		_	
11. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
4. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers 6. mHBl		% Clingers (0-100)	
6. ШПЫ		no units	
lacroinvertebrate Bioassessment	NA	no units	NA
		_	
Conductivity	197	microMHOs	0.87
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 442+00

NA 0.60  Variables  Inter quantitative or categorical measure from Fie BP Habitat Parameters Epifaunal Substrate Embeddedness Velocity/Depth Regime Sediment Deposition Channel Flow Status	Ecologica Measure	I Integrity Index (MBI + Habi I Integrity Index ( Habitat Int Units  n shaded cells		
Variables  Inter quantitative or categorical measure from Fie BP Habitat Parameters  Epifaunal Substrate  Embeddedness  Velocity/Depth Regime  Sediment Deposition	Measure eld Data Sheet i	Units	egrity + Conductivit	v)
nter quantitative or categorical measure from Fid BP Habitat Parameters . Epifaunal Substrate . Embeddedness . Velocity/Depth Regime . Sediment Deposition	eld Data Sheet i			<i>y                                    </i>
BP Habitat Parameters  Epifaunal Substrate  Embeddedness  Velocity/Depth Regime  Sediment Deposition	13	n shaded cells		
. Epifaunal Substrate . Embeddedness . Velocity/Depth Regime . Sediment Deposition				
. Embeddedness . Velocity/Depth Regime . Sediment Deposition		T :: (0.00)		
. Velocity/Depth Regime . Sediment Deposition		no units (0-20)		
. Sediment Deposition	10	no units (0-20) no units (0-20)		
•	10	no units (0-20)		
	11	no units (0-20)		
. Channel Alteration	14	no units (0-20)		
. Freq. Of Riffles (bends)	15	no units (0-20)		
. Bank stability (both combined)	12	no units (0-20)		
. Veg. Protection (both combined)	16	no units (0-20)		
0. Riparian Width (both combined)	14	no units (0-20)		
otal Habitat Score	127		Subindex	
otal Habitat Score	127	no units	Subindex	
abitat Integrity Index			0.37	
lacroinvertebrate Data - Genus/speci	es I evel (All	Hahitats)		
adionivortosiato Bata Conad, opcon	CO LOVO (7417	Tidoriato)		
1. Genus/species Taxa Richness		# of taxa sampled		
2. Genus/species EPT Richness		# of EPT species sampled		
3. % Ephemeroptera		% Mayflies (0-100)		
4. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)		
5. % Clingers		% Clingers (0-100)		
6. mHBI		no units		
lacroinvertebrate Bioassessment	NA	no units	NA	
Conductivity	209	microMHOs	0.83	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 445+00

Integrity Index (MBI + Habitat Integrity Index ( Habitat Integ Units  n shaded cells  no units (0-20)	
Units  n shaded cells  no units (0-20)	rity + Conductivity)
no units (0-20)	
no units (0-20)	
no units (0-20)	
no units (0-20)	
no units (0-20)	
no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20) no units (0-20)	
no units (0-20) no units (0-20) no units (0-20) no units (0-20)	
no units (0-20) no units (0-20) no units (0-20)	
no units (0-20) no units (0-20)	
no units (0-20)	
1	
no units (0-20)	
no units (0-20)	
-	
no units	Subindex
	0.10
	0.10
<u>Habitats)</u>	
_	
# of taxa sampled	
Ino units	
no units	NA
microMHOc	0.83
IIIICIONINOS	0.03
	# of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 465+00

		Model	
NA		Integrity Index (MBI + Habit	
0.23	Ecologica	Integrity Index ( Habitat Integrity Index (	egrity + Conductivity)
Variables	Measure	Units	
inter quantitative or categorical measure from Fig	eld Data Sheet in	n shaded cells	
RBP Habitat Parameters  I. Epifaunal Substrate	6	T (0. 00)	
2. Embeddedness	<u>6</u> 3	no units (0-20) no units (0-20)	
B. Velocity/Depth Regime	<u>5</u>	no units (0-20)	
l. Sediment Deposition	4	no units (0-20)	
5. Channel Flow Status	7	no units (0-20)	
. Channel Alteration	8	no units (0-20)	
7. Freq. Of Riffles (bends)	9	no units (0-20)	
Bank stability (both combined)	4	no units (0-20)	
Veg. Protection (both combined)	6	no units (0-20)	
10. Riparian Width (both combined)	2	no units (0-20)	
otal Habitat Score	54	no units	Subindex
otal nabitat Score	34	no units	Submuex
labitat Integrity Index			0.10
Macroinvertebrate Data - Genus/specie	es Level (All	Habitats)	
	•		
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
4. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
6. mHBI		no units	
lacroinvertebrate Bioassessment	NA	no units	NA
Conductivity	382	microMHOs	0.37

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 474+00

NA 0.10  Variables  Iter quantitative or categorical measure from F		Untogrity Inday (MRL - Habi		
Variables			tat Integrity + Cond	
	Ecologica	I Integrity Index ( Habitat Int	tegrity + Conductivit	<u>y)</u>
ter quantitative or categorical measure from F	Measure	Units		
	Field Data Sheet i	n shaded cells		
BP Habitat Parameters Epifaunal Substrate	11	7 no unito (0.30)		
Embeddedness	8	no units (0-20) no units (0-20)		
Velocity/Depth Regime	10	no units (0-20)		
Sediment Deposition	8	no units (0-20)		
Channel Flow Status	8	no units (0-20)		
Channel Alteration	11	no units (0-20)		
Freq. Of Riffles (bends)	9	no units (0-20)		
Bank stability (both combined)	6	no units (0-20)		
Veg. Protection (both combined)	9	no units (0-20)		
D. Riparian Width (both combined)	8	no units (0-20)		
otal Habitat Score	88	no units	Subindex	
nai Habitat Score	- 00	no units	Subilidex	
abitat Integrity Index			0.10	
acroinvertebrate Data - Genus/spec	cies Level (All	Habitats)		
2010111011011011011011011011011011011011	<u> </u>	<u> </u>		
I. Genus/species Taxa Richness		# of taxa sampled		
2. Genus/species EPT Richness		# of EPT species sampled		
3. % Ephemeroptera		% Mayflies (0-100)		
1. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)		
5. % Clingers		% Clingers (0-100)		
6. mHBI		no units		
acroinvertebrate Bioassessment	NA	no units	NA	
onductivity	640	microMHOs	0.10	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 489+00

EII		Model	
NA		Integrity Index (MBI + Habita	
0.10	Ecological	Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
nter quantitative or categorical measure from Fig	ald Data Shoot in	shadad calls	
BP Habitat Parameters	eid Data Sheet ii	i siladed cells	
Epifaunal Substrate	3	no units (0-20)	
Embeddedness	2	no units (0-20)	
Velocity/Depth Regime	5	no units (0-20)	
. Sediment Deposition	3	no units (0-20)	
Channel Flow Status	6	no units (0-20)	
Channel Alteration	10	no units (0-20)	
Freq. Of Riffles (bends)	8	no units (0-20)	
Bank stability (both combined)	8	no units (0-20)	
Veg. Protection (both combined)	9	no units (0-20)	
0. Riparian Width (both combined)	11	no units (0-20)	
		_	
otal Habitat Score	65	no units	Subindex
- h : 4 - 4 l - 4			0.40
abitat Integrity Index			0.10
acroinvertebrate Data - Genus/specie	es Level (All	Habitats)	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
1. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
6. mHBI		no units	
acroinvertebrate Bioassessment	NA	no units	NA
Cronivertebrate bloassessment	INA	no units	INA
onductivity	576	microMHOs	0.10
Conductivity	576	microMHOs	0.10
	Insert Photo		

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 503+50

NA 0.55 Variables	Ecologic		
	Ecologica	al Integrity Index (MBI + Habita	t Integrity + Conducti
Variables	Ecologica	al Integrity Index ( Habitat Inte	grity + Conductivity)
	Measure	Units	
nter quantitative or categorical measure from Fi	ield Data Sheet	in shaded cells	
BP Habitat Parameters		_	
Epifaunal Substrate	7	no units (0-20)	
Embeddedness	4	no units (0-20)	
Velocity/Depth Regime Sediment Deposition	<u>5</u>	no units (0-20)	
Channel Flow Status	0	no units (0-20) no units (0-20)	
Channel Alteration	14	no units (0-20)	
Freq. Of Riffles (bends)	11	no units (0-20)	
Bank stability (both combined)	8	no units (0-20)	
Veg. Protection (both combined)	12	no units (0-20)	
D. Riparian Width (both combined)	16	no units (0-20)	
otal Habitat Score	82	no units	Subindex
star Habitat Score	02	no units	Jubilluex
abitat Integrity Index			0.10
acroinvertebrate Data - Genus/spec	ies Level (Al	II Habitats)	
•		<del></del>	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
4. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
6. mHBI		no units	
acroinvertebrate Bioassessment	NA	no units	NA
onductivity	56.9	microMHOs	1.00
onductivity	30.9	IIIICIONINOS	1.00

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 508+00

EII		Model	
NA	Ecologica	I Integrity Index (MBI + Habita	t Integrity + Conducti
0.16	Ecologica	l Integrity Index ( Habitat Integ	rity + Conductivity)
Variables	Measure	Units	
inter quantitative or categorical measure from Fig	eld Data Sheet i	in shaded cells	
RBP Habitat Parameters		_	
I. Epifaunal Substrate	7	no units (0-20)	
2. Embeddedness	7	no units (0-20)	
8. Velocity/Depth Regime	10	no units (0-20)	
1. Sediment Deposition	5	no units (0-20)	
5. Channel Flow Status 6. Channel Alteration	9	no units (0-20)	
	9	no units (0-20)	
7. Freq. Of Riffles (bends) 3. Bank stability (both combined)	8	no units (0-20) no units (0-20)	
D. Veg. Protection (both combined)	10	no units (0-20)	
10. Riparian Width (both combined)	8	no units (0-20)	
c. rupanan maan (boan combined)	0		
Fotal Habitat Score	82	no units	Subindex
labitat Intagritu Inday			0.10
labitat Integrity Index			0.10
Macroinvertebrate Data - Genus/speci	es Level (All	Habitats)	
		=	
11. Genus/species Taxa Richness		# of taxa sampled	
12. Genus/species EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. % Clingers 16. mHBl		% Clingers (0-100) no units	
о. шпы		_no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	444	iMIIO-	0.22
Jonauctivity	444	microMHOs	0.23
Conductivity	444	microMHOs	0.23
	Insert Photo	Horo	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 512+50

EII		Model	
NA		l Integrity Index (MBI + Habita	
0.36	Ecologica	I Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
nter quantitative or categorical measure from Fig	eld Data Sheet i	n shaded cells	
RBP Habitat Parameters  I. Epifaunal Substrate	10	T	
. Ephaunai Substrate 2. Embeddedness	20	no units (0-20) no units (0-20)	
. Velocity/Depth Regime	10	no units (0-20)	
I. Sediment Deposition	15	no units (0-20)	
. Channel Flow Status	11	no units (0-20)	
. Channel Alteration	11	no units (0-20)	
. Freq. Of Riffles (bends)	11	no units (0-20)	
. Bank stability (both combined)	6	no units (0-20)	
. Veg. Protection (both combined)	10	no units (0-20)	
0. Riparian Width (both combined)	8	no units (0-20)	
otal Habitat Score	112	no units	Subindex
abitat Integrity Index			0.22
lacroinvertebrate Data - Genus/specie	es Level (All	Habitats)	
		=	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
4. % Chironomidae & Oligochaeta 5. % Clingers		% Midges & Worms (0-100) % Clingers (0-100)	
6. mHBI		no units	
lacroinvertebrate Bioassessment	NA	no units	NA
	•••		2.70
Conductivity	324	microMHOs	0.50
Jonateavity	J24	Jillicovii (OS	0.30
	Insert Photo		

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 513+50

EII		Model	
NA	Ecologica	al Integrity Index (MBI + Habita	t Integrity + Conductiv
0.60	Ecologica	al Integrity Index ( Habitat Integ	rity + Conductivity)
Variables	Measure	Units	
Enter quantitative or categorical measure from Fig	eld Data Sheet	in shaded cells	
RBP Habitat Parameters			
. Epifaunal Substrate	7	no units (0-20)	
2. Embeddedness	6	no units (0-20)	
8. Velocity/Depth Regime 1. Sediment Deposition	10 12	no units (0-20) no units (0-20)	
5. Channel Flow Status	10	no units (0-20)	
S. Channel Alteration	13	no units (0-20)	
7. Freq. Of Riffles (bends)	12	no units (0-20)	
B. Bank stability (both combined)	12	no units (0-20)	
). Veg. Protection (both combined)	14	no units (0-20)	
10. Riparian Width (both combined)	14	no units (0-20)	
otal Habitat Score	110	no units	Subindex
		<del></del>	
labitat Integrity Index			0.20
Macroinvertebrate Data - Genus/speci	es Level (Al	l Habitats)	
1 Ganus/spacias Tava Bichness		# of toyo compled	
1. Genus/species Taxa Richness 2. Genus/species EPT Richness		# of taxa sampled # of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
16. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	56.9	microMHOs	1.00
Conductivity	50.9	тистомноѕ	1.00
	Insert Photo	h Horo	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 529+50

NA Ecological Integrity Index (MBI + Habitat Integrity + Conductivit  Variables Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Nelocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. In ounits (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 14. of EPT species sampled  Inits  Weasure Units  Weasure Units  Weasure Units  Integrity Index (Habitat Integrity + Conductivity  Abitat Integrity Index (Data Sheet in shaded cells  RBP Habitat Integrity Index (Data Sheet in shaded cells  Ano units (0-20)  no units (0-20)  no units (0-20)  no units (0-20)  Total Habitat Score  53 no units  Subindex  # of EPT species sampled
Variables  Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Nelocity/Depth Regime 5. no units (0-20) 4. Sediment Deposition 6. no units (0-20) 5. Channel Flow Status 6. Channel Alteration 7. no units (0-20) 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined)  Total Habitat Score  53 no units  Subindex  Measure Units  10-20)  no units (0-20)  # on units (0-20)  # of taxa sampled
Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. No units (0-20) 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 0. no units (0-20) 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness  # of taxa sampled
RBP Habitat Parameters
Epifaunal Substrate
2. Émbeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 6. Bank stability (both combined) 7. Veg. Protection (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 8. no units (0-20) 9. Riparian Width (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Émbeddedness 6. no units (0-20) 9. Subindex 14. Genus/species Taxa Richness 15. no units (0-20) 9. No units (0-20) 9. Subindex 16. On units (0-20) 9.
3. Velocity/Depth Regime
1. Sediment Deposition 1. Channel Flow Status 1. Channel Flow Status 1. Channel Alteration 2. Freq. Of Riffles (bends) 2. Bank stability (both combined) 2. Veg. Protection (both combined) 3. Channel Width (both combined) 4. No units (0-20) 7. In ounits (0-20) 7. In
1.   Channel Flow Status   0
7 no units (0-20) 7 Freq. Of Riffles (bends) 8 no units (0-20) 9 Protection (both combined) 9 Riparian Width (both combined) 9 OR Riparian Width (both combined) 10 Riparian Width (both combined) 11 Separate Data - Genus/species Level (All Habitats) 12 Genus/species Taxa Richness 1 no units (0-20) 1 no units (0-20) 1 no units (0-20) 1 no units (0-20) 1 or units (0-20) 1
7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 8. Veg. Protection (both combined) 8. no units (0-20) 9. Riparian Width (both combined) 9. Riparian Width (both combined) 9. Total Habitat Score 9. Total Habitat Score 9. Total Habitat Score 9. Total Habitat Score 9. Total Habitat Integrity Index 9. Index
Bank stability (both combined) Veg. Protection (both combined) Riparian Width (both combined) Rotal Habitat Score Ribbitat Integrity Index Racroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness  # of taxa sampled
70. Riparian Width (both combined)  4
Total Habitat Score  53 no units  Subindex  labitat Integrity Index  0.10  Lacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled
labitat Integrity Index  0.10  Iacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled
labitat Integrity Index  0.10  lacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled
labitat Integrity Index  0.10  lacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled
acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled
1. Genus/species Taxa Richness # of taxa sampled
1. Genus/species Taxa Richness # of taxa sampled
3. % Ephemeroptera % Mayflies (0-100)
4. % Chironomidae & Oligochaeta % Midges & Worms (0-100)
5. % Clingers
6. mHBI no units
flacroinvertebrate Bioassessment NA no units NA
Conductivity 33.5 microMHOs 1.00

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 534+20

EII		Model	
NA		l Integrity Index (MBI + Habita	
0.55	Ecologica	l Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
Enter quantitative or categorical measure from Fig	eld Data Sheet i	n shaded cells	
RBP Habitat Parameters  1. Epifaunal Substrate	3	no unito (0.20)	
2. Embeddedness	6	no units (0-20) no units (0-20)	
3. Velocity/Depth Regime	5	no units (0-20)	
4. Sediment Deposition	6	no units (0-20)	
5. Channel Flow Status	0	no units (0-20)	
6. Channel Alteration	7	no units (0-20)	
7. Freq. Of Riffles (bends)	6	no units (0-20)	
3. Bank stability (both combined)	8	no units (0-20)	
9. Veg. Protection (both combined)	8	no units (0-20)	
10. Riparian Width (both combined)	4	no units (0-20)	
Fotal Habitat Score	53	no units	Subindex
otal Habitat Goorg		no dimo	
labitat Integrity Index			0.10
Macroinvertebrate Data - Genus/speci	es Level (All	Habitats)	
11. Genus/species Taxa Richness		# of taxa sampled	
12. Genus/species EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. % Clingers 16. mHBl		% Clingers (0-100) no units	
O. IIIIDI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	33.5	microMHOs	1.00
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 541+00

EII		Model	
NA		Integrity Index (MBI + Habita	
0.59	Ecologica	Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
nter quantitative or categorical measure from Fig	eld Data Sheet i	n shaded cells	
RBP Habitat Parameters	0	1	
I. Epifaunal Substrate	20	no units (0-20)	
2. Embeddedness 3. Velocity/Depth Regime	5	no units (0-20) no units (0-20)	
l. Sediment Deposition	16	no units (0-20)	
. Channel Flow Status	6	no units (0-20)	
. Channel Alteration	12	no units (0-20)	
'. Freq. Of Riffles (bends)	7	no units (0-20)	
. Bank stability (both combined)	8	no units (0-20)	
. Veg. Protection (both combined)	14	no units (0-20)	
0. Riparian Width (both combined)	18	no units (0-20)	
otal Habitat Score	108	no units	Subindex
	100	no unito	
abitat Integrity Index			0.18
Macroinvertebrate Data - Genus/speci	es Level (All	Habitats)	
		_	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
4. % Chironomidae & Oligochaeta 5. % Clingers		% Midges & Worms (0-100) % Clingers (0-100)	
6. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
	22.5	1	4.00
Conductivity	33.5	microMHOs	1.00
	Insert Photo	Horo	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 542+50

EII		Model	
NA		Integrity Index (MBI + Habita	
0.55	Ecological	Integrity Index ( Habitat Integ	rity + Conductivity)
Variables	Measure	Units	
nter quantitative or categorical measure from Fig	eld Data Sheet ir	shaded cells	
BP Habitat Parameters	10	1	
. Epifaunal Substrate	10	no units (0-20)	
. Embeddedness	8	no units (0-20)	
. Velocity/Depth Regime . Sediment Deposition	<u>5</u> 8	no units (0-20) no units (0-20)	
. Channel Flow Status	10	no units (0-20)	
Channel Alteration	12	no units (0-20)	
Freq. Of Riffles (bends)	9	no units (0-20)	
Bank stability (both combined)	8	no units (0-20)	
Veg. Protection (both combined)	12	no units (0-20)	
0. Riparian Width (both combined)	14	no units (0-20)	
		_	
otal Habitat Score	96	1	Subindex
Jiai Habitat Score	90	no units	Submuex
abitat Integrity Index			0.10
acroinvertebrate Data - Genus/speci	es Level (All	<u>Habitats)</u>	
		_	
1. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
4. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
6. mHBI		no units	
acroinvertebrate Bioassessment	NA	no units	NA
	101		
	_	1	
onductivity	52.7	microMHOs	1.00
Conductivity	52.7	microMHOs	1.00
	Insert Photo		

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 547+00

NA Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)  Variables Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  RBP Habitat Parameters  2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. In on units (0-20) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. In on units (0-20)  Total Habitat Score 70. In on units (0-20)  Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species FP Richness 12. Genus/species FP Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers  Macroinvertebrate Bioassessment NA. In on units NA  Conductivity  33.5 microMHOs  Naistat Integrity Index NA  NA  No units NA	Nariables  Neasure from Field Data SI RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Total Habitat Score  Habitat Integrity Index  Macroinvertebrate Data - Genus/species Level 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA	ical Integrity Index (Habitat Integrity Index	
Variables  Measure Units  RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 7. Preq. Of Riffles (bends) 7. Prog. Of Riparian Width (both combined) 7. Riparian Width (both combined) 8. Dean ounits (0-20) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA  NA  Measure Units Neasure Units (0-20)  70  no units (0-20) 70  no units (0-20) 70  no units (0-20) 70  No units (0-20)	Variables  Wassure quantitative or categorical measure from Field Data SIRBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 5. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. Total Habitat Score  Total Habitat Score  Total Habitat Integrity Index  Macroinvertebrate Data - Genus/species Level 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA	no units (0-20)	grity + Conductivity)
Renter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 7. No units (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Total Habitat Score 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment NA no units NA	RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11  Total Habitat Score  Total Habitat Integrity Index  Macroinvertebrate Data - Genus/species Level 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI	no units (0-20)	
RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. no units (0-20) 7. Freq. Of Riffles (bends) 8. no units (0-20) 9. Outints (0-20) 9. Outints (bends) 9. Outints (ben	RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Total Habitat Score 12. Genus/species Taxa Richness 13. Genus/species Taxa Richness 14. Genus/species EPT Richness 15. Chironomidae & Oligochaeta 15. Clingers 16. mHBI	no units (0-20)	
1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 7. no units (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. To units (0-20) 12. Total Habitat Score 13. Wellocity/Depth Regime 14. Genus/species Taxa Richness 15. Genus/species Taxa Richness 16. Channel Flow Status 17. no units (0-20) 18. Bank stability (both combined) 19. no units (0-20) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. Wellocity Flows 14. Wellocity Flows 15. Wellogers 16. mHBI 16. mHBI 17. no units (0-20) 19. no units (0-20) 19. no units (0-20) 19. no units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 11. Total Habitat Score 12. Genus/species Taxa Richness 13. Wellocity Flows 14. Of taxa sampled 15. Wellogers 16. mHBI 17. no units (0-20) 19. no u	1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 7. Protection (both combined) 7. Riparian Width (both combined) 7. Protection (both combined) 7. Protection (both combined) 8. Bank stability (both combined) 8. Description (both combined) 8. Protection (both combined) 8. Protal Habitat Score 8. Protection (both combined) 8. Protal Habitat Score 8. Protection (both combined) 8. Protal Habitat Score 9. Protection (both combined) 9. Veg. Protection (both combined) 9	no units (0-20)	
1. Émbeddedness 1. Velocity/Depth Regime 1. Sediment Deposition 1. Channel Flow Status 1. Channel Alteration 1. Freq. Of Riffles (bends) 1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Genus/species Taxa Richness 1. Genus/species Taxa Richness 1. Genus/species Taxa Richness 1. Genus/species EPT Richness 1. Genus/species EPT Richness 1. Genus/species EPT Richness 1. Genus/species EVET Richness 1. Genus/species Taxa Richness 1. Genus/species Taxa Richness 1. Genus/species Taxa Richness 1. Genus/species EVET Richness 1. Genus/species EVET Richness 1. Genus/species EVET Richness 1. Genus/species Taxa Richness 1. Genus	2. Émbeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 7. Total Habitat Score 7. Habitat Integrity Index 7. Macroinvertebrate Data - Genus/species Level 7. Genus/species Taxa Richness 7. Genus/species EPT Richne	no units (0-20)	
1. Velocity/Depth Regime 1. Sediment Deposition 1. Sediment Deposition 1. Channel Flow Status 0 no units (0-20) 1. Freq. Of Riffles (bends) 1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Comparian Width (both combined) 1. Genus/species Taxa Richness 1. Genus/species Taxa Richness 1. Genus/species Taxa Richness 1. Genus/species EPT Richness 1. Genus/species EPT Richness 1. Genus/species Worms (0-100) 1. Weg. Protection (both combined) 1. Weg. Protection (both combined) 1. Veg. Protection (both combined) 1. Veg. Protection (both combined) 1. On units (0-20) 1. O	8. Velocity/Depth Regime 9. Sediment Deposition 9. Channel Flow Status 9. Channel Flow Status 9. Channel Alteration 11. Freq. Of Riffles (bends) 12. Bank stability (both combined) 13. Weg. Protection (both combined) 14. Comparis Width (both combined) 15. Veg. Protection (both combined) 16. Veg. Protection (both combined) 17. Freq. Of Riffles (bends) 18. Comparis Width (both combined) 19. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus Veg. Protection (both combined) 12. Genus/species Taxa Richness 13. Genus/species EPT Richness 14. Sephemeroptera 15. Clingers 16. mHBI	no units (0-20)	
1. Sediment Deposition 1. Channel Flow Status 2. Channel Alteration 3. Channel Alteration 3. Channel Alteration 4. Freq. Of Riffles (bends) 4. Bank stability (both combined) 5. Over Protection (both combined) 6. Neighbor Protection (both combined) 7. Veg. Protection (both combined) 8. no units (0-20) 8. no units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. No units (0-20) 9. No units (0-20) 9. No units (0-20) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. No units (0-20) 9. No units (0-20) 9. Veg. Protection (both combined) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. No units (0-20) 9. Veg. Protection (both combined) 9. Ve	1. Sediment Deposition 1. Channel Flow Status 1. Channel Flow Status 1. Channel Alteration 1. Freq. Of Riffles (bends) 1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Cotal Habitat Score 1. Genus/species Taxa Richness 1. Genus/species Taxa Richness 1. Genus/species EPT Richness 1. Sephemeroptera 1. % Chironomidae & Oligochaeta 1. % Clingers 1. Macroinvertebrate Bioassessment 1. Macroinvertebrate Bioassessment 1. Macroinvertebrate Bioassessment 1. NA	no units (0-20)	
Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Channel Alteration Freq. Of Riffles (bends) Channel Status Channel Alteration Freq. Of Riffles (bends) Channel Status Channel Alteration Channel (0-20) Channel (0-2	i. Channel Flow Status i. Channel Alteration i. Freq. Of Riffles (bends) i. Bank stability (both combined) i. Veg. Protection (both combined) i. Riparian Width (both combined) i. Veg. Protection (both combined) i. Veg. Protect	no units (0-20) no units (0-20) no units (0-20) no units (0-20)	
11	6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 12  Fotal Habitat Score 70  Habitat Integrity Index  Macroinvertebrate Data - Genus/species Level 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI	no units (0-20) no units (0-20) no units (0-20)	
7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 7. Veg. Protection (both combined) 7. Veg. Protection (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 7. Total Habitat Score 7. In units (0-20) 7. In units (0-20	8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 112  Fotal Habitat Score 103  Fabitat Integrity Index  Macroinvertebrate Data - Genus/species Level 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA	no units (0-20) no units (0-20)	
70 No units (0-20)  71 No units (0-20)  72 No units (0-20)  73 No units (0-20)  74 No units (0-20)  75 No units (0-20)  76 No units (0-20)  77 No units (0-20)  78 No units (0-20)  79 No units (0-20)  70 No	2. Veg. Protection (both combined) 2. Riparian Width (both combined) 3. Riparian Width (both combined) 4. Cotal Habitat Score 4. Representation of the combined of the combine		
12   no units (0-20)	0. Riparian Width (both combined) 12  total Habitat Score 70  labitat Integrity Index  lacroinvertebrate Data - Genus/species Level  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI		
Subindex   Subindex   Subindex   O.10     Ideroinvertebrate Data - Genus/species Level (All Habitats)     1. Genus/species Taxa Richness   # of taxa sampled     2. Genus/species EPT Richness   # of EPT species sampled     3. % Ephemeroptera   % Mayflies (0-100)     4. % Chironomidae & Oligochaeta   % Midges & Worms (0-100)     5. % Clingers   % Clingers (0-100)     6. mHBI   no units   NA   NA	labitat Integrity Index    Index   Ind	no units (0-20)	
Alabitat Integrity Index	labitat Integrity Index    Index   Ind	no units (0-20)	
lacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Indeprity Index  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units  NA	lacroinvertebrate Data - Genus/species Level  1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBl		
1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled 3. % Ephemeroptera % Mayflies (0-100) 4. % Chironomidae & Oligochaeta % Midges & Worms (0-100) 5. % Clingers 6. mHBI no units	1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment NA	no units	Subindex
1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled 3. % Ephemeroptera % Mayflies (0-100) 4. % Chironomidae & Oligochaeta % Midges & Worms (0-100) 5. % Clingers 6. mHBI no units	1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment NA		0.10
# of taxa sampled  2. Genus/species EPT Richness  3. % Ephemeroptera  4. % Chironomidae & Oligochaeta  5. % Clingers  6. mHBI  Macroinvertebrate Bioassessment  # of taxa sampled  # of EPT species sampled  % Mayflies (0-100)  % Midges & Worms (0-100)  no units  NA	1. Genus/species Taxa Richness 2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI lacroinvertebrate Bioassessment NA		
2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units	2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBl	'All Habitats)	
2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units	2. Genus/species EPT Richness 3. % Ephemeroptera 4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBl  Macroinvertebrate Bioassessment  NA		
3. % Ephemeroptera	3. % Ephemeroptera   4. % Chironomidae & Oligochaeta   5. % Clingers   6. mHBl   Macroinvertebrate Bioassessment   NA		
4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  Macroinvertebrate Bioassessment  M Midges & Worms (0-100) % Clingers (0-100) no units  NA	4. % Chironomidae & Oligochaeta 5. % Clingers 6. mHBI  flacroinvertebrate Bioassessment  NA		
5. % Clingers 6. mHBI % Clingers (0-100) no units  Macroinvertebrate Bioassessment NA no units NA	5. % Clingers 6. mHBI  lacroinvertebrate Bioassessment  NA	1% Mavflies (0-100)	
no units    Incomplete   Incomp	6. mHBI NA	* * * * * * * * * * * * * * * * * * * *	
flacroinvertebrate Bioassessment NA no units NA	flacroinvertebrate Bioassessment NA	% Midges & Worms (0-100)	
		% Midges & Worms (0-100) % Clingers (0-100)	
onductivity 33.5 microMHOs 1.00	conductivity 33.	% Midges & Worms (0-100) % Clingers (0-100)	
conductivity 33.5 microMHOs 1.00	conductivity 33.	% Midges & Worms (0-100) % Clingers (0-100) no units	NA
		% Midges & Worms (0-100) % Clingers (0-100) no units	NA
		% Midges & Worms (0-100) % Clingers (0-100) no units no units	
		% Midges & Worms (0-100) % Clingers (0-100) no units no units	
		% Midges & Worms (0-100) % Clingers (0-100) no units no units	
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		% Midges & Worms (0-100) % Clingers (0-100) no units no units	
		% Midges & Worms (0-100) % Clingers (0-100) no units no units	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 553+50

EII		Model	
NA		Integrity Index (MBI + Habita	
0.65	Ecologica	Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
Enter quantitative or categorical measure from Fig RBP Habitat Parameters	eld Data Sheet ii	n shaded cells	
1. Epifaunal Substrate	13	no units (0-20)	
2. Embeddedness	11	no units (0-20)	
3. Velocity/Depth Regime	10	no units (0-20)	
4. Sediment Deposition	10	no units (0-20)	
5. Channel Flow Status	13	no units (0-20)	
6. Channel Alteration	11	no units (0-20)	
7. Freq. Of Riffles (bends)	13	no units (0-20)	
8. Bank stability (both combined)	13	no units (0-20)	
9. Veg. Protection (both combined)	12	no units (0-20)	
10. Riparian Width (both combined)	14	no units (0-20)	
Total Habitat Score	120	no units	Subindex
Habitat Integrity Index			0.30
Macroinvertebrate Data - Genus/speci	es Level (All	Habitats)	
•	•	<u>-</u>	
11. Genus/species Taxa Richness		# of taxa sampled	
12. Genus/species EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. % Clingers		% Clingers (0-100)	
16. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	98.7	microMHOs	1.00
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 554+00

NA   Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)	EII		Model	
Variables  Measure Units  The pifaunal Substrate  2. Embeddedness  3. Velocity/Depth Regime  4. Sediment Deposition  5. Channel Flow Status  6. Channel Alteration  7. Freq. Of Riffles (bends)  8. Bank stability (both combined)  10. Riparian Width (both combined)  11. Riparian Width (both combined)  11. Riparian Width (both combined)  12. No units (0-20)  13. Velocity/Depth Regime  4. Sediment Deposition  14. No units (0-20)  5. Channel Flow Status  6. Channel Alteration  12. No units (0-20)  7. Freq. Of Riffles (bends)  8. Bank stability (both combined)  10. No units (0-20)  9. Veg. Protection (both combined)  11. No units (0-20)  12. No units (0-20)  13. Welocity Index  14. Sediment Deposition  15. Sediment Deposition  16. MHBI  Macroinvertebrate Bioassessment  NA. No units  NA.	NA	Ecological	Integrity Index (MBI + Habita	t Integrity + Conductiv
Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. no units (0-20) 13. Veg. Protection (both combined) 14. no units (0-20) 15. Cannel Flow Status 16. Channel Alteration 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. no units (0-20) 13. We protection (both combined) 14. Sediman Width (both combined) 15. Canus/species Taxa Richness 16. Genus/species Taxa Richness 17. Genus/species EPT Richness 18. We Chironomidae & Oligochaeta 19. Widiges & Worms (0-100) 19. Widiges & Worm	0.57	Ecological	Integrity Index ( Habitat Integ	rity + Conductivity)
RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. no units (0-20) 12. no units (0-20) 13. Total Habitat Score 11. no units (0-20) 14. no units (0-20) 15. Channel Alteration 16. Channel Alteration 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 11. no units (0-20) 12. no units (0-20) 13. Total Habitat Score 14. on units (0-20) 15. Channel Alteration 16. Mayrilies (0-100) 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 11. no units (0-20) 12. no units (0-20) 13. Velocity/Depth Regime 14. no units (0-20) 15. Canus/Species Taxa Richness 16. Ferrance Alteration 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. No units (0-20) 10. Riparian Width (both combined) 10. no units (0-20) 11. no units (0-20) 12. no units (0-20) 13. No units (0-20) 14. No units (0-20) 15. Clingers 16. mHBI 17. Genus/species Taxa Richness 18. Genus/species EPT Richness 19. Mayflies (0-100) 19. Veg. Protection (both combined) 10. no units (0-20) 10. no units (0-20) 11. on units (0-20) 12. no units (0-20) 13. No units (0-20) 14. No units (0-20) 15. Clingers 16. mHBI 17. Genus/species EPT Richness 18. Mayrilies (0-100) 19. Veg. Protection (both combined) 19. No units (0-20) 19. Veg. Protection (both combined) 10. no units (0-20) 10. no units (0-20) 11. No units (0-20) 12. No units (0-20) 13. Veg. Protection (both combined) 14. No units (0-20) 15. Clingers 16. MHBI 17. Genus/species EPT Richness 18. Mayrilies (0-100) 19. Veg. Protection (both combined) 19. No units (0-20) 19. No units (0-20) 19. No units (0-20) 19. No units (0-20) 19. Veg. Protection (both combined) 19. No units (0-20) 19. Veg. Protection (both combined) 19. No units (0-20) 19. Veg. Pr	Variables	Measure	Units	
1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. on units (0-20) 12. no units (0-20) 13. Bank stability (both combined) 14. no units (0-20) 15. Channel Alteration 16. Channel Alteration 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 11. Riparian Width (both combined) 11. no units (0-20) 12. no units (0-20) 13. We protection (both combined) 14. no units (0-20) 15. Channel Alteration 16. Total Habitat Score 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 11. Riparian Width (both combined) 11. no units (0-20) 12. no units (0-20) 13. We protection (both combined) 14. no units (0-20) 15. Channel Flow Subinets 16. Total Habitat Score 11. on units (0-20) 10. no units (0-20) 11. on units (0-20) 12. no units (0-20) 13. We protection (both combined) 14. no units (0-20) 15. We protection (both combined) 16. Total Habitat Score 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. veg. Protection (both combined) 10. no units (0-20) 10. no units (0-20) 11. on units (0-20) 12. on units (0-20) 13. We protection (both combined) 14. no units (0-20) 15. Channel Flow Score 16. Total Habitat Score 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. veg. Protection (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 11. on units (0-20) 11. on units (0-20) 12. on units (0-20) 13. We protection (both combined) 14. on units (0-20) 15. Channel Flow Score 16. Total Habitat Score 17. on units (0-20) 18. Bank stability (both combined) 19. veg. Protection (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 10. on units (0-20) 10. on unit		eld Data Sheet ir	n shaded cells	
3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. Round Its (0-20) 13. **Century Index**  Macroinvertebrate Data - Genus/species Level (All Habitats) 14. **Century Index**  Macroinvertebrate Data - Genus/species Level (All Habitats) 15. **Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA  no units (0-20)  14. no units (0-20) no units (0-20)  15. **Clingers 16. mHBI  NA  NA		11	no units (0-20)	
4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. no units (0-20) 12. no units (0-20) 13. No units (0-20) 14. no units (0-20) 15. Channel Alteration 16. Channel Alteration 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. no units (0-20) 13. No units (0-20) 14. no units (0-20) 15. Clare of Company (and the combined) 16. The combined of Company (and the combined) 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 11. no units (0-20) 12. no units (0-20) 13. Subindex 14. In ounits (0-20) 15. Clare of Company (and the combined) 16. The combined of Company (and the combined) 17. Freq. Of Company (and the combined) 18. Bank stability (both combined) 19. No units (0-20) 10. Riparian Width (both combined) 10. no units (0-20) 11. no units (0-20) 12. no units (0-20) 13. Subindex 14. No units (0-20) 15. Clare of Company (and the combined) 16. The combined of Company (and the combined) 17. The combined of Company (and the combined) 18. Bank stability (both combined) 19. No units (0-20) 10. Riparian Width (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. On units (0-20) 12. No units (0-20) 13. Subindex 14. No units (0-20) 15. Clare of Company (and the combined) 16. The combined of Company (and the combined) 17. No units (0-20) 18. Bank stability (0-20) 19. No units (0-20)	2. Embeddedness	11	no units (0-20)	
5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. no units (0-20) 13. No units (0-20) 14. no units (0-20) 15. Riparian Width (both combined) 16. Riparian Width (both combined) 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 11. Riparian Width (both combined) 11. On units 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. Sephemeroptera 14. Sephemeroptera 15. Chironomidae & Oligochaeta 16. mHBI 10. No units (0-20) 11. do units (0-20) 12. no units (0-20) 13. Veg. Protection (both combined) 14. no units (0-20) 15. Clingers 16. The North Combined on units (0-20) 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 11. on units (0-20) 12. no units (0-20) 13. Veg. Protection (both combined) 14. no units (0-20) 15. Veg. Protection (both combined) 16. The North Combined (0-20) 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 11. on units (0-20) 11. On units (0-20) 12. On units (0-20) 13. Veg. Protection (both combined) 14. no units (0-20) 15. Veg. Protection (both combined) 16. Protection (both combined) 17. Freq. Of Riffles (0-20) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 10. Riparian Width (both combined) 11. On units (0-20) 11. On units (0-20) 12. On units (0-20) 13. Veg. Protection (both combined) 14. Veg. Protection (both combined) 15. Veg. Protection (both combined) 16. Veg. Protection (both combined) 17. Veg. Protection (both combined) 18. Veg. Protection (both combined) 19. Veg. Protection (both combined) 19. Veg. Protection (both com	3. Velocity/Depth Regime	5	no units (0-20)	
6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. no units (0-20) 11. Riparian Width (both combined) 11. Total Habitat Score 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. In ounits (0-20) 19. no units (0-20) 10. no units (0-20) 11. Genus/species EPT Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. no units (0-20) 18. Bank stability (both combined) 19. no units (0-20) 10. no units (0-20) 11. no units (0-20) 12. no units (0-20) 13. No units (0-20) 14. No units (0-20) 15. No units (0-20) 16. mults (0-20) 17. no units (0-20) 18. Bank stability (both combined) 19. no units (0-20) 19. no units (0-20) 19. no units (0-20) 19. no units (0-20) 10. no units (0-20) 1			no units (0-20)	
7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Riparian Width (both combined) 12. no units (0-20) 13. Subindex 14. no units (0-20) 15. Genus/species Taxa Richness 16. Genus/species EPT Richness 17. Genus/species EPT Richness 18. Wephemeroptera 19. Wayflies (0-100) 19. Veg. Protection (both combined) 19. No units (0-20) 10. no units (0-20) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. Wephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. Ino units (0-20) 18. No units (0-20) 19. Veg. Protection (both combined) 19. No units (0-20) 19. Veg. Protection (both combined) 19. Veg. Protection (both combined) 10. no units (0-20) 10. no units (0-20) 11. Genus/species EPT Richness 12. Genus/species EPT Richness 13. Wephemeroptera 14. No taxa sampled 15. Wephemeroptera 16. Mayflies (0-100) 17. Clingers (0-100) 18. No units (0-20) 19. No				
10				
14 no units (0-20) 10. Riparian Width (both combined) 11 no units (0-20) 12 no units (0-20) 13 no units (0-20) 14 no units (0-20) 15 no units (0-20) 16 no units (0-20) 17 otal Habitat Score 110 no units 17 otal Habitat Score 110 no units 18 Subindex 19 Otal Habitat Integrity Index 10 O				
10. Riparian Width (both combined)  12				
Total Habitat Score  Habitat Integrity Index  Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA no units  Subindex  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units				
Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  Macroinvertebrate Bioassessment  NA  0.20  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) no units  NA	ro. Riparian Width (Both Combined)	12	110 utilits (0-20)	
Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBl  Macroinvertebrate Bioassessment  NA  0.20  # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Midges & Worms (0-100) % Clingers (0-100) no units	Total Habitat Coore	110	1	Cubinday
Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  MA  NA  NA  Mo titax sampled # of taxa sampled # of EPT species sampled % Mayflies (0-100) % Clingers (0-100) no units NA	otal Habitat Score	110	no units	Subindex
# of taxa sampled  # of taxa sampled  # of EPT species sampled  # of EPT species sampled  # wayflies (0-100)  # widges & Worms (0-100)  # Clingers  # of taxa sampled  # of EPT species sampled  # of EPT species sampled  # wayflies (0-100)  # widges & Worms (0-100)  # Clingers (0-100)  # no units  # of taxa sampled  # of EPT species sampled  # of EPT speci	labitat Integrity Index			0.20
# of taxa sampled # of taxa sampled # of texa sampled # of EPT species	Magrain vertabrata Data Canva (anasi	ing Lovel (All	Uabitata)	
# of EPT species sampled  # of EPT species sampled  # Mayflies (0-100)  # Midges & Worms (0-100)  # Clingers  # Of EPT species sampled  # Mayflies (0-100)  # Midges & Worms (0-100)  # Clingers (0-100)  # No units  # Of EPT species sampled  # Mayflies (0-100)  # Midges & Worms (0-100)  # No units  # Of EPT species sampled  # Mayflies (0-100)  # Midges & Worms (0-100)  # No units  # Of EPT species sampled  # Mayflies (0-100)  # Midges & Worms (0-100)  # Of EPT species sampled  # Of EPT species sampled  # Mayflies (0-100)  # Midges & Worms (0-100)  # Of EPT species sampled  # Of EPT spe	wacroinvertebrate Data - Genus/speci	es Levei (All	Habitats)	
# of EPT species sampled  # of EPT species sampled  # Mayflies (0-100)  # Midges & Worms (0-100)  # Clingers  # Of EPT species sampled  # Mayflies (0-100)  # Midges & Worms (0-100)  # Clingers (0-100)  # No units  # Of EPT species sampled  # Mayflies (0-100)  # Midges & Worms (0-100)  # No units  # Of EPT species sampled  # Mayflies (0-100)  # Midges & Worms (0-100)  # No units  # Of EPT species sampled  # Mayflies (0-100)  # Midges & Worms (0-100)  # Of EPT species sampled  # Of E	11 Ganus/snacias Tava Pichnass		# of taxa sampled	
13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  Macroinvertebrate Bioassessment  Macroinvertebrate Bioassessment  Macroinvertebrate Bioassessment  Macroinvertebrate Bioassessment			•	
14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA  NA  NA  Midges & Worms (0-100) % Clingers (0-100) no units  NA				
15. % Clingers  16. mHBI  Macroinvertebrate Bioassessment  NA  no units  NA				
no units  Macroinvertebrate Bioassessment  NA  no units  NA	_			
	16. mHBI		no units	
	M		1	NA
Conductivity 172 microMHOs 0.94	Wacroinvertebrate Bioassessment	NA	no units	NA
Conductivity 172 microMHOs 0.94				
	Conductivity	172	microMHOs	0.94

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 562+00

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 579+00

NA Ecological Integrity Index (MBI + Habitat Integrity + Co  0.39 Ecological Integrity Index ( Habitat Integrity + Conduct  Variables Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate  2. Embeddedness	
Variables  Measure Units  Inter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  I. Epifaunal Substrate  I. I	ivity)
RBP Habitat Parameters  I. Epifaunal Substrate  I. Embeddedness I. Velocity/Depth Regime I. Sediment Deposition I. Channel Flow Status I. Channel Alteration I. Freq. Of Riffles (bends) I. Bank stability (both combined) I. Veg. Protection (both combined) I. O. Riparian Width (both combined) I. O. Riparian Width (both combined) I. O. Riparian Width (both combined) I. O. Veg. Protection (both combined) I. O. Riparian Width (both combined) I. O. Riparian Width (both combined) I. O. Veg. Protection (both combined) I. O. Riparian Width (both combined) I. O. Riparian Width (both combined) I. O. Veg. Protection (both combined) I. O. Riparian Width (both combined) I. O. Riparian Width (both combined) I. Subindex  Subindex	
BP Habitat Parameters   5	
BP Habitat Parameters  Epifaunal Substrate  Embeddedness  Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) D. Riparian Width (both combined)  Datal Habitat Score  5 no units (0-20)	
Epifaunal Substrate Embeddedness Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) D. Riparian Width (both combined)  ptal Habitat Score  5 no units (0-20)	
Embeddedness	
Velocity/Depth Regime	
Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) D. Riparian Width (both combined) Datal Habitat Score    Comparison of Control of Co	
Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) D. Riparian Width (both combined)  Sotal Habitat Score  12  no units (0-20) no units (0-20) no units (0-20) no units (0-20)  Total Habitat Score  90  no units  Subindex	
Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) D. Riparian Width (both combined)  otal Habitat Score  10 no units (0-20) no units (0-20) no units (0-20)  rounits (0-20)  solution to the combined of	
Bank stability (both combined) Veg. Protection (both combined) D. Riparian Width (both combined)  Dotal Habitat Score    Subindex	
Veg. Protection (both combined)  12 no units (0-20)  16 no units (0-20)  17 no units (0-20)  18 no units (0-20)  19 no units (0-20)	
otal Habitat Score 90 no units Subindex	
otal Habitat Score 90 no units Subindex	
abitat Integrity Index 0.10	
abitat Integrity Index 0.10	
acroinvertebrate Data - Genus/species Level (All Habitats)	
actomive tebrate Data - Gerius/species Lever (All Habitats)	
1. Genus/species Taxa Richness # of taxa sampled	
2. Genus/species EPT Richness # of EPT species sampled	
B. % Ephemeroptera % Mayflies (0-100)	
4. % Chironomidae & Oligochaeta	
5. % Clingers (0-100)	
6. mHBI no units	
acroinvertebrate Bioassessment NA no units NA	
onductivity 262 microMHOs 0.68	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 587+50

Epifaunal Substrate			Model		_
Variables   Measure Units					
REP Habitat Parameters  1. Epifaunal Substrate 2. no units (0-20) 2. Embeddedness 3. Velocity/Depth Regime 4. sediment Deposition 5. Channel Flow Status 6. no units (0-20) 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species Taxa Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment NA no units NA	0.15	Ecologica	l Integrity Index ( Habitat Integ	grity + Conductiv	ity)
RBP Habitat Parameters  1. Epifaunal Substrate 2. Ino units (0-20) 2. Embeddedness 3. Velocity/Depth Regime 5. no units (0-20) 3. Velocity/Depth Regime 6. Sediment Deposition 7. Freq. Of Riffles (bends) 7. Freq. Of Riffles (bends) 7. Freq. Of Riffles (bends) 7. Protection (both combined) 7. Protection (both combined) 7. Protection (both combined) 7. Protection (both combined) 7. Riparian Width (both combined) 8. Subindex 8. Subindex 8. Subindex 9. Alabitat Integrity Index 9. Alabitat I	Variables	Measure	Units		
Epifaunal Substrate	inter quantitative or categorical measure from F	ield Data Sheet i	in shaded cells		
2. Émbeddedness 3. Velocity/Depth Regime 4. no units (0-20) 3. Sediment Deposition 5. no units (0-20) 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. Genus/species Level (All Habitats) 12. Genus/species Taxa Richness 13. Sephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. In ounits (0-20) 18. no units (0-20) 19. vounits (0-20) 19. v	RBP Habitat Parameters		<u></u>		
8. Velocity/Depth Regime 9. Sediment Deposition 10. Channel Flow Status 11. Channel Alteration 12. Freq. Of Riffles (bends) 13. Bank stability (both combined) 14. Veg. Protection (both combined) 15. Channel Macroinvertebrate Bioassessment 16. Channel Alteration 17. Freq. Of Riffles (bends) 18. Bank stability (both combined) 19. No units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 11. Genus/species Level (All Habitats) 12. Genus/species Taxa Richness 13. Sephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment NA no units NA	1. Epifaunal Substrate		no units (0-20)		
1. Sediment Deposition 1. Channel Flow Status 1. Channel Flow Status 1. Channel Flow Status 1. Channel Alteration 1. Freq. Of Riffles (bends) 1. Bank stability (both combined) 1. Veg. Protection (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Riparian Width (both combined) 1. Repeated Flow Status 1. Genus/species Taxa Richness 1. Genus/species Taxa Richness 1. Genus/species EPT Richness 1. We Ephemeroptera 1. We Chironomidae & Oligochaeta 1. Chironomidae & Oligochaeta					
6 no units (0-20) 7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9 no units (0-20) 9. Veg. Protection (both combined) 10 no units (0-20) 10. Riparian Width (both combined) 10 no units (0-20) 10. Riparian Width (both combined) 10 no units (0-20) 10. Riparian Width (both combined) 11 no units (0-20) 12 National Macroinvertebrate Data - Genus/species Level (All Habitats) 13. Genus/species Taxa Richness 14 of taxa sampled 15. Chironomidae & Oligochaeta 16. Microinvertebrate Bioassessment 17. Genus/species EPT Richness 18. Chironomidae & Voligochaeta 19. Chironomidae & National Macroinvertebrate Bioassessment 19. National Macroinvertebrate Bioassessment 20. Charles (0-100) 21. National Macroinvertebrate Bioassessment 22. Genus/species EPT Richness 23. Macroinvertebrate Bioassessment 24. Septembro (0-100) 25. National Macroinvertebrate Bioassessment 25. National Macroinvertebrate Bioassessment 26. National Macroinvertebrate Bioassessment 27. National Macroinvertebrate Bioassessment 38. National Macroinvertebrate Bioassessment 39. National Macroinvertebrate Bioassessment 30. National Macroinvertebrate Bioassessment 31. National Macroinvertebrate Bioassessment 31. National Macroinvertebrate Bioassessment 32. National Macroinvertebrate Bioassessment 33. National Macroinvertebrate Bioassessment 34. National Macroinvertebrate Bioassessment 35. National Macroinvertebrate Bioassessment 36. National Macroinvertebrate Bioassessment 37. National Macroinvertebrate Bioassessment 38. National Macroinvertebrate Bioassessment 39. National Macroinvertebrate Bioassessment 30. N					
S. Channel Alteration   11					
7. Freq. Of Riffles (bends) 8. Bank stability (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 10. no units (0-20) 10. Riparian Width (both combined) 10. no units (0-20) 11. Genus/species Level (All Habitats) 12. Genus/species Taxa Richness 13. Sephemeroptera 14. Chironomidae & Oligochaeta 15. Clingers 16. mHBI 18. NA no units					
10					
10. Veg. Protection (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 10. No units (0-20) 10. Riparian Width (both combined) 10. No units (0-20) 10. No units (0-20) 10. No units (0-20) 11. Genus/species Level (All Habitats) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. No units 18. NA					
Total Habitat Score  68 no units  No units  Subindex  Habitat Integrity Index  O.10  Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI  Macroinvertebrate Bioassessment  NA no units  NA					
# of taxa sampled # of EPT species sampled # of Well of EPT species sampled # of EPT species sam	10. Riparian Width (both combined)		• '		
# of taxa sampled # of EPT species sampled # of Well of EPT species sampled # of EPT species sam			<b>-</b>		
Macroinvertebrate Data - Genus/species Level (All Habitats)  11. Genus/species Taxa Richness 12. Genus/species EPT Richness 13. % Ephemeroptera 14. % Chironomidae & Oligochaeta 15. % Clingers 16. mHBI 17. Genus/species Taxa Richness 18. defenus/species Taxa Richness 19. defenus	Total Habitat Score	68	no units	Subindex	
# of taxa sampled  Genus/species EPT Richness  Genus/species EPT Richness  We Ephemeroptera  We Clingers  Clingers  Comparison of the taxa sampled  # of EPT species sampled  We Mayflies (0-100)  Midges & Worms (0-100)  Clingers (0-100)  No units  We Clingers (0-100)  No units	labitat Integrity Index			0.10	
# of EPT species sampled   % Mayflies (0-100)   % Midges & Worms (0-100)   % Clingers (0-10	Macroinvertebrate Data - Genus/spec	ies Level (All	Habitats)		
# of EPT species sampled   % Mayflies (0-100)   % Midges & Worms (0-100)   % Clingers (0-10			= -		
3. % Ephemeroptera					
4. % Chironomidae & Oligochaeta   % Midges & Worms (0-100)   % Clingers (0-100)   % Clingers (0-100)   no units   NA   no units   NA					
15. % Clingers (0-100) 16. mHBI % Clingers (0-100) 17. no units % NA					
Macroinvertebrate Bioassessment NA no units NA					
	16. mHBI				
Conductivity 452 microMHOs 0.21	Macroinvertebrate Bioassessment	NA	no units	NA	
Conductivity 452 microMHOs 0.21					
	Conductivity	452	microMHOs	0.21	
			_		

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 595+00

EII		Model	
NA		l Integrity Index (MBI + Habita	
0.52	Ecologica	l Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
Enter quantitative or categorical measure from Fig	eld Data Sheet i	n shaded cells	
1. Epifaunal Substrate	9	no units (0-20)	
2. Embeddedness	11	no units (0-20)	
3. Velocity/Depth Regime	5	no units (0-20)	
4. Sediment Deposition	5	no units (0-20)	
5. Channel Flow Status	11	no units (0-20)	
. Channel Alteration	8	no units (0-20)	
'. Freq. Of Riffles (bends)	9	no units (0-20)	
B. Bank stability (both combined)	9	no units (0-20)	
9. Veg. Protection (both combined)	9	no units (0-20)	
10. Riparian Width (both combined)	6	no units (0-20)	
otal Habitat Score	82	no units	Subindex
	<u> </u>		
labitat Integrity Index			0.10
Macroinvertebrate Data - Genus/speci	es Level (All	Habitats)	
11. Genus/species Taxa Richness		# of taxa sampled	
2. Genus/species EPT Richness		# of EPT species sampled	
3. % Ephemeroptera		% Mayflies (0-100)	
4. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
5. % Clingers 6. mHBl		% Clingers (0-100)	
6. MHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	174	microMHOs	0.93
	Insert Photo	Here	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 595+50

EII		Model	
NA	Ecologica	al Integrity Index (MBI + Habita	t Integrity + Conductiv
0.46	Ecologica	al Integrity Index ( Habitat Integ	grity + Conductivity)
Variables	Measure	Units	
Enter quantitative or categorical measure from Fig	eld Data Sheet	in shaded cells	
BP Habitat Parameters		<u></u>	
. Epifaunal Substrate	9	no units (0-20)	
P. Embeddedness	13	no units (0-20)	
8. Velocity/Depth Regime	10	no units (0-20)	
1. Sediment Deposition	13	no units (0-20)	
i. Channel Flow Status i. Channel Alteration	7	no units (0-20)	
. Chaimer Alteration 7. Freq. Of Riffles (bends)	12	no units (0-20) no units (0-20)	
. Preq. of Killies (belids) . Bank stability (both combined)	16	no units (0-20)	
. Veg. Protection (both combined)	12	no units (0-20)	
10. Riparian Width (both combined)	4	no units (0-20)	
er raparian main (sour comsinea)		110 011110 (0 20)	
otal Habitat Score	98	no units	Subindex
labitat Integrity Index			0.10
abilat integrity index			0.10
Macroinvertebrate Data - Genus/speci	es Level (Al	l Habitats)	
d. O		<b>-</b>	
11. Genus/species Taxa Richness		# of taxa sampled	
<ol> <li>Genus/species EPT Richness</li> <li>% Ephemeroptera</li> </ol>		# of EPT species sampled	
13. % Epitemeroptera 14. % Chironomidae & Oligochaeta		% Mayflies (0-100) % Midges & Worms (0-100)	
5. % Clingers		% Clingers (0-100)	
16. mHBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	216	microMHOs	0.81
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Conductivity	210	Incomos	0.81
	Insert Photo	ullara	

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 596+00

NA Ecological Integrity Index (MBI + Habitat Integrity + Conductivit  Variables Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters 1. Epifaunal Substrate 2. Embeddedness 5 no units (0-20) 3. Velocity/Depth Regime 5 no units (0-20) 4. Sediment Deposition 5 no units (0-20) 5. Channel Flow Status 2 no units (0-20) 6. Channel Alteration 3 no units (0-20) 7. Freq. Of Riffles (bends) 8 no units (0-20) 8. Bank stability (both combined) 8 no units (0-20) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 2 no units (0-20)  Total Habitat Score 46 no units  Macroinvertebrate Data - Genus/species Level (All Habitats)  # of taxa sampled # of EPT species sampled
Variables  Measure Units  Enter quantitative or categorical measure from Field Data Sheet in shaded cells  RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Flow Status 7. Freq. Of Riffles (bends) 7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 7. Veg. Protection (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 7. Riparian Width (both combined) 7. Riparian Width (both combined) 8. Description (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 14. Genus/species EPT Richness 15. Measure Units 15. And Control 16. Control 17. Total Habitat Score 18. Measure Units 19. And Control 19. Contr
RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. no units (0-20) 3. Velocity/Depth Regime 5. no units (0-20) 5. Sediment Deposition 6. Channel Flow Status 7. no units (0-20) 6. Channel Alteration 7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 7. Veg. Protection (both combined) 7. Veg. Protection (both combined) 7. Riparian Width (both combined) 7. Riparian Width (both combined) 7. Riparian Width (both combined) 8. Do units (0-20) 9. Veg. Protection (both combined) 9. Ve
BP Habitat Parameters   3
Epifaunal Substrate Embeddedness Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) Chest Protection (both combined) D. Riparian Width (both combined)  On the protection (both combined)  On
Embeddedness Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) Riparian Width (both combined) Riparian Width (both combined)  Or Riparian Width (both combined)  In units (0-20)  No units (0-20)
Velocity/Depth Regime Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Bank stability (both combined) Veg. Protection (both combined) Riparian Width (both combined) Riparian Width (both combined) Total Habitat Score  46  no units  Subindex  Subindex  Lacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness Carbon Genus/species ampled  # of EPT species sampled
Sediment Deposition Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Veg. Protection (both combined) Riparian Width (both combined) Riparian Width (both combined)  Total Habitat Score  Idabitat Integrity Index  1. Genus/species Taxa Richness C. Genus/species EPT Richness In ounits (0-20) In ounit
Channel Flow Status Channel Alteration Freq. Of Riffles (bends) Sahk stability (both combined) Veg. Protection (both combined) Riparian Width (both combined) Riparian Width (both combined) Total Habitat Score  46 no units  Subindex  Subindex  Lacroinvertebrate Data - Genus/species Level (All Habitats)  Genus/species Taxa Richness Genus/species EPT Richness  # of taxa sampled # of EPT species sampled
Channel Alteration Freq. Of Riffles (bends) Seans stability (both combined) Veg. Protection (both combined) Riparian Width (both combined) Riparian Width (both combined)  Total Habitat Score  Alabitat Integrity Index  Classification  Consideration  Consideratio
7 no units (0-20) 8 no units (0-20) 9 Protection (both combined) 9 Protection (both combined) 10 Protection (both combined) 11 Protection (both combined) 12 no units (0-20) 13 Protection (both combined) 14 Protection (both combined) 15 Protection (both combined) 16 no units (0-20) 17 No units (0-20) 18 No units (0-20) 19 Protection (both combined) 10 Protection (both combined) 10 Protection (both combined) 10 Protection (both combined) 11 Protection (both combined) 12 No units (0-20) 13 Protection (both combined) 14 Protection (both combined) 15 Protection (both combined) 16 No units (0-20) 18 No units (0-20) 19 Protection (both combined) 20 No units (0-20) 21 Protection (both combined) 22 No units (0-20) 23 Protection (both combined) 24 Protection (both combined) 25 Protection (both combined) 26 Protection (both combined) 27 Protection (both combined) 28 Protection (both combined) 29 Protection (both combined) 20 Protecti
Bank stability (both combined) Veg. Protection (both combined) Riparian Width (both combined) Riparian Width (both combined)  Cotal Habitat Score  46 no units  Subindex  Rabitat Integrity Index  Lacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of taxa sampled # of EPT species sampled
Neg. Protection (both combined)  D. Riparian Width (both combined)  On a contract the combined of the combined
no units (0-20)  no units (0-20)  notal Habitat Score  46 no units  Subindex  abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of taxa sampled # of EPT species sampled
no units  Subindex  abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of taxa sampled # of EPT species sampled
abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of taxa sampled # of EPT species sampled
abitat Integrity Index  acroinvertebrate Data - Genus/species Level (All Habitats)  Genus/species Taxa Richness Genus/species EPT Richness # of taxa sampled # of EPT species sampled
Acroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled
# of taxa sampled C. Genus/species EPT Richness # of EPT species sampled
1. Genus/species Taxa Richness # of taxa sampled 2. Genus/species EPT Richness # of EPT species sampled
2. Genus/species EPT Richness # of EPT species sampled
2. Genus/species EPT Richness # of EPT species sampled
3. % Ephemeroptera % Mayflies (0-100)
1. % Chironomidae & Oligochaeta % Midges & Worms (0-100)
5. % Clingers  % Clingers (0-100)  no units
no units
acroinvertebrate Bioassessment NA no units NA
and white
conductivity 216 microMHOs 0.81

Project ID: Jackson & Owsley Counties, KY 30

Stream/Reach: 603+50

Variables   Measure   Units	Subindex
RBP Habitat Parameters  1. Epifaunal Substrate 2. Embeddedness 3. No units (0-20) 3. Velocity/Depth Regime 4. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Freq. Of Riffles (bends) 7. Bank stability (both combined) 8. Veg. Protection (both combined) 9. Veg. Protection (both combined) 10. Riparian Width (both combined) 10. Riparian Width (both combined) 11. Genus/species Taxa Richness 12. Genus/species EPT Richness 14. Genus/species EPT Richness 15. Epifaunal Sheet in shaded cells 16. An ounits (0-20) 17. Total Habitat Score 18. Protection (both combined) 19. Veg. Protection (bo	Subindex
RBP Habitat Parameters   3	Subindex
Description   Substrate   3	Subindex
Embeddedness Velocity/Depth Regime Sediment Deposition Channel Flow Status Freq. Of Riffles (bends) Veg. Protection (both combined) Riparian Width (both co	Subindex
. Velocity/Depth Regime . Sediment Deposition . Channel Flow Status . Channel Alteration . Freq. Of Riffles (bends) . Bank stability (both combined) . Veg. Protection (both combined) 0. Riparian Width (both combined)  at the sediment of t	Subindex
1. Sediment Deposition 2. Channel Flow Status 3. Channel Alteration 3. In ounits (0-20) 4. Freq. Of Riffles (bends) 5. Bank stability (both combined) 6. Veg. Protection (both combined) 7. In ounits (0-20) 8. In ounits (0-20) 9. Veg. Protection (both combined) 9. Total Habitat Score 1. In ounits (0-20) 1. In ounits (0-20	Subindex
. Channel Flow Status . Channel Alteration . Freq. Of Riffles (bends) . Bank stability (both combined) . Veg. Protection (both combined) 0. Riparian Width (both combined) 2 no units (0-20) 10 Alteration 46 no units (0-20) 11 Alteration 50 no units (0-20) 12 Alteration 6 no units (0-20) 13 Alteration 7 no units (0-20) 14 Alteration 7 no units (0-20) 15 Alteration 8 no units (0-20) 16 Alteration 9 no units (0-20) 17 Alteration 9 no units (0-20) 18 Alteration 9 no units (0-20) 19 Alteration 9 no units (0-20) 19 Alteration 9 no units (0-20) 10 Alteration 9 no units (0-20) 11 Alteration 9 no units (0-20) 12 Alteration 9 no units (0-20) 13 Alteration 9 no units (0-20) 14 Alteration 9 no units (0-20) 15 Alteration 9 no units (0-20) 16 Alteration 9 no units (0-20) 17 Alteration 9 no units (0-20) 18 Alteration 9 no units (0-20) 19 Alteration 9 no units (0-20) 10 Alteration 9 no units (0-20) 11 Alteration 9	Subindex
i. Channel Alteration i. Freq. Of Riffles (bends) i. Bank stability (both combined) i. Veg. Protection (both combined) i. Riparian Width (both combined) i. Riparian Width (both combined) i. Riparian Width (both combined) i. Veg. Protection (both combined) i. Riparian Width (bot	Subindex
7 no units (0-20)  Bank stability (both combined)  Veg. Protection (both combined)  Riparian Width (both combined)  Cotal Habitat Score  Rabitat Integrity Index  Racroinvertebrate Data - Genus/species Level (All Habitats)  Genus/species Taxa Richness  # of taxa sample # of EPT species # of EPT	Subindex
. Bank stability (both combined) . Veg. Protection (both combined) 0. Riparian Width (both combined) 2 no units (0-20) no units (0-20) no units (0-20) no units (0-20)  total Habitat Score 46 no units labitat Integrity Index lacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of taxa sample # of EPT specie	Subindex
. Veg. Protection (both combined)  0. Riparian Width (both combined)  1. Genus/species Taxa Richness  2. Genus/species EPT Richness  1. Riparian Width (both combined)  6 no units (0-20)  1. no units (0-20)	Subindex
no units (0-20)  Otal Habitat Score  Abitat Integrity Index  Lacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of EPT species # of EPT species	Subindex
labitat Integrity Index  lacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of EPT specie	
labitat Integrity Index  lacroinvertebrate Data - Genus/species Level (All Habitats)  1. Genus/species Taxa Richness 2. Genus/species EPT Richness # of EPT specie	
1. Genus/species Taxa Richness # of taxa sample 2. Genus/species EPT Richness # of EPT specie	0.10
1. Genus/species Taxa Richness # of taxa sample 2. Genus/species EPT Richness # of EPT specie	
1. Genus/species Taxa Richness # of taxa sample 2. Genus/species EPT Richness # of EPT specie	
2. Genus/species EPT Richness # of EPT specie	
2. Genus/species EPT Richness # of EPT specie	pled
3. % EDITETION I 1% WAVINGS (U-1)	
4. % Chironomidae & Oligochaeta % Midges & Wo	The state of the s
5. % Clingers % Clingers (0-1)	
6. mHBI no units	
acroinvertebrate Bioassessment NA no units	NA
Conductivity 216 microMHOs	0.81

### **Wetland Determination Data Forms**

134+00

# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 16 / 30	City	v/County: TACK SOM	ins and Fledmor	
Applicant/Owner: <u>LY7C</u>		7 - 5 - 1 - 2 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5	2 1	ampling Date: 9/19/17
Investigator(s): MJ6, ELS	. Sec	AND POST OF STATE	_ State:	Sampling Point: W/O
Landform (hillslope, terrace, etc.):		cuon, rownship, Range:_		
Subregion (LRR or MLRA):	Locali	relief (concave, convex, n	one): _ Carcan	Slope (%):/
Subregion (LRR or MLRA):Soil Map Unit Name:	Lat: 1. 3 7. 3 9 9 3			
Are climatic / hydrologic conditions on the	site typical for this time of ward	Over Trans	NWI classification	on: W//
, or 1, 29 arms of 1	ydrology significantly dist	urhed? Acc "Norm		ent? Yes No
Are Vegetation, Soil, or H	ydrology naturally probler	matic? (If needed	ovoloje pro	B
SUMMARY OF FINDINGS - Att	ach site man showing sa	mpling point in ant	explain any answers in	Remarks.)
have the same of t	- Industries and wing sa	impling point locati	ons, transects, ir	nportant features, etc.
Hydrophytic Vegetation Present?	Yes No	In the Property of the		
Hydric Soil Present?	Yes _ V No	Is the Sampled Area within a Wetland?	Yes	16.
Wetland Hydrology Present? Remarks:	Yes No	This in a troubling	res	No
* LOW LYING EXCH, W/POOL TO WETLAND		VOZEN DA		is numer (
HYDROLOGY				
Wetland Hydrology Indicators:				
Primary Indicators (minimum of one is re	quired; check all that apply)		Secondary Indicators	(minimum of two required)
Surface Water (A1)	True Aquatic Plants	(B14)	Surface Soil Crac	
High Water Table (A2)	Hydrogen Sulfide O	dor (C1)	Sparsely Vegetat	ed Concave Surface (B8)
Saturation (A3)	Oxidized Rhizosphe	res on Living Roots (C3)	Drainage Pattern	
Water Marks (B1)	Presence of Reduce	ed Iron (C4)	Moss Trim Lines Dry-Season Wate	
Sediment Deposits (82)	Recent Iron Reducti	on in Tilled Soils (C6)	Crayfish Burrows	
<ul><li>Drift Deposits (B3)</li><li>Algal Mat or Crust (B4)</li></ul>	Thin Muck Surface (	(C7)		on Aerial Imagery (C9)
Iron Deposits (B5)	Other (Explain in Re	marks)	Stunted or Stress	ed Plants (D1)
Inundation Visible on Aerial Imagery	(B7)			tion (D2)
Water-Stained Leaves (B9)	(67)		Shallow Aquitard	(D3)
Aquatic Fauna (B13)			Microtopographic	
Field Observations:	Vi -		FAC-Neutral Test	(D5)
Surface Water Present? Yes	No Depth (inches):			
Water Table Present? Yes	No V Depth (inches):			
Saturation Present? Yes	No Depth (inches):	W-11-111		
(includes capillary fringe)  Describe Recorded Data (stream gauge		vvetiand H	ydrology Present?	Yes No
Describe Recorded Data (stream gauge,	monitoring well, aerial photos, pre	evious inspections), if avai	lable;	
Remarks:				
				1

Sampling Point:\_ VEGETATION (Four Strata) - Use scientific names of plants. Dominance Test worksheet: Absolute · Dominant Indicator Tree Stratum (Plot size: \_\_\_\_\_) % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: 1. ACER EUBLUM Total Number of Dominant Species Across All Strata: (B) 100 Percent of Dominant Species \_ (A/B) That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: = Total Cover 7 OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_ 50% of total cover: 20% of total cover:\_\_ FACW species \_\_\_\_\_ x 2 = \_\_\_\_ Sapling/Shrub Stratum (Plot size:\_\_\_\_\_) FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_ FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_ UPL species \_\_\_\_\_ x 5 = \_\_\_\_ Column Totals: \_\_\_\_\_\_ (A) \_\_\_\_\_ (B) Prevalence Index = B/A = \_\_\_\_ Hydrophytic Vegetation Indicators: \_\_\_\_ /1 - Rapid Test for Hydrophytic Vegetation \_\_\_ 2 - Dominance Test is >50% \_\_ 3 · Prevalence Index is ≤3.0¹ = Total Cover \_\_\_ 4 - Morphological Adaptations1 (Provide supporting 50% of total cover: \_\_\_\_ 20% of total cover: data in Remarks or on a separate sheet) Herb Stratum (Plot size: \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 1. 50010AGO GIGANTEA 2. Tuncus FFFISUS Indicators of hydric soil and wetland hydrology must 3. EURATORIUM PIEAFOLIATUM FACW be present, unless disturbed or problematic. SOLANUM CAROLINENES ACU 10 Definitions of Four Vegetation Strata: FACU 5. IMPATENS CAPENSIS Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or FAC 6. EUTROCHIUM PURPUREUM more in diameter at breast height (DBH), regardless of FACEN 7. STACHYS TENUIFOUR height. FAIn 2 8. 100EUN CARDINALIS Sapling/Shrub - Woody plants, excluding vines, less 9. CALLY SIP than 3 in. DBH and greater than or equal to 3.28 ft (1 FACW m) tall. 10. MENTOR ALVENSIS FAC 11. TOXIDDIRDEN KNOWN 2 Herb - All herbaceous (non-woody) plants, regardless 100 = Total Cover of size, and woody plants less than 3.28 ft tall. 50% of total cover: CO 20% of total cover:\_ Woody vine - All woody vines greater than 3.28 ft in Woody Vine Stratum (Plot size: \_\_\_\_\_) Hydrophytic Vegetation Present? = Total Cover 20% of total cover: 50% of total cover: \_\_\_\_ Remarks: (Include photo numbers here or on a separate sheet.)

GETATION (Five Strata) - Use scientific		Sampling Point:
The state of the s	Absolute Dominant Indicator	Dominance Test worksheet:
ee Stratum (Plot size:)		Number of Dominant Species That Are OBL, FACW, or FAC:(A)
		Total Number of Dominant
F 7		Species Across All Strata:(B)
		Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B
	= Total Cover	Prevalence Index worksheet:
Page Control		Total % Cover of: Multiply by:
	20% of total cover:	OBL species x 1 =
apling Stratum (Plot size:)		FACW species x 2 =
		FAC species x 3 =
		FACU species x 4 =
		UPL species x 5 =
		Column Totals: (A) (B
		Prevalence Index = B/A =
	= Total Cover	Hydrophytic Vegetation Indicators:
50% of total cover:	20% of total cover:	1 - Rapid Test for Hydrophytic Vegetation
hrub Stratum (Plot size:)		2 - Dominance Test is >50%
		3 - Prevalence Index is ≤3.01
		4 - Morphological Adaptations <sup>1</sup> (Provide supporti
		data in Remarks or on a separate sheet)
l		Problematic Hydrophytic Vegetation¹ (Explain)
1,		
5,		
3,		be present, unless disturbed or problematic.
	= Total Cover	Definitions of Five Vegetation Strata:
50% of total cover: _	20% of total cover:	Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size:)		approximately 20 ft (6 m) or more in height and 3 in.
1.		(7.6 cm) or larger in diameter at breast height (DBH)
2,		<ul> <li>Sapling – Woody plants, excluding woody vines.</li> </ul>
3.		approximately 20 ft (6 m) or more in height and less
4		than 3 in. (7.6 cm) DBH.
5,		Shrub - Woody plants, excluding woody vines,
6.		approximately 3 to 20 ft (1 to 6 m) in height.
7.		Herb – All herbaceous (non-woody) plants, including
8		herbaceous vines, regardless of size, and woody
/ <del></del>		plants, except woody vines, less than approximately
9		it (1 m) in height.
10		Woody vine - All woody vines, regardless of height
11		
	= Total Cover	
50% of total cover:	20% of total cover:	_
Woody Vine Stratum (Plot size:)		
1		
2		
3		_
4		2 1 -
5		
V	= Total Cover	Hydrophytic Vegetation
Cast of process		Present? Yes No
50% of total cover:	20% of total cover:	

- CPMI	cription: (Describe Matrix		Redo	x Feature	s	or contin	n the absenc	e of indicators.)
(inches)	Color (moist)	%	Color (moist)	_%	_Tvpe1	_Loc2	Texture	Remarks
	2.544/3	100				~	CLAY	Nomano
2-7	25/5/2	95	51R4/4	5	-	PL	CLAY	
7-12	5/6/1	90	5424/4	10	C	PL	carl	
				_	-			
				-		-	-	
	(—————————————————————————————————————							
0-10	2544/3				_			OUTPOINT
								(37.349297, -83.8923)
Type: C=Co ydric Soil I	oncentration, D=Dep	letion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ins.	2 ocation: F	PL=Pore Lining, M=Matrix.
Black His Hydrogel Stratified 2 cm Mu Depleted Thick Da Sandy M MLRA Sandy Gl Sandy Re Stripped estrictive L	ipedon (A2) stic (A3) n Sulfide (A4) Layers (A5) ck (A10) (LRR N) Below Dark Surface rk Surface (A12) ucky Mineral (S1) (L 147, 148) leyed Matrix (S4) edox (S5) Matrix (S6) ayer (if observed):	RR N,	Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Mat Redox Dark S Depleted Dar Redox Depre Iron-Mangane MLRA 136 Umbric Surfac Red Parent M	low Surface (S9) d Matrix (Forix (F3) Surface (F6) k Surface (F8) ssions (F8) see Masse i) ce (F13) (Modplain So	(MLRA 14 (E7) (F7) ) s (F12) (L MLRA 136 ils (F19) (i	RR N, , 122)	148) 0 F V 0 3Ind 8) we	cators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (MLRA 147)  Coast Prairie Redox (A16) (MLRA 147, 148)  Piedmont Floodplain Soils (F19) (MLRA 136, 147)  /ery Shallow Dark Surface (TF12)  Other (Explain in Remarks)  dicators of hydrophytic vegetation and etland hydrology must be present, less disturbed or problematic.
Depth (inclemarks:	hes):						Hydric Soil	Present? Yes No
				~				

175+00

### WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: KY35	City/	County: The sun		Sampling Date: 9/25/
Applicant/Owner: KYTC	719/		State: DV	Sampling Point:
Investigator(s): MJ6 ELS	Cont	las Tampelita D		
Landform (hillslope, terrace, etc.):	Sect	ion, rownship, Range:		
Subregion (LRR or MLRA):	Local re	eller (concave, convex, no	one):	Slope (%):_ <
Subregion (LRR or MLRA);Soil Map Unit Name;	_ Lat: _3 + 33 90 9 1	/ Long; ¿	NWI classifi	cation: PUDNY
Are climatic / hydrologic conditions on the site ty	pical for this time of year?	Ves / No	//F no cynlain in f	Company V
Are Vegetation, Soil, or Hydrolog	av significantly diety			
Are Vegetation, Soil, or Hydrolog	39 agrindantly distu			present? Yes No
SUMMARY OF FINDINGS - Attach	site map showing sar	npling point location	explain any answe	ers in Remarks.) 5, important features. e
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	No	Is the Sampled Area within a Wetland?		No
Remarks:	N0			
HYDROLOGY			£	
Wetland Hydrology Indicators:	A TANKE PARTY OF THE PARTY		Secondary Indica	ators (minimum of two required
Primary Indicators (minimum of one is required Surface Water (A1)			Surface Soil	Cracks (B6)
High Water Table (A2)	True Aquatic Plants (			getated Concave Surface (B8)
Saturation (A3)	Hydrogen Sulfide Od		Drainage Pa	and the second s
Water Marks (B1)	Presence of Reduced	res on Living Roots (C3)	Moss Trim Li	
Sediment Deposits (B2)	Recent Iron Reduction			Water Table (C2)
Drift Deposits (B3)	Thin Muck Surface (0	37) 37)	Crayfish Bur	
Algal Mat or Crust (B4)	Other (Explain in Rer			isible on Aerial Imagery (C9) tressed Plants (D1)
Iron Deposits (B5)		2. 2.		ALL CONTRACTOR OF THE PROPERTY AND THE PROPERTY OF THE PROPERT
Inundation Visible on Aerial Imagery (B7)				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
			FAC-Neutral	Test (D5)
Surface Mater Description		- It		
Make Talle B		<u> </u>		1
Cabastias December 1				
(includes capillary fringe)				t? Yes No
Describe Recorded Data (stream gauge, monit	oring well, aerial photos, pre	evious inspections), if ava	illable:	
Remarks:				
	Depth (inches):		Shallow Aqui Microtopogra FAC-Neutral	phic Relief (D4) Test (D5)
Describe Recorded Data (stream gauge, monit	oring well, aerial photos, pre	evious inspections), if ava	ilable:	
Remarks:				

Number of Dominant Species That Are OBL, FACW, or FAC:
Species Across All Strata: (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)  Prevalence Index worksheet:  Total % Cover of: Multiply by: OBL species
That Are OBL, FACW, or FAC:    Prevalence Index worksheet:   Total % Cover of:   Multiply by:
Prevalence Index worksheet:  Total % Cover of: Multiply by:  OBL species 5 x 1 = FACW species 4/8 x 2 = 96  FAC species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 3 3 = 45  FACU Species 4 x 3 = 45  FACU Species 5 x 3 = 45  FACU Species 5 x 3 = 45  FACU Species 5 x 1 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 2 7 x 4 = 10 6  UPL species 5 x 3 = 45  FACU Species 5 x 1 = 10 6  UPL species 5 x 3 = 45  UPL species 6 x 3 = 45  UPL species 7 x 4 = 10 6  UPL species 2
Total % Cover of: Multiply by:  OBL species
OBL species
FACU species 27 x 4 = 10 8  UPL species 27 x 4 = 10 8  UPL species 27 x 4 = 10 8  UPL species 27 x 4 = 2.6 7  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  FACU  FACU  The Definitions of Four Vegetation Strata:  Tree - Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the control
FACU species /5 x 3 = 45  FACU species 27 x 4 = /0%  UPL species x 5 =  Column Totals: 95 (A) 259 (B)  Prevalence Index = B/A = 2 . 6 7  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  FACU  FACU  Problematic Hydrophytic Vegetation¹ (Explain)  Undicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the control of
FACU species 27 x 4 = 708  UPL species x 5 = Column Totals: 95 (A) 259 (B)  Prevalence Index = B/A = 2 · 6 7  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supportine data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  FACU  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the color of the co
Column Totals: 95 (A) 259 (B)  Prevalence Index = B/A = 2.67  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supportine data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  FACU  FACU  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the control of the c
Prevalence Index = B/A = 2.67  Hydrophytic Vegetation Indicators:  - 1 - Rapid Test for Hydrophytic Vegetation  - 2 - Dominance Test is >50%  - 3 - Prevalence Index is ≤3.0¹  - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)  - Problematic Hydrophytic Vegetation¹ (Explain)  FACT  FACT  FACT  Definitions of Four Vegetation Strata:  Tree - Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the control of the
Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportindata in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)  FACU  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the control
Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportindata in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)  FACU  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the control
— 1 - Rapid Test for Hydrophytic Vegetation — 2 - Dominance Test is >50% — 3 - Prevalence Index is ≤3.0¹ — 4 - Morphological Adaptations¹ (Provide supportind data in Remarks or on a separate sheet) — Problematic Hydrophytic Vegetation¹ (Explain)  FACU  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the control of th
2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)  FACU  FACU  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the second control of the second cont
3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the control of the contr
data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the control of the
data in Remarks or on a separate sheet)  FACU  FACU  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the control of the cont
FACV FACV  FACV  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of more in diameter at breast height (DBH), regardless of the properties
Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of the control
be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of the control of the
Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of
Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of
more in diameter at breast height (DBH), regardless of
I Illule in diameter at breast neight (bbri), regardiess of
FACW height.
Sapling/Shrub – Woody plants, excluding vines, less
than 3 in. DBH and greater than or equal to 3.28 ft (1
m) tall.
Herb – All herbaceous (non-woody) plants, regardles
Cover 20 of size, and woody plants less than 3.28 ft tall.
Woody vine – All woody vines greater than 3.28 ft in
height.
Vogetation
Cover Present? Yes No
ver:

EGETATION (Five Strata) – Use scientific	names or plants.	Sampling Point:
A A	Absolute Dominant Indicate	
Tree Stratum (Plot size:)		Number of Dominant Species
		That Are OBL, FACW, or FAC:(A)
		Total Number of Dominant
B		Species Across All Strata: (B)
1,		Percent of Dominant Species
5		That Are OBL, FACW, or FAC: (A/B)
5,		Prevalence Index worksheet:
	= Total Cover	
50% of total cover:	20% of total cover:	Total % Cover of: Multiply by:
Sapling Stratum (Plot size:)		OBL species x1 =
1		FACW species x 2 =
2		FAC species x 3 =
3		FACU species x 4 =
4		UPL species x 5 =
		Column Totals: (A) (B)
5		Providence Index - B/A -
6		Prevalence Index = B/A =
	= Total Cover	
50% of total cover:	20% of total cover:	
Shrub Stratum (Plot size:)		2 - Dominance Test is >50%
1		
2		<ul> <li>4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)</li> </ul>
3		The state of the s
4		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5		
6		<ul> <li>Indicators of hydric soil and wetland hydrology must</li> <li>be present, unless disturbed or problematic.</li> </ul>
	= Total Cover	
	20% of total cover:	Deministra di internazione
		ree – woody plants, excluding woody vines,
Herb Stratum (Plot size:)		approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
1,		
2,		— Sapling – Woody plants, excluding woody vines,
3		approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
4		
5,		Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
6,		
7		Herb – All herbaceous (non-woody) plants, including
8		herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3
9		t (1 m) in height.
10		Woody vino. All woody vinos, recordless of ball-by
11		Woody vine – All woody vines, regardless of height.
	= Total Cover	
50% of total cover:	20% of total cover:	
Woody Vine Stratum (Plot size:)	The same of the sa	
1		
2.		_
		<del></del>
3		-1
4		<del>=</del> (((
5		Hydrophytic
	= Total Cover	Vegetation
50% of total cover:	20% of total cover:	Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

Depth (inches)  0 3  3 - 9  9-17	Matrix Color (moist) 2.5 1/5/2 2.5 1/5/1	92	Colo	r (molst)	× Feature	Type <sup>1</sup>	_Loc²	Texture	Remarks 40% dilianic	
9-18	2575/1	90			19		LOC	lexture		-
3-9 9-12			7.5 1/L	4/8		-			don difference	
9-18			4.5 /K	110			- 200			
4-11	-57 Has 11	100			_9	_	86			
		-	·					3	Pos	
		7							-	-
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A 10	2002. 1870									
1- 10	1041414	110						5 12	0.70	_
								- 1	Octron /	
Type: C=C	oncentration, D=Dep	letion. RM	=Reduce	Matrix MS		Cass 0		2.	(37.358822, -83.885	-677
ydric Soil	Indicators:		1100000	z Wiguix, IVIC	-wasked	Sand Gra	iins.	*Location:	PL=Pore Lining, M=Matrix.	
_ Histosol	(A1)		D	ark Surface	(\$7)			Indi	cators for Problematic Hydric S	Soils <sup>3</sup> :
_ Histic Er	pipedon (A2)		_ P	olyvalue Be	low Surfac	e (S8) /M	I DA 447	4400	2 cm Muck (A10) (MLRA 147)	
	stic (A3)			nin Dark Su	rface (S9)	(MLRA 14	LNA 14/,	148)	Coast Prairie Redox (A16)	
	n Sulfide (A4)		_ 50	amy Gløye	d Matrix (F	F2)	11, 140)		(MLRA 147, 148)	
	d Layers (A5)		/D	epleted Mat	rix (F3)			_	Piedmont Floodplain Soils (F19) (MLRA 136, 147)	
2 cm Mu	ick (A10) (LRR N)	4255	R	edox Dark S	Surface (F	6)			Very Shallow Dark Surface (TF12	
Depleted	d Below Dark Surfac ark Surface (A12)	e (A11)	D	epleted Dar	k Surface	(F7)			Other (Explain in Remarks)	2)
Sandy M	fucky Mineral (S1) (L	DDM	_ R	edox Depre	ssions (F8	)			(Section of the section of the secti	
MLR/	A 147, 148)	LIXIX IV,	110	n-Mangane MLRA 136	ese Masse	s (F12) (L	RR N,			
	Bleyed Matrix (S4)		th:	nbric Surfac		MI DA 400				
_ Sandy R	ledox (S5)		Pi	edmont Flor	odnlain Sc	VILKA 136	), 122) MLDA 4 4	alr	dicators of hydrophytic vegetation	and
	Matrix (S6)		R	ed Parent M	laterial (F2	1) (MLRA	MLKA 14		vetland hydrology must be present	t,
estrictive I	ayer (if observed):				, , , , , , , , , , , , , , , , , , ,		141,147		nless disturbed or problematic.	
Type:										
Depth (inc	ches):							Dudela Ca	il Present? Yes No	
Remarks:								riyane so	Il Present? Yes No _	

219+00

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: \( \frac{1}{30} \)  Applicant/Owner: \( \frac{1}{37} \)  Applicant/Owne
Section, Township, Range:  Landform (hillslope, terrace, etc.);  Local relief (concave, convex, none);  Subregion (LRR or MLRA);  Lat: 37.366575  Long: -83.873476  Datum: Alok 3  Now classification:  NWI classification:
Subregion (LRR or MLRA):  Lat: 37.3 6 6 5 25  Long: -83.873476  Datum: MB Junit Name:  NWI classification: Junity  Are climatic / hydrologic conditions on the site typical for this time of year? Yes  Are Vegetation Soil, or Hydrology significantly disturbed?  Are Vegetation, Soil, or Hydrology significantly disturbed?  Are Vegetation, Soil, or Hydrology naturally problematic?  SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.  Hydrophytic Vegetation Present? Yes, No lis the Sampled Area within a Wetland? Yes, No within a Wetland? Yes, No  Wetland Hydrology Present? Yes, No within a Wetland? Yes, No  HYDROLOGY  Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply), Surface Soil Cracks (B6)  Surface Water (A1), True Aquatic Plants (B14), Sparsely Vegetated Concave Surface (B8) High Water Table (A2), Hydrogen Sulfide Odor (C1), Drainage Patterns (B10)  Water Marks (B1), Presence of Reduced for (A1), Presence of Reduced for (A1), Presence of Reduced for (A1), Moss Trim Lines (B16)
Soil Map Unit Name:  Are climatic / hydrologic conditions on the site typical for this time of year? Yes
Are climatic / hydrologic conditions on the site typical for this time of year? Yes
Are climate / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)  Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)  SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.  Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Wetland Hydrology Present? Yes No Wetland Hydrology Present? Yes No Soil Present (Bio) Not Yes Soil Present (Bio) Water Marks (Bio) Present (CA) Yes No Soil Present (Bio) Yes Yes
Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)  SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.  Hydrophytic Vegetation Present?
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.  Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No Is the Sampled Area within a Wetland? Wetland Hydrology Present?  Wetland Hydrology Indicators: Priorary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Water Marks (B1)  Presence of Reduced Ison (C1)
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?  Yes No Within a Wetland?  Remarks:  HYDROLOGY  Wetland Hydrology Indicators:  Priorary Indicators (minimum of one is required; check all that apply)  Surface Water (A1) High Water Table (A2) Hydrophytic Vegetation Present?  Yes No No No Within a Wetland?  Is the Sampled Area within a Wetland?  Yes No
HYDROLOGY  Wetland Hydrology Indicators:  Printary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Presence of Reduced Iron (C4)
HYDROLOGY  Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Presence of Reduced Iron (C4)  Wetland Hydrology Indicators (minimum of two required)  Secondary Indicators (minimum of two required)  Surface Soil Cracks (B6)  Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)  Moss Trim Lines (B16)
Wetland Hydrology Indicators:  Priprary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Presence of Reduced Iron (C4)  Presence of Reduced Iron (C4)  Secondary Indicators (minimum of two required)  Surface Soil Cracks (B6)  Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)  Moss Trim Lines (B16)
Prigrary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Presence of Reduced Iron (C4)  Secondary Indicators (minimum of two required)  Surface Soil Cracks (B6)  Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)  Moss Trim Lines (B16)
Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Surface Soil Cracks (B6)  Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizospheres on Living Roots (C3)  Moss Trim Lines (B16)
Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  True Aquatic Plants (B14)  Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizospheres on Living Roots (C3)  Moss Trim Lines (B16)
High Water Table (A2) Saturation (A3) Water Marks (B1)  Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3)  Presence of Reduced Iron (C4)  Drainage Patterns (B10) Moss Trim Lines (B16)
Saturation (A3)  — Water Marks (B1)  — Water Marks (B1)  — Presence of Reduced Iron (C4)  — Water Marks (B1)
Presence of Reduced Iron (CA)
Sediment Deposits (B2)  Recent Iron Reduction in Tilled Soils (Cs)
Drift Deposits (B3) Thin Muck Surface (C7)
— Algal Mat or Crust (B4) Other (Explain in Remarks)
(ron Deposits (B5)
Challengery (B/)
Water-Stained Leaves (89)  Aquatic Fauna (B13)  Microtopographic Relief (D4)
Field Observations:
Surface Water Persons
Water Table Process?
Saturation Property
(includes capillary fringe) Wetland Hydrology Present? Yes No.
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks:
Refilalks:

VEGETATION	(Four Strata	) – Use	scientific	names	of plants.
	APPLICATION OF CONTRACTOR				- 200

Sampling Point:

Charles (Diet circ)	Absolute Dominant Indicator	Dominance Test worksheet:
ee Stratum (Plot size:)	% Cover Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
		Total Number of Dominant Species Across All Strata:(B)
		Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
		Prevalence Index worksheet:
		Total % Cover of: Multiply by:
Color Security of	= Total Cover	OBL species x 1 =
	20% of total cover:	FACW species x 2 =
pling/Shrub Stratum (Plot size:)		FAC species x 3 =
		FACU species x 4 =
		UPL species x 5 =
		Column Totals: (A) (B)
		Prevalence Index = B/A =
		Hydrophytic Vegetation Indicators:
		2 - Dominance Test is >50%
		3 - Prevalence Index is ≤3.01
	= Total Cover	4 - Morphological Adaptations <sup>1</sup> (Provide supporti
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)
erb Stratum (Plot size:5 /)	5. 12 55.3	Broblomatic Hydrophytic Vegetation <sup>1</sup> (Evolain)
TIPHA ANGOSTIFOLIA	25 V 08L	
FULATOLIUM PRITOUATUM	15 V MACU	1 Indicators of hydric soil and wetland hydrology must
ESTROCHIUM PURPUREAM	15 FAC	be present, unless disturbed or problematic.
CART SPP.	-15- <u></u>	Definitions of Four Vegetation Strata:
SOLIDAGO GIGANTEA		
5.		Tree – Woody plants, excluding vines, 3 in. (7.6 cm)
*		more in diameter at breast height (DBH), regardless height.
1,		
3		dapiniquonias model plants, andidanig model
)		than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
10	<del></del>	
11		<ul> <li>Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.</li> </ul>
50% of total cover:	40 = Total Cover	of size, and woody plants less than 3.20 it tall.
200 - 100 - 100 - 100 - 100 - 100 - 100 TANGETY (1984)	20% of total cover.	Woody vine - All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		height.
1		-
2,		3
3	<del></del>	<del>-</del>
4		- Hydrophytic
ξ		Vegetation V Present? Yes No
	= Total Cover	Liegelift 169 Mo
50% of total cover:	20% of total cover:	

# VEGETATION (Five Strata) - Use scientific names of plants. Sampling Point:\_

Controlled (A) Service (A)	Absolute Dominant Indicator	Dominiance rest workshoot.
Free Stratum (Plot size:)	% Cover Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC:(A)
2 3		Total Number of Dominant Species Across All Strata:(B)
1.		Percent of Dominant Species
		That Are OBL, FACW, or FAC: (A/B)
5.		S. L.
	= Total Cover	Prevalence Index worksheet:
50% of total co	over: 20% of total cover:	Total % Cover of: Multiply by:
Sapling Stratum (Plot size:		Our species
1		FACW species x 2 =
2		FAC species x 3 =
3		FACU species x 4 =
		UPL species x 5 =
4		Column Totals: (A) (B)
5		Prevalence Index = B/A =
6	= Total Cover	Hydrophytic Vegetation Indicators:
244		1 - Rapid Test for Hydrophytic Vegetation
	over: 20% of total cover:	2 - Dominance Test is >50%
Shrub Stratum (Plot size:		3 - Prevalence Index is ≤3.0 <sup>1</sup>
1)		4 - Morphological Adaptations¹ (Provide supporting
2		data in Remarks or on a separate sheet)
3		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
4		-
5		Indicators of hydric soil and wetland hydrology must
6		<ul> <li>be present, unless disturbed or problematic.</li> </ul>
	= Total Cover	Definitions of Five Vegetation Strata:
50% of total of	cover: 20% of total cover:	Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size:) 1		approximately 20 ft (6 m) or more in height and 3 in.
2.		Sapling - Woody plants, excluding woody vines,
3.		approximately 20 ft (6 m) or more in height and less
4.		than 3 in. (7.6 cm) DBH.
5.		Shrub - Woody plants, excluding woody vines,
6		approximately 3 to 20 ft (1 to 6 m) in height.
7		Herb – All herbaceous (non-woody) plants, including
8.		herbaceous vines, regardless of size, and woody
9		plants, except woody vines, less than approximately 3 ft (1 m) in height.
10.		
11,		Woody vine – All woody vines, regardless of height.
TA <sub>3</sub>	= Total Cover	
Enox of total	cover: 20% of total cover:	
Woody Vine Stratum (Plot size:		71
woody vine Stratum (Plot Size:		
·		-

\_ = Total Cover

\_ 20% of total cover: 50% of total cover: \_ Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic Vegetation Present?

Yes \_

Color (moist) 25/5/2 25/6/2	90	Color (moist)	2 	Type <sup>1</sup>	Loc² PL	Texture	70% OCHNER MATTER
2 5 6/2		516 5/8	<del>\$</del> 2		PC		
	98	516 5/8	_Z		PL		- State Parting
10 4x 4/3	<u></u>		=				
10 4× 4/3			Ξ		-		
10 4× 4/3	=		=				
10 4x 4/3	$\equiv$						
10 4x 4/3							
10 4× 4/3	-		1				
10 4/3							
104/3	The second second				_		
	100			-	_		7017-22-7-10
			-				OUTPOWY
contration DeD		B- 1- 17- 11 C	-				137.366198, -83.874365
idicators:	etion, RM	Reduced Matrix, MS	S=Masked	Sand Gra	ins.	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix
		Davis	744			Indica	ators for Problematic Hydric Soils <sup>3</sup> :
		Dark Surface	(87)		Tana and	2	cm Muck (A10) (MLRA 147)
tic (A3)		Thin Dark Su	face (EQ)	ce (S8) (M	LRA 147,	148) C	oast Prairie Redox (A16)
		Loamy Gleve	d Matrix (	(MLKA 74	17, 148)		(MLRA 147, 148)
		Depleted Mat	rix (F3)	(-2)		_ P	iedmont Floodplain Soils (F19)
k (A10) (LRR N)		Redox Dark S	Surface (F	6)		11	(MLRA 136, 147)
Below Dark Surface	(A11)	Depleted Dar	k Surface	(F7)		v	ery Shallow Dark Surface (TF12)
k Surface (A12)		Redox Depre	ssions (F8	3)		0	ther (Explain in Remarks)
cky Mineral (S1) (L	RR N,	Iron-Mangane	ese Masse	s (F12) (L	RR N.		
		MLRA 136	5)				
eyed Matrix (S4)		Umbric Surface	ce (F13) (I	MLRA 136	, 122)	3Indi	cators of hydrophytic vegetation and
		Piedmont Flo	odplain Sc	oils (F19) (	MLRA 148	14/0	tland hydrology must be present,
		Red Parent M	aterial (F2	21) (MLRA	127, 147	unl	ess disturbed or problematic.
es):		_					F
						Hydric Soil	Present? Yes No
			÷				
1	k Surface (A12) licky Mineral (S1) (L 147, 148) leyed Matrix (S4) dox (S5) Matrix (S6) lyer (if observed):	pedon (A2) tic (A3) Sulfide (A4) Layers (A5) k (A10) (LRR N) Below Dark Surface (A11) k Surface (A12) ticky Mineral (S1) (LRR N, 147, 148) eyed Matrix (S4) dox (S5) Matrix (S6)	pedon (A2) Polyvalue Be tic (A3) Thin Dark Su Sulfide (A4) Loamy Gleye Layers (A5) Pepleted Mate k (A10) (LRR N) Redox Dark Surface (A11) Pepleted Dar k Surface (A12) Redox Depre licky Mineral (S1) (LRR N, Iron-Mangane 147, 148) MLRA 136 Peyed Matrix (S4) Umbric Surface dox (S5) Piedmont Floi Natrix (S6) Red Parent Material (S1) (S1) (S2) Matrix (S6) Red Parent Material (S2)	pedon (A2)  fic (A3)  Sulfide (A4)  Layers (A5)  k (A10) (LRR N)  Below Dark Surface (A11)  k Surface (A12)  peleted Dark Surface (F8)  medox Dark Surface (F8)  peleted Dark Surface (F8)  medox Depressions (F8)  locky Mineral (S1) (LRR N, 147, 148)  peyed Matrix (S4)  dox (S5)  Matrix (S6)  peleted Dark Surface (F8)  medox Depressions (F8)  lron-Manganese Masse  mura 136)  Umbric Surface (F13) (19)  peledmont Floodplain So  Red Parent Material (F2)  per (if observed):	pedon (A2)  tic (A3)  Sulfide (A4)  Layers (A5)  k (A10) (LRR N)  Below Dark Surface (A11)  k Surface (A12)  cky Mineral (S1) (LRR N, 147, 148)  peyed Matrix (S4)  dox (S5)  Matrix (S6)  Polyvalue Below Surface (S8) (M. A14  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Iron-Manganese Masses (F12) (L. M. A136)  Umbric Surface (F13) (MLRA 136)  Piedmont Floodplain Soils (F19) (Matrix (S6))  Red Parent Material (F21) (MLRA 136)  Red Parent Material (F21) (MLRA 136)	pedon (A2) tic (A3) Sulfide (A4) Layers (A5) k (A10) (LRR N) Below Dark Surface (A11) k Surface (A12) cky Mineral (S1) (LRR N, 147, 148) Polyvalue Below Surface (S8) (MLRA 147, 148) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, 147, 148) Peyed Matrix (S4) Depleted Dark Surface (F7) Redox Depressions (F8) Uron-Manganese Masses (F12) (LRR N, 147, 148) Peyed Matrix (S4) Depleted Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F7) Redox Depressions (F8) Pron-Manganese Masses (F12) (LRR N, 147, 148) Depleted Dark Surface (F13) (MLRA 136, 122) Redox Depressions (F8)	pedon (A2)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Sulfide (A4)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  k (A10) (LRR N)  Below Dark Surface (A11)  k Surface (A12)  peleted Dark Surface (F7)  Redox Depressions (F8)  Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122)  Polyvalue Below Surface (S9) (MLRA 147, 148)  Polyvalue Below Surfa

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: WY30	City/Cour	inty: JACKSON Sampling Date: 9/25/
Applicant/Owner://7/		20.0
Investigator(s): MJG, ELS	Section 3	Township, Pages:
Landform (hillslope, terrace, etc.):	Lacal rollof (	Consula consula CA CA
		(concave, convex, none): <u>CONCAVE</u> Slope (%):
Soil Map Unit Name:	Lat. 2	Long: - 8 3. 8 70 6 3 6 Datum: NRD 6 3
	W. C. Company	NWI classification: N/A
Are climatic / hydrologic conditions on the s	ite typical for this time of year? Yes	No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hyd	Irology significantly disturbed	Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hyd	irology naturally problematic?	? (If needed, explain any answers in Domestic.)
SUMMARY OF FINDINGS - Atta	ch site man showing sampli	ing point locations, transects, important features, etc
Hydrophytic Vegetation Present? Hydric Soil Present?	Yes No Is wife No Wife No	the Sampled Area ithin a Wetland?  Yes No
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is req	uired; check all that apply)	Surface Soil Cracks (B6)
VSurface Water (A1)	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (RR)
High Water Table (A2)  Saturation (A3)	Hydrogen Sulfide Odor (C	C1) V Drainage Patterns (R10)
Water Marks (B1)	<ul> <li>Oxidized Rhizospheres or</li> </ul>	n Living Roots (C3) Moss Trim Lines (B16)
Sediment Deposits (B2)	Presence of Reduced Iron	
Drift Deposits (B3)	Recent Iron Reduction in	
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)	Other (Explain in Remarks	
Inundation Visible on Aerial Imagery (	B7)	✓ Geomorphic Position (D2)
Water-Stained Leaves (B9)		Shallow Aquitard (D3)
Aquatic Fauna (B13)		Microtopographic Relief (D4)
Field Observations:	/	FAC-Neutral Test (D5)
Surface Water Present? Yes	No Depth (inches): 6	
Water Table Present? Yes	No Depth (inches):	
Saturation Present? Yes/ (includes capillary fringe)	No Depth (inches):	Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, m		Wetland Hydrology Present? Yes No
Casam gaage, n	to into mig well, aerial photos, previous	s inspections), if available:
Remarks:		

EGETATION (Four Strata) - Use scientific		Dominant	Indicator	Sampling Point:  Dominance Test worksheet:	
ree Stratum (Plot size:) . SACY X NISKA	% Cover	Species?		Number of Dominant Species That Are OBL, FACW, or FAC:	(A)
				Total Number of Dominant Species Across All Strata:	(B)
5 5			=	Percent of Dominant Species That Are OBL, FACW, or FAC:	(A/B)
		= Total Cov		Prevalence Index worksheet:  Total % Cover of: Multiply by	<u>ıy:</u>
50% of total cover: Sapling/Shrub Stratum (Plot size:)	20% 0	Of the second of the Paris,		OBL species x 1 = FACW species x 2 =	
1. <u>SACIX NIEKA</u> 2.	10		032	FAC species x 3 = FACU species x 4 =	
34.				UPL species x 5 = Column Totals: (A)	
5 6.		-	. —	Prevalence Index = B/A =	
6				Hydrophytic Vegetation Indicators:  - 1 - Rapid Test for Hydrophytic Vegetat 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.01	ion
50% of total cover:		_ = Total Co of total cove		4 - Morphological Adaptations¹ (Provided data in Remarks or on a separate second	
Herb Stratum (Plot size:)  1. FLEOCHARIS 037USA	40	1	036	Broblematic Hydrophytic Vegetation (	
2. TYPHA ANGUSTIFOCIA 3. SOCIDAGO GIGANTICA	20		FACU	<sup>1</sup> Indicators of hydric soil and wetland hydro be present, unless disturbed or problemati	ology must c.
4. EUPATOLIVA PSPPULIENM 5. CARRI SIP	10			Definitions of Four Vegetation Strata:	(7.6)
6. SALIX MELA 7. LUBYS ALLEGHENIENSI	5		PACJ	Tree – Woody plants, excluding vines, 3 ir more in diameter at breast height (DBH), r height.	
8				Sapling/Shrub – Woody plants, excluding than 3 in. DBH and greater than or equal to m) tall.	y vines, less to 3.28 ft (1
11		= Total Co		Herb – All herbaceous (non-woody) plants of size, and woody plants less than 3.28 ft	s, regardless t tall.
50% of total cover:	7T 20%	of total cove	er:_ / 7	Woody vine – All woody vines greater that height.	an 3.28 ft in

5.\_\_\_\_\_ = Total Cover \_\_\_\_ = Total Cover 50% of total cover: \_\_\_\_ 20% of total cover:\_\_\_ Hydrophytic Vegetation Present?

Yes \_\_\_\_\_ No \_\_\_\_

Remarks: (Include photo numbers here or on a separate sheet.)

Sampling Point:\_\_\_\_\_ VEGETATION (Five Strata) - Use scientific names of plants. Dominance Test worksheet: Absolute Dominant Indicator Tree Stratum (Plot size: \_\_\_\_\_) % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: 1.\_\_ Total Number of Dominant Species Across All Strata: \_ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: Prevalence Index worksheet: \_\_\_\_ = Total Cover Total % Cover of: Multiply by: 50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_ OBL species \_\_\_\_\_ x 1 =\_\_\_\_ Sapling Stratum (Plot size: \_\_\_\_\_) FACW species \_\_\_\_\_ x 2 =\_\_\_\_ FAC species \_\_\_\_\_ x 3 =\_\_\_\_ FACU species \_\_\_\_\_ x 4 =\_\_\_\_ UPL species \_\_\_\_\_ x 5 =\_\_\_\_ Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B) Prevalence Index = B/A = \_\_\_\_\_ = Total Cover Hydrophytic Vegetation Indicators: \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation 50% of total cover: \_\_\_\_\_ 20% of total cover: 2 - Dominance Test is >50% Shrub Stratum (Plot size: \_\_\_\_\_) \_\_\_\_ 3 - Prevalence Index is ≤3.01 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) <sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. = Total Cover Definitions of Five Vegetation Strata: 50% of total cover: \_\_\_\_\_ 20% of total cover:\_\_\_\_ Tree - Woody plants, excluding woody vines, Herb Stratum (Plot size: \_\_\_\_\_) approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine - All woody vines, regardless of height. \_\_\_\_ = Total Cover 50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_ Woody Vine Stratum (Plot size: \_\_\_\_\_)

= Total Cover

50% of total cover: \_\_\_\_\_ 20% of total cover:\_

Remarks: (Include photo numbers here or on a separate sheet.)

Yes \_\_\_\_\_ No\_\_\_

Hydrophytic

Vegetation Present?

(inches)	IVIGUIA		th needed to docu Red	x Feature	S		are absence	o or maice	ators.)	
0-7	Color (moist)	- %	Color (moist)	_ %	_Type <sup>1</sup> _	_Loc2	Texture	,	Remarks	
N	2515/1	<u>u</u> 0		-			SILTYCL	AY 10%	ORGANIC	MATTER
- 20	2.5 43/4	27	5-1/24/4	_3_		DL	CCAT			- Very Viere
2-8	7.5 5/2	55	57R416	5	C	n				
8-12	5 45/2	30		1149	-	-	CCAY	-		
- //	7-5 YR 6/8	30		-			CCIT	-		
11	10116/6	25		_	-			-		
le	GLEY 2.5/SPB	15		-	-	-	-			
	6/27 05/3/15	_/_		-			1			
0-10	7.5 YK 3/3	100					Sict	0,71	10,07	
					0			7		E-271 \
Type: C=C	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ins	2 position: D	( <u> </u>	1991, -83	01011)
riyane son	muicators.				Taria Oid	110.	Indic	ators for F	ning, M=Matrix. Problematic Hyd	deta or ma
Histosol			Dark Surface	(87)				cm Muck	(A10) (MLRA 14	aric Soils";
Histic Ep	pipedon (A2) istic (A3)		Polyvalue Be	low Surfac	e (S8) (MI	-RA 147,	148)	Coast Prairi	ie Redox (A16)	(1)
	en Sulfide (A4)		Thin Dark Su	rface (S9)	(MLRA 14	17, 148)	1	(MLRA 1	47, 148)	
	d Layers (A5)		Loamy Gleye	d Matrix (F	=2)		F	liedmont F	loodplain Soils (I	F19)
2 cm Mu	ick (A10) (LRR N)		Redox Dark 5	iux (F3) Surface (F	6)			(MLRA 1	36, 147)	
Depleted	Below Dark Surface	(A11)	Depleted Dar	k Surface	(F7)		_ V	ery Shallo	w Dark Surface	(TF12)
	ark Surface (A12)		Redox Depre	ssions (F8	3)		-	mer (Expl	ain in Remarks)	
	fucky Mineral (S1) (LI	RR N,	Iron-Mangane	ese Masse	s (F12) (L	RR N,				
	A 147, 148) Bleyed Matrix (S4)		MLRA 136	5)						
Sandy R	ledox (S5)		Umbric Surfa	ce (F13) (I	MLRA 136	, 122)	3Ind	icators of h	nydrophytic vege	tation and
Stripped	Matrix (S6)		Piedmont Flo Red Parent M	odplain Sc Istorial (Er	ils (F19) (I	MLRA 14	8) We	tland hydro	ology must be pr	esent.
Restrictive L	ayer (if observed):			iateriai (F2	(WILKA	127, 147	) un	less disturt	oed or problemat	tic.
Type:										
	ches):						Disabile Cett	n		
Depth (inc							Hydric Soil	Present?	Yes	No
	· ·									-
Depth (inc Remarks:										
										-

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region Project/Site: XY 3D Sampling Date: 9/19/17 Applicant/Owner: X/T/ Sampling Point:\_N09 State: / Investigator(s): MJ6 FC Section, Township, Range: Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): \_\_CONCA +/2 Subregion (LRR or MLRA): \_\_\_\_\_\_ Lat: 37.3.79237 Long: -83.863478 Datum: NAD 8 Soil Map Unit Name: \_\_\_\_\_ \_ NWI classification: NVI Are climatic / hydrologic conditions on the site typical for this time of year? Yes\_ (If no, explain in Remarks.) Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Is the Sampled Area Yes I/ No Wetland Hydrology Present? within a Wetland? Remarks: \* WERLAND PROVED POND POND HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) \_\_\_ Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) \_\_\_ Sparsely Vegetated Concave Surface (B8) /High Water Table (A2) Hydrogen Sulfide Odor (C1) \_\_ Drainage Patterns (B10) Saturation (A3) \_\_\_ Moss Trim Lines (B16) Water Marks (B1) Presence of Reduced Iron (C4) \_\_\_ Dry-Season Water Table (C2) Sediment Deposits (82) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8) Drift Deposits (B3) \_\_\_ Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1) Iron Deposits (B5) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Shallow Aquitard (D3) Aquatic Fauna (B13) \_\_ Microtopographic Relief (D4) FAC-Neutral Test (D5) Field Observations: Surface Water Present? No \_\_\_ Depth (inches); Water Table Present? No \_\_\_\_ Depth (inches):\_ Saturation Present? No \_\_\_\_ Depth (inches): (includes capillary fringe) Wetland Hydrology Present? Yes Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

GETATION (Four Strata) – Use scientific na	141.12			
	Absolute - % Cover	Dominant In Species?	Status	Dominance Test worksheet:  Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
				Total Number of Dominant Species Across All Strata:(B)
		نسسا		Percent of Dominant Species That Are OBL, FACW, or FAC: 839 (A/B)
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
50% of total cover:		= Total Cover:		OBL species x 1 =
apling/Shrub Stratum (Plot size:)		. 140-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	200	FACW species x 2 =
URIDDENDENT TULIFFERA	5	_/_	FACU	
ACE PUBRUA	3	V	FAC	FACU species x 4 =
PENTANUS OCCUPATIONS	2		FACW	UPL species x 5 = Column Totals: (A) (B)
<u> </u>				
5				Prevalence Index = B/A =
5,				Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation
B.				2 - Dominance Test is >50%
9.				y 2 - Dominance rest is >30%  3 - Prevalence Index is ≤3.01
		= Total Cov		4 - Morphological Adaptations¹ (Provide supportin
50% of total cover:	20%	of total cover	:_2_	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	2 -	. 2		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. TYPIN ANAUSTINGUA			OBL	
2. ACER PORISM	5.	- <del> </del>	FAC	1 Indicators of hydric soil and wetland hydrology must
3. SOLIDAGO GRANTEA	10	- <del>- /</del>	FAC	de present entre en
4. DE HANTER & SIM COMDESTIGE			001	Definitions of Four Vegetation Strata:
5. SNOW WIELD			FAL	Tree - Woody plants, excluding vines, 3 in. (7.6 cm)
T. RUBUS ACCESSED TALLS	10	~ ===	FACI	T I MORE IN DISTRICTE AL DIEGOL (EDDLI), regardiess
8. CILIODENDENDENDE TULIPIERA			FACU	7
9. <u>CARRY SPP</u> .	_ 10_	==		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3,28 ft (1 m) tall.
11		= Total C		<ul> <li>Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.</li> </ul>
50% of total cover:	8 209	6 of total cove	er: 19	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
3				
4.			3 =	- Hydrophytic
5.				Vegetation
9.5		= Total C		Present? Yes No
50% of total cover:	20	% of total cov	/er:	
Remarks: (Include photo numbers here or on a separa	ite sheet.)			

Remarks: (Include photo numbers here or on a separate sheet.)

GETATION (Five Strata) – Use scientific n	ames of	olants.		pling Point:	
	Absolute	Dominant Indicator	Dominance Test workship	eet:	
ee Stratum (Plot size:)	% Cover	Species? Status	Number of Dominant Spec	cies	
			That Are OBL, FACW, or I	FAC:	(A)
			Total Number of Dominan	t	
			Species Across All Strata:		(B)
			Percent of Dominant Spec	ries	
			That Are OBL, FACW, or	FAC:	(A/B)
					7.50
	JE E	= Total Cover	Prevalence Index works		
WATE SAMORE TOWNS			Total % Cover of:		
50% of total cover:	20% 0	r total cover:	OBL species		
apling Stratum (Plot size:)			FACW species		
			FAC species	x 3 =	
TI.			FACU species	x 4 =	
·			UPL species	x 5 =	
			Column Totals:		
			4		
),			- The same of the	= B/A =	
		= Total Cover	Hydrophytic Vegetation		
50% of total cover:	20%	of total cover:	1 - Rapid Test for Hy	ydrophytic Vegetatio	n
		or total 5010	2 - Dominance Test	is >50%	
Shrub Stratum (Plot size:)			3 - Prevalence Inde:	x is ≤3.0¹	
1/			4 - Morphological A	daptations1 (Provide	supporting
2			data in Remarks	or on a separate sr	leet)
3,			Problematic Hydrop	hytic Vegetation <sup>1</sup> (E	xplain)
4			-		
5,	4		Indicators of hydric soil	and wetland hydrol	ogy must
6.			be present, unless distu	irbed or problematic	
	2-	_ = Total Cover	Definitions of Five Veg	getation Strata:	
50% of total cover:	20%	of total cover:	Tree - Woody plants, e	waludina waadu vins	ne.
Herb Stratum (Plot size:)			approximately 20 ft (6 n	n) or more in height	and 3 in.
Herb Stratum (Plot Size.			(7.6 cm) or larger in dia	meter at breast heig	tht (DBH).
1			<ul> <li>Sapling – Woody plant</li> </ul>	e eveluding woody	vines
2			approximately 20 ft (6 n	n) or more in height	and less
3			than 3 in. (7.6 cm) DBH	١.	
4			Shrub – Woody plants	excluding woody V	ines
5			approximately 3 to 20 f	t (1 to 6 m) in heigh	t.
6					
7			Herb – All herbaceous herbaceous vines, rega	(non-woody) plants ardless of size, and	, including
8			plants, except woody v	ines, less than appr	oximately :
9			ft (1 m) in height.		
10			Woody vine - All woo	dy vines renardless	of height.
11			- Woody vine - All Woo	ay wiles, regulates.	, or many to
13		= Total Cover			
50% of total cover: _	200	% of total cover			
		70 OI TOTAL COVER.	=		
Woody Vine Stratum (Plot size:)					
1			-		
2			_		
3			-		
4					
5.			- Hydrophytic		
		= Total Cover	Vegetation	V	
	- 2	0% of total cover:	Present?	Yes No	_

Depth	ription: (Describe Matrix	- me dopu	- Heeded to docum	contractive in	nuicator	or confirm	n the absence	of indicators.)
(inches)	Color (moist)	%	Color (moist)	Features %	_Type <sup>1</sup>			
0-2	54 6/2	95	7.548.416	- 6	Type	_Loc²	Texture	Remarks
7.8	54 5/2	80	75184/6	70	-	PL	S. 125 -	
				عت				
				-	-			
0-10	101/25/4	100		-				
								[37.379259, -83.863065
Type: C=Cor lydric Soil In	ncentration, D=Dep	letion, RM=R	educed Matrix, MS=	Masked :	Sand Gra	ins.	<sup>2</sup> Location: Pl	=Pore Lining, M=Matrix.
Tydile don in	idicators.						Indica	ators for Problematic Hydric Soils <sup>3</sup> :
Histosol (/	A1) pedon (A2)		Dark Surface (	S7)			n	cm Muck (A10) (MLRA 147)
Black Hist			Polyvalue Belo	w Surface	e (S8) (M	LRA 147,	148) C	oast Prairie Redox (A16)
	Sulfide (A4)		Thin Dark Surf Loamy Gleyed	ace (S9) (	MLRA 1	47, 148)		(MLRA 147, 148)
Stratified I	Layers (A5)		Depleted Matri	Matrix (F	2)		Pi	edmont Floodplain Soils (F19)
_ 2 cm Muc	k (A10) (LRR N)		Redox Dark Su	rface (Es	iv.			(MLRA 136, 147)
Depleted I	Below Dark Surface	(A11)	Depleted Dark	Surface (Fo	() E7\		V	ery Shallow Dark Surface (TF12)
Thick Dark	k Surface (A12)		Redox Depress	sions (FR)	(-7)		_ 0	ther (Explain in Remarks)
Sandy Mu	cky Mineral (S1) (L	RR N,	Iron-Manganes	e Masses	(F12) //	DO N		
MLRA	147, 148)		MLRA 136)	- 1110000	11-12) (1	KK N,		
	eyed Matrix (S4)		Umbric Surface		II RA 136	1221	31 6	make the serve Control of
_ Sandy Red			Piedmont Floor	dplain Soi	is (F19) /	MI DA 14	-Indi	cators of hydrophytic vegetation and
Stripped N	fatrix (S6)		Red Parent Ma	terial (F2:	1) (MI R	127 147		land hydrology must be present,
	yer (if observed):				7 (	127,141	Unit	ess disturbed or problematic.
Type;			-					
Depth (inch Remarks:	es):						Hydric Soil	Present? Yes/_ No
Cou	it		20 .11					
Con	ld only	da	8"					
			**	~				
				~				
				~				
			**					

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region Project/Site: KY 30 City/County: JACKSON \_\_\_\_\_ Sampling Date: 9/19/17 Applicant/Owner: # 1/1/ State: WY Sampling Point: WOR Investigator(s): MJh, ELS Section, Township, Range:\_ Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): CONCAVIC Slope (%): Subregion (LRR or MLRA): \_\_\_\_\_\_ Lat: \_\_\_\_\_ \_\_\_\_ Long: \_\_\_\_ Datum: NAD& Soil Map Unit Name: \_\_\_\_\_ \_\_\_\_\_NWI classification: \_\_\_ Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_ (If no, explain in Remarks.) Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_ Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Hydric Soil Present? Is the Sampled Area /\_ No\_\_\_ Wetland Hydrology Present? within a Wetland? Yes Remarks: \* SITUATED IN FIRMS, TOWED CECHALLY HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) \_\_ Surface Soil Cracks (B6) Surface Water (A1) \_\_\_ True Aquatic Plants (B14) ✓ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) — Hydrogen Sulfide Odor (C1) V Drainage Patterns (B10) Saturation (A3) \_\_\_\_Oxidized Rhizospheres on Living Roots (C3) \_\_\_ Moss Trim Lines (B16) Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) \_\_ Dry-Season Water Table (C2) Recent Iron Reduction in Tilled Soils (C6) ✓ Drift Deposits (B3) \_\_ Crayfish Burrows (C8) \_\_\_ Thin Muck Surface (C7) \_\_\_ Algal Mat or Crust (B4) Saturation Visible on Aerial Imagery (C9) Other (Explain in Remarks) \_ Iron Deposits (B5) Stunted or Stressed Plants (D1) inundation Visible on Aerial Imagery (B7) ✓ Geomorphic Position (D2) \_\_ Shallow Aquitard (D3) Water-Stained Leaves (B9) \_ Aquatic Fauna (B13) \_\_ Microtopographic Relief (D4) \_\_ FAC-Neutral Test (D5) Field Observations: Surface Water Present? No \_\_\_\_\_ Depth (inches):\_\_\_ Water Table Present? Yes \_\_\_\_ No \_\_\_\_ Depth (inches):\_\_\_\_ Saturation Present? No \_\_\_\_ Depth (inches): - 4/1 (includes capillary fringe) Wetland Hydrology Present? Yes Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

Sampling Point: VEGETATION (Four Strata) - Use scientific names of plants. Dominance Test worksheet: Absolute - Dominant Indicator Tree Stratum (Plot size: \_\_\_\_\_) % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: 1. N/A Total Number of Dominant Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: = Total Cover OBL species \_\_\_\_\_ x 1 = \_\_\_\_ 20% of total cover:\_\_\_ 50% of total cover: FACW species \_\_\_\_\_ x 2 = \_\_\_\_ Sapling/Shrub Stratum (Plot size:\_\_\_\_) FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_ FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_ UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_ Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B) Prevalence Index = B/A = \_\_\_\_\_ Hydrophytic Vegetation Indicators: \_\_\_ 1 Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% \_\_ 3 - Prevalence Index is ≤3.0° \_ = Total Cover 4 - Morphological Adaptations (Provide supporting 20% of total cover: 50% of total cover: data in Remarks or on a separate sheet) Herb Stratum (Plot size: \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 1. JUNEUS REPUSUS 2. 5000160 616ANTEA Indicators of hydric soil and wetland hydrology must FAC 3. DICHANTHELLYM CLANDESTIMUM be present, unless disturbed or problematic. 4. COBECIA CALDINALIS Definitions of Four Vegetation Strata: FACW 5. STACHYS TENNIFOCIA Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or FAC 6. EUTROCHIUM AVRAREUM more in diameter at breast height (DBH), regardless of 7. GAREY SPP. height. 8. TRIFOCIUM PLATENSE Sapling/Shrub - Woody plants, excluding vines, less 9. FESAULA SI. than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 10. CAREY SPER Herb - All herbaceous (non-woody) plants, regardless 11.5041 DAGO SPE of size, and woody plants less than 3.28 ft tall. 75 = Total Cover 48 20% of total cover: 19 50% of total cover: Woody vine - All woody vines greater than 3.28 ft in Woody Vine Stratum (Plot size: \_\_\_\_\_) height. Hydrophytic Vegetation Present? = Total Cover 50% of total cover: \_\_\_\_\_ 20% of total cover: Remarks: (Include photo numbers here or on a separate sheet.) A REAL MOUNT CHILARY, SOFT - EN THE

GETATION (Five Strata) – Use scientific	names of	plants.	Samp	oling Point:
	Absolute	Dominant Indicator	Dominance Test worksho	eet:
ee Stratum (Plot size:)	% Cover	Species? Status	Number of Dominant Spec	
			That Are OBL, FACW, or F	FAC: (A)
			Total Number of Dominant	
* ,			Species Across All Strata:	(B)
			Percent of Dominant Spec	ies
			That Are OBL, FACW, or	FAC: (A/B)
			Prevalence Index works	hoot
		= Total Cover	Total % Cover of:	
50% of total cover:	20% 0	of total cover:		
			OBL species	
apling Stratum (Plot size:)			FACW species	
			FACU species	
			UPL species	
			Column Totals:	(A) (B)
			Provolence Index	= B/A =
		Table Daniel	Hydrophytic Vegetation	
		_ = Total Cover		
50% of total cover: _	20%	of total cover:	1 - Rapid Test for Hy	
Shrub Stratum (Plot size:)			2 - Dominance Test	
1,			3 - Prevalence Index	
2			- 4 - Morphological Ad	daptations <sup>1</sup> (Provide supportion or on a separate sheet)
3.				hytic Vegetation <sup>1</sup> (Explain)
4			_ Froblematic Hydrop	ilydd Ydgoleddii (Enplany
5.			- Italiantors of buddle coil	and wetland hydrology must
6.			be present, unless distu	rbed or problematic.
G		_ = Total Cover	Definitions of Five Veg	
50% of total cover:				
	2070	or total cover	Tree - Woody plants, e.	xcluding woody vines,  i) or more in height and 3 in.
Herb Stratum (Plot size:)			(7.6 cm) or larger in dia	meter at breast height (DBH)
1-				
2			approximately 20 ft (6 n	s, excluding woody vines, n) or more in height and less
3			than 3 in. (7.6 cm) DBH	
4			- Woody plants	excluding woody vines,
5			approximately 3 to 20 ft	t (1 to 6 m) in height.
6			_	
7			Herb - All herbaceous	(non-woody) plants, including ardless of size, and woody
8			plants, except woody v	ines, less than approximately
9			ft (1 m) in height.	
10			Woody vine - All woo	dy vines, regardless of heigh
11				A TABLES AND THE ATTENDED
	-	= Total Cover		
50% of total cover	: 20	% of total cover:		
Woody Vine Stratum (Plot size:				
1				
2.				
3				
4				
5,		= Total Cover	Hydrophytic Vegetation	
	-		Present?	/es No
50% of total cove	er: 20	0% of total cover:		

Remarks: (include photo numbers here or on a separate sheet.)

			Redo	x Feature	c c	-,	n the absence of indicators.)	
(inches)	Color (moist)	%	Color (moist)	_ %	_Type1	_Loc2		
3-3	5710/1	95	5 YX 4/6	5	6	14	SUNTERY ROCK	
5-7	5/5.5/1	88	10 YR 4/6	10	-	M	Comp Action	
			10424/6	7	-	PI	24.05.45	
9-12	2.54 7/1	75	75465/8	-		01		
			The see of E				- 3/	
	_			-				
								-
a ta	hwest //	-						-
17	10 YE 4/6	100					Burkey	-
						_	- BUTROW 1	7012
Type: C=Co	oncentration, D=Dep	letion, RM	Reduced Matrix, MS	=Masked	Sand Cro		(37.37941, -83.86)	189
Jane Com	marcators.		The state of the	MIGGREG	Sand Gra	ins.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.	
_ Histosol			Dark Surface	(S7)			Indicators for Problematic Hydric So	ils <sup>3</sup> ;
	pipedon (A2)		Polyvalue Bel	ow Surfac	e (S8) (M	LRA 147.	2 cm Muck (A10) (MLRA 147)  148) Coast Prairie Redox (A16)	
_ Black His	stic (A3) n Sulfide (A4)		IIIII Dark Sur	Tace (S9)	(MLRA 1	47, 148)	(MLRA 147, 148)	
	Layers (A5)		Loamy Gleyer	d Matrix (F	2)		Piedmont Floodplain Soils (F19)	
	ck (A10) (LRR N)		Depleted Mate	rix (F3)			(MLRA 136, 147)	
_ Depleted	Below Dark Surface	(A11)	Depleted Dark	Surface (Ft	(C7)		Very Shallow Dark Surface (TF12)	
_ Thick Da	irk Surface (A12)		Redox Depres	sions (F8	(~1)		Other (Explain in Remarks)	
_ Sandy M	lucky Mineral (S1) (L	RR N,	Iron-Mangane	se Masse	s (F12) (L	RRN		
	(147, 148)		MLRA 136	)				
	leyed Matrix (S4) edox (S5)		Umbric Surfac	e (F13) (N	MLRA 136	, 122)	<sup>3</sup> Indicators of hydrophytic vegetation a	
	Matrix (S6)		Piedmont Floo	dplain So	ils (F19) (	MLRA 14	8) Wetland hydral-	and
outpped			Ned Parent M	aterial (F2	<ol> <li>(MLRA</li> </ol>	127, 147	unless disturbed or problematic.	
_ oripped estrictive L	ayer (if observed):				7.1		P. Tolliette.	
_ Stripped estrictive L Type:	ayer (if observed):				7 (		p sometic.	-
estrictive L	ayer (if observed):						7	
estrictive L Type: Depth (inc emarks:	ayer (if observed):	uy 501					Hydric Soil Present? Yes No	=
strictive L Type: Depth (incomarks:	ayer (if observed):	uy 500					Budden vo	
strictive L Type: Depth (inc marks:	ayer (if observed):	uy 501					Budden vo	

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region Project/Site: KY30 City/County: Jackson Sampling Date: Applicant/Owner: &11( State: & Y Sampling Point: W07 Investigator(s): MTG, IELS Section, Township, Range:\_ Landform (hillslope, terrace, etc.); Soil Map Unit Name: \_\_ NWI classification: Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_ (If no, explain in Remarks.) Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_\_ Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? No Is the Sampled Area Hydric Soil Present? Yes\_ No Wetland Hydrology Present? within a Wetland? Remarks: XWITLAND FRUIT ARRIVE PUND HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Surface Soil Cracks (B6) \_\_ True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) — Hydrogen Sulfide Odor (C1) Saturation (A3) \_\_\_ Drainage Patterns (B10) \_\_\_\_\_Oxidized Rhizospheres on Living Roots (C3) \_\_\_\_ Moss Trim Lines (B16) \_\_\_ Water Marks (B1) Presence of Reduced Iron (C4) \_\_\_ Sediment Deposits (B2) \_\_\_ Dry-Season Water Table (C2) Recent Iron Reduction in Tilled Soils (C6) \_\_ Drift Deposits (B3) \_\_ Crayfish Burrows (C8) \_\_ Thin Muck Surface (C7) \_\_\_ Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) \_\_ Other (Explain in Remarks) Stunted or Stressed Plants (D1) Iron Deposits (B5) \(\sqrt{\invasible}\) Inundation Visible on Aerial Imagery (B7) ✓ Geomorphic Position (D2) Water-Stained Leaves (B9) Shallow Aquitard (D3) Aquatic Fauna (B13) \_\_\_ Microtopographic Relief (D4) Field Observations: FAC-Neutral Test (D5) Surface Water Present? Yes \_\_\_\_ No \_\_\_\_ Depth (inches):\_ Water Table Present? / No \_\_\_\_ Depth (inches):\_\_ Saturation Present? No \_\_\_\_ Depth (inches):\_ (includes capillary fringe) Wetland Hydrology Present? Yes\_ Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

Number of Dominant Species That Are OBL, FACW, or FAC:  Total Number of Dominant Species Across All Strata:  Percent of Dominant Species That Are OBL, FACW, or FAC:  Prevalence Index worksheet:  Total % Cover of:  Multiply by:  OBL species  FACW species  FAC species  Y 2 =  FAC species  Y 4 =  UPL species  Column Totals:  (A)  Prevalence Index = B/A =  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supportine data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  FACW  PROBLEMAN  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:
Species Across All Strata:
Species Across All Strata:
Percent of Dominant Species That Are OBL, FACW, or FAC:    Prevalence Index worksheet:   Total % Cover of:   Multiply by:
That Are OBL, FACW, or FAC:
Total % Cover of:  OBL species
OBL species x 1 =
OBL species
FAC species x 3 =
FACU species x 4 =
UPL species x 5 =
UPL species x 5 =
Prevalence Index = B/A =  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supportindata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Prevalence Index = B/A =  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supportindata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supportindata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportine data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
T 2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
a 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)      Problematic Hydrophytic Vegetation¹ (Explain)  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)      Problematic Hydrophytic Vegetation¹ (Explain)  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
data in Remarks or on a separate sheet)  — Problematic Hydrophytic Vegetation¹ (Explain)  **PBU**  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  **FAC**  **TAC**  **T
Problematic Hydrophytic Vegetation¹ (Explain)  PROBL  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
FACO Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
be present, unless disturbed or problematic.
FAC B Significant Vegetation Strate:
FACIN Deminions of Four Vegetation office.
Tree - Woody plants, excluding vines, 3 in. (7.6 cm)
mare in diameter at breast neight (bbri), regardless
MC height.
Sapling/Shrub - Woody plants, excluding vines, less
than 3 in. DBH and greater than or equal to 3.28 ft (1
m) tall.
Herb – All herbaceous (non-woody) plants, regardles
ver of size, and woody plants less than 3.28 ft tall.
r: 19 Woody vine – All woody vines greater than 3.28 ft in
height.
4.3
Hydrophytic Vegetation
Descent2 Ves No
over Present? 105 110
er:
-

GETATION (Five Strata) – Use scientific	Absolute Dominant Indicator % Cover Species? Status	Dominance Test worksheet:  Number of Dominant Species That Are OBL, FACW, or FAC:(	(A)
		Percent of Dominant Species	(B) (A/B)
,, ,	= Total Cover 20% of total cover:	Prevalence Index worksheet:	-5
2		FACU species x 4 =	_ (B)
50% of total cover:		Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supdata in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Expla	

		That Are OBL, FACW, or FAC: (A/B)
	= Total Cover	Prevalence Index worksheet:
		Total % Cover of: Multiply by:
	20% of total cover:	OBL species x1 =
oling Stratum (Plot size;)		FACW species x 2 =
		FAC species x 3 =
		FACU species x 4 =
		- UPL species x 5 =
		- Column Totals: (A) (B)
		Prevalence Index = B/A =
	701000	Hydrophytic Vegetation Indicators:
	= Total Cover	1 - Rapid Test for Hydrophytic Vegetation
50% of total cover:	20% of total cover:	2 · Dominance Test is >50%
rub Stratum (Plot size:)		3 - Prevalence Index is ≤3.0¹
		4 - Morphological Adaptations¹ (Provide supporting
		data in Remarks or on a separate sneet)
		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
		Indicators of hydric soil and wetland hydrology must
	T-kd Court	be present, unless disturbed or problematic.
	= Total Cover	Definitions of Five Vegetation Strata:
50% of total cover:	20% of total cover:	Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size:)		approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
		Senting - Woody plants excluding woody vines.
3,		approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
4		
5,		Shrub - Woody plants, excluding woody vines,
5		approximately 3 to 20 ft (1 to 6 m) in height.
7		Herb - All herbaceous (non-woody) plants, including
8.		herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately
9.		ft (1 m) in height.
10		Woody vine – All woody vines, regardless of height.
11		WYOODLY VIIIE - All WOODLY VIIIes, regardless of Heights
10.	= Total Cover	
EOW of total cover	20% of total cover:	A 5 1
	1950 St. 05131 521310	
Woody Vine Stratum (Plot size:)		
1,		
2		
3		
4		
5	= Total Cover	Hydrophytic Vegetation
90.7. 4.9.9	1	Present? Yes No
50% of total cover:	20% of total cover:	

Profile Des	cription: (Describe	to the de	pth needed to docu	ment the	Indicator	22.22.5		Sampling Point:
			Redo	x Feature	muica(O)	or contin	m the absence	of indicators.)
_(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	_Loc²	Texture	A CONTRACTOR OF THE PROPERTY O
2-0	5/5/2	85	54R416	-		ni		Remarks
2-8	515/2	90	542 4/6			re	2	10% OLGANIC PIATERINI
8-12	5/5/1	98	- //	- 2		PL	50 3/64	1
	27071	-18	7.5 /1/6			PL		ra de la companya de
	-			2				
							-	
		-		-				
-		-						
70.00	7							
0-18	7,5 4 4/8							- Swar
		7		_				DUTADIN 7
¹Type: C=Co	oncentration D=Dec	lotion DM	Louis Commercial		-			37.400632, -83.84113
Hydric Soil I	ndicators:	letion, RM	=Reduced Matrix, MS	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL	=Pore Lining, M=Matrix
Histosol			5 1 5 1				Indica	tors for Problematic Hydric Soils3:
	ipedon (A2)		Dark Surface	(S7)			•	cm Muck (A10) (MLRA 147)
Black His			Polyvalue Be	low Surfac	ce (S8) (M	LRA 147,	148) Co	past Prairie Redox (A16)
Hydroge	n Sulfide (A4)		Thin Dark Sul Loamy Glaye	d Matrix (	(MLRA 1	47, 148)		(MLRA 147, 148)
Stratified	Layers (A5)		Depleted Mat	u Mainx (F	-2)		Pie	edmont Floodplain Soils (F19)
2 cm Mu	ck (A10) (LRR N)		Redox Dark S	Surface (Fi	6)			(MLRA 136, 147)
Depleted	Below Dark Surface	e (A11)	Depleted Dari	k Surface	(F7)		Ve	ry Shallow Dark Surface (TF12)
Thick Da	rk Surface (A12)		Redox Depre	ssions (F8	3)		Ot	her (Explain in Remarks)
Sandy M	ucky Mineral (S1) (L	RR N,	Iron-Mangane	se Masse	s (F12) (L	RR N		
	147, 148)		MLRA 136	i)				
Sandy B	leyed Matrix (S4) edox (S5)		Umbric Surfac	ce (F13) (F	MLRA 136	5, 122)	3Indic	cators of hydrophytic vegetation and
Stripped	Matrix (S6)		Pledmont Floo	odplain So	ils (F19) (	MI RA 14		and hydrology must be present,
Restrictive L	ayer (if observed):		Red Parent M	aterial (F2	(MLRA	127, 147	. A	ess disturbed or problematic.
Type:	-you (in observed).					-	100	e a problembuc.
Depth (inc	hanly							1
	nes);						Hydric Soil P	Present? Yes No
Remarks:	200						1000000000	resent? Yes No
* LOCKY	501L.							
								1
			8					
				-				
1								

### 405400 mont Region \_ Sampling Date: <u>9/11/</u>17 WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region Project/Site: ky 30 Applicant/Owner: KYTC State: WY Sampling Point: W06 Investigator(s): MJ ft , ELS Section, Township, Range: Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): \_\_\_\_\_\_\_AUK Subregion (LRR or MLRA): \_\_\_\_\_ Lat: 3 7.46 709 3 \_\_\_\_ Long: \_\_ 8 3.6 3.5 7 3 3 -\_\_\_ Soil Map Unit Name: \_\_\_ NWI classification: V Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.) Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \ Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Hydric Soil Present? Is the Sampled Area No Wetland Hydrology Present? within a Wetland? Remarks: XNETAND FRINGE AROUND POND HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) \_\_\_ Surface Soil Cracks (B6) \_\_ True Aquatic Plants (B14) High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Hydrogen Sulfide Odor (C1) Saturation (A3) \_\_\_ Drainage Patterns (B10) \_\_\_\_\_Oxidized Rhizospheres on Living Roots (C3) \_\_\_\_ Moss Trim Lines (B16) \_\_\_ Water Marks (B1) Presence of Reduced Iron (C4) \_\_\_ Sediment Deposits (B2) \_\_\_ Dry-Season Water Table (C2) Recent Iron Reduction in Tilled Soils (C6) \_ Drift Deposits (B3) \_\_ Crayfish Burrows (C8) \_\_ Thin Muck Surface (C7) \_\_\_ Saturation Visible on Aerial Imagery (C9) \_\_\_ Algal Mat or Crust (B4) Other (Explain in Remarks) \_\_\_\_ Stunted or Stressed Plants (D1) Jron Deposits (B5) ✓ Injundation Visible on Aerial Imagery (B7) ✓Geomorphic Position (D2) \_\_\_\_\_Water-Stained Leaves (B9) \_\_ Shallow Aquitard (D3) Aquatic Fauna (B13) \_\_\_ Microtopographic Relief (D4) \_\_ FAC-Neutral Test (D5) Field Observations: Surface Water Present? Yes \_\_\_\_ No \_\_\_\_ Depth (inches):\_ Water Table Present? Yes \_\_\_\_ No \_\_\_\_ Depth (inches): Saturation Present? No \_\_\_\_ Depth (inches): (includes capillary fringe) Wetland Hydrology Present? Yes Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point:\_ Dominance Test worksheet: Absolute · Dominant Indicator Tree Stratum (Plot size: \_ 30 / % Cover Species? Status Number of Dominant Species 10 V FAC (A) That Are OBL, FACW, or FAC: 1. ALER EVERUM 2. LIRIODENTRON TULIPFERA 5 Total Number of Dominant Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: = Total Cover OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_ 50% of total cover: \_\_\_\_\_\_\_\_\_ 20% of total cover: FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_ Sapling/Shrub Stratum (Plot size: 15 ) FAC species \_\_\_\_\_ x 3 = \_\_\_\_ 1. ACER LUBRUNI FACU species \_\_\_\_\_ x 4 = \_\_\_\_ 2. ACER NEGUNDO UPL species \_\_\_\_\_ x 5 = \_\_\_\_ Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.01 20 = Total Cover 4 - Morphological Adaptations (Provide supporting 50% of total cover: \_\_\_\_\_\_\_ 20% of total cover:\_\_\_ data in Remarks or on a separate sheet) Herb Stratum (Plot size: Problematic Hydrophytic Vegetation¹ (Explain) 1. TYPIA ANEUSTIONA DBL FACI 10 2. URTICA DIOICA Indicators of hydric soil and wetland hydrology must MACU be present, unless disturbed or problematic. FACU 4. JAMATIENS CAPENSIN Definitions of Four Vegetation Strata: 5. CORELIA CALDIENALIS FACO 2 Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or 10 6. CAREX SAP. more in diameter at breast height (DBH), regardless of height. Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless 65 = Total Cover 50% of total cover: 33 20% of total cover: / of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in Woody Vine Stratum (Plot size: \_\_\_\_\_) Hydrophytic Vegetation Present? = Total Cover 50% of total cover: \_\_\_\_\_ 20% of total cover: Remarks: (Include photo numbers here or on a separate sheet.)

EGETATION (Five Strata) – Use scientif	ic names of	plants.	
		Dominant	

Sampling Point:\_

e Stratum (Plot size:)	% Cover	Dominant Indicator Species? Status	Dominance Test worksh Number of Dominant Sper That Are OBL, FACW, or	cies	(A)
			Total Number of Dominan Species Across All Strata		(B)
			Percent of Dominant Spe That Are OBL, FACW, or	cies	(A/B)
		2	Prevalence Index works	heet:	
		= Total Cover	Total % Cover of:		y:
50% of total cover:	20% 0	f total cover:	OBL species		
pling Stratum (Plot size:)			FACW species		
	4000		FAC species		
			FACU species		
			UPL species		
			Column Totals:		
			Prevalence Index		
		= Total Cover	Hydrophytic Vegetation		7
50% of total cover:			1 - Rapid Test for H		on
hrub Stratum (Plot size:)			2 - Dominance Test		
nrub Stratum (Flot Size.			3 - Prevalence Inde		
				or on a separate s	heet)
			Problematic Hydrop	hytic Vegetation <sup>1</sup> (	Explain)
			Indicators of hydric soil	and wetland hydro	logy must
		Total Course	be present, unless distu		u.
		_ = Total Cover	Definitions of Five Ve	getation Strata:	
50% of total cover:)  Herb Stratum (Plot size:)			Tree – Woody plants, e approximately 20 ft (6 r (7.6 cm) or larger in dia	n) or more in height	t and 3 in.
1,			Sapling – Woody plant approximately 20 ft (6 in than 3 in. (7.6 cm) DBH	n) or more in heigh	vines, t and less
4 5			Shrub – Woody plants approximately 3 to 20	, excluding woody ft (1 to 6 m) in heigh	vines, nt.
6 7 8 9.			Herb – All herbaceous herbaceous vines, reg plants, except woody of t (1 m) in height.	ardless of size, and	woody
10			Woody vine - All woo	ody vines, regardles	s of height.
11					
		= Total Cover			
50% of total cover:	209	% of total cover:			
Woody Vine Stratum (Plot size:)					
1			_		
2					
3					
4			_		
5.			Hydrophytic		
		= Total Cover	Vegetation	uce 2.6-	
The second secon		0% of total cover:	Present?	Yes No_	

Sampling Point:	400

Depth	cription: (Describe Matrix	to the dep	needed to docu	ment the	Indicator	or confir	m the absence	sampling Point: &o(
(inches)	Color (moist)	%	Color (moist)	x Feature %	Type <sup>1</sup>	Loc2	Tank in	
0.2	7.544/2	45	75 YR 5/6	5	1	M	Texture	Remarks
	5/5/2	30					2000	1 30% DITE (365) QUESTINE AND 11
2-5	2545/1	89	101/25/6	1	-	N	T.	10%
					-	10/		1090 OK MILL WALTER
5-12	546/1	70	51K5/8	10	-	01	-	LEAF OUTTER
				10		PL	cul	
	-							
0-10	2,542 3/2	100		-	-			
						-		_ OUTPOINT
<sup>1</sup> Type: C=Co	oncentration, D=Dep	letion, RM=	Reduced Matrix, MS	S=Masked	Sand Cre		2,	37.407562, -83.83546/
	maioutora.		The state of the s	Masked	Sand Gra	ins.	*Location: Pl	L=Pore Lining, M=Matrix.
Histosol			Dark Surface	(87)			Indica	ators for Problematic Hydric Soils <sup>3</sup> :
Histic Ep	pipedon (A2)		Polyvalue Be	(ar)	- (00) /**		2	cm Muck (A10) (MLRA 147)
Black Hi	stic (A3)		Polyvalue Be Thin Dark Su	rface (SO)	e (58) (M	LRA 147,	148) C	oast Prairie Redox (A16)
Hydroge	n Sulfide (A4)		Loamy Gleye	d Matrix (F	(MLRA 1	47, 148)		(MLRA 147, 148)
Stratified	Layers (A5)		Depleted Mat	rio (Es)	-2)		Pi	iedmont Floodplain Soils (F19)
2 cm Mu	ick (A10) (LRR N)		Redox Dark S	iik (ra)	2)			(MLRA 136, 147)
Depleted	Below Dark Surface	e (A11)	Depleted Dar	burrace (F	o)		V	ery Shallow Dark Surface (TF12)
Thick Da	ark Surface (A12)	V /	Depleted Dar	K Surface	(F7)		0	ther (Explain in Remarks)
Sandy M	lucky Mineral (S1) (L	RRN	Redox Depre	ssions (F8	)			,
MLRA	147, 148)		Iron-Mangane	se Masse	s (F12) (L	RR N,		
	leyed Matrix (S4)		MLRA 136	)				
Sandy R	edox (S5)		Umbric Surface	e (F13) (N	VILRA 136	, 122)	3Indi	cators of hydrophytic vegetation and
Stripped	Matrix (S6)		Piedmont Floo	odplain So	ils (F19) (	MLRA 14		lland hydrology must be present,
	ayer (if observed):		Red Parent M	aterial (F2	1) (MLRA	127, 147		ess disturbed or problematic.
Type:								T. P. GOOTHERG.
Depth (inc	hes):		-				U-00 5.7	/
Remarks:							Hydric Soil I	Present? Yes V No
								· )
								13
				-				18
								131

### WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: KY 38	City/	County Ow SLEW		2/1/4
· pphodibowier. XIII				iling Date: 9/7/17
Investigator(s): MT(n, KL)  Landform (hillslope, terrace, etc.):		X Gar Tour 14 /	State:KY Sar	mpling Point: W05
Landform (hillslope, terrace, etc.):	Sect	tion, Township, Range:_		7.7
Subregion (LRR or MLRA):	Local re	elief (concave, convex, r	ione): _Concauts	Slope (%): < /
Subregion (LRR or MLRA):  Soil Map Unit Name:	_ Lat: _3 7. 424 38 6	Long:	83.814593	Datum: ~AD 6
and the second of the second o				the second second
Are climatic / hydrologic conditions on the site ty  Are Vegetation, Soil or Hydrolog	pical for this time of year?	Vac . / M	(If no, explain in Remarks	
	Significantly dieta	rhada A	al Circumstances	
Are vegetation, Soil, or Hydrolog	IY naturally problem	natic?	al Circumstances" present	
SUMMARY OF FINDINGS - Attach s	ite man showing	(ii fieeded,	explain any answers in Re	emarks.)
SUMMARY OF FINDINGS - Attach s	ne map showing sar	npling point locati	ions, transects, impo	ortant features, et
rydrophlytic vegetation Present? Yes	No			
	No_	Is the Sampled Area		
Wetland Hydrology Present? Yes _	No	within a Wetland?	Yes No	
(USF OLD OU FOR APPRAKA)	OF TO 2015 512	251 Sec 216	Des Valley	
( cet out ou fan -)	200	- X 200 60/18	CATTER MY	AY USE FIRED
IVDDO: 5.51			24	
TYDROLOGY				
Wetland Hydrology Indicators:			Conned- 1 C	
Primary Indicators (minimum of one is required:	check all that apply)		Secondary Indicators (min	nimum of two required)
Surrace Water (A1)	True Aquatic Plants (	B14)	Surface Soil Cracks (	
High Water Table (A2) Saturation (A3)	Hydrogen Sulfide Od		<ul> <li>Sparsely Vegetated (</li> <li>Drainage Patterns (B</li> </ul>	Concave Surface (B8)
Water Marks (B1)	✓ Oxidized Rhizosphere	es on Living Roots (C3)	Moss Trim Lines (B1)	
Sediment Deposits (B2)	— Presence of Reduced	Iron (C4)	Dry-Season Water Ta	
Drift Deposits (B3)	Recent Iron Reductio	n in Tilled Soils (C6)	Crayfish Burrows (C8	ible (C2)
Algal Mat or Crust (B4)	Thin Muck Surface (C	27)	Saturation Visible on	Aerial Imagen/ (Co)
Iron Deposits (B5)	Other (Explain in Ren	narks)	/Stunted or Stressed F	Plants (D1)
Inundation Visible on Aerial Imagery (B7)			Geomorphic Position	(D2)
Water-Stained Leaves (B9)			Shallow Aquitard (D3)	
Aquatic Fauna (B13)			Microtopographic Reli	ief (D4)
Field Observations:			FAC-Neutral Test (D5	)
Surface Water Present? Yes No	Depth (inches): <	14		
Water Table Present? Yes V No	Depth (inches):	-71		
Saturation Present? Yes V No.	Depth (inches): (	7		1
Includes capillary tringe)		Wetland H	lydrology Present? Yes	/ No
Describe Recorded Data (stream gauge, monitor	ing well, aerial photos, prev	ious inspections), if ava	ilable:	
Remarks:				

Absolute   Dominant Indicator   Species   Status   Species   Status   Number of Dominant Species   That Are OBL. FACW, or FAC:   That Are OBL. FACW, or FA	Sampling Point:		olants.	GETATION (Four Strata) - Use scientific names of plants.			
Seriatum (Plot size: 30 / 30 / 30 / 30 / 30 / 30 / 30 / 30	ndicator   Dominance Test worksheet:	Indicator 1			OLIMITOR (1 DEL DELEM)		
### ACCEPTION PROPERTY OF TOTAL COVER SONS of total cover:   10	Circum				ee Stratum (Plot size: 30 / )		
Total Number of Dominant Species That Are OBL, FACW, or FAC:  ### Total Cover   Factor   ### Total Cover   ### Total Cov	Married of Bornman - Paris	100 A 27 A 27 A	V	1,000,000,000,000	CALLET CALCULA		
Total Number of Deminant Species Total Cover S	EAC		-/	10	SILLY WIGHT		
Percent of Dominant Species That Are OBL_FACW, or FAC: Total Cover  50% of total cover:  70 20% of total cover:  80 20% of total cover:  90% of total cover:	Total Number of Dominant				NEER RUBAUM		
That Are OBL, FACW, or FAC:  ### Total Cover   Total Scover of: Multiply by: OBL Scover of: OBL Scover of: Multiply by: OBL Scover of: OBL Scover of: Multiply by: OBL Scover of: O	Species Across All Strata: (B)	FILO			PLATANOS OCCIDENTALLS		
That Are OBL. FACW, or FAC:  ### Total Cover   Frevalence Index worksheet:    Total % Cover of:	Percent of Dominant Species 100	-					
Prevalence Index worksheet: Total & Cover of: Total Cover  Solve of total cover:  Solve of		3					
Total Scover of:    Multiply by:   OBL species   X 1 =     FACV species   X 2 =     FACV species   X 3 =     FACV species   X 4 =     UPL species   X 5 =     Column Totals   X =     UPL species   X 5 =     Column Total day in species   X 5 =     UPL species   X 5 =     Column Total day in species   X =     UPL species   X 5 =     Column Total species   X =     UPL							
Total Cover							
Solve of total cover: 20 20% of total cover: 6  apling/Shrub Stratum (Plot size: 15	Total % Cover of: Multiply by:	int.	Total Cau	40			
FACW species   X 2 =   FACW species   X 3 =   FACW species   X 4 =   I				The second second	EGG(1-E1-1-1-)		
### PAC Species   X3 =   FAC Species   X4 =   UPL species   X4 =   UPL species   X4 =   UPL species   X4 =   UPL species   X5 =   Column Totals:   (A)   Prevalence Index = B/A =   Hydrophytic Vegetation Indicators:   1 · Rapid Test for Hydrophytic Vegetation   Y2 · Dominance Test is -50%   3 · Prevalence Index is -50%   3 · Prevalence Index is -50%   4 · Morphological Adaptations   (Provide sidate in Remarks or on a separate shee   Problematic Hydrophytic Vegetation   (Exp. Vegetation   Vegetat	O The state of the		total cover.	/er: 20% 0	50% of total cover: _		
FACU species	200	Tak	/		apling/Shrub Stratum (Plot size: 75		
UPL species x 5 = Column Totals: (A)  Prevalence Index = B/A = Hydrophytic Vegetation Indicators:  1. Appropriate Vegetation Indicators:  2. Facility Comminance Test is >50%  3. Prevalence Index is \$3.0'  2. Facility Comminance Test is >50%  3. Prevalence Index is \$3.0'  4. Morphological Adaptations' (Provide stream of the Marks or on a separate shee problematic Hydrophytic Vegetation' (Exp. 1)  2. Facility Comminance Test is >50%  3. Prevalence Index is \$3.0'  4. Morphological Adaptations' (Provide stream of the Marks					ACER RUBOUM		
Column Totals:		OBL					
Prevalence Index = B/A =  Hydrophytic Vegetation Indicators:  1. Rapid Test for Hydrophytic Vegetation  2. Dominance Test is >50%  3. Prevalence Index is \$3.0'  4. Morphological Adaptations? (Provide side in Remarks or on a separate shee Problematic Hydrophytic Vegetation (Exp.  1. Supplies Trav.)  2. EVENTOURN PREMISSION S.  3. SULDAGO SAR.  4. CUTA MACULATA  5. FLECKHUIS OBTUSA  5. FLECKHUIS OBTUSA  6. SELDAGO KLECHUTEA  7. FURDINIAN PREMISSION  8. CARETY NEURONISA  9. CARETY NEURONISA  9. CARETY NEURONISA  10. FSTULASAR  11. HILDSTEBURN WARTUM  5. TOTAL Cover  50% of total cover:  4. Woody Vine Stratum (Plot size:  11.  12.  3.  4.  4.  5. — Total Cover  20% of total cover:  20% of total cover:  4. Woody Vine Stratum (Plot size:  50% of total cover:  20% of total cover:  20% of total cover:  4. Woody Vine Stratum (Plot size:  50% of total cover:  20% of total cover:  20% of total cover:  4. Hydrophytic Vegetation Indicators:  4. Morphological Adaptations? (Provide strata heap repositions) (Exp.  5. Morphological Adaptations? (Provide strata heap repositions) (Exp.  6. Selections (Provide strata heap rep							
Frevalence Index = B/A = Hydrophytic Vegetation Indicators:  1. Rapid Test for Hydrophytic Vegetation Indicators:  2. Definitions of Four Vegetation Indicators:  2. Definitions of Four Vegetation Indicators:  3. Prevalence Index is \$3.0'  4. Morphological Adaptations! (Provide side at Remarks or on a separate shee Problematic Hydrophytic Vegetation Indicators:  3. Prevalence Index is \$3.0'  4. Morphological Adaptations! (Provide side at Remarks or on a separate shee Problematic Hydrophytic Vegetation Free Probl	Column Totals: (A) (B)	J. ==					
Hydrophytic Vegetation Indicators:  1. Rapid Test for Hydrophytic Vegetation  2. Dominance Test is >50%  3. Prevalence Index is \$3.0\  4. Morphological Adaptations\(^1\) (Provide side in Remarks or on a separate shee Problematic Hydrophytic Vegetation\(^1\) (Exp.  3. SULTANGO SAP.  4. CIUTA MACULATA  5. FLEOCHMUS OBTUSA  6. SPLENGE OF MERITANA  7. TUROUSHUM PREFULE MA  8. CAPTY WULPARA S  9. CAPTY WULPARA S  10. FESTURA SAP.  11. MICHAELEMAN WARMAN S  50% of total cover:  4. Woody Vine Stratum (Plot size:  1. Mydody Vine Stratum (Plot size:  50% of total cover:  50% of total cover:  20% of total cover:  50% of total cover:  20% of total cover:  20% of total cover:  20% of total cover:  20% of total cover:  4. Hydrophytic Vegetation Indicators:  4. Morphological Adaptations\(^1\) (Provide side in Remarks or on a separate shee Problematic Hydrophytic Vegetation\(^1\) (Exp.  4. Morphological Adaptations\(^1\) (Exp.  4. Morphological Adaptations\(^1\) (Provide side in Remarks or on a separate shee Problematic Hydrophytic Vegetation\(^1\) (Exp.  5. FLEOCHMUS OB PROVIDE OF TOTAL OB PROVIDE OF TO	\$1,000 minutes \$10.000		-				
1. Rapid Test for Hydrophytic Vegetation   2. Dominance Test is >50%   3. Prevalence Index is \$3.0\]   1. Supplementary   2. Dominance Test is >50%   3. Prevalence Index is \$3.0\]   1. Supplementary   2. Supplementary   4. Morphological Adaptations\] (Provide Stream   4. Morphological Adaptations\] (Exp. Problematic Hydrophytic Vegetation\] (Exp.		-	-				
2 - Dominance Test is >50%  3 - Prevalence Index is \$3.0\footnote of total cover:  50% of total cover:  20% of total cover:  3 - Prevalence Index is \$3.0\footnote of total cover:  4 - Morphological Adaptations\footnote (Provide state in Remarks or on a separate sheet of the data in Remarks or on a		-					
2 - Dominance Test is >50%  3 - Prevalence Index is \$3.0¹  4 - Morphological Adaptations¹ (Provide side in Remarks or on a separate sheet of the statum (Plot size:							
3. Prevalence Index is \$\( \) 4. Morphological Adaptations <sup>1</sup> (Provide so data in Remarks or on a separate shee Problematic Hydrophytic Vegetation <sup>1</sup> (Exp. Problematic Hydrophytic Vegetation <sup>1</sup> (Exp. Problematic Hydrophytic Vegetation Present? Prevalence Index is \$\( \) 4. Morphological Adaptations <sup>1</sup> (Provide so data in Remarks or on a separate shee Problematic Hydrophytic Vegetation Present? Problematic Hydrophytic Hydrophytic Hydrophytic Hydrophytic Hydrophytic		-					
### Stratum (Plot size: 50% of total cover: 20% of total cover: 3							
Sow of total cover: 20% of total cover: data in Remarks or on a separate shee data in Remarks or on a separate shee Problematic Hydrophytic Vegetation' (Exp. 2 FUPNIOLUM PRAINE TUM) 20 FACU 1. SOULTAGO SRIV. 5 VOBL 5. FLEOCHAUS OBTUSH 20 FOLLAND SOULTAGO SRIV. 5 VOBL 5. FLEOCHAUS OBTUSH 20 FOLLAND SOULTAGO SCIENTIFIC TO THE TOTAL SOULTAGO SOUL		over	= Total Co		· .		
Herb Stratum (Plot size: 5 )  1. Super Stratum (Plot size: 5 )  2. SUPPROBLEM PERSONATUM 10 V FACTOR 10 SAP. 5	_ 4 - Morphological Adaptations (Fronde sapporari				50% of total cover:		
1. Supplied FIGURE 2. EVENTION PREFIGENTUM 3. SOUTH ACCUSTA MACULATA 4. CICUTA MACULATA 5. FLEOCIMEIS OBTUSA 6. SPENAGO REGARTITH 7. FUTPOCHIUM PREFIGENT 8. CARTI V VULPINA CARREL 9. CARTI V VULPINA CARREL 10. FESTIVE SIP. 11. MICROSTEBUM VIMINATION 5. FOR STOCK SIP. 11. MICROSTEBUM VIMINATION 5. FOR STOCK SIP. 12. SOW of total cover: 49  Woody Vine Stratum (Plot size:) 5.0% of total cover:	data in Remarks of our a separate sheet)						
2 FUPTIONUM PREFULATUM 3. SOUTDAGO SAM. 5. JOBL Definitions of hydric soil and wetland hydrolog be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 in. (7 FUTE COLLIEUT OF THE STOCK SAME SONG OF total cover: 48  SAPITAL SAME SONG OF total cover: 48  Woody Vine Stratum (Plot size: )  1. Modes Tree woody plants, with warm of size, and woody plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.  Herb - All herbaceous (non-woody) plants, regardled to 3 m) tall.	Problematic Hydrophytic Vegetation' (Explain)	FACU	1	7.0			
3. SOUTHALO SAL. 4. CRUTH MACULATA 5. FLEOCHAUS OBTUSA 5. FLEOCHAUS OBTUSA 6. SPLEAGE V BULPALO & CRANTER 7. FURGORIUM PREPAREM 5							
be present, unless disturbed or problematic.  4. CRUTH MACULATA  5. FLEOCHAUS OBTUSH  6. SPURAGO GUGANTEH  7. FURCOCHUM PURPUSHM  8. CARE V WULPING DEP  9. CARE V SULPING DEP  10. FESTUL SIP.  11. MICROSTIEBUM MINITUM  50% of total cover: 49 20% of total cover: 49  Woody Vine Stratum (Plot size:)  1	Indicators of hydric soil and wetland hydrology must	- 77100	_ <u>_ v</u>				
Definitions of Four Vegetation Strata:  5. FLEOCHADIS OBTUSA  6. SOLIDABO GLEANTISM  7. FURDOCHUM PREPUBLIAM  8. CARTY NULPHURITH  9. CARTY NULPHURITH  10. FRICAL  13. MOODY Vine Stratum (Plot size:  11. MOODY Vine Stratum (Plot size:  12. 3. 4. 5. 50% of total cover:	be present, unless disturbed or problematic.				3. SULIDAGO SAL.		
5. FLEOCHACIS OBTUSH 6. SOLDAGO & LEAWTER 7. FURDICINA PROPERM 8. CARTY VOURING SER 9. CARTY SOR 10. FETULA SAR 11. MICROSTIE BUSIN VINITUM 5 Total Cover:  50% of total cover:  1. 2. 3. 4. 50% of total cover:			Α		4. CICUTA MACULATA		
6. SOLIDAGO & CGANTER 70 FACTOR 71 FOR THE WOODY PLANT OF THE PROPERTY OF THE	036	036		5	5 ELFOCHACIS OBTUSA		
1. Full out turn Prepared 5 FAC height.  8. Melit V Vou Propriet Sep. 5	1 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			10			
8. TARTY WULFARD DE A  9. CARTY BULFARD DE A  10. FESTUCA SAP.  11. HIGHSTIEBUM VIMINALIA  50% of total cover: 48 20% of total cover; 49  Woody Vine Stratum (Plot size:)  1		FAC					
Sapling/shrub - woody plants, excluding virtuan 3 in, DBH and greater than or equal to 3 m) tall.  11. Higgsttiebum viminari 5 Facus  50% of total cover: 4 20% of total cover: 4 Woody Vine - All herbaceous (non-woody) plants, recommendation of size, and woody plants less than 3.28 ft tall woody vine - All woody vines greater than theight.  1	dal				1. FULLOWING CORPORE		
10. FESTUR SRP.  11. HIGOSTIEBUM VIMINAVIA  5					8. MERY BULFINGIDE		
10. FESTOR IN INTERIOR INTERIO	than 3 in, DBH and greater than or equal to 3.28 ft (1						
Herb – All herbaceous (non-woody) plants, re of size, and woody plants less than 3.28 ft tall woody Vine Stratum (Plot size:)  1					10. FESTUCA SPP.		
So% of total cover: of size, and woody plants less than 3.28 ft tal  Woody Vine Stratum (Plot size:)  1		TACA		1 5	11 MICESTIFBUM UMINAUNI		
Solid cover:		over.	= Total C	95			
Woody Vine Stratum (Plot size:)         Woody Vine - All woody Vines greater than height.           1	101	rer: / 9	of total cov		50% of total cove		
1	Woody Vine - All Woody Vines greater than 3.25 it is	307-4					
3	Height.			/	Woody Vine Stratum (Plot Size:		
3	- <del></del>		_,		1		
4		_			2		
5 = Total Cover	<del></del>	<u> </u>			3		
5 = Total Cover	- Hydrophytic				4.		
= Total Cover   Present?   Yes   No     50% of total cover:   20% of total cover:	Vegetation						
50% of total cover: 20% of total cover:	Dencont2 Yes No	Cover	= Total (		**-		
				cover: 20°	50% of total cove		
Remarks: (Include photo numbers here or on a separate sheet.)		1000	80001000000000	Tribute Tribute 1			
				n a Separate Sheet.)	Remarks: (Include photo numbers here or on a s		
					N.		
					Y .		
					1		
A .							
					1		

EGETATION (Five Strata) – Use scientific  Tree Stratum (Plot size:)	Absolute Dominant Indicator % Cover Species? Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC:	(A)
1		Total Number of Dominant Species Across All Strata:	(B)
4 5		Percent of Dominant Species That Are OBL, FACW, or FAC:	(A/B)
6	= Total Cover	Prevalence Index worksheet Total % Cover of:	
50% of total cover: Sapling Stratum (Plot size:)	20% of total cover:	OBL species	
12,		FAC species	
3		UPL species	x 5 =
5		Prevalence Index = B/A	· #
50% of total cover:	= Total Cover 20% of total cover:	Hydrophytic Vegetation Ind 1 - Rapid Test for Hydrop 2 - Dominance Test is >5	hytic Vegetation
Shrub Stratum (Plot size:)  1 2.		3 - Prevalence Index is ≤	3.0 <sup>1</sup> Itions <sup>1</sup> (Provide supporting
3 4		data in Remarks or or Problematic Hydrophytic	
5,		Indicators of hydric soil and be present, unless disturbed	wetland hydrology must or problematic.
1	= Total Cover	Definitions of Five Vegetat	ion Strata:

- t <sup>2</sup> - y.		Total Number of Dominant Species Across All Strata:(B)
		Percent of Dominant Species
		That Are OBL, FACW, or FAC: (A/B)
	= Total Cover	Prevalence Index worksheet:
	20% of total cover:	Total % Cover of: Multiply by:
		OBE Species
oling Stratum (Plot size:)		FACW species x 2 =
		FAC species x 3 =
		FACU species x 4 =
		UPL species x 5 =
		Column Totals: (A) (B)
		Prevalence Index = B/A =
	= Total Cover	Hydrophytic Vegetation Indicators:
Land to the state of the state		Desid Test for Underghytin Vagotation
	20% of total cover:	2 - Dominance Test is >50%
rub Stratum (Plot size:)		3 - Prevalence Index is ≤3.0¹
		4 - Morphological Adaptations (Provide supporting
		data in Remarks or on a separate sheet)
		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
		Indicators of hydric soil and wetland hydrology must
		<ul> <li>be present, unless disturbed or problematic.</li> </ul>
	= Total Cover	Definitions of Five Vegetation Strata:
9070 97 10107 007 01		Tree - Woody plants, excluding woody vines,
erb Stratum (Plot size:)		approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
erb Strátum (Plot size:)		approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines,
erb Stratum (Plot size:)		approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
erb Stratum (Plot size:)		approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately
erb Stratum (Plot size:)		approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ift (1 m) in height.
erb Stratum (Plot size:)		approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.
erb Stratum (Plot size:)		approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.
erb Stratum (Plot size:)	= Total Cover	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.  Woody vine — All woody vines, regardless of height.
erb Stratum (Plot size:)  0. 1: 50% of total cover:		approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.  Woody vine — All woody vines, regardless of height.
erb Stratum (Plot size:)	= Total Cover	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.  Woody vine — All woody vines, regardless of height.
erb Stratum (Plot size:)	= Total Cover	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.  Woody vine — All woody vines, regardless of height.
erb Stratum (Plot size:)	= Total Cover 20% of total cover:	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.  Woody vine — All woody vines, regardless of height.
erb Stratum (Plot size:)	= Total Cover = Total cover:	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.  Woody vine — All woody vines, regardless of height.
Stratum (Plot size:)	= Total Cover 20% of total cover:	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.  Woody vine — All woody vines, regardless of height.
erb Stratum (Plot size:)	= Total Cover 20% of total cover:	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub — Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb — All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.  Woody vine — All woody vines, regardless of height.
Stratum (Plot size:)	= Total Cover 20% of total cover:	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately if (1 m) in height.  Woody vine – All woody vines, regardless of height.

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LIDCHAE)	Matrix Color (moist)		_	Redo	ox Feature	s	2 2211111	ii tile duselle	e of indicators.)
(inches)	5¥ 4/1	90		(moist)	%_	_Type <sup>1</sup> _	_Loc <sup>2</sup>	Texture	Remarks
0-2	37 7/1	_ 10_	2.5 7	4/4	_5_		PL		Rocky
0-2	EMAGE		OYR	3/2	5		PL	Clan	1
7-17	215/2	90	SYR	46	10		PL	clas	
					_				
0-10	104R 4/3		-				_		
0 10	wik // )	100			-				OUTPOINT
	-								(37.424233, -83.8148
Гуре: C=Co	ncentration, D=De	pletion, RM=	Reduced	Matrix Ms	S=Masked	Sand Carl		2,	
ydric Soil I _ Histosol	indicators.			TYTCH IX, IVIC	J-Maskeu	Sand Grai	ns.	*Location: P	L=Pore Lining, M=Matrix. ators for Problematic Hydric Solls <sup>3</sup> :
Depleted Thick Dan Sandy Mi MLRA Sandy Gl Sandy Re Stripped	ck (A10) (LRR N) Below Dark Surface rk Surface (A12) ucky Mineral (S1) ( 147, 148) eyed Matrix (S4) edox (S5) Matrix (S6)	LRR N,	De Re Iron Um Pie	MLRA 136 bric Surfa dmont Flo	k Surface ssions (F8 ese Masse 3) ce (F13) (I odplain So	(F7)	, 122) MI RA 14:	C <sup>3</sup> Ind 8) we	(MLRA 136, 147) (ery Shallow Dark Surface (TF12) (ther (Explain in Remarks) (icators of hydrophytic vegetation and tland hydrology must be present,
estrictive L	ayer (if observed)	1		a r arent iv	iaterial (F2	(MLRA	127, 147	) uni	less disturbed or problematic.
			_						
Type:								Hydric Soil	Present? Yes No
	nes);								
Type: Depth (incl	nes);								
Type: Depth (incl	nes);								
Type: Depth (incl	nes);								
Type: Depth (incl	nes);								
Type: Depth (incl	nes);								

## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site; KY30			, and Fledinon	t Region
Applicant/Owner: 4416	City	(County: OWSLE)	/ Sa	ampling Date: 9/4/17
Investigator(s): MJ6, ELS			State:	Sampling Point 6/0 C
(	Sec	tion, Township, Range:		
Subregion (LRR or MLRA):Soil Map Unit Name:	Local re	elief (concave, convex, i	none): concavic	Slope (%)
Soil Map Unit Name:	Lat:1.93330	9 Long: _	83.808617	Datum: MTO 8
			NWI classificatio	
Are climatic / hydrologic conditions on the	site typical for this time of year?	Yes No	(If no, explain in Rema	
Are Vegetation, Soil, or H	ydrology significantly distu		nal Circumstances" prese	ant? Van
Are Vegetation, Soil, or H	/drology naturally problem	natic? (If needed	, explain any answers in	No_
SUMMARY OF FINDINGS - Att	ach site map showing sar	mpling point locat	ione to	Remarks.)
SUMMARY OF FINDINGS – Att	. /	The point local	ions, transects, in	iportant features, e
Hydric Soil Present?	Yes No	Is the Sampled Area		
Wetland Hydrology Present?		within a Wetland?	Yes	XI.
Remarks:		1	les	No
POND WINETIAND FI	UNIF			
			3 -	
IYDROLOGY				
Wetland Hydrology Indicators:				
Primary Indicators (minimum of one is red	Tuired, chapte all the		Secondary Indicators (	minimum of two required
✓ Surface Water (A1)			Surface Soil Crack	(S (B6)
High Water Table (A2)	True Aquatic Plants (	B14)		d Concave Surface (B8)
Saturation (A3)	Hydrogen Sulfide Odd     Oxidized Bhisser	or (C1)	Drainage Patterns	(B10)
Water Marks (B1)	Presence of Poduce	es on Living Roots (C3)	Moss Trim Lines (F	316)
Sediment Deposits (B2)	Presence of Reduced	I Iron (C4)	Dry-Season Water	Table (C2)
Drift Deposits (B3)	Recent Iron Reduction Thin Muck Surface (C	11 III 1 IIIea Solls (C6)	Grayfish Burrows (	C8)
Algal Mat or Crust (B4)	Other (Explain in Rem	narke)	Saturation Visible	on Aerial Imagery (C9)
Iron Deposits (B5)		iding)	Stunted or Stresse	d Plants (D1)
	B7)		Geomorphic Positio	on (D2)
Aquatic Fauna (B13)			Shallow Aquitard (I	03)
ield Observations:			<ul><li>Microtopographic F</li><li>FAC-Neutral Test (</li></ul>	Relief (D4)
	11-11-11	71	recurrent rest (	00)
Mator Telle D	No Depth (inches):			
Saturation Present?	No V Depth (inches):			4
ncludes capillary fringe)	No Depth (inches):	Wetland H	ydrology Present? Y	es No
Pescribe Recorded Data (stream gauge, n	nonitoring well, aerial photos, prev	ious inspections) is	, s, . / [	es No
emarks:	process process	reds inspections), if avai	lable:	
- Mario	17			

Dominant Species?  Total Cover  Total Cover		Dominance Test worksheet:  Number of Dominant Species That Are OBL, FACW, or FAC:  Total Number of Dominant Species Across All Strata:  Percent of Dominant Species That Are OBL, FACW, or FAC:  Prevalence Index worksheet:  Total % Cover of:  OBL species FACW species FACW species FACU species  Y 2 = FAC upl species  Column Totals:  Prevalence Index = B/A = Hydrophytic Vegetation Indicator 2 - Dominance Test is >50%	ors:	(B)
= Total Cover	ver ::	That Are OBL, FACW, or FAC:  Total Number of Dominant Species Across All Strata:  Percent of Dominant Species That Are OBL, FACW, or FAC:  Prevalence Index worksheet:  Total % Cover of:  OBL species	Multiply by:	(B) (A/B)
= Total Cover	ver :	Percent of Dominant Species That Are OBL, FACW, or FAC:  Prevalence Index worksheet:  Total % Cover of:  OBL species  FACW species  FAC species  FACU species  VA =  UPL species  Column Totals:  Prevalence Index = B/A =  Hydrophytic Vegetation Indicator  1 - Rapid Test for Hydrophytic	Multiply by:	(A/B)
= Total Cover	ver	Percent of Dominant Species That Are OBL, FACW, or FAC:  Prevalence Index worksheet:  Total % Cover of:  OBL species  FACW species  FAC species  FACU species  VA =  UPL species  Column Totals:  Prevalence Index = B/A =  Hydrophytic Vegetation Indicator  1 - Rapid Test for Hydrophytic	Multiply by:	- - - - - (B)
= Total Cover	ver	Prevalence Index worksheet:           Total % Cover of:         N           OBL species         x 1 =           FACW species         x 2 =           FAC species         x 4 =           UPL species         x 5 =           Column Totals:         (A)           Prevalence Index         = B/A =           Hydrophytic Vegetation Indicator         -           - 1/- Rapid Test for Hydrophytic	ors:	- - - - - (B)
= Total Cover		OBL species       x 1 =         FACW species       x 2 =         FAC species       x 3 =         FACU species       x 4 =         UPL species       x 5 =         Column Totals:       (A)         Prevalence Index       = B/A =         Hydrophytic Vegetation Indicato         - 1/- Rapid Test for Hydrophytic	ors:	_ _ _ _ (B)
total cover		FACW species x 2 = FAC species x 3 = FACU species x 4 = UPL species x 5 = Column Totals: (A)  Prevalence Index = B/A = Hydrophytic Vegetation Indicato	e e e e e e e e e e e e e e e e e e e	_ _ _ _ (B)
= Total Co		FACW species x 2 = FAC species x 3 = FACU species x 4 = UPL species x 5 = Column Totals: (A)  Prevalence Index = B/A = Hydrophytic Vegetation Indicato	e e e e e e e e e e e e e e e e e e e	_ _ _ _ (B)
= Total Co		FAC species x 3 =  FACU species x 4 =  UPL species x 5 =  Column Totals: (A)  Prevalence Index = B/A =  Hydrophytic Vegetation Indicato  1/- Rapid Test for Hydrophytic	= = = ors:	_ _ _ (B)
= Total Co		FACU species x 4 = UPL species x 5 = Column Totals: (A)  Prevalence Index = B/A =  Hydrophytic Vegetation Indicato 1/- Rapid Test for Hydrophytic	e e e e e e e e e e e e e e e e e e e	(B)
= Total Co		UPL species x 5 = Column Totals: (A)  Prevalence Index = B/A =  Hydrophytic Vegetation Indicato	ors:	(B)
= Total Co		Column Totals: (A)  Prevalence Index = B/A = _  Hydrophytic Vegetation Indicato  1 - 1/- Rapid Test for Hydrophytic	ors:	(B)
= Total Co		Prevalence Index = B/A =	ors:	
= Total Co		Hydrophytic Vegetation Indicato	ors:	-1
= Total Co		- 1 - Rapid Test for Hydrophytic		
= Total Co			Vegetation	
= Total Co		- 2 - Dominance Test is >50%		
= Total Co				
= Total Co		3 - Prevalence Index is ≤3.01		
Contract Contract	over	4 - Morphological Adaptations	1 (Provide su	pportir
of total cove	er:	data in Remarks or on a se		
V	086	Problematic Hydrophytic vegi	ctation (cxbi	anny
	FALL	W	osa esales(esa	- married
	031	Indicators of hydric soil and wells	and nydrology roblematic	/ must
-		te present, unicas distarbed or pr		
-			Strata:	
	0	<ul> <li>Tree – Woody plants, excluding was more in diameter at breast height</li> </ul>	vines, 3 in. (7. (DBH), rega	.6 cm) rdless
			. Seal do som	Se
		than 3 in. DBH and greater than	excluding vin or equal to 3.	es, les .28 ft (1
		-	4.6.10.10.10	بدالد د د
		of size, and woody plants less th	idy) plants, re ian 3.28 ft tall	gardie:
of total co	ver: <u>/</u> 8	Woody time - rai woody times g	greater than 3	.28 ft i
4		- Indigna		
7		=1.		
	-1			
			/	
	Court	Present? Yes	No	-
% or total co	over:	ent l		_
	= Total co	= Total Cover	Indicators of hydric soil and wetle be present, unless disturbed or problem of the present, unless disturbed or present	Indicators of hydric soil and wetland hydrology be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7, more in diameter at breast height (DBH), regard height.  Sapling/Shrub – Woody plants, excluding vintan 3 in. DBH and greater than or equal to 3. m) tall.  Herb – All herbaceous (non-woody) plants, resof size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3 height.  Hydrophytic Vegetation Present? Yes No

ETATION (Five Strata) – Use scientific n	anies of plants.	Dominance Test worksheet:
e Stratum (Plot size:)	Absolute Dominant Indicator % Cover Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC:(A)
t v		Total Number of Dominant Species Across All Strata:(B)
		Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
	= Total Cover	Prevalence Index worksheet:  Total % Cover of:  Multiply by:
50% of total cover	20% of total cover:	OBL species x1 =
oling Stratum (Plot size:)		FACW species x 2 =
pling Stratum (Flot Size:		FAC species x3 =
		FACU species x 4 =
		- UPL species x 5 =
		Column Totals: (A) (B)
		Prevalence Index = B/A =
	= Total Cover	Hydrophytic Vegetation Indicators:
		Boold Tost for Hydronbytic Venetation
	20% of total cover:	2 - Dominance Test is >50%
nrub Stratum (Plot size:)		3 - Prevalence Index is ≤3.01
		4 - Morphological Adaptations (Provide supporting
		data in Remarks or on a separate sneet)
		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
		Indicators of hydric soil and wetland hydrology must
		be present, unless disturbed or problematic.
	= Total Cover	Definitions of Five Vegetation Strata:
50% of total cover:) Herb Stratum (Plot size:)	20% of total cover:	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
2,		Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
4,		Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
6		Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.
10		Woody vine - All woody vines, regardless of heigh
11,	= Total Cover	
FOR at take course	20% of total cover:	
Woody Vine Stratum (Plot size:)		
1		
1		
2.		
2		
3,		
3		
3		Hydrophytic Vegetation
3 4 5		Hydrophytic Vegetation Present? Yes No

Color (moist)   %   Color (moist)   %   Type   Log   Texture   Remarks				pth needed to docu Red	ox Feature:			in the absence	or indicators.)
3-12   5   6   7   9   2.5   7   7   2.5   7   7   5   6   6   6   6   6   6   6   6   6	(inches)	Color (moist)		Color (moist)		_Type <sup>1</sup>	Loc2	Tevture	Branch and
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Thick Dark Surface (S3) (MLRA 147, 148)  Loamy Gleyed Matrix, (14)  Loamy Gleyed Matrix, MS=Masked Sand Grains.  Thick Dark Surface (S3) (MLRA 147, 148)  Loamy Gleyed Matrix, MS=Masked Sand Grains.  Thick Dark Surface (S3) (MLRA 147, 148)  Loamy Gleyed Matrix, MLRA 147, 148)  Loamy Gleyed Matrix, MS=Masked Sand Grains.  Thick Dark Surface (S3) (MLRA 147, 148)  Loamy Gleyed Matrix, MS=	0-5	5/5/1	29	2.54/8	1	-			
Compose of the contentration	3-12	5/6/Z	95	2544/1	·	-	Di		
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Flat Surface (S7)  Flat Surface (S7)  Flat Surface (S8) (MLRA 147, 148)  Flat Surface (S9) (MLRA 147, 148)  Flooding Attrix (S4)  Flat Surface (S9) (MLRA 147, 148)  Flat Surface (S9) (MLRA 147, 148)  Flooding Attrix (S6)  Flat Surface (S8) (MLRA 147, 148)  Flat Surface (S9) (MLRA 147, 1						_		CLAT	LOCKY
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Tydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Stripped Matrix (S6)  Setrictive Layer (if observed):  Type:  — Depthe dinable Matrix (F3)  Depthet Matrix (F3)  MLRA 136, 147)  Depleted Dark Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  MLRA 136, 147)  Jindicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Depth (inches):									
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Depleted Below Dark Surface (A11) Thic Dark Surface (F6) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Redox (S5) Saftyped Matrix (S6) Stripped Matrix (S6) Stripped Matrix (S6) Septimal Matrix (S6) Septimal Matrix (S6) Deptimal Matrix (S6) Deptimal Matrix (S6) Desting M	1-10	204-12	74.5						OUTPOINT
Histosol (A1) Histosol (A2) Dark Surface (S7) Histosol (A2) Dipleted Matrix (F3) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Stripped Matrix (S6) Stripped Matrix (S6) Depth (inches):  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (MLRA 147, 148) Loany Gleyed Surface (S9) (MLRA 147, 148) Loany Gleyed Matrix (F2) Depleted Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Sitripped Matrix (S6) Stripped Matrix (S6) Depleted Dark Surface (F13) (MLRA 136, 122) Sitripped Matrix (S6) Depth (inches):  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 147, 148)  (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (MLRA 147, 148) (MLRA 147, 148) Piedmont Floodplain Soils (F12) (LRR N, MLRA 136, 122) Sandy Mucky Mineral (S1) (LRR N, MLRA 136, 122) Sandy Redox (S5) Stripped Matrix (S6) Stripped Matrix (S6) Stripped Matrix (S6) Depth (inches):									
Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F6) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Stripped Matrix (S6) Sestrictive Layer (if observed): Type: Depth (inches):  Indicators for Problematix.  Indicators for Problematic.	ype: C=Co	ncentration, D=Dep	letion, RM	=Reduced Matrix, M:	S=Masked	Sand Gra	ins.	<sup>2</sup> Location: PI	=Pore Lining M-Makin
Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F3) Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Stripped Matrix (S6)  Stripped Matrix (S6) Depleted Dark Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  Jandicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type: Depth (inches):								Indica	itors for Problematic Hudda C 11 3
Type:	Thick Dai Sandy Mi MLRA Sandy Gi Sandy Re Stripped I	rk Surface (A12) ucky Mineral (S1) (L 147, 148) eyed Matrix (S4) edox (S5) Matrix (S6)	RR N,	Depleted Dar Redox Depre Iron-Mangane MLRA 136 Umbric Surfa Piedmont Flo	k Surface ( ssions (F8) ese Masses 5) ce (F13) (N odplain Soi	F7) ) s (F12) (L ILRA 136 ls (F19) (	5, 122) MI RA 148	Of India ) wet	ther (Explain in Remarks) cators of hydrophytic vegetation and land hydrology must be present
Depth (inches):		ayer (if observed):				7.40-1-1		unie	ess disturbed or problematic.
emarks:  Hydric Soil Present? Yes, No		nonte		-			- 1		
entarks:		les).						Hydric Soil F	Present? Yes No.
				8					

563t00

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region Project/Site: KY 30 City/County: Goul/Ey Sampling Date: 8 Applicant/Owner: KTTC State: KY Sampling Point: Investigator(s): \_MJ4, EL Section, Township, Range:\_ Landform (hillslope, terrace, etc.): • • Local relief (concave, convex, none): \_\_\_\_\_CONCAUR. Slope (%): < Long: -83.800521 Datum: WAD8 Soil Map Unit Name: NWI classification: \_ Are climatic / hydrologic conditions on the site typical for this time of year? Yes No \_\_\_\_\_ (If no, explain in Remarks.) Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Hydric Soil Present? Is the Sampled Area Yes No within a Wetland? Wetland Hydrology Present? Remarks: \* VEL LOOKS SWILL HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) \_\_ Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Hydrogen Sulfide Odor (C1) ✓ Drainage Patterns (B10) Saturation (A3) Oxidized Rhizospheres on Living Roots (C3) \_\_ Moss Trim Lines (B16) Water Marks (B1) Presence of Reduced Iron (C4) \_\_ Dry-Season Water Table (C2) Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) \_\_ Crayfish Burrows (C8) Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Other (Explain in Remarks) Iron Deposits (B5) / Stunted or Stressed Plants (D1) Inundation Visible on Aerial Imagery (B7) Geomorphic Position (D2) ✓ Water-Stained Leaves (B9) Shallow Aquitard (D3) Microtopographic Relief (D4) Aquatic Fauna (B13) \_\_ FAC-Neutral Test (D5) Field Observations: Surface Water Present? Depth (inches): Water Table Present? Depth (inches): Saturation Present? Depth (inches): (includes capillary fringe) Wetland Hydrology Present? Yes \_ Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point:\_ Dominance Test worksheet: Absolute - Dominant Indicator % Cover Species? Status Tree Stratum (Plot size: \_\_\_\_ Number of Dominant Species VI FAC That Are OBL, FACW, or FAC: (A) 1. ACEK RUBRUM FACW 2. PLATANUS OCCIDENTALIS Total Number of Dominant OBL (B) Species Across All Strata: 3. SALV MILLA 4. LIRIODENTRON TULIPFERA Percent of Dominant Species 5. PINNS VIRGINIANA That Are OBL, FACW, or FAC: (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: 45 = Total Cover OBL species \_\_\_\_\_ x1 = \_\_\_\_ 50% of total cover: \_ z > 20% of total cover:\_ FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_ Sapling/Shrub Stratum (Plot size: 15-/ FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_ 1. SACIE WILKE FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_ 2. PLATANUS OCCOUNTAUI UPL species \_\_\_\_\_ x 5 = \_\_\_\_ 3. ACER RUBRUM Column Totals: \_\_\_\_\_ (A) \_\_\_\_ (B) 4. CICIODIENDEON TULIPFERA Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation √ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.01 35 = Total Cover 4 - Morphological Adaptations (Provide supporting 20% of total cover: 7 50% of total cover: data in Remarks or on a separate sheet) Herb Stratum (Plot size: \_ Problematic Hydrophytic Vegetation¹ (Explain) 000 1. TYPAN AND STITOLA FAC 2. DILHAMAHALIAN CANDISTINAN <sup>1</sup>Indicators of hydric soil and wetland hydrology must FAC 3. MICEOSTEGIUM VIMINION be present, unless disturbed or problematic. FACIN 10 4. JUNCLE BEFLEVS Definitions of Four Vegetation Strata: 5. CARRYCIP. Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or OBL 6. CALIEX VULPINOIDEA more in diameter at breast height (DBH), regardless of 3 FACU 7. SOLIDAGO GIGANTEA height. 8. ENTROCITIUM PURPUREUM FAC Sapling/Shrub - Woody plants, excluding vines, less FAC than 3 in. DBH and greater than or equal to 3.28 ft (1 9. ACKL DUBRUM m) tall. FACE 10. COBELIA CALDINALIS 2 FACU 11. IMIATIENS CAPENSIS Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. = Total Cover 20% of total cover:\_ 50% of total cover: \_ Woody vine - All woody vines greater than 3.28 ft in Woody Vine Stratum (Plot size: \_\_\_\_\_) height. Hydrophytic Vegetation Present? = Total Cover 50% of total cover: \_\_\_\_\_ 20% of total cover:\_ Remarks: (include photo numbers here or on a separate sheet.)

GETATION (Five Strata) – Use scientific na		Sampling Point:
ee Stratum (Plot size:)	Absolute Dominant Indicator % Cover Species? Status	Dominance Test worksheet:  Number of Dominant Species
se Stratum (For Size).	Control of the Contro	That Are OBL, FACW, or FAC:(A)
		Total Number of Dominant
* *	<del></del>	Species Across All Strata:(B)
		Developed Species
		Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
	= Total Cover	Prevalence Index worksheet:
50% of total cover	20% of total cover:	
apling Stratum (Plot size:)		FACW species x 2 =
abiling stratum (Flot size.		FACW species x2 =
		FACU species x 4 = UPL species x 5 =
		-   OPL species
		_ CUIUIIII I Oldis, (A) (b)
		Prevalence Index = B/A =
	= Total Cover	Hydrophytic Vegetation Indicators:
FOR all hotel position	20% of total cover:	1 - Rapid Test for Hydrophytic Vegetation
	20/8 bir total cover	2 - Dominance Test is >50%
Shrub Stratum (Plot size:)		3 - Prevalence Index is ≤3.01
		4 - Morphological Adaptations¹ (Provide supportin
		data in Remarks or on a separate sheet)
3		Problematic Hydrophytic Vegetation¹ (Explain)
4		
5		Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6	= Total Cover	Definitions of Five Vegetation Strata:
100000000000000000000000000000000000000		200000000000000000000000000000000000000
	20% of total cover:	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in.
Herb Stratum (Plot size:)		(7.6 cm) or larger in diameter at breast height (DBH).
1		
2		<ul> <li>Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less</li> </ul>
3		than 3 in. (7.6 cm) DBH.
4		Shrub – Woody plants, excluding woody vines,
5		approximately 3 to 20 ft (1 to 6 m) in height.
ō		Herb – All herbaceous (non-woody) plants, including
7		herbaceous vines, regardless of size, and woody
8		plants, except woody vines, less than approximately
9,		ft (1 m) in height.
10		Woody vine - All woody vines, regardless of height.
11	= Total Cover	
ATAN AND AND AND AND AND AND AND AND AND A		4
	20% of total cover:	=
Woody Vine Stratum (Plot size:)		
147		
		-
2		
2		<del>-</del>
2		=
3		Hydrophytic
2		Hydrophytic Vegetation Present? Yes No

Sampling Point:

Depth	IVIDIO		h needed to docum Redox	Feature	S		ii die absend	o o i inaje.	ators.)	
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	Loc2	Texture		Remarks	
3.	7.54 4/2	100				100	5/2	-	Calling	
1-16	54 6/7	90	7,5414/6	5-	1	n	61	1	(And Fred	27 - 29
			7.5/1078	5	1	m	1241	-		
						-		-		
				<del></del>	-					47.00
7				-						
	-									
<i>(</i> 0 / )	14									
0-10	107R4/13	100					-	CALL	100 0	,
						-			1101m7	
Type: C=Con	centration, D=De	pletion, RM=F	Reduced Matrix, MS=	Mankad		_	-		439237	V -83
Tyung con mi	dicators.		Jacoba Matrix, Ma-	Masked	Sand Gra	ins.	*Location: F	PL=Pore Li	ning, M=Matrix.	
Histosol (A	A1)		Dark Surface (S	37)			Indic	ators for I	Problematic Hyd	lric Soils <sup>3</sup> :
Histic Epip	pedon (A2)		Polyvalue Belov	v Surfac	e (S8) (M	LRA 147.	148)	Con Muck	(A10) (MLRA 14 ie Redox (A16)	7)
Black Histi	Sulfide (A4)		Inin Dark Surfa	ice (S9)	(MLRA 1	47, 148)		(MLRA 1	47. 148)	
Stratified L	Layers (A5)		Loamy Gleyed I	Matrix (F	2)			Piedmont F	loodplain Soils (F	19)
_ 2 cm Muck	k (A10) (LRR N)		Depleted Matrix Redox Dark Sui	(F3)				(MLRA 1	36, 147)	
Depleted E	Below Dark Surfac	ce (A11)	Depleted Dark S	Surface (F	) (E7)		- 1	ery Shallo	w Dark Surface (	TF12)
Thick Dark	k Surface (A12)		Redox Depress	ions (F8	)		(	Other (Expl	ain in Remarks)	
Sandy Muc	cky Mineral (S1) (	LRR N,	Iron-Manganese	Masse:	s (F12) (L	RR N.				
	147, 148) eyed Matrix (S4)		MLRA 136)							
Sandy Rec	dox (S5)		Umbric Surface	(F13) (N	MLRA 136	, 122)	3Inc	licators of h	nydrophytic vege	tation and
Stripped M	Matrix (S6)		Piedmont Flood	plain So	ils (F19) (	MLRA 14	8) We	etland hydr	ology must be pre	esent.
Restrictive La	yer (if observed):		Red Parent Mat	enai (FZ	I) (MLRA	127, 147	) ur	less distur	bed or problemat	ic.
Туре:										
Depth (inche	es):		2				House 6 1	A	Section 1	/
Remarks:		435			-		Hydric Sol	Present?	Yes	No
		102								
	C.									
							-			
							-			
							-			
							-			
							-			
d.							-			
i.										
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4										
d				· ·						
				,						
				7						

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region Project/Site: 1/ 30 City/County: DWSCEY Applicant/Owner: KY7( Sampling Date: 9/6/17 Investigator(s): \_\_MTH\_ FLS State: KY Sampling Point: WOZ Section, Township, Range:\_ Landform (hillslope, terrace, etc.): Long: -83.798734 Soil Map Unit Name: \_\_\_\_\_ \_ Datum: N/ Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ NWI classification: N/A Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No \_\_\_\_\_ (If no, explain in Remarks.) Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. (If needed, explain any answers in Remarks.) Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Is the Sampled Area Yes No Wetland Hydrology Present? within a Wetland? Yes No Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) \_\_\_ Surface Soil Cracks (B6) \_\_ True Aquatic Plants (B14) High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Hydrogen Sulfide Odor (C1) Saturation (A3) \_\_\_ Drainage Patterns (B10) \_\_\_\_\_Oxidized Rhizospheres on Living Roots (C3) Water Marks (B1) \_\_\_ Moss Trim Lines (B16) Presence of Reduced Iron (C4) \_\_\_ Şediment Deposits (B2) \_\_\_ Dry-Season Water Table (C2) Recent Iron Reduction in Tilled Soils (C6) Drift Deposits (B3) Crayfish Burrows (C8) \_\_ Thin Muck Surface (C7) Algal Mat or Crust (B4) Saturation Visible on Aerial Imagery (C9) Other (Explain in Remarks) Iron Deposits (B5) Stunted or Stressed Plants (D1) Inundation Visible on Aerial Imagery (B7) ✓ Geomorphic Position (D2) Water-Stained Leaves (B9) Shallow Aquitard (D3) \_ Aquatic Fauna (B13) Microtopographic Relief (D4) Field Observations: FAC-Neutral Test (D5) Surface Water Present? No \_\_\_\_\_ Depth (inches): Water Table Present? No \_\_\_\_ Depth (inches): Saturation Present? Yes \_\_\_\_\_ No \_\_\_\_ Depth (inches):\_\_\_ (includes capillary fringe) Wetland Hydrology Present? Yes Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

SETATION (Four Strata) – Use scientific na	Absoluto	Dominant In	idicator .	Dominance Test worksheet:	
e Stratum (Plot size: 301 ) SACW NIGRA		Species?		Number of Dominant Species That Are OBL, FACW, or FAC:	(A)
				Total Number of Dominant Species Across All Strata:	<u> </u>
				Percent of Dominant Species That Are OBL, FACW, or FAC	/ 00 5J (A/B)
				Prevalence Index worksheet	
	-10	-	-	Total % Cover of:	
1425 (47.0 T. to)	_ 05_	= Total Cover:		OBL species	
50% of total cover:	20%	ii totai cover.		FACW species	
apling/Shrub Stratum (Plot size: /5 / )	15	/	031	FAC species	x 3 =
SACIX MIGRA	_/3	-	200	FACU species	x 4 =
			-	UPL species	
			-	Column Totals:	
			-		
			-	Prevalence Index = BIA	
				Hydrophytic Vegetation Ind	
				1 - Rapid Test for Hydron	ohytic Vegetation
	-			2 - Dominance Test is >5	
,		-		3 - Prevalence Index is s	
		= Total Co		4 - Morphological Adapta	
50% of total cover:	20%	of total cover	ī	data in Remarks or o	
Herb Stratum (Plot size:5 /)	000		001	Problematic Hydrophytic	: Vegetation1 (Explain)
1. SAINE NIGRA	10	v	OBL	1	
2. TYPHA ANGISTEDIA	_	_	FACIN	I "Indicators of hydric 500 and	wetland hydrology must
3. SOUDAGO SPP.	15			be present, unless disturbed	
4. Tuncus EFFUSUS	/5	/_	TACU	Delinitions of Loan 193	tion Strata:
5. DICHANTHELIUM CANDSTRUM	70		FAC	Tree - Woody plants, exclude	dina vines, 3 in. (7.6 cm)
6. SOLIDAGO GLEANTEA	5	تتنبات	FACU	<ul> <li>more in diameter at breast h</li> </ul>	neight (DBH), regardless
7. CICUTA MACULATA			031	height.	
& MICEOSTEGIUM VIMINEUM	5		FAC	Sapling/Shrub - Woody pl	ants, excluding vines, less
9. GARAY SHE	5			_ than 3 in. DBH and greater	than or equal to 3.28 ft (1
10				m) tall.	
11				Herb - All herbaceous (nor	n-woody) plants, regardles
()-	100	= Total C	over	of size, and woody plants le	ess than 3.28 ft tall.
50% of total cover:	20	% of total cov	er:	- Woody vine - All woody vi	ines greater than 3.28 ft ir
Woody Vine Stratum (Plot size:)				height.	ALTERNATION OF STREET
1				_	
2				_	
3.				_	2.
4.				- Hydrophytic	1
5.				Vegetation	1
5		= Total (	Cover	Present? Yes_	No
	1				
50% of total cover: _	20	0% of total co	ver:		

VEGETATION (Five Strata) - Use s	cientific names of plants.
	Absolute Dominant Indicator
Tree Stratum (Plot size:	% Cover Species? Status

\_\_\_\_ = Total Cover

\_\_\_\_ = Total Cover

= Total Cover

\_\_\_\_ = Total Cover

\_\_\_\_\_ = Total Cover

50% of total cover: \_\_\_\_\_ 20% of total cover:\_\_\_\_\_

50% of total cover: \_\_\_\_\_ 20% of total cover:\_\_\_\_\_

50% of total cover: \_\_\_\_\_ 20% of total cover:\_\_\_

50% of total cover: \_\_\_\_\_ 20% of total cover:\_\_\_\_

50% of total cover: \_\_\_\_\_ 20% of total cover:\_\_\_

Tree Stratum (Plot size: \_\_\_\_)

Sapling Stratum (Plot size: \_\_\_\_\_)

Shrub Stratum (Plot size:\_\_\_\_\_)

Herb Stratum (Plot size: \_\_\_\_\_\_)

Woody Vine Stratum (Plot size: \_\_\_\_\_)

Remarks: (Include photo numbers here or on a separate sheet.)

Dominance Test works	heet:	
Number of Dominant Sports That Are OBL, FACW, or	ecies r FAC:	(A)
Fotal Number of Domina Species Across All Strat		_ (B)
Percent of Dominant Sp That Are OBL, FACW, o		_ (A/B)
Prevalence Index work	sheet:	
Total % Cover of:	Multiply by:	
OBL species		
FACW species		
FAC species		
FACU species		
UPL species		
Column Totals:		
	5/4	
Prevalence Index	and the second s	
Hydrophytic Vegetation		
	Hydrophytic Vegetation	
2 - Dominance Tes		
3 - Prevalence Inde	tn n	
4 - Morphological A data in Remark	ex is \$3.0 Adaptations <sup>1</sup> (Provide s s or on a separate shee	upportin
data in Remark Problematic Hydro Indicators of hydric so	Adaptations <sup>1</sup> (Provide s s or on a separate shee phytic Vegetation <sup>1</sup> (Exp oil and wetland hydrolog	et) olain)
data in Remark Problematic Hydro  Indicators of hydric so be present, unless dist	Adaptations <sup>1</sup> (Provide so sor on a separate shee ophytic Vegetation <sup>1</sup> (Exp will and wetland hydrolog ourbed or problematic.	et) olain)
data in Remark Problematic Hydro  Indicators of hydric so be present, unless dist  Definitions of Five Ve  Tree – Woody plants, approximately 20 ft (6 (7.6 cm) or larger in dis  Sapling – Woody plants	Adaptations <sup>1</sup> (Provide son on a separate sheet phytic Vegetation <sup>1</sup> (Expandial and wetland hydrolog turbed or problematic. egetation Strata:  excluding woody vines, m) or more in height and ameter at breast height ents, excluding woody vints, excludin	olain)  y must  id 3 in. (DBH).
data in Remark Problematic Hydro  Indicators of hydric so be present, unless dist  Definitions of Five Ve  Tree – Woody plants, approximately 20 ft (6 (7.6 cm) or larger in di-  Sapling – Woody plant approximately 20 ft (6 than 3 in. (7.6 cm) DB	Adaptations <sup>1</sup> (Provide son a separate sheet sphytic Vegetation <sup>1</sup> (Expanding and wetland hydrolog surbed or problematic.  Egetation Strata:  Excluding woody vines, m) or more in height and ameter at breast height and more in height and more	olain)  y must  d 3 in. (DBH).  nes, d less
data in Remark Problematic Hydro  Indicators of hydric so be present, unless dist  Definitions of Five Ve  Tree – Woody plants, approximately 20 ft (6 (7.6 cm) or larger in di  Sapling – Woody plant approximately 20 ft (6 than 3 in. (7.6 cm) DB  Shrub – Woody plants approximately 3 to 20  Herb – All herbaceous herbaceous vines, rec	Adaptations <sup>1</sup> (Provide son a separate sheet sphytic Vegetation <sup>1</sup> (Expanding and wetland hydrolog surbed or problematic.  Egetation Strata:  Excluding woody vines, m) or more in height and ameter at breast height and more in height and more	olain) by must ad 3 in. (DBH). nes, ad less es,
data in Remark Problematic Hydro  Indicators of hydric so be present, unless dist  Definitions of Five Ve  Tree – Woody plants, approximately 20 ft (6 (7.6 cm) or larger in di.  Sapling – Woody plant approximately 20 ft (6 than 3 in. (7.6 cm) DB  Shrub – Woody plant approximately 3 to 20  Herb – All herbaceous herbaceous vines, rec plants, except woody ft (1 m) in height.	Adaptations <sup>1</sup> (Provide son on a separate sheet sphytic Vegetation <sup>1</sup> (Expedial and wetland hydrolog turbed or problematic.  Regetation Strata:  Reculding woody vines, m) or more in height and ameter at breast height and the second or more in height and the second of	et) plain) ny must nd 3 in. (DBH). nes, nd less es, ncluding pody pody imately

Fastern Mountains and Piedmont - Version 2.0

Hydrophytic

Yes No\_

Vegetation

Present?

	IVIALITA		th needed to docu Red	ox Feature	s	334:000	absence	or mulcators.)
(inches)	Color (moist)	_ %_	Color (moist)	_ %		_ Loc²	Texture	Remarks
0-2	2,5 12.5/1					-		
2-9	Gley 1 4/107	100				-	E 10 100	organ i matter
9-12	6/ev 1 5/104	100					5.14×16/21	
					-		3. 1+0/Cla	7-
				-				
				-				
2-8	10 4R 4/3	100						OUTPOINT
						-		(37.440886 N, 83.79876
vpe: C=C	oncentration, D=Dep	letion DM-	Dodgerd Metal. 11					
dric Soil	Indicators:	etion, Nivi-	Reduced Matrix, M	S=Masked	Sand Gra	ins.	<sup>2</sup> Location: Pl	L=Pore Lining, M=Matrix.
_ Histosol			Dark Surface	(97)			Indica	ators for Problematic Hydric Soils <sup>3</sup> :
Histic E	pipedon (A2)		Polyvalue Be	elow Surfac	e (SR) (MI	DA 447	_ 2	cm Muck (A10) (MLRA 147)
	istic (A3)		Thin Dark So	rface (S9)	(MIRA 1/	LRA 147,	148) _ C	oast Prairie Redox (A16)
	en Sulfide (A4)		V Loamy Gleye	ed Matrix (F	F2)	1, 140)	D	(MLRA 147, 148)
	d Layers (A5)		Depleted Ma	trix (F3)	-/		- 6	iedmont Floodplain Soils (F19)
_ 2 cm Mu	ick (A10) (LRR N)		Redox Dark	Surface (F	6)		V	(MLRA 136, 147)
_ Deplete	d Below Dark Surface	e (A11)	Depleted Da	rk Surface	(F7)		_ ,	ery Shallow Dark Surface (TF12) ther (Explain in Remarks)
Sandy A	ark Surface (A12) Mucky Mineral (S1) (L	DD 11	Redox Depre	essions (F8	3)		-	(= spisiti in Nemarks)
MLR/	A 147, 148)	KK N,	Iron-Mangan	ese Masse	s (F12) (L	RR N,		
	Gleyed Matrix (S4)		MLRA 13					
Sandy F	Redox (S5)		Umbric Surfa Piedmont Flo	odnisia Sa	MLRA 136	, 122)	3Indi	cators of hydrophytic vegetation and
_ Stripped	Matrix (S6)		Red Parent N	Material (F2	21) (MI DA	MLRA 14	wel	land hydrology must be present.
estrictive I	Layer (if observed):			inatorial (1 2	i) (MILICA	127, 147	unl	ess disturbed or problematic.
Туре:	x x x x						1	/-
Type:	ches);						Undela Call	Daniel 1
Type: Depth (inc							Hydric Soil	Present? Yes No
Type: Depth (inc emarks:	ches);						Hydric Soil	Present? Yes No
Type: Depth (inc emarks:		CQ#0					Hydric Soil	Present? Yes No
Type: Depth (incomerks:	ches);	CQ201		-			Hydric Soil	Present? Yes No
Type: Depth (incomerks:	ches);	CTDU					Hydric Soil	Present? Yes No No
Type: Depth (inc marks:	ches);	୍ଦ୍ରକଳ					Hydric Soil	Present? Yes No No
Type: Depth (incomerks:	ches);	රැතර -					Hydric Soil	Present? Yes No
Type: Depth (inc marks:	ches);	CypO					Hydric Soil	Present? Yes No No
Type: Depth (inc marks:	ches);	CUpO					Hydric Soil	Present? Yes No No
Type: Depth (inc marks:	ches);	Cypin					Hydric Soil	Present? Yes No No No
Type: Depth (inc marks:	ches);	©්බ්					Hydric Soil	Present? Yes No
Type: Depth (incomerks:	ches);	<b>ි</b> වත <b>ග</b>					Hydric Soil	Present? Yes No
Type: Depth (inc marks:	ches);	Cypn					Hydric Soil	Present? Yes No
Type: Depth (inc marks:	ches);	CUpO					Hydric Soil	Present? Yes No
Type: Depth (inc marks:	ches);	CUpO					Hydric Soil	Present? Yes No No
Type: Depth (inc marks:	ches);	ට කර ව					Hydric Soil	Present? Yes No No No
Type: Depth (incomerks:	ches);	CON					Hydric Soil	Present? Yes No No No
Type: Depth (inc marks:	ches);	Cypn					Hydric Soil	Present? Yes No No
Type: Depth (incomarks:	ches);	CypO					Hydric Soil	Present? Yes No No
Type: Depth (incomerks:	ches);	CUpO					Hydric Soil	Present? Yes No No
Type: Depth (incomerks:	ches);	CUpO					Hydric Soil	Present? Yes No No No
Type: Depth (inc marks:	ches);	CUBA					Hydric Soil	Present? Yes No No

595+70

# WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site:	City	1/County: 0 ws/en	
Applicant/Owner:	Oit)	State:	Sampling Date: 1/-15-7
Investigator(s):	Car	State:	Sampling Point: W14
Landform (hillslope, terrace, etc.):	t Lead-	ction, Township, Range: relief (concave, convex, none):	
Subregion (LRR or MLRA):	Local T	eller (concave, convex, none):	Slope (%):
Soil Map Unit Name:	Lat.	Long:	Datum;
		K13 771 - 1	and the state of t
Are Vegetation, Soil, or	Hydrology significantly distributed Hydrology naturally problem	Yes No (If no, explain urbed? Are "Normal Circumstance matic? (If needed, explain any a mpling point locations, transc	ces" present? Yes No
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks:	Yes No Yes No Yes No	is the Sampled Area	No
	*	, ** *	
HYDROLOGY			
Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is	required: check all that apply)	Secondary Ir	dicators (minimum of two required)
Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Image Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations: Surface Water Present? Yes	True Aquatic Plants Hydrogen Sulfide Od Oxidized Rhizosphe Presence of Reduce Recent Iron Reductio Thin Muck Surface ( Other (Explain in Re	(B14) Sparsely dor (C1) Prainage res on Living Roots (C3) Moss Tri ad Iron (C4) Dry-Seas on in Tilled Soils (C6) Crayfish C7) Saturatio marks) Stunted of Geomory Shallow A Microtope FAC-Neu	Soil Cracks (B6)  Vegetated Concave Surface (B8) Patterns (B10) In Lines (B16) Son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) In Stressed Plants (D1) In Constition (D2) Aquitard (D3) In Orgraphic Relief (D4) Itral Test (D5)
Water Table Present? Yes	No Depth (inches):  No Depth (inches):  No Depth (inches):	Wetland Hydrology Pre	sent? Yes No
Remarks:	ven, adriai prioros, pre	evious inspections), if available:	
Pond			

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point:\_\_\_\_\_

e Stratum (Plot size:)	Absolute Dominant Indicator	Dominance Test Worksheet:
Black Leftler	% Cover Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC:(A)
		Total Number of Dominant Species Across All Strata:(B)
		Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
		Prevalence Index worksheet:
		Total % Cover of: Multiply by:
	= Total Cover	OBL species x1 =
	20% of total cover:	FACW species x 2 =
pling/Shrub Stratum (Plot size:)	100	FAC species x 3 =
RI. L Leilly		FACU species x 4 =
		UPL species x 5 =
	فتحر سبب بسببال	Column Totals: (A) (B)
		Column Totals: (A) (D)
		Prevalence Index = B/A =
		Hydrophytic Vegetation Indicators:
		1 - Rapid Test for Hydrophytic Vegetation
		2 - Dominance Test is >50%
		3 - Prevalence Index is ≤3.0
	= Total Cover	4 - Morphological Adaptations¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)
erb Stratum (Plot size:)		Problematic Hydrophytic Vegetation¹ (Explain)
Cat balls	20	Problematic Hydrophytic vegetation (Explain)
Sare SP		- It is a second final description of the second final se
· Bona set	<u> </u>	'Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
folden rod		- Definitions of Four Vegetation Strata:
The Last	10)	
1		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of
2	200	
		12 4 7 and 12 an
).		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1
		m) tall.
0		- I was a second of
11,	= Total Cover	<ul> <li>Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.</li> </ul>
50% of total cover:	20% of total cover;	
	2078 01 1010 00 7017	Woody vine - All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	10	height.
1. Rushbery	-,-14	
2		-\
3		
3		- Hydrophytic
4	~	1 - 2 A 1/2/2 CONTACT
	~	Vegetation Present? Yes No

	Absolute Dominant Indicate	
ree Stratum (Plot size:)	% Cover Species? Status	reditiber of Bollmant Species
		Total Number of Dominant Species Across All Strata:(B)
		Percent of Dominant Species
		Prevalence Index worksheet:
	= Total Cover	Total % Cover of: Multiply by:
	20% of total cover:	OBL species x 1 =
apling Stratum (Plot size:)		FACW species x 2 =
		FAC species x 3 =
		— UPL species x 5 =
		Column Totals: (A) (B)
X		
	= Total Cover	Hydrophytic Vegetation Indicators:
50% of total cover:	20% of total cover:	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (Plot size:)		2 - Dominance Test is >50%
		3 - Prevalence Index is ≤3.0¹
		4 - Morphological Adaptations' (Provide supporting
3	-/	Problematic Hydrophytic Vegetation¹ (Explain)
u <sub>z</sub>		—   Triodemate Typropriyte vegetation (explain)
5,		Indicators of hydric soil and wetland hydrology must
5		be present, unless disturbed or problematic.
	= Total Cover	Definitions of Five Vegetation Strata:
50% of total cover:	20% of total cover:	
Herb Stratum (Plot size:)		Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
1		— (7.6 cm) of larger in diameter at oreast neight (55).
2		Sapling – Woody plants, excluding woody vines,
3		approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
4		et of tweethers with the control
5		Shrub – Woody plants, excluding woody vines,
5 6		approximately 3 to 20 ft (1 to 6 m) in height.
567		approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including
5		approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately in the size of the siz
5 6 7 8 9		approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody
5		approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.
5		approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3
5	= Total Cover	approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
5	= Total Cover 20% of total cover:	approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.
5	= Total Cover 20% of total cover:	approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.
5	= Total Cover = Total cover:	approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.  Woody vine – All woody vines, regardless of height.
5	= Total Cover 20% of total cover:	approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately ft (1 m) in height.  Woody vine – All woody vines, regardless of height.
5	= Total Cover 20% of total cover:	approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately if (1 m) in height.  Woody vine – All woody vines, regardless of height.
5	= Total Cover = Total cover:	approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately (ft (1 m) in height.  Woody vine – All woody vines, regardless of height.
5	= Total Cover 20% of total cover:	approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately if (1 m) in height.  Woody vine – All woody vines, regardless of height.
5	= Total Cover 20% of total cover:	approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately if (1 m) in height.  Woody vine – All woody vines, regardless of height.

(inches)	IVIALITX		Redo	x Feature	96		n the absence of		
0.0	Color (moist)	<u>%</u>	Color (moist)	%	_Type <sup>1</sup>	_ Loc²	Texture	Rema	rlea
Ori	2573/1	100			-			Kema	ITKS
3-12	2.54 5/1	98	2.5 4R 4/8	2	7	- Au	- Cle 15:14 -		
			==-/X v0			-PC	Clay/512,_	Some Rock	15/4te
				-	-	-	<del></del>		
				-		-			
					_		<del></del>		
		-	<del></del>		-				
	AND DESCRIPTION OF A STATE OF	100							- 0
ype: C=Cor /dric Soil Ir	ncentration, D=Depl	letion, RM=	Reduced Matrix, MS	=Masked	Sand Gra	ins.	<sup>2</sup> Location: PL=F	ore Lining, M=Ma	trix.
_ Histosol (			5	. with			Indicator	s for Problemation	Hydric Soils3:
	ipedon (A2)		Dark Surface	(S7)			2 cm	Muck (A10) (MLR	(A 147)
Black His	tic (A3)		<ul><li>Polyvalue Bel</li><li>Thin Dark Sur</li></ul>	ow Surrai	ce (S8) (M	LRA 147,	148) Coas	t Prairie Redox (A	16)
_ Hydrogen	Sulfide (A4)		Loamy Gleyer	d Matrix (	F2)	47, 148)	(M	LRA 147, 148)	
	Layers (A5)		V Depleted Mate	rix (F3)	-/		Pledr	nont Floodplain Si LRA 136, 147)	oils (F19)
_ 2 cm Muc	k (A10) (LRR N)	13900	Redox Dark S	urface (F	6)		Verv	Shallow Dark Suri	fann (TEd O)
_ Depleted	Below Dark Surface k Surface (A12)	e (A11)	Depleted Dark	Surface	(F7)		Othe	(Explain in Rema	irks)
Sandy Mu	ucky Mineral (S1) (L	DD N	Redox Depres	ssions (F	3)				, iii
MLRA	147, 148)	IXIX IN,	Iron-Mangane MLRA 136	se Masse	es (F12) (L	RR N,			
	eyed Matrix (S4)		Umbric Surfac		MI DA 436	400)	2.	1	
Sandy Re	edox (S5)		Piedmont Floo	odplain So	nils (F19) /	1, 122) MIDA 14	"Indicate	ors of hydrophytic	vegetation and
	Matrix (S6)		Red Parent M	aterial (F:	21) (MLRA	127. 147		d hydrology must disturbed or probl	be present,
	ayer (if observed):						/ Unicas	distalled of blobs	emauc.
Type:									
B. W. H. V.							Hydric Soil Pre	sent? Yes	No
Depth (inch	nes);					_	7.466.000		NO
	nes);								
marks:		1 com	1						
		Town	1						
marks:		Jens	1						
marks:		Louis	1						
marks:		tour	/						
marks:		Four	1						
marks:		Four	/						
marks:		Four	1						
marks:		Fener	1						
marks:		Foun	/						
marks:		Four	/						
marks:		Fenn							
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600+00

## WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: _KY 30	and Fledmont Region
Applicant/Owner: <u>LY7C</u>	City/County: _Owsley Sampling Date: _9/6/17
Investigator(s): MJA, ELS	Sampling Date: 4/6/// State: Ky Sampling Point: NO/
I market and man 10	Section, Township, Range:
Subregion (LRR or MLRA):	Local relief (concave, convex, none): NONE Slope (%): <
Soil Map Unit Name: Lat: Lat: Lat: 27. 90	Local relief (concave, convex, none): NONE Slope (%): </td
Are climatic / hydrologic conditions	NWI classification: V/A
Are climatic / hydrologic conditions on the site typical for this time of Are Vegetation, Soil, or Hydrology, ricels	Table 100 Aut. A Committee of the Commit
Are Vegetation, Soil, or Hydrology naturally	
SUMMARY OF FINDINGS - Attach site map showing	ng sampling point locations, transects, important features, etc
Hydrophytic Vegetation Present?	partitionations, transects, important features, etc
Hydric Soil Present?	Is the Sampled Area
Wetland Hydrology Present?	within a Wetland? Yes No
Remarks:	
KSTAMIED IN FIELD THAT IS MONE	DEEGULARLY DIFFICULT TO PROPERLY
IDENTIFY SEDGES, GRASSES	THE WALLES
HAR STORY TO T	
HYDROLOGY	
Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply	Secondary Indicators (minimum of two required)
Surrace Water (A1)	Surface Soil Cracks (86)
— Jugit Water Table (AZ)	— Sparsely vegetated Concave Surface (B8)
Coldidate (AS)	Dramage Fallerins (BTU)
Proconce of F	adve-aller to a
/ Drift Deposits (B2) Recent Iron R	reduction in Tilled Soils (C6) Crayfish Burrows (C2)
Algal Mat or Court (D.4)	rface (C7) Saturation Visible on A
Other (Explain	in Remarks) Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)	Geomorphic Position (D2)
Water-Stained Leaves (B9)	Shallow Aquitard (D3)
Aquatic Fauna (B13)	Microtopographic Relief (D4)
Field Observations:	FAC-Neutral Test (D5)
Surface Water Present? Yes No Depth (inches	51: ///
water Table Present? Yes / No Depth (inches	
Saturation Present? Yes No Depth (inches capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photo	Wetland Hydrology Present? Yes No
gas_gas, monitoring well, aeriai photi	os, previous inspections), if available:
Remarks:	
	*

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point:\_ Absolute · Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: \_\_\_\_\_\_\_\_) % Cover Species? Status Number of Dominant Species (A) That Are OBL, FACW, or FAC: Total Number of Dominant Species Across All Strata: (B) Percent of Dominant Species That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: = Total Cover OBL species \_\_\_\_\_ x 1 = \_\_\_\_ 50% of total cover: \_\_\_\_\_ 20% of total cover: FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_ Sapling/Shrub Stratum (Plot size: 15 / ) FAC species \_\_\_\_\_ x 3 = \_\_\_\_ FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_ UPL species \_\_\_\_\_ x 5 = \_\_\_\_ Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B) Prevalence Index = B/A = \_\_\_\_\_ Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation J 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.01 = Total Cover 4 - Morphological Adaptations (Provide supporting 20% of total cover: 50% of total cover: \_\_\_\_ data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Herb Stratum (Plot size: \_ 1. \* CAREX SPP. 2. ALOPELULUS SPP. <sup>1</sup>Indicators of hydric soil and wetland hydrology must FACW 20 3. JUNEOL FRIDSUS be present, unless disturbed or problematic. 296 4 ELEOTHARIS OBTUSA Definitions of Four Vegetation Strata: OBL 5. CARICK VULPINOIDEA 15 Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or 6. TRIFOLIUM PRATENSE FACU more in diameter at breast height (DBH), regardless of Mach 7. SOCIDAGO GIGANTEA height. Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. 95 = Total Cover Woody vine - All woody vines greater than 3.28 ft in Woody Vine Stratum (Plot size: \_\_\_\_\_) height. Hydrophytic Vegetation Present? = Total Cover 50% of total cover: \_\_\_\_\_ 20% of total cover: Remarks: (Include photo numbers here or on a separate sheet.) K FIFID MONED REDUREN

#### Sampling Point: VEGETATION (Five Strata) - Use scientific names of plants. Absolute Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: \_\_\_\_\_) % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: \_\_\_\_\_ (A) Total Number of Dominant Species Across All Strata: Percent of Dominant Species \_\_\_ (A/B) That Are OBL, FACW, or FAC: Prevalence Index worksheet: = Total Cover Total % Cover of: Multiply by: 50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_ OBL species \_\_\_\_\_ x1 =\_\_\_\_ Sapling Stratum (Plot size: \_\_\_\_\_) FACW species \_\_\_\_\_ x 2 = \_\_\_\_ FAC species \_\_\_\_\_ x 3 =\_\_\_\_ FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_ UPL species \_\_\_\_\_ x 5 =\_\_\_\_ Column Totals: \_\_\_\_\_\_ (A) \_\_\_\_\_\_ (B) Prevalence Index = B/A =\_\_\_\_ \_\_\_\_ = Total Cover Hydrophytic Vegetation Indicators: \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation 50% of total cover: \_\_\_\_\_ 20% of total cover:\_\_\_ \_\_\_ 2 - Dominance Test is >50% Shrub Stratum (Plot size: \_\_\_\_\_\_) 3 - Prevalence Index is ≤3.01 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) <sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. = Total Cover Definitions of Five Vegetation Strata: 50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_ Tree - Woody plants, excluding woody vines, Herb Stratum (Plot size: \_\_\_\_\_) approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling — Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine - All woody vines, regardless of height. \_\_\_\_ = Total Cover 50% of total cover: 20% of total cover: Woody Vine Stratum (Plot size: \_\_\_\_\_) Hydrophytic = Total Cover Vegetation Yes \_\_\_\_ No\_\_ Present? 20% of total cover: 50% of total cover: \_\_\_

Remarks: (Include photo numbers here or on a separate sheet.)

(inches)	IVICALIA			Redo	x Features			n the absence	of mulcators.)
0-3	Color (moist)	%	Color (r	naist)	%	Type	_Loc²	Texture	2000
-	54 512	93	_164R	4/4	7	-	PL		Remarks
3-12	54612	90	10 YR	5/6	10	-	TOTAL PROPERTY.	Silty/Cla	Υ
			- 10-10-	-16	-10		PL	Clay	
		السيا							
				_					
0-17	2.5 Y 5/3	100							
0 10 1	01 3/3	100						51/Hv	OUTPOINT
	71174 90 65								(37.44645N -83.79)
Type: C=Con	centration, D=Depl	etion, RM=	Reduced M	latrix, MS	=Masked	Sand Gra	ins.	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix.
iyane dan mi	dicators.							Indica	ators for Problematic Hydric Soils <sup>3</sup> :
_ Histosol (A _ Histic Epip			Dark	Surface	(S7)			n	cm Muck (A10) (MLRA 147)
Black Histi			Poly	value Bel	ow Surfac	e (S8) (M	LRA 147,	148) C	oast Prairie Redox (A16)
	Sulfide (A4)		inin	Dark Sur	face (S9)	(MLRA 1	47, 148)		(MLRA 147, 148)
	ayers (A5)		7 Dent	eted Mati	d Matrix (F	2)		P	iedmont Floodplain Soils (F19)
	(A10) (LRR N)		Redo	otey Mau	iurface (F6				(MLRA 136, 147)
_ Depleted B	Below Dark Surface	(A11)	Depl	eted Dark	Surface (	7) F7)		_ v	ery Shallow Dark Surface (TF12)
_ Thick Dark	Surface (A12)		Redo	x Depres	ssions (F8	1		_ 0	ther (Explain in Remarks)
Sandy Mud	cky Mineral (S1) (L	RR N,	Iron-	Mangane	se Masse:	(F12) (L	RR N		
	47, 148)		M	LRA 136	)				
Sandy Gley Sandy Red	yed Matrix (S4)		Umb	ric Surfac	e (F13) (N	<b>ILRA 136</b>	, 122)	3Indi	cators of hydrophytic vegetation and
Stripped M			Piedr	mont Floo	odplain So	Is (F19) (	MLRA 14	1810	tland hydrology must be present,
Restrictive La	yer (if observed):		Red	Parent M	aterial (F2	1) (MLRA	127, 147	) unl	ess disturbed or problematic.
Type:	. 50 10 200 01 CM								
Depth (inche	es):		= -					A	
								Hydric Soil	Present? Yes No
Remarks:	2571								
	5014								
Remarks:	5016								
Remarks:	5014								
Remarks:	S014								
Remarks:	S014								
Remarks:	5014								
emarks:	5014								
emarks:	S014								
temarks:	S014								
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emarks:	s <del>o</del> IL								
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Remarks:	S014								
temarks:	SOIL.								
Remarks:	S014								
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temarks:	501L								
temarks:	SOL								

## **Preliminary Jurisdictional Determination Forms**

#### Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

#### **BACKGROUND INFORMATION**

Α.	REPORT COMPLETION DATE FOR PJD:	11/27/2017
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- B. NAME AND ADDRESS OF PERSON REQUESTING PJD: Tyler Reynolds, KYTC, 200 Mero Street, Frankfort, KY 40622
- C. DISTRICT OFFICE, FILE NAME, AND NUMBER:
- D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
  (USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: KY County/parish/borough: Jackson/Owsley City:

Center coordinates of site (lat/long in degree decimal format):

Lat.: 37.411960 Long.: -83.830193

Universal Transverse Mercator:

Name of nearest waterbody: Laurel Fork

#### E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s): September, 2017

### TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)

- 1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
- 2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there "may be" waters of the U.S. and/or that there "may be" navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

#### SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items: Maps, plans, plots or plat submitted by or on behalf of the PJD requestor: ■ Data sheets prepared/submitted by or on behalf of the PJD requestor. Office concurs with data sheets/delineation report. Office does not concur with data sheets/delineation report. Rationale: Data sheets prepared by the Corps: □ Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas: \_\_\_\_\_\_ ☐ USGS NHD data. USGS 8 and 12 digit HUC maps. U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Sturgeon, Tyner, Maulden National wetlands inventory map(s). Cite name: National Wetland Inventory Polygons-GIS coverage ☐ State/local wetland inventory map(s): \_\_\_\_\_ FEMA/FIRM maps: \_\_\_\_\_\_\_\_ 100-year Floodplain Elevation is: \_\_\_\_\_\_.(National Geodetic Vertical Datum of 1929) Photographs: Aerial (Name & Date): NAIP Color Imagery 2012 – 1 meter coverage. Other (Name & Date): Previous determination(s). File no. and date of response letter: Other information (please specify): IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations. Signature and date of Signature and date of Regulatory staff member person requesting PJD

(REQUIRED, unless obtaining the signature is impracticable)<sup>1</sup>

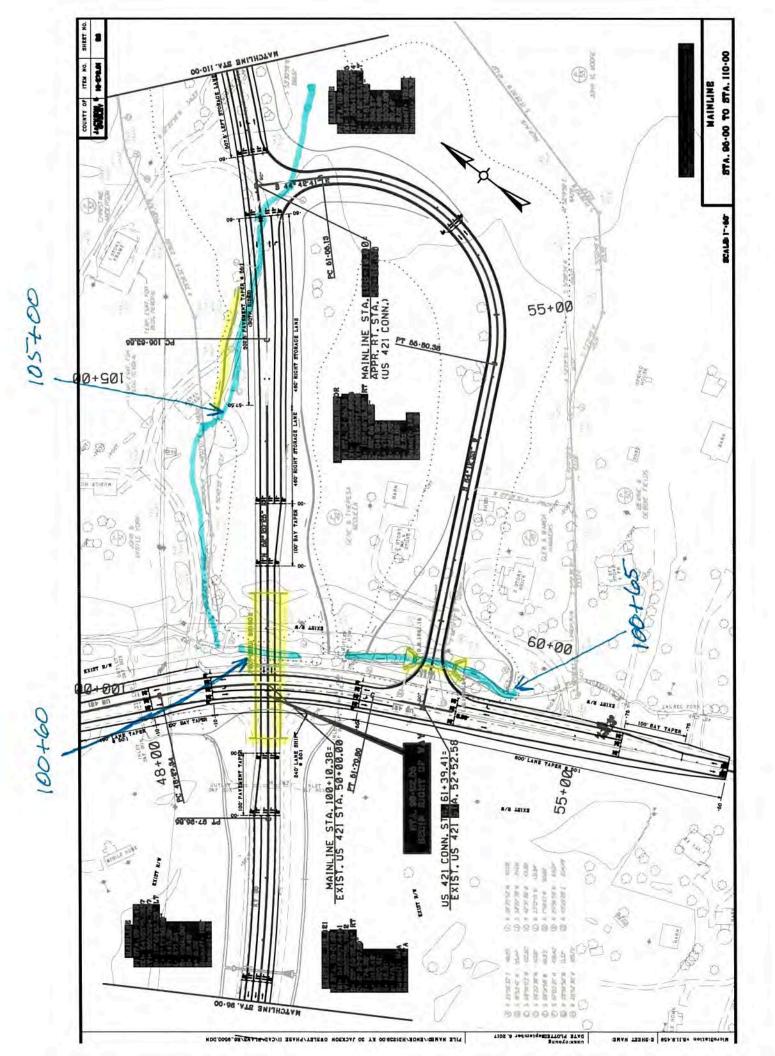
completing PJD

<sup>&</sup>lt;sup>1</sup> Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Site number	Latitude	Longitude	Estimated amount of aquatic resource in review area (acreage & linear feet)	Type of aquatic resource	Geographic authority to which the aquatic resource "may be" subject
100+60	37.342652	-83.900162	0.00 ac; 00 ft	non-wetland	Section 404
100+65	37.342268	-83.899803	0.034 ac; 300 ft	non-wetland	Section 404
105+00	37.343801	-83.898646	0.013 ac; 561 ft	non-wetland	Section 404
113+55	37.345256	-83.896992	0.006 ac; 121 ft	non-wetland	Section 404
119+00	37.347125	-83.895914	0.071 ac; 777 ft	non-wetland	Section 404
125+00	37.348418	-83.893765	0.056 ac; 1224 ft	non-wetland	Section 404
134+00	37.349313	-83.892198	0.092 ac	wetland	Section 404
150+00	37.353729	-83.886931	0.024 ac; 514 ft	non-wetland	Section 404
154+50	37.353518	-83.887400	0.003 ac; 90 ft	non-wetland	Section 404
157+50	37.354480	-83.886972	0.011 ac; 463 ft	non-wetland	Section 404
157+75	37.353812	-83.885552	0.008 ac; 118 ft	non-wetland	Section 404
172+00	37.358475	-83.885571	0.007 ac; 303 ft	non-wetland	Section 404
174+00	37.359213	-83.885596	0.003 ac; 146 ft	non-wetland	Section 404
175+00	37.359213	-83.885596	0.089 ac	wetland	Section 404
190+00	37.361535	-83.881209	0.020 ac; 593 ft	non-wetland	Section 404
208+20	37.365205	-83.876700	0.002 ac; 25 ft	non-wetland	Section 404
209+00	37.364742	-83.876020	0.139 ac; 505 ft	non-wetland	Section 404
210+00	37.365573	-83.876693	0.04 ac; 218 ft	non-wetland	Section 404
217+00	37.366648	-83.873227	0.019 ac; 270 ft	non-wetland	Section 404
219+00	37.366648	-83.873227	0.225 ac	wetland	Section 404
230+00	37.369517	-83.870871	0.029 ac; 417 ft	non-wetland	Section 404
231+00	37.369517	-83.870871	0.147 ac	wetland	Section 404
248+00	37.374435	-83.868151	0.028 ac; 601 ft	non-wetland	Section 404
258+00	37.376005	-83.866220	0.008 ac; 184 ft	non-wetland	Section 404
260+00	37.376181	-83.865983	0.01 ac; 214 ft	non-wetland	Section 404
273+00	37.379245	-83.863429	0.057 ac; 224 ft	non-wetland	Section 404
274+00	37.379191	-83.863335	0.052 ac	wetland	Section 404
275+00	37.379580	-83.862088	0.563 ac	wetland	Section 404
277+00	37.380158	-83.862287	0.168 ac; 664 ft	non-wetland	Section 404
286+00	37.380905	-83.859290	0.015 ac; 333 ft	non-wetland	Section 404
295+00	37.382589	-83.857663	0.064 ac; 936 ft	non-wetland	Section 404
325+00	37.390222	-83.850220	0.053 ac; 1535 ft	non-wetland	Section 404
332+00	37.390868	-83.849417	0.018 ac; 386 ft	non-wetland	Section 404
333+00	37.390931	-83.849289	0.004 ac; 113 ft	non-wetland	Section 404
338+00	37.392996	-83.849335	0.035 ac; 381 ft	non-wetland	Section 404
346+00	37.394964	-83.846667	0.057 ac; 415 ft	non-wetland	Section 404
349+00	37.394975	-83.846829	0.004 ac; 192 ft	non-wetland	Section 404
351+50	37.395272	-83.846337	0.005 ac; 227 ft	non-wetland	Section 404
352+50	37.396044	-83.845607	0.032 ac; 703 ft	non-wetland	Section 404
355+75	37.396296	-83.845292	0.0 ac; 0 ft	non-wetland	Section 404

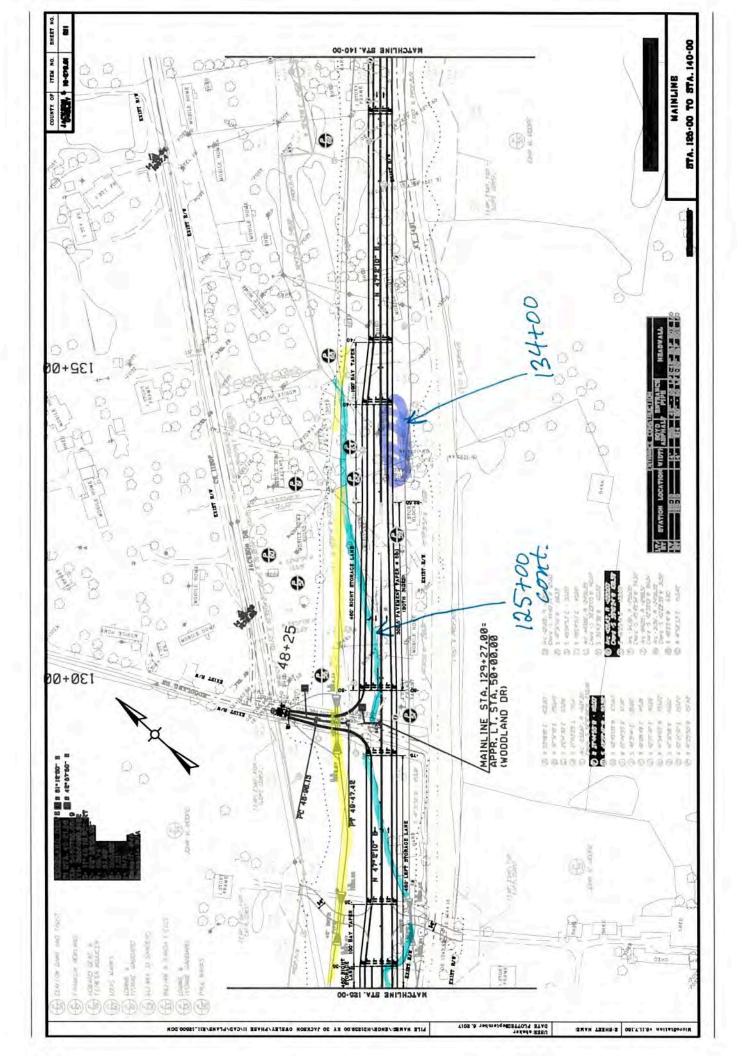
358+00	37.396965	-83.844991	0.002 ac; 48 ft	non-wetland	Section 404
358+50	37.396947	-83.844823	0.006 ac; 127 ft	non-wetland	Section 404
367+00	37.398682	-83.843064	0.012 ac; 260 ft	non-wetland	Section 404
375+00	37.400598	-83.841543	0.003 ac; 121 ft	non-wetland	Section 404
375+40	37.400699	-83.841242	0.001 ac; 55 ft	non-wetland	Section 404
375+50	37.400699	-83.841242	0.01 ac	wetland	Section 404
386+00	37.403316	-83.839083	0.019 ac; 420 ft	non-wetland	Section 404
394+00	37.404964	-83.837658	0.018 ac; 537 ft	non-wetland	Section 404
405+00	37.407722	-83.835586	0.049 ac	wetland	Section 404
405+50	37.407722	-83.835586	0.005 ac; 153 ft	non-wetland	Section 404
418+00	37.411960	-83.830193	0.718 ac; 328 ft	non-wetland	Section 404
442+00	37.415132	-83.826276	0.103 ac; 745 ft	non-wetland	Section 404
445+00	37.414951	-83.826246	0.006 ac; 276 ft	non-wetland	Section 404
465+00	37.419970	-83.821663	0.019 ac; 410 ft	non-wetland	Section 404
474+00	37.420614	-83.818527	0.028 ac; 619 ft	non-wetland	Section 404
489+00	37.424085	-83.815651	0.006 ac; 182 ft	non-wetland	Section 404
490+00	37.424100	-83.814946	0.483 ac	wetland	Section 404
503+50	37.427251	-83.813038	0.004 ac; 123 ft	non-wetland	Section 404
508+00	37.428349	-83.812409	0.051 ac; 553 ft	non-wetland	Section 404
512+50	37.429044	-83.809838	0.002 ac; 28 ft	non-wetland	Section 404
513+50	37.429395	-83.810654	0.035 ac; 754 ft	non-wetland	Section 404
529+50	37.433508	-83.808810	0.003 ac; 119 ft	non-wetland	Section 404
530+00	37.433508	-83.808810	0.061 ac	wetland	Section 404
534+20	37.435460	-83.806516	0.002 ac; 80 ft	non-wetland	Section 404
541+00	37.436621	-83.806409	0.012 ac; 354 ft	non-wetland	Section 404
542+50	37.437990	-83.804493	0.085 ac; 1237 ft	non-wetland	Section 404
547+00	37.437204	-83.804983	0.004 ac; 180 ft	non-wetland	Section 404
553+50	37.438294	-83.802565	0.140 ac; 765 ft	non-wetland	Section 404
554+00	37.438773	-83.803438	0.006 ac; 85 ft	non-wetland	Section 404
562+00	37.439597	-83.800425	0.008 ac; 347 ft	non-wetland	Section 404
563+00	37.439266	-83.800536	0.208 ac	wetland	Section 404
570+00	37.440779	-83.798727	0.227 ac	wetland	Section 404
579+00	37.442588	-83.796396	0.012 ac; 339 ft	non-wetland	Section 404
587+50	37.444444	-83.794641	0.005 ac; 155 ft	non-wetland	Section 404
595+00	37.445716	-83.792514	0.032 ac; 467 ft	non-wetland	Section 404
595+50	37.446075	-83.792857	0.017 ac; 249 ft	non-wetland	Section 404
595+70	37.446453	-83.793091	0.062 ac	wetland	Section 404
596+00	37.446453	-83.793091	0.001 ac; 28 ft	non-wetland	Section 404
600+00	37.446845	-83.791683	0.317 ac	wetland	Section 404
603+50	37.447615	-83.790933	0.003 ac; 115 ft	non-wetland	Section 404

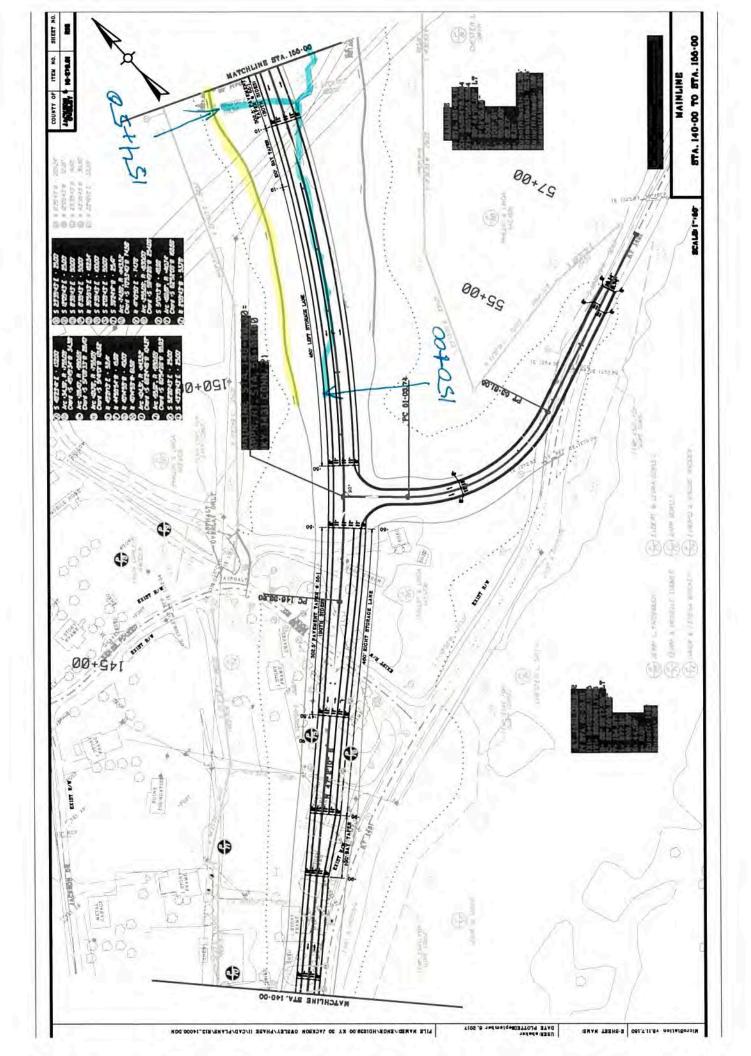
### **Plan Sheets**

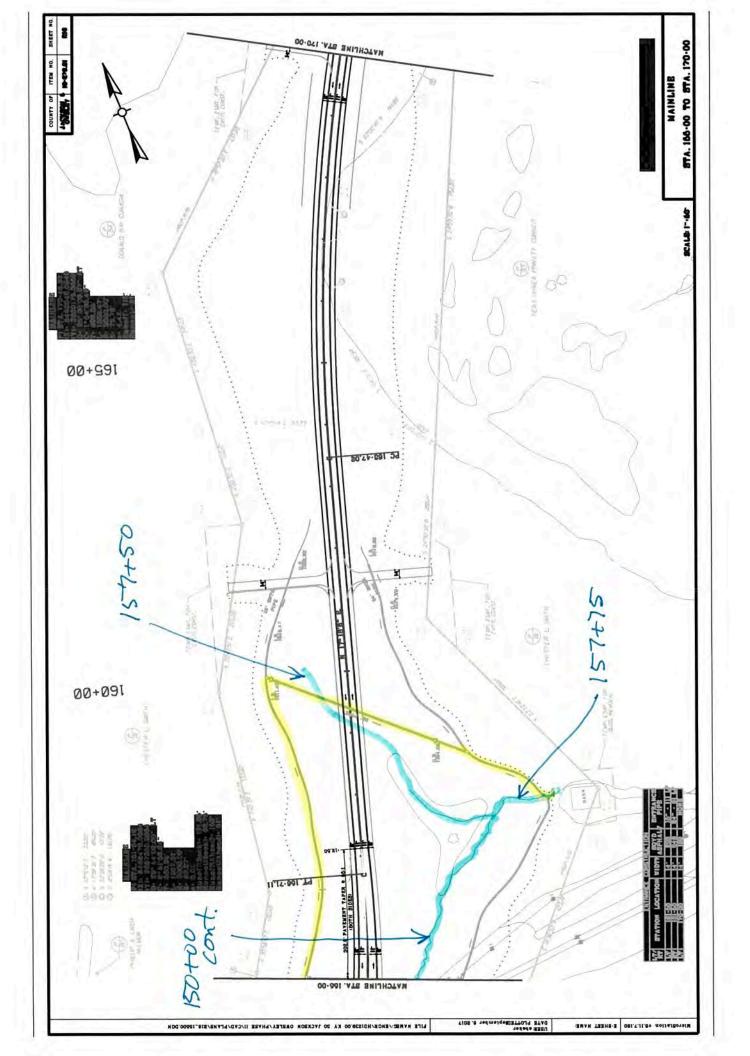


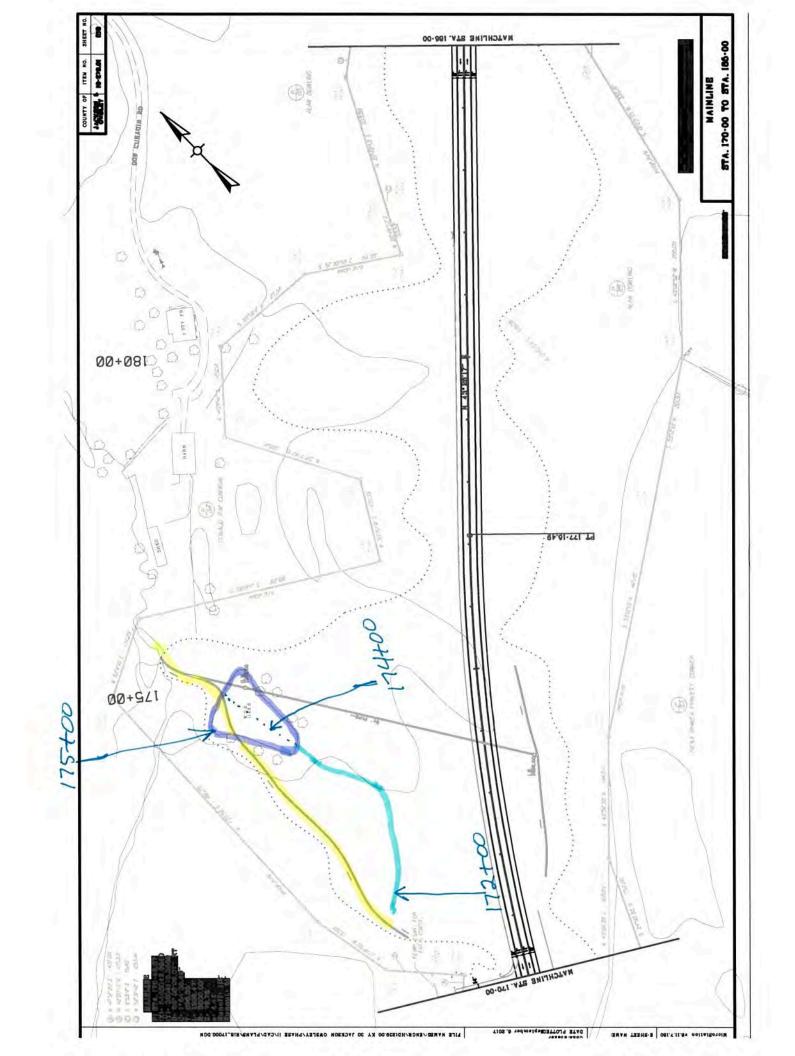
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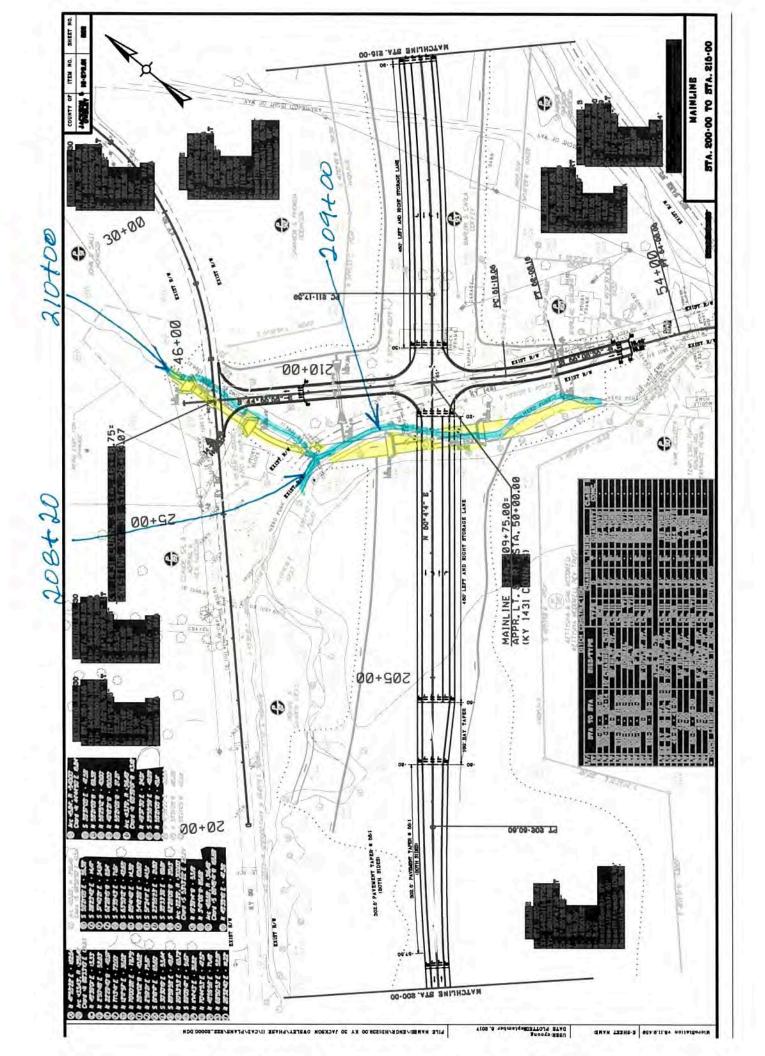
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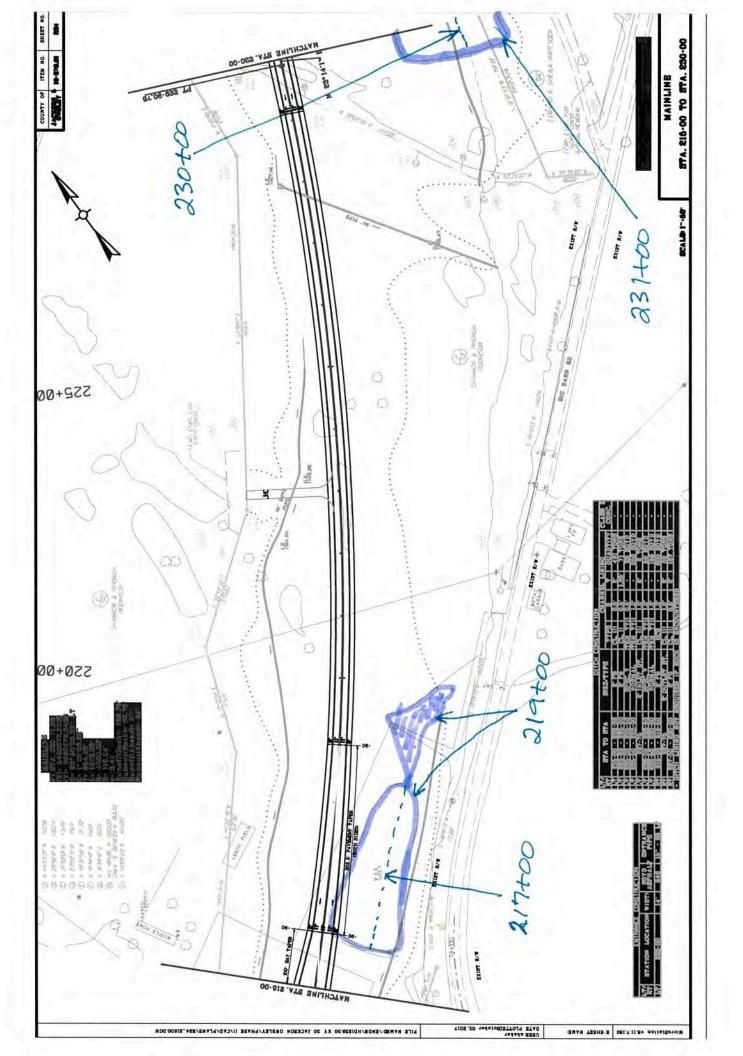


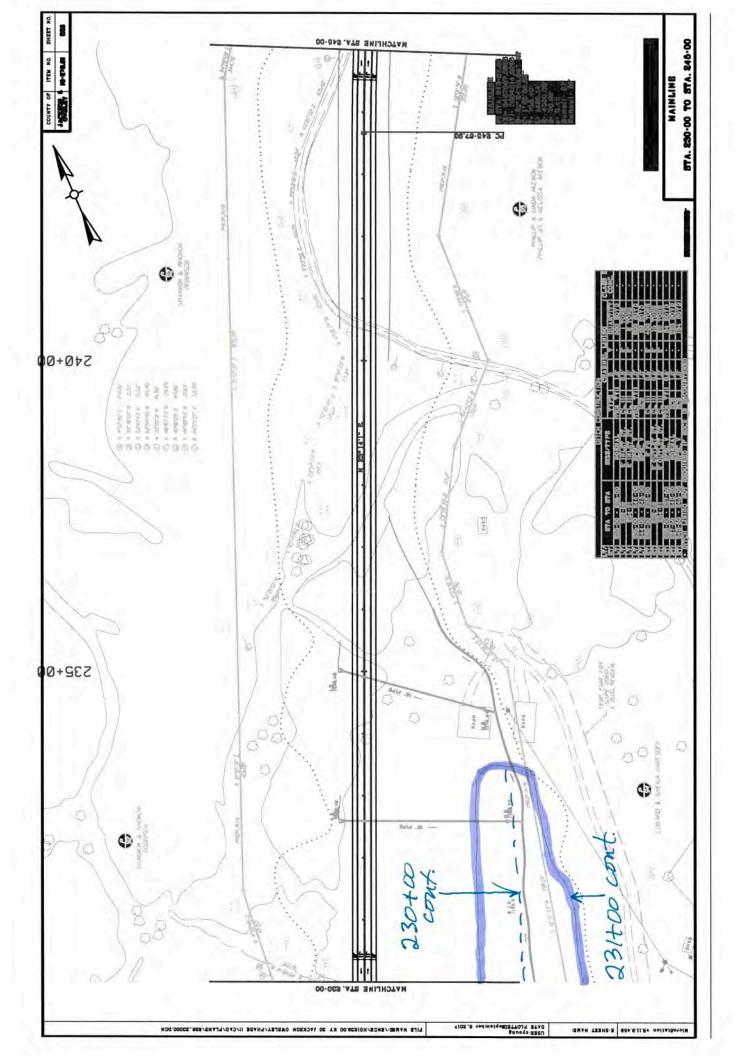


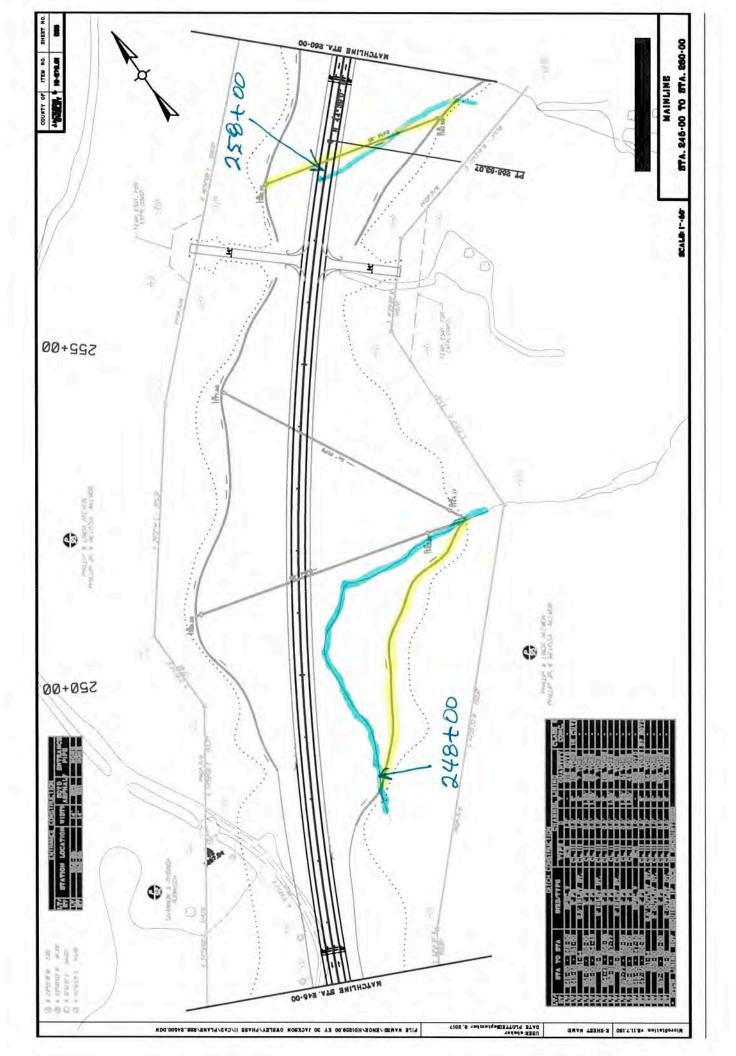


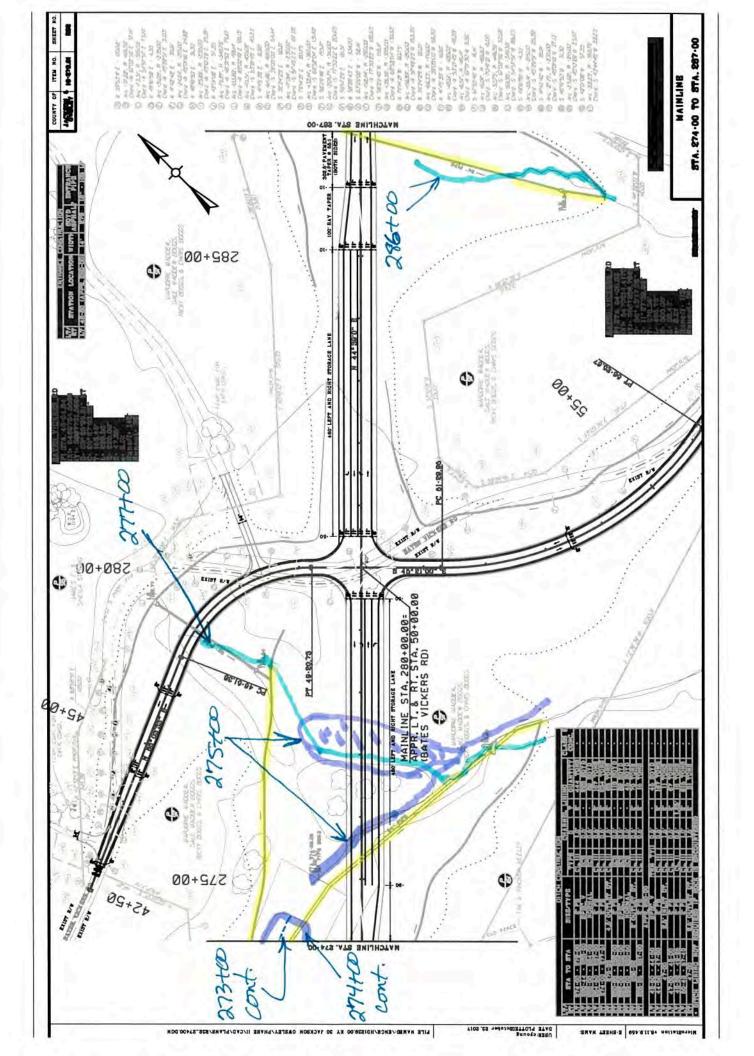


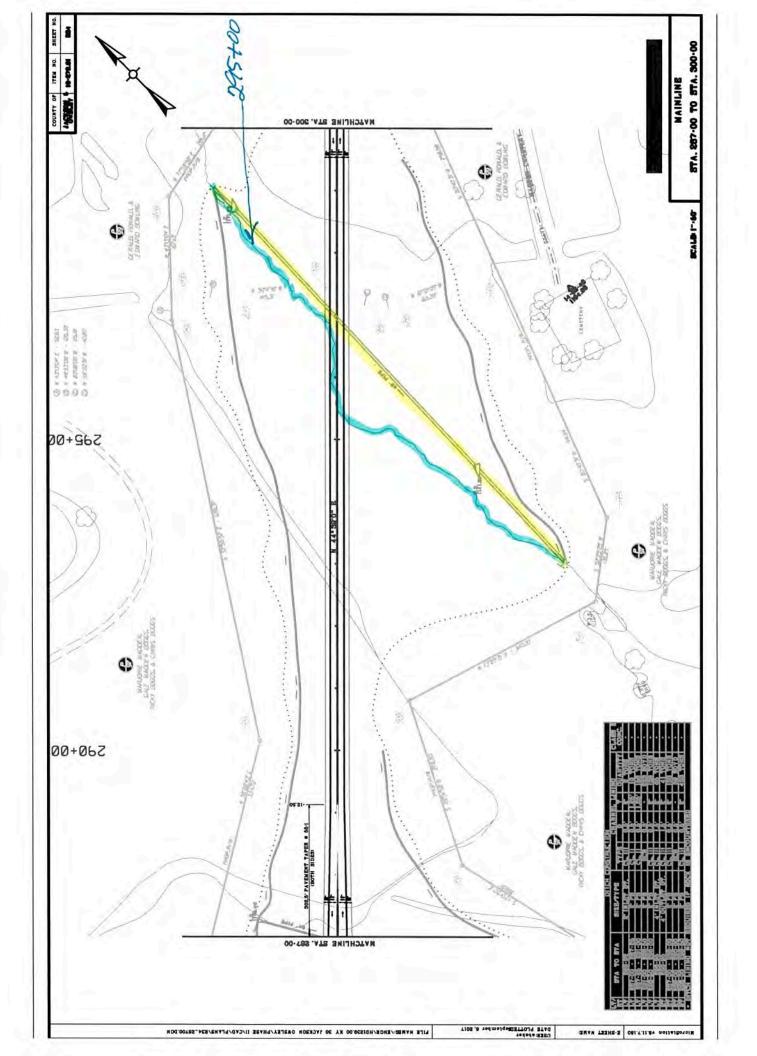


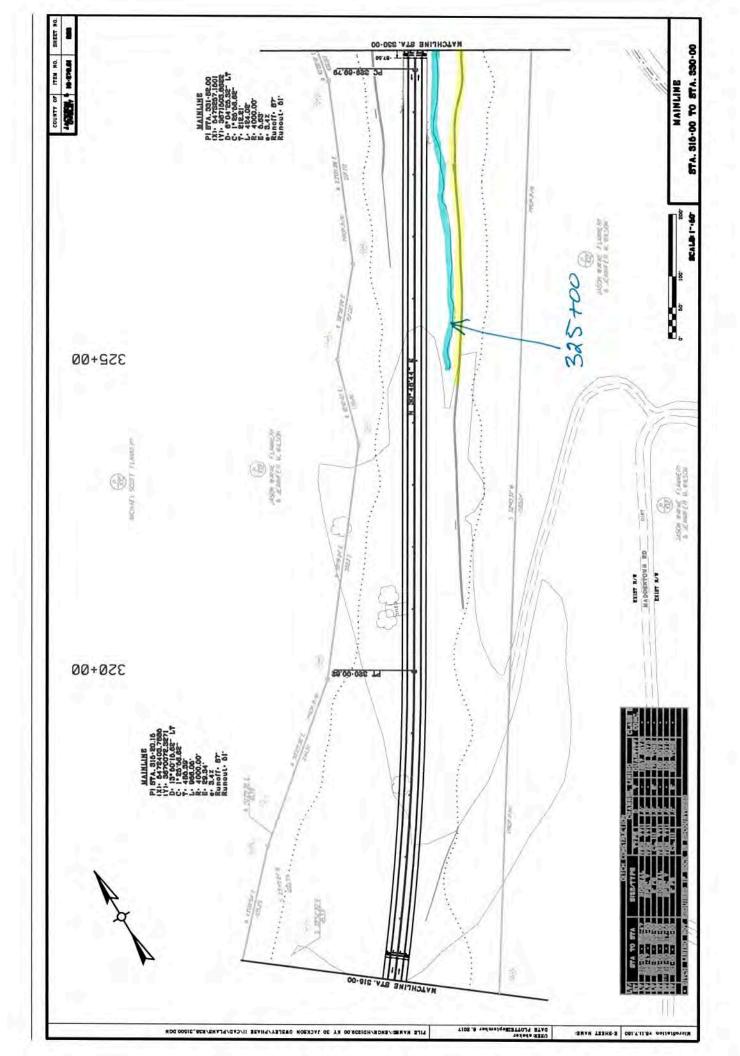




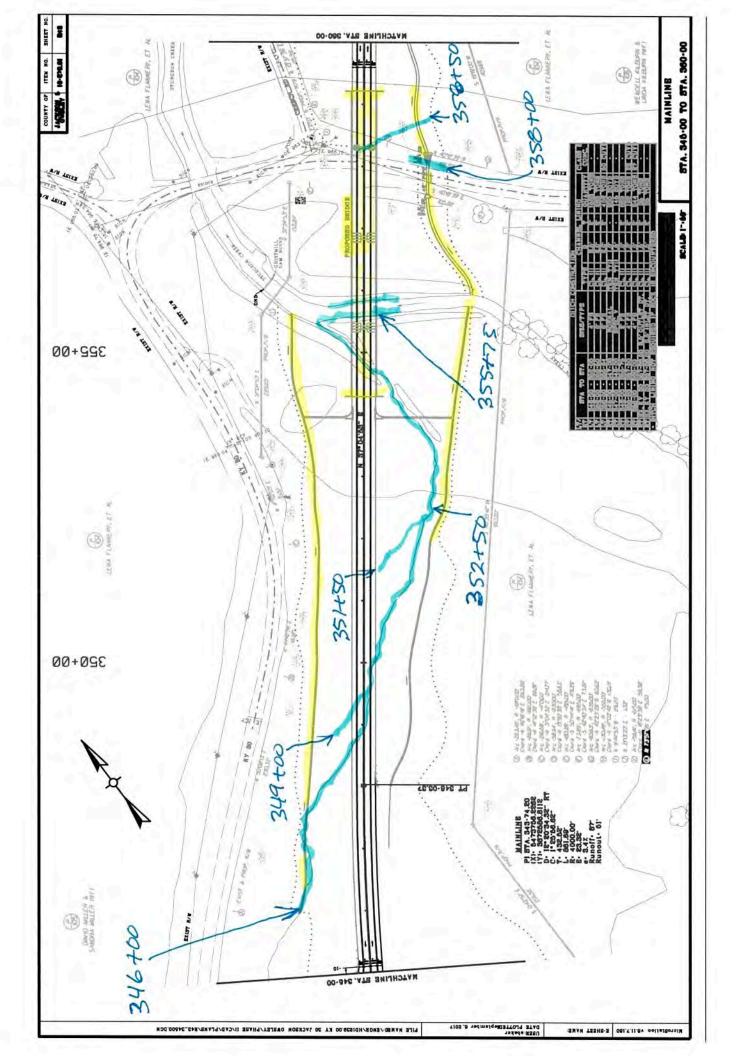


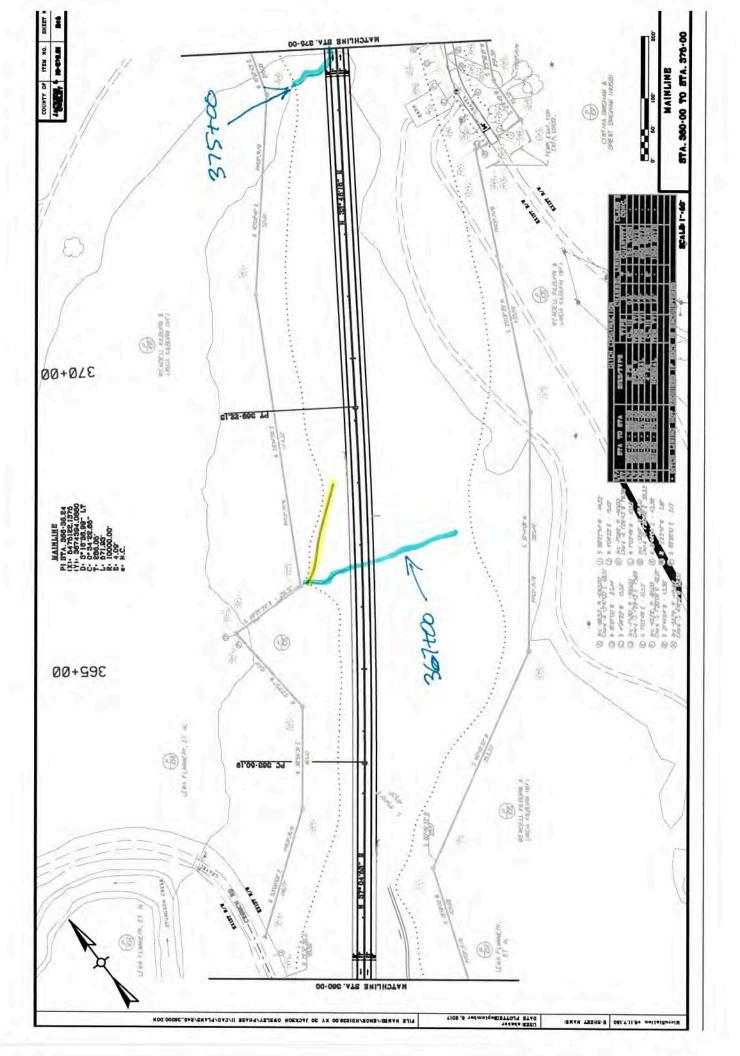


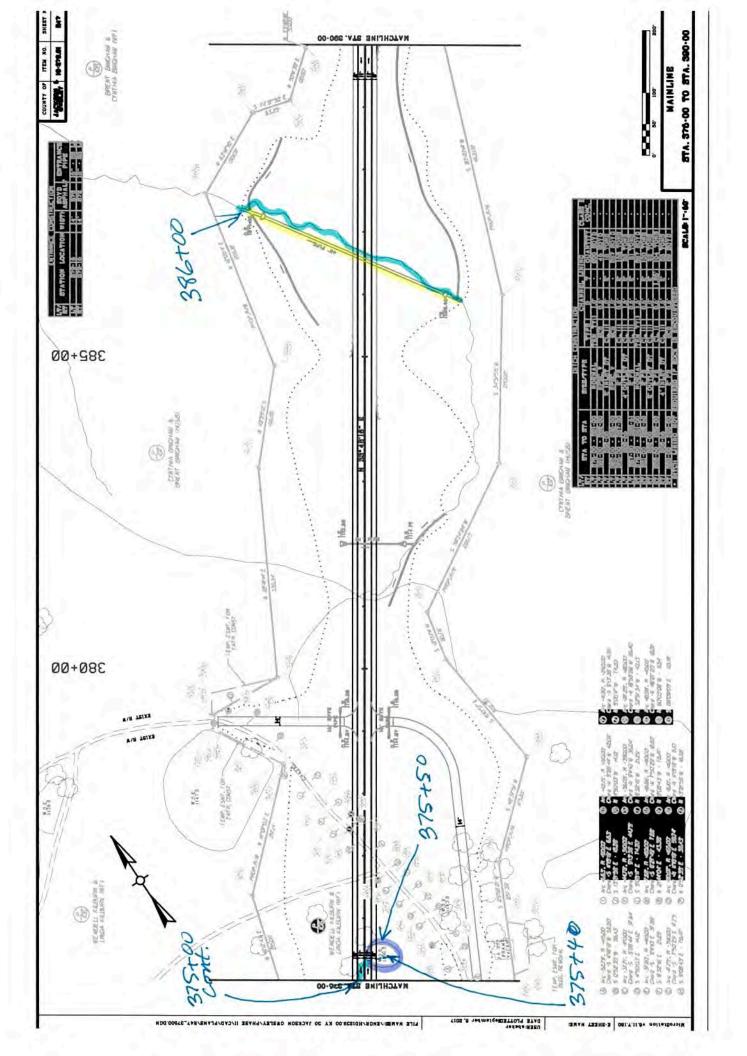


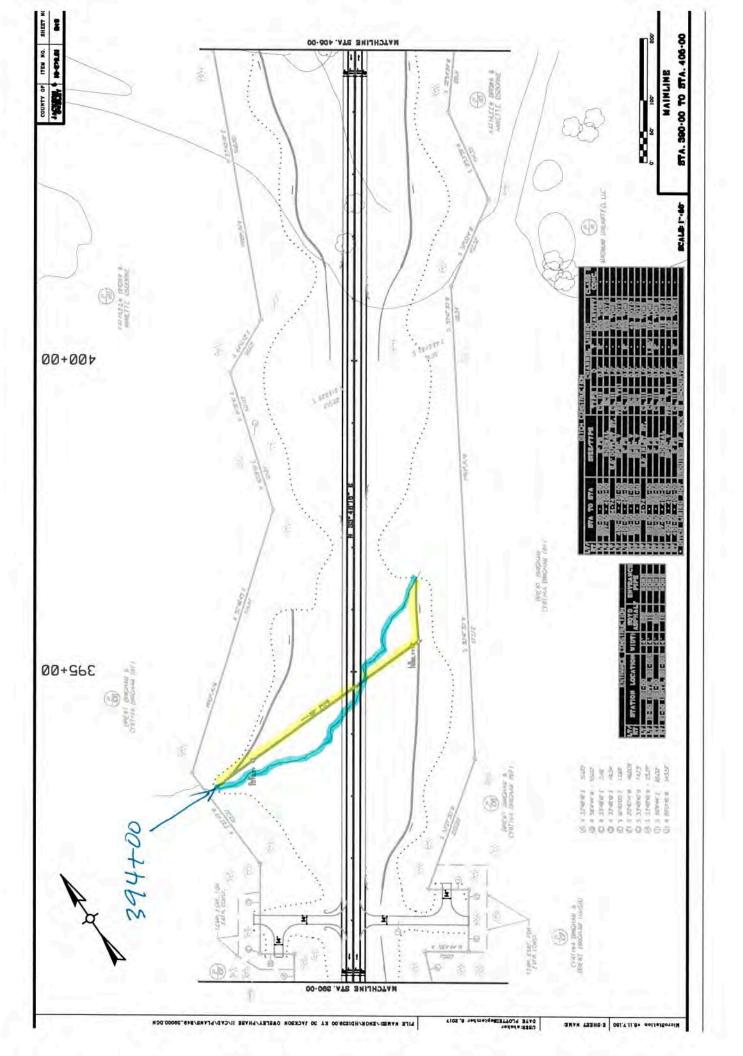


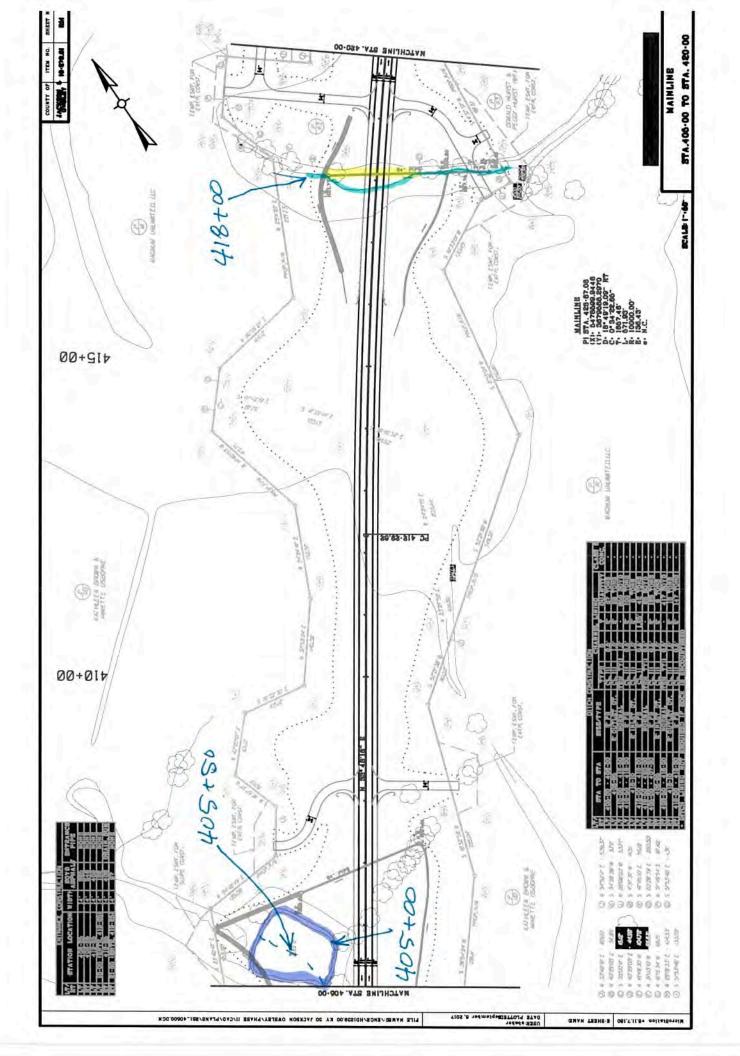
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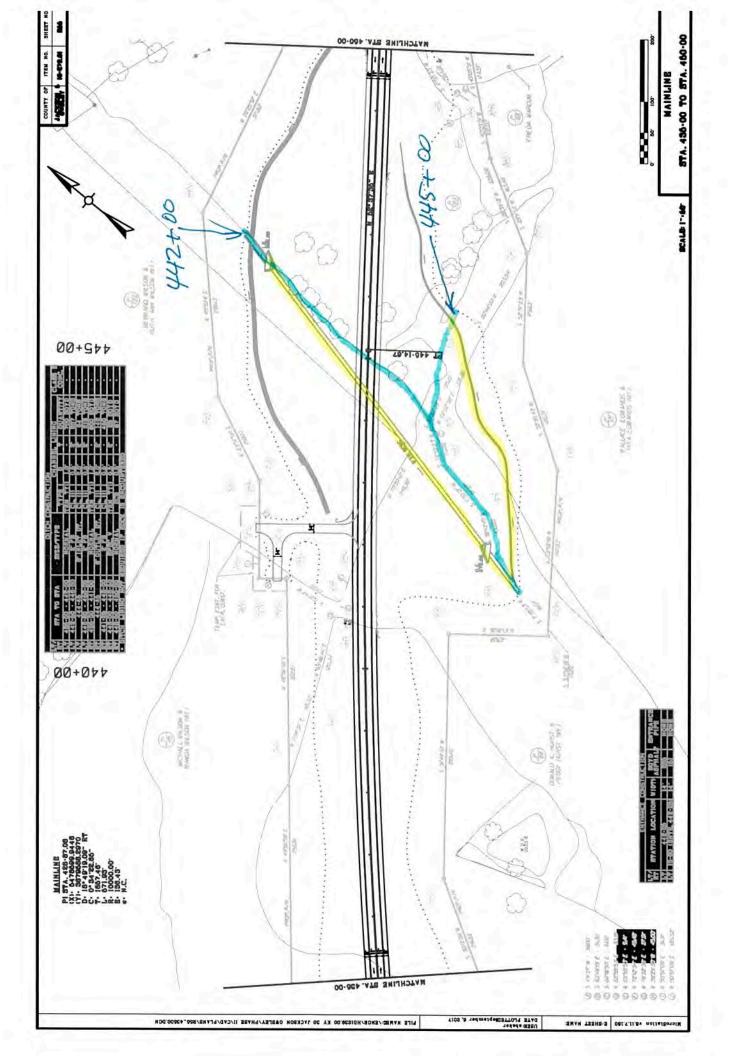




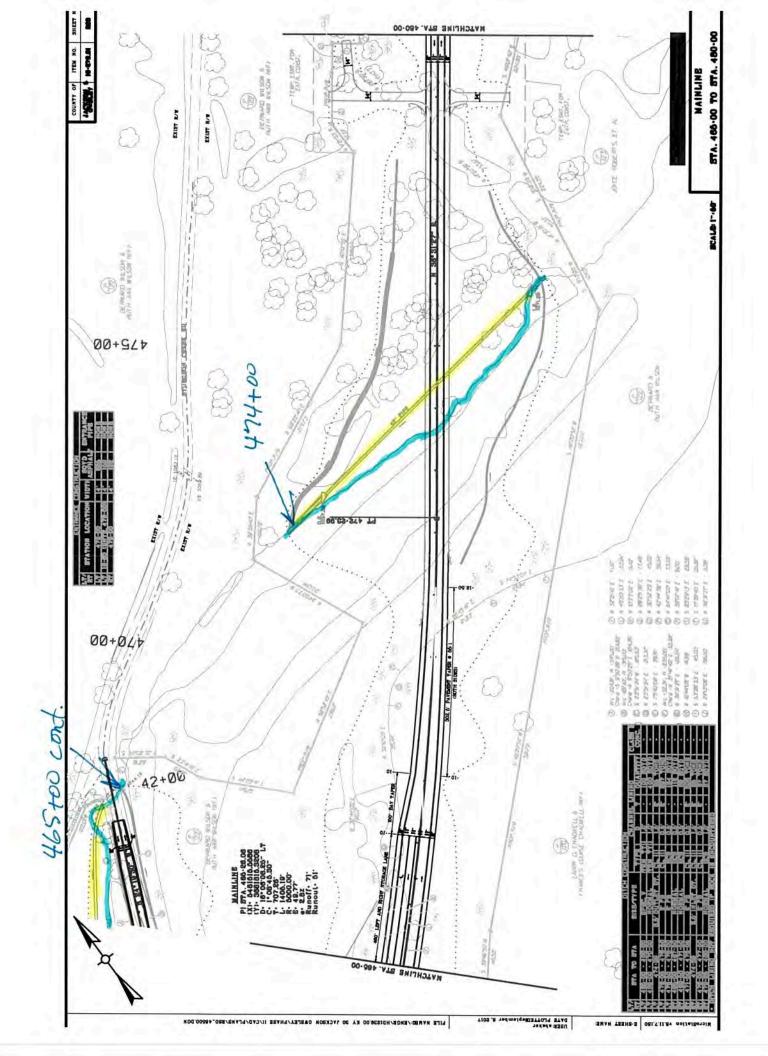


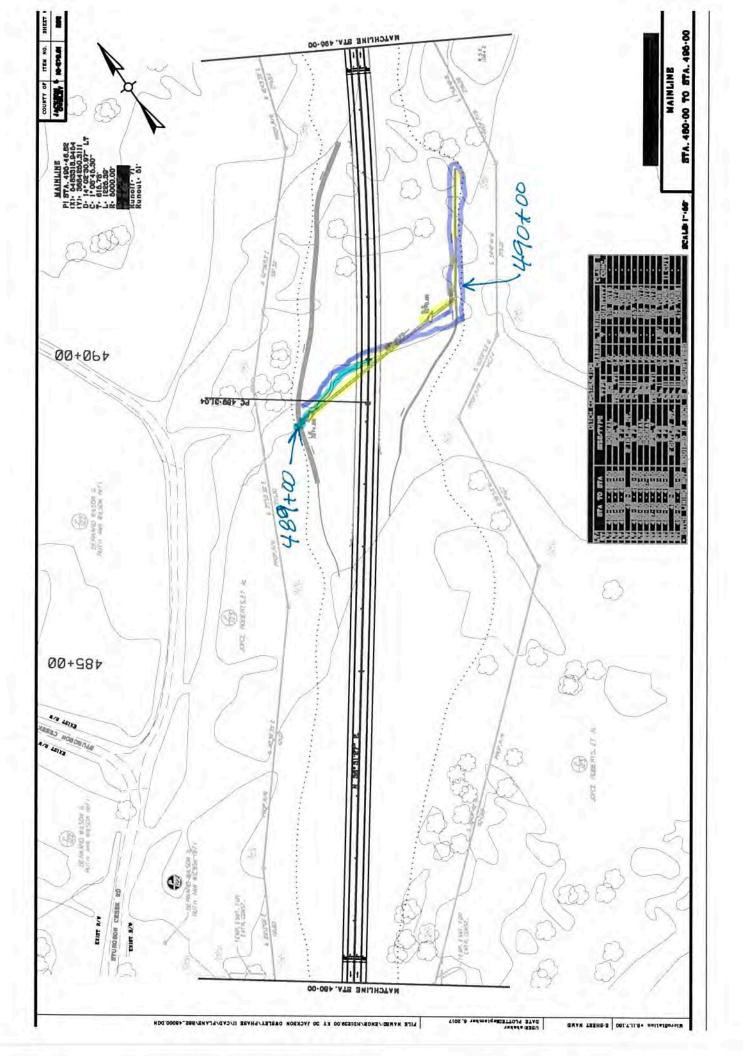


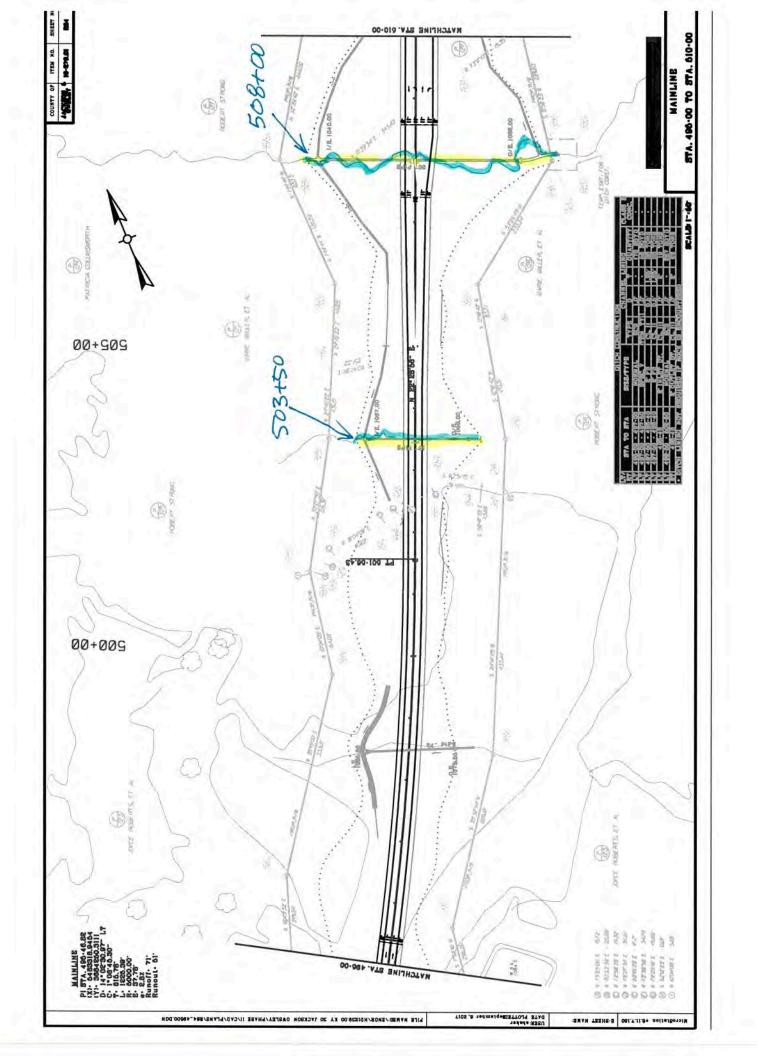


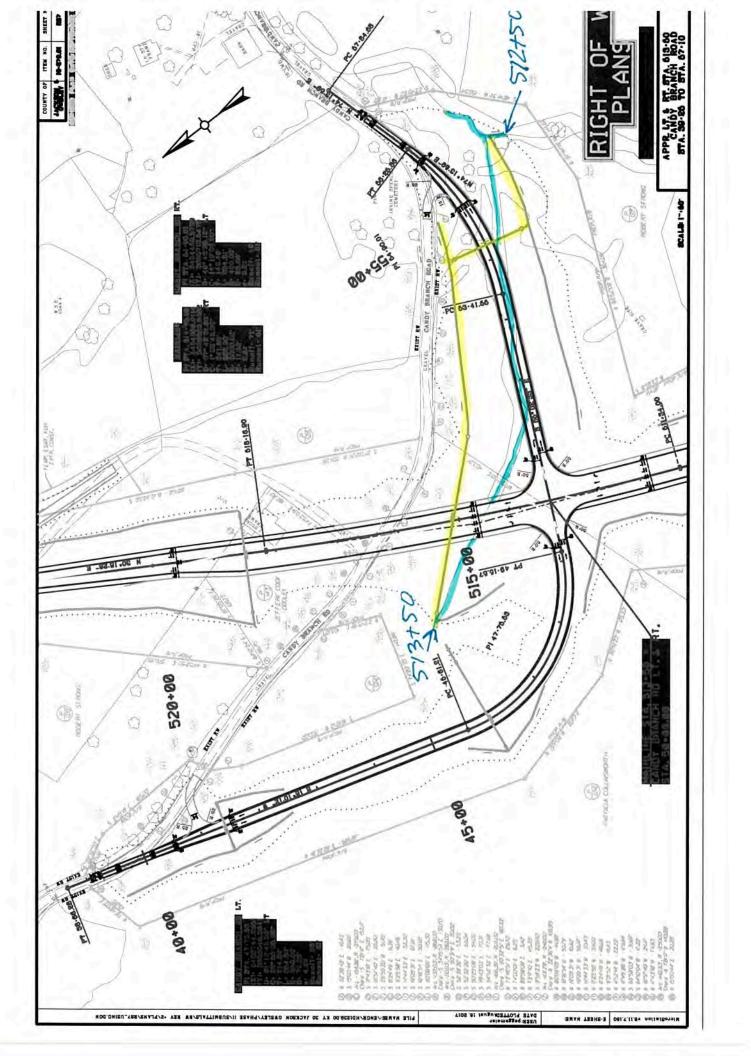


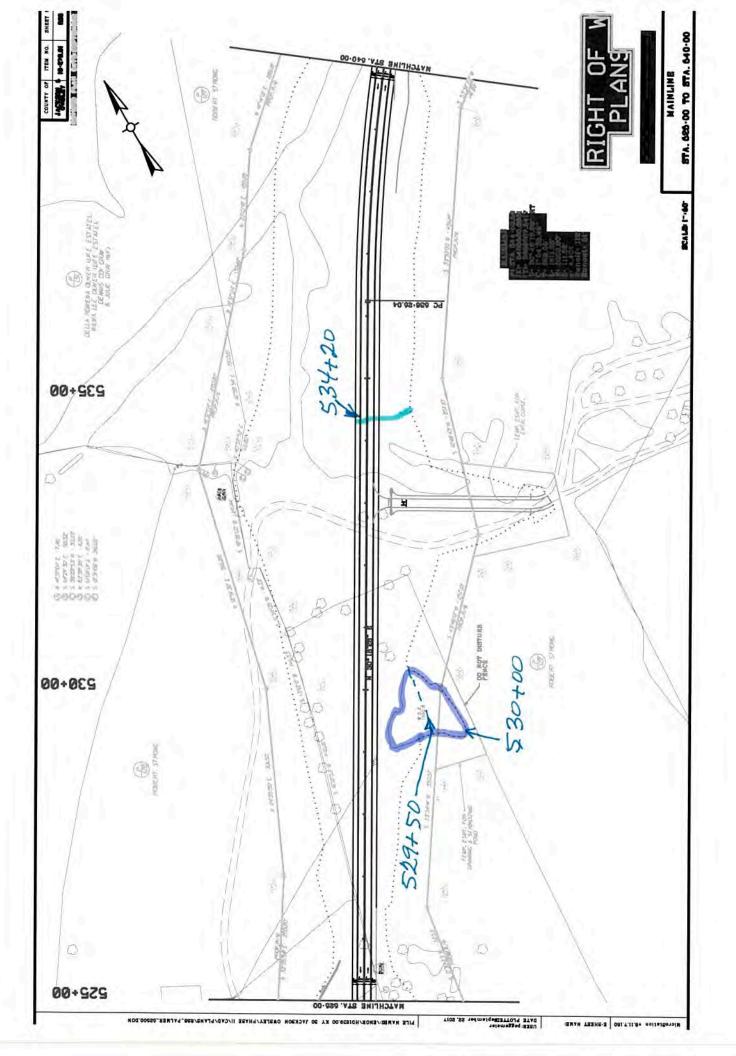
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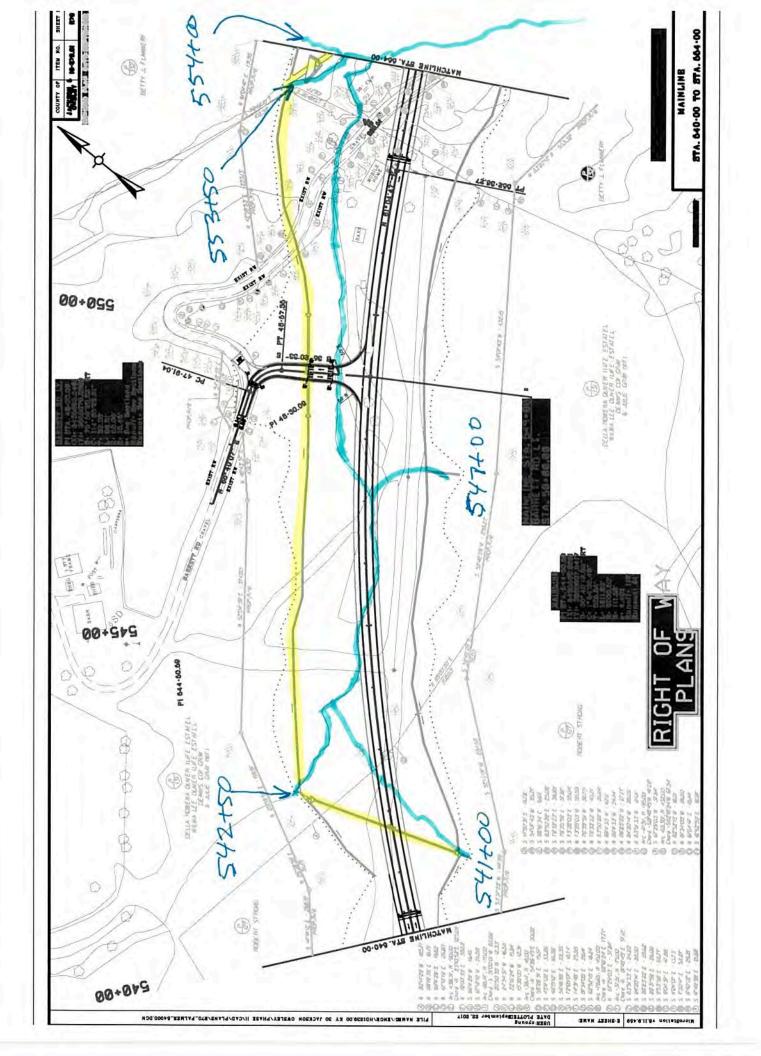


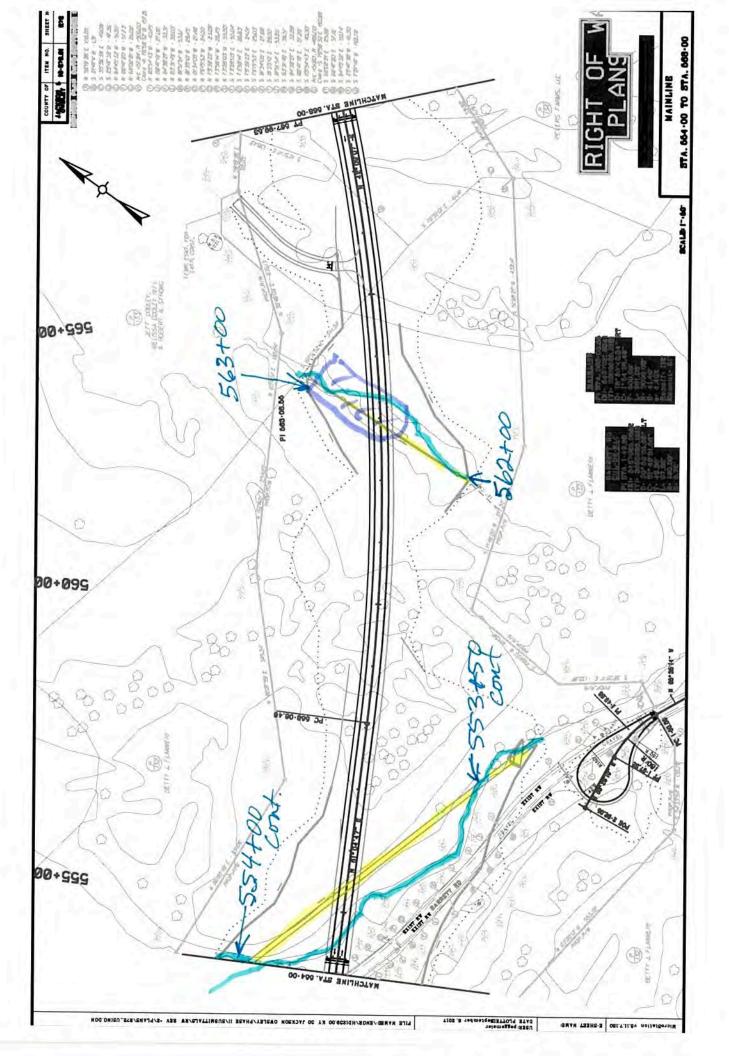


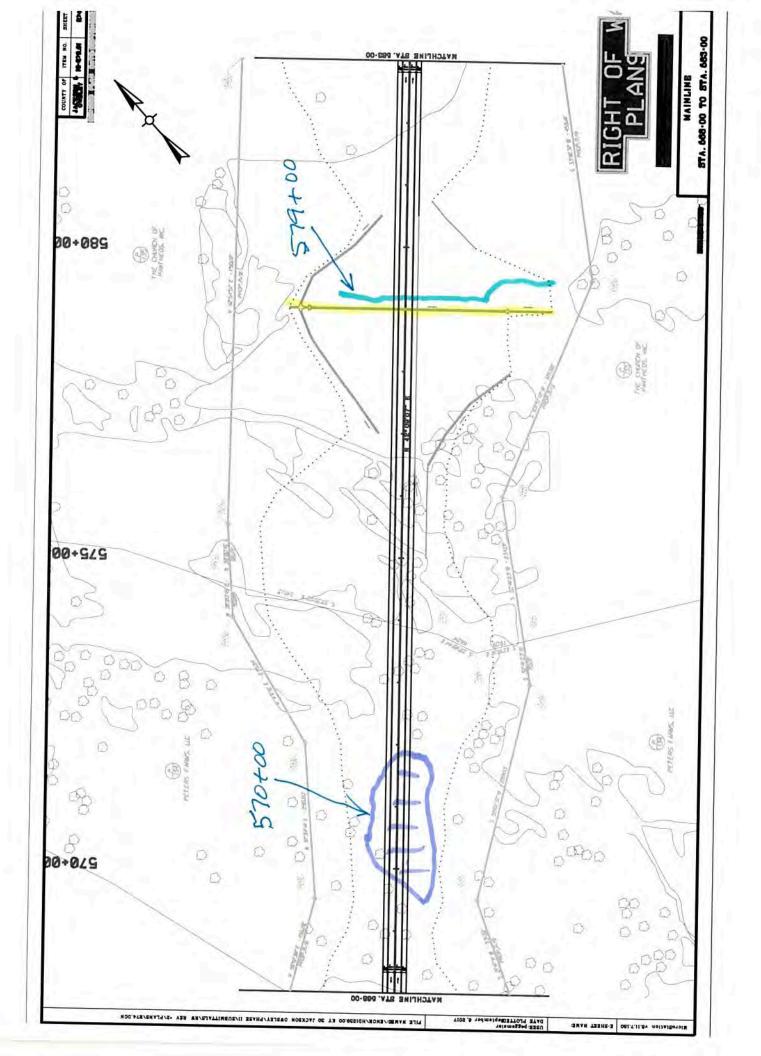


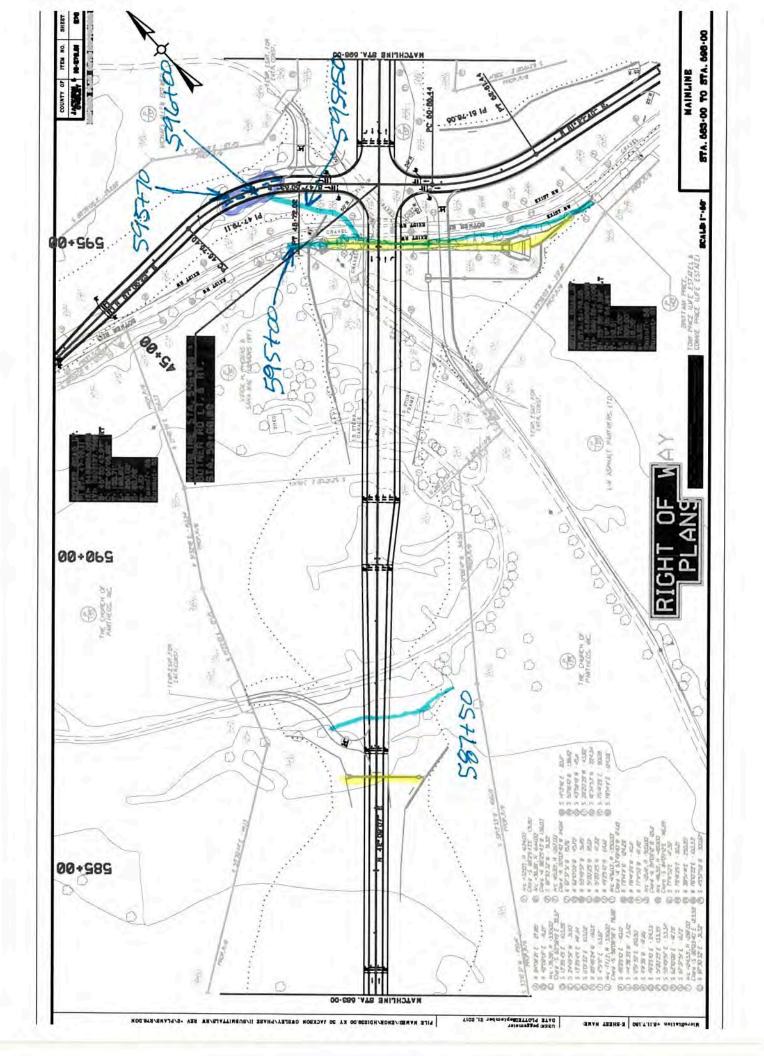


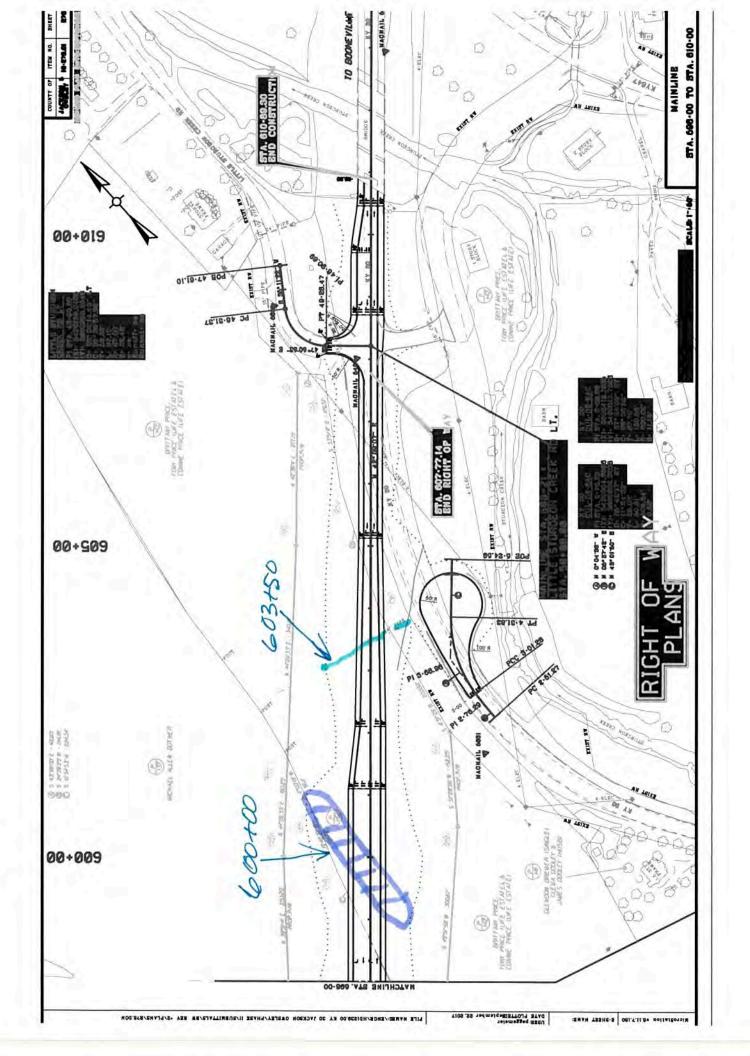












# **LOP Assessment of Environmental, Social and Other Factors**

### KY 30 Reconstruction from US 421 at Tyner to KY 847 at Travellers Rest Jackson and Owsley Counties KYTC Item No. 10-279.61

#### LOP ASSESSMENT OF ENVIRONMENTAL, SOCIAL, AND OTHER FACTORS

Threatened and Endangered Species: Proper consultation with the US Fish and Wildlife Service (USFWS) has occurred to satisfy the requirements of Section 7 of the Endangered Species Act. USFWS provided KYTC with a county-based list of Endangered Species. KYTC also considered species lists maintained by the Kentucky Nature Preserves Commission and the Kentucky Department of Fish and Wildlife Resources. KYTC addressed the federally protected and listed species by conducting a Habitat Assessment and determining that habitat did not exist for any of the species that may potentially occur in the project area (see attachment.)

Economics: No indirect or cumulative impacts to the regional economy or businesses are anticipated, other than the overall enhancement to travel efficiency in the region because the proposed project does not include additional capacity, nor does it create travel opportunities outside of the project corridor.

<u>Aesthetics</u>: The project corridor is rural and predominately features light residential land uses, wooded areas, and pasture. The Preferred Alternative will convert some wooded and residential areas to transportation right-of-way; however, the views of and from the new KY 30 are expected to be similar to the current views of and from existing KY 30.

Special Aquatic Sites: This project will not affect Special Aquatic Sites (SAS).

<u>Historical Properties</u>: The KYTC has addressed Cultural and Historic Resources in accordance with Section 106 of the National Historic Preservation Act. Identification of historic properties within the area of potential effect has been conducted. There were no above ground resources, on or eligible for the National Register of Historic Places, located within project vicinity that would be adversely affected by the project. Concurrence with this conclusion was rendered by the Kentucky Heritage Council, State Historic Preservation Officer (SHPO) by letter dated February 3, 2016. The potential for impact to archaeological sites was also considered within the project limits. No archaeological sites eligible for listing on the National Register of Historic Places were identified in the project area. Concurrence with this conclusion was provided by the SHPO by letter dated December 8, 2016.

<u>Fish and Wildlife Values</u>: Habitat for fish and wildlife will be affected by the project. The project will result in the permanent conversion of approximately 74.57 acres of Potential Habitat 10.59 acres of Known summer 2 + Summer 1 Habitat and, 220.13 acres of Known Swarming Habitat 1 and 16.08 acres of Riparian Habitat for listed bats to roadway right-of-way. All of the converted land is currently in residential, farm, or forested land uses.

<u>Flood Hazards</u>: The KYTC minimizes, whenever possible, encroachment upon the flood plain. Water control structures within the flood plain are designed and then analyzed using HEC-RAS to assure that these do not adversely effect flood elevations.

<u>Flood Plain Values</u>: The KYTC complies with the state floodplain regulations and the National Insurance Act. KYTC projects minimize the placement of fill material into flood plains and

include features such as flood plain compensation and storm water detention basins. Thus, KYTC projects have minimal impacts to floodplain values and functions.

<u>Land Use Classification</u>: Land use in the project area is agricultural and rural residential. The project will affect land use by conversion of forested/agricultural/rural residential (100 percent), to impervious surface and right-of-way land use for transportation purposes. Approximately 97 acres will be converted to pavement and ROW. No further land development or land use conversion is expected because of the project. However, these secondary affects on land use cannot be controlled or predicted by the project. Thus, land use would not be significantly altered as a result of this project.

Navigation: Navigation is not a factor associated with this proposal.

<u>Shore Erosion and Accretion Patterns</u>: Shore erosion and accretion patterns would not be affected by this project as it is not located on a lake or a major tributary.

Recreation: The project would not affect existing recreational opportunities.

<u>Existing and Potential Water Supplies; Conservation</u>: The project would not affect existing water supplies. No construction activities occur within the vicinity of existing water supplies.

<u>Water Quality</u>: This project would have temporary impacts to water quality during the construction phase. This project will minimize those impacts via compliance with the KPDES General Storm Water Permit for Construction, achievement and compliance with a 401 Water Quality Certification and compliance with SMS4 requirements and local ordinances, where appropriate. Compliance is generally achieved through structural BMPs (silt fence, silt checks, detention basins etc) or non-structural BMPs such as mulching, seeding, grading, etc. Post construction water quality would be protected in karst or other sensitive areas through implementation of KYTC's Karst Policy. Thus, the project would have minimal impact to water quality.

<u>Energy Needs</u>: This project would result in a short-term increase in energy consumption during construction. Overall, the project would have minimum impact on the energy consumption and will not impact the long-term energy consumption.

<u>Safety</u>: Safety is a large factor motivating the project, and is a part of the project's purpose and need. Between 2010 and 2014, there were 34 crashes on KY 30 in the project corridor in Jackson County, which included one fatality and 15 injuries.

The existing geometric characteristics of KY 30 do not meet the design criteria for a 55-mph design speed. From US 421 at Tyner to KY 846 near Sturgeon, there are approximately 40 substandard vertical curves and 60 substandard horizontal curves, and another 27 substandard horizontal curves between KY 846 and KY 11.

<u>Food and Fiber Production</u>: The project would have a negligible impact on food and fiber production due to the minimal impact created by this linear transportation project. Approximately 71.1 acres of active agricultural land (pastureland and cropland) and approximately 20.5 acres of prime farmland (as determined by the local Natural Resource Conservation Service field offices) will be converted to ROW by the project. Relative to the quantity of land currently used in the area for agricultural purposes, this project would impact such a small percentage of that used for food and fiber production that the impact is negligible.

Mineral Needs: This project would have no impact on mineral needs.

Consideration of Property Ownership: Seventeen residences (seven mobile homes and 10 conventional homes) and one business (Tyner Game Room) will be taken by the project. To minimize the unavoidable affects of Right of Way acquisition and residential and business displacements, the KYTC must comply with *Uniform Relocation Assistance and Real Property Acquisition Policies Act, the Title 6 of the Civil Rights Act and Executive Order 12898-Federal Actions to Address Environmental Justice in Low Income and Minority Populations.* Thus, in association with this project, property ownership has been considered and addressed by KYTC.

Noise: It has been determined that no noise walls or other mitigation are warranted.

<u>Wild and Scenic Rivers</u>: According to the Kentucky Environmental and Public Protection Cabinet – Division of Water, no wild and scenic rivers are located in the project area and the project will not impact any wild and scenic rivers.

<u>UST Hazardous Material</u>: No potential hazardous materials sites have been identified in the project area and the project is not expected to impact any hazardous materials sites.

Environmental Justice: No specific environmental justice issues were raised during the Public Hearing or Public Hearing comment period. An Environmental Justice analysis was conducted in accordance with Executive Order 12898 and FHWA/KYTC Environmental Justice guidance. Based on the results of the analysis, the project is not expected to disproportionately impact minority or low-income populations.

Section 4(f)/6(f) Resources: No publicly-owned parks, recreation areas, wildlife preserves, or historic sites are located in the project area, and no recreational sites developed with Land and Water Conservation Funds are located in the project area. As a result, the project will not impact any Section 4(f) or 6(f) resources.

# **Alternative Analysis**

### **Summary of Alternatives**

## KY 30 – Jackson & Owsley Counties 10-279.61

#### 2.1 Alternatives Considered

Four build alternatives were analyzed during project development, as well as the No-Build Alternative, to provide a baseline for the potential impacts of the project if the proposed roadway facility is not constructed. Figures 2 depicts Alternatives 1 and 2, which are the mainline alternatives. Figure 3 depicts Alternatives 3 and 4, which incorporate elements of Alternatives 1 and 2 into crossover alternatives. Larger exhibits showing greater detail are available in Appendix A. The build alternatives, Alternatives 1, 2, 3, and 4, have been carried forward in the National Environmental Policy Act (NEPA) process. All of the build alternatives share the same termini, which are represented by Alternative 1 in Figure 2 and Alternative 4 in Figure 3.

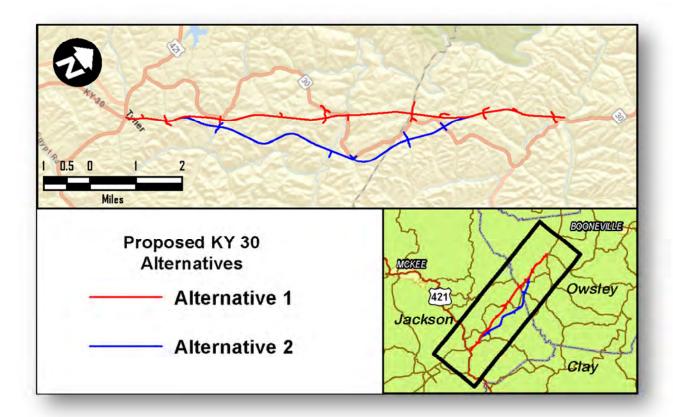


Figure 1: Alternatives 1 and 2

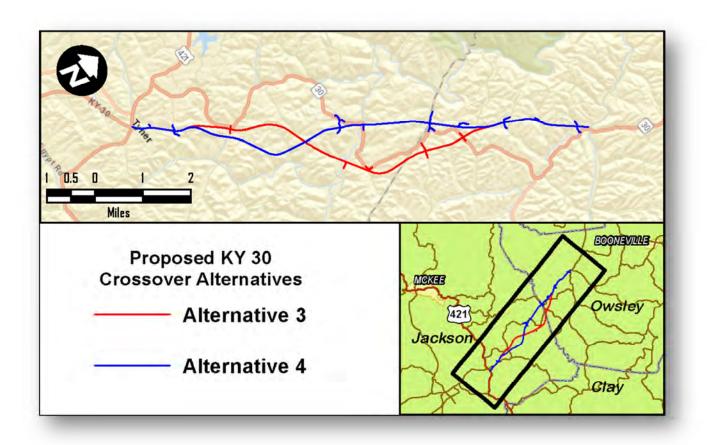


Figure 2: Alternatives 3 and 4

#### 2.1.1 No-Build Alternative

The No-Build Alternative would leave the existing road as it currently is with maintenance activities, such as routine paving, striping, and drainage, performed when necessary. In comparison to the proposed build alternatives, short-term costs to maintain current roadway operations would be less expensive due to the lack of expenditures needed for right-of-way acquisition and residential displacements, utility relocations, or project construction. In addition, the No-Build Alternative would impose fewer direct construction impacts. However, implementation of the No-Build Alternative would leave the area with a deficient and poorly linked transportation network. The No-Build Alternative would not supply any of the transportation elements required to achieve the project's purpose and need and would not provide an solution for the concerns identified in the Section 1.3 (this document). The No-Build Alternative would not fulfill the purpose and need of the proposed project.

### 2.1.2 Alternative 1

Beginning at the new US 421/KY 30 Intersection near Tyner, KY, Alternative 1 follows an extension of the centerline from the previously constructed segments of KY 30 (from the west) and extends to the east. Approximately 0.5 miles from the beginning of the project, the proposed alignment shifts to the north and runs parallel to KY 1431. Approximately three-quarters of a mile before crossing KY 1431, the alignment would shift northwards to parallel KY 30, and a new approach would be constructed to connect the new alignment and the existing roadway. The new alignment would run approximately another four miles east until it crossed the existing KY 30. After another one and a half miles, it would cross KY 1071 and then

remain north of KY 30, paralleling it until it rejoined the adjacent construction segment of KY 30 midway between the towns of Sturgeon and Vincent.

#### 2.1.3 Alternative 2

Beginning at the new US 421/KY 30 Intersection, Alternative 2 would follow the same alignment as Alternative 1 to a point about 0.5 miles past Zeke's Point Road, where it would turn south and parallel Alternative 1, about 0.15 miles south, for about a mile. Then, where Alternative 1 would turn north and stay closer to the existing alignment, Alternative 2 would remain straight for another mile until it passed two small lakes, where it would turn north to cross Big Barn Road at a perpendicular. It would then continue straight northeast until rejoining Alternative 1, about 0.5 miles southwest of the intersection of the existing KY 30 and Maddentown Road. From this point to the end of the project, Alternatives 1 and 2 follow the same alignment.

#### 2.1.4 Alternative 3

This alternative would use the alignment presented by Alternative 1 until just before crossing Bates Vickers Road, where it would veer southwards to join the Alternative 2 alignment. It would then continue in the same way as Alternative 2.

#### 2.1.5 Alternative 4

This alternative would use the alignment presented by Alternative 2 until just after crossing Big Barn Road, where it would veer northwards to join the Alternative 1 alignment. It would then continue in the same way.

#### 2.1.6 Sub-Alternates

In addition to the four alternatives discussed above, the project team reviewed additional sub-alternates at two locations along the project corridor.

#### US 421/KY 30 Intersection/Interchange

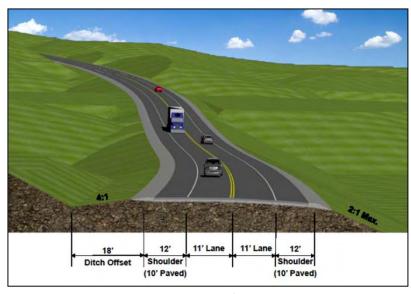
All of the proposed alternatives were originally developed as a continuation of the existing at-grade US421/KY30 intersection. US 421 is a through movement and does not stop at the existing intersection, while the KY 30 approach from the west is stop controlled at the intersection. That western approach is at a 4.0% downhill slope, while all of the originally proposed alternatives to the east would have been at a 5.0% uphill slope. As the proposed KY 30 alignments were developed, it was assumed that US 421 would remain the through movement and KY 30 traffic would be stop controlled. US 421 caries slightly more traffic than KY 30 and remains unimproved to the north and south of the intersection. Existing eastbound KY 30 traffic must travel north along US 421 approximately one mile to continue along the northern US 421/KY 30 split. Due to the proposed improvements for KY 30 at the southern split, travel speeds will be increased as traffic approaches from both the east and west. The project team was concerned that an increase in speed may have resulted in decreased safety at the originally proposed US 421/KY 30 intersection.

To avoid this concern, the project team was presented two alternatives to raise the grade of KY 30, build a bridge over US 421 and Laurel Fork, then construct a "Jug Handle" type approach from KY 30 to US 421. One alternative would build an approach from the north, and the other from the south. Either of these alternatives would improve safety by separating the high speed through movements of each route.

The construction cost estimates either of these alternatives would add approximately \$3.2 million to the total cost of the project. The northern alternative would require one additional relocation while the southern two, but the southern approach would be able to take advantage of the widening in place for the existing northbound left turn lane onto KY 30. The project team chose to proceed into final design with the southern "Jug Handle." An at-grade intersection was also designed, in case additional funding was not available.

#### **Eastern End**

At the request of a property owner, a variation of all mainline alternates was developed for the east end of the project corridor. The property owner made this request at the Owsley County public meeting and through written correspondence. Beginning 0.6 miles west of Botner Road, the mainline KY 30 alignment would have been shifted to the south approximately 580'. This alternative would have reduced roadway excavation by approximately 65,000 cubic yards and reduced waste by approximately 400,000 cubic yards. These savings resulted from introducing additional curvature to reduce cut west of Botner Road. The project team chose not to pursue this alternative because of concerns that savings to excavation would be offset by impacts to the Little Sturgeon Creek floodplain and additional geotechnical requirements for embankment through unstable terrain.



**Figure 3: Typical Section** 

### 2.2 Typical Section

All proposed alternatives would use the same typical section. Like the existing KY 30, the proposed new roadway would have two travel lanes, but those would be wider (11' instead of 9') and much wider paved shoulders - 10' instead of 1-2' (Figure 3). It would also have conforming geometries, turn lanes at major intersections, and access would be permit controlled.

#### 2.3 Identification of Preferred Alternative

Alternative 1 (with the added southern-approach-interchange at US421/KY30) was initially chosen as the Preferred Alternative due to its lower number of relocations and shorter project length, in comparison to Alternative 3. Alternatives 2 and 4 were eliminated due to their higher construction cost estimates. Alternative 1 has 6 fewer relocations than Alternative 3 and a lower preliminary right-of-way estimate. Alternative 3 also has longer box culverts and will require approximately 400,000 cubic yards more waste, which may increase permitting fees.

After the Preliminary Line and Grade (PL&G) meeting, the Preferred Alternative was shifted slightly to the north and the proposed bridge was extended to fly over KY 1071. No direct approaches will be constructed for KY 1071 at this location. Instead, access to KY 1071 and existing KY 30 will be provided approximately 0.5 miles east at Big Springs Road. This revision reduces the earthwork and drainage costs by eliminating the approaches at KY 1071. The cost to lengthen the bridge to cross KY 1071 was offset by the elimination of turn lane widening and the mainline shift to the north. This revision also resulted in three fewer relocations.

# **State or Federally Funded Statement**

### **State or Federally Funded Statement**

Jackson and Owsley Counties

KY 30

Item No. 10-279.61

The funding for the project is a mix of Federal and Commonwealth of Kentucky funds.

### **Section 106 Concurrence**



DON PARKINSON SECRETARY

# TOURISM, ARTS AND HERITAGE CABINET KENTUCKY HERITAGE COUNCIL

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300 WASHINGTON STREET
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December 8, 2016

REGINA STIVERS
DEPUTY SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR
& STATE HISTORIC
PRESERVATION OFFICER

Mr. David M. Waldner, P.E. Director, Division of Environmental Analysis Kentucky Transportation Cabinet 200 Mero Street Frankfort, KY 40622

Re:

Intensive Archaeological Survey (Phase I) in Support of KY 30 Reconstruction from US 421 to KY 847, Jackson and Owsley Counties, Kentucky. Report submitted by Nicole Mills and Michael Creswell of Brockington and Associates, Inc. Report dated November 2016.

KYTC Item Number 10-279.60

Dear Mr. Waldner:

Thank you for the letter regarding the above referenced project report, received November 30, 2016. This report represents revisions to an earlier draft of the report, entitled Archaeological Site Detection (Phase I) Survey in Support of KY 30 Reconstruction from US 421 to KY 847, Jackson and Owsley Counties, Kentucky, dated May 2016.

The report describes the intensive pedestrian survey of approximately 10.5 miles of KY 30 from US 421 in Jackson County to KY 847 in Owsley County. The survey area consisted of a 152 meter survey corridor following the centerline of the proposed new KY 30 alignment. During the survey, one previously identified archaeological sites and one non-site locality were revisited. Site 15Ow150 was a multicomponent indeterminate prehistoric and historic residential location. This site was previously determined to be not eligible for the National Register of Historic Places, and has since been heavily disturbed by road construction activities. The non-site locality was defined in 1999 as NSL-2, and is treated as CRL4670-004 in the report reviewed here. No additional artifacts were recovered during the site revisit, and the original determination that the site was not eligible for the National Register remains unchanged.

One previously identified site (15Ja474) was mapped in the Office of State Archaeology database within the APE. Review of the original report showed that this mapping was in error, that site 15Ja474 lies outside of the current APE, and that the proposed project will not affect this site.

The investigators defined two new archaeological sites during fieldwork. Both sites (150w158 and 150w159) are early twentieth Century cemeteries. The investigators recommended that both cemeteries were potentially eligible for listing on the National Register of Historic Places. Both cemeteries are located approximately 120 feet outside the current disturb limits for the project. The investigators recommended that both cemeteries be avoided by project activities. If the plans for the proposed project change, and impacts to either cemetery cannot be avoided, the investigators recommended that an archaeological assessment of proposed effects be conducted, and that any burial relocation be conducted in accordance with appropriate procedures and laws.

Additionally, the investigators defined four non-site localities. Non-site localities, referred to in the report as CRL 4670-001, 4670-002, 4670-003, and 4670-005, consist of relatively modern cultural remains that were not interpreted as being older than 50 years old. No site numbers were assigned to these remains, and the investigators recommended that these remains are not eligible for listing on the National Register.

#Preservation50: Commemorating the 50<sup>th</sup> anniversary of the National Historic Preservation Act and the Kentucky Heritage Council 1966-2016



D. Waldner · KY 30 Reconstruction, Jackson and Owsley Counties Item No 10-279.60 December 8, 2016 page 2

Finally, the investigators recorded the location of one modern cemetery. The report refers to this cemetery as the Irvine Spence Cemetery, and it contains interments from 1984-2007. Although this cemetery does not represent a cultural resource, the investigators recommended avoiding the cemetery.

After review of this report, staff with the KYTC concurred with the investigator's recommendations. The KYTC found that the project would cause No Effect to 15Ja474, 15Ow150, and CRL 4670 001-005. KYTC also concurred that the two historic cemeteries identified during survey be avoided. For these two sites, 15Ow158 and 15Ow159, KYTC found that the proposed project, as currently planned, would cause No Adverse Effect to Historic Properties. Any modifications to the proposed plans that would cause impacts to these two cemeteries would necessitate archaeological assessment and relocation in accordance with cemetery relocation regulations. The modern cemetery was not considered a historic property.

After review of this report, we concur with the KYTC's findings of effects. We would like to reiterate that all of the cemeteries should be avoided by project impacts, and that any project design changes that cause impacts to these locations would result in additional archaeological investigation and relocation before project construction activities commence. We acknowledge receipt of one copy of the report and look forward to receipt of two additional copies for archival purposes.

If the project design or boundaries change, this office should be consulted to determine the nature and extent of additional documentation that may be needed. In the event of the unanticipated discovery of an archaeological site or object of antiquity, the discovery should be reported to the Kentucky Heritage Council and to the Kentucky Office of State Archaeology in the Anthropology Department at the University of Kentucky in accordance with KRS 164.730. In the event that human remains are encountered during project activities, all work should be immediately stopped in the area and the area cordoned off, and in accordance with KRS 72.020 the county coroner and local law enforcement must be contacted immediately. Upon confirmation that the human remains are not of forensic interest, the unanticipated discovery must be reported to the Kentucky Heritage Council.

Should you have any questions, feel free to contact Chris Gunn of my staff at (502) 564-7005, extension 118.

Sincerely,

Executive Director and

State Historic Preservation Officer



TOURISM, ARTS AND HERITAGE CABINET KENTUCKY HERITAGE COUNCIL

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CRAIG A. POTTS
EXECUTIVE DIRECTOR
& STATE HISTORIC
PRESERVATION OFFICER

February 3, 2016

Mr. David M. Waldner, P.E., Director Division of Environmental Analysis Kentucky Transportation Cabinet 200 Mero Street, 5<sup>th</sup> Floor Frankfort, KY 40622

Re:

A Cultural Historic Eligibility Report for the Reconstruction of KY 30 from US 421 in Jackson County to KY 847 in Owsley County, Kentucky (Palmer Engineering, Jayne Goddard)
Item No. 10-279.60

Dear Mr. Waldner:

Thank you for your submission of the above-listed report which was received by our office on January 26, 2016. Pursuant to Section 106 of the National Historic Preservation Act of 1966 (16 U. S. C. Sec. 470f) and implementing regulations at 36 C. F. R. Part 800, the Kentucky Heritage Council (SHPO) received for review and comment information regarding the above-referenced project. We understand that the project consists of the reconstruction of 10.46 miles of KY 30 in Jackson and Owsley Counties. The proposed project corridors have been narrowed down to two alternatives, a north corridor and a south corridor. We further understand that the report identified 33 total, resources which are fifty years or older, which is the minimum requirement for inclusion on the National Register of Historic Places (NRHP). One historic resource, site JA 414, was recommended as potentially eligible for inclusion on the NRHP. We concur with the authors' recommendations that site JA 414 appears to be eligible for inclusion on the NRHP.

We look forward to receiving the accompanying survey forms and an effects determination for the proposed project's alternatives. Should the project plans change, or should additional information become available regarding cultural resources or citizens' concerns regarding impacts to cultural resources, please submit that information to our office as additional consultation may be warranted. If you have any questions please contact Amanda Kincaid of my staff at (502)564.7005, ext. 147.

Sincerely,

Crail A Potts.

**Executive Director and** 

State Historic Preservation Officer

CP: agk

cc: A. Abner (KYTC-DEA)





**Kentucky Division** 

December 13, 2016

330 West Broadway Frankfort, KY 40601 PH (502) 223-6720 FAX (502) 223 6735 http://www.fhwa.dot.gov/kydiv

> In Reply Refer To: HDA-KY

Craig A. Potts, Executive Director Kentucky Heritage Council and State Historic Preservation Office 300 Washington Street Frankfort, KY 40601

Subject:

De Minimis Impact Determination

Reconstruction of KY 30 from US 421 in Jackson County to

KY 845 in Owsley County, Kentucky

JA-414: Moore Farm KYTC Item No. 10-279.6

Dear Mr. Potts:

The Federal Highway Administration (FHWA) has reviewed the information provided to us by the Kentucky Transportation Cabinet (KYTC), including the enclosed correspondence from your office. It appears that the project will not adversely affect JA-414, Moore Farm, which is eligible for the National Register of Historic Places. The minimal impacts associated with the proposed project will not adversely affect the characteristics, activities, features, and attributes that qualify the resources for protection under Section 106 (36 CFR Part 800) and 4(f) (23 CFR 774).

We are making a *de minimis impact* determination under Section 4(f) (23 CFR 774) that is based upon your concurrence in the *No Adverse Effect* determination for this project under Section 106. Please return your concurrence with the *No Adverse Effect* determination. If you have questions, please contact Eric Rothermel at (502) 223-6742 or via e-mail at <a href="mailto:eric.rothermel@dot.gov">eric.rothermel@dot.gov</a> at your earliest convenience. Thank you.

John Ballantyne

Program Delivery Team Leader Federal Highway Administration Concurrence by:

Craig A Potts

**Executive Director** 

Kentucky Heritage Council State Historic Preservation Office

Date:



TOURISM, ARTS AND HERITAGE CABINET KENTUCKY HERITAGE COUNCIL

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CRAIG A. POTTS
EXECUTIVE DIRECTOR
& STATE HISTORIC
PRESERVATION OFFICER

December 1, 2016

Mr. David M. Waldner, P.E., Director Division of Environmental Analysis Kentucky Transportation Cabinet 200 Mero Street, 5<sup>th</sup> Floor Frankfort, KY 40622

Re:

Request for No Adverse Effect and de minimus finding for Site 3 (Ja 414/ Moore Centennial Farm) determined eligible for the National Register. A Cultural Historic Eligibility Report for the Reconstruction of KY 30 from US 421 in Jackson County to KY 847 in Owsley County, Kentucky.

Item No. 10-279.60

Dear Mr. Waldner:

The purpose of this letter is to recognize that this office reviewed the above-listed report on February 3, 2016 where we concurred with your determination of **No Adverse Effect** for the overall project. Further we concur with the finding of **No Adverse Effect** and the de minimus finding for site Ja 414/ Moore Centennial Farm.

If you have any questions please contact Amanda Kincaid of my staff at (502)564.7005 Ext. 147.

Sincerely,

Craig A. Potts,

**Executive Director and** 

State Historic Preservation Officer

CP: ak 47971

cc: Amanda Abner (KYTC-DEA)





TOURISM, ARTS AND HERITAGE CABINET KENTUCKY HERITAGE COUNCIL

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CRAIG A. POTTS
EXECUTIVE DIRECTOR
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PRESERVATION OFFICER

February 3, 2016

Mr. David M. Waldner, P.E., Director Division of Environmental Analysis Kentucky Transportation Cabinet 200 Mero Street, 5<sup>th</sup> Floor Frankfort, KY 40622

Re:

A Cultural Historic Eligibility Report for the Reconstruction of KY 30 from US 421 in Jackson County to KY 847 in Owsley County, Kentucky (Palmer Engineering, Jayne Goddard)
Item No. 10-279.60

Dear Mr. Waldner:

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We look forward to receiving the accompanying survey forms and an effects determination for the proposed project's alternatives. Should the project plans change, or should additional information become available regarding cultural resources or citizens' concerns regarding impacts to cultural resources, please submit that information to our office as additional consultation may be warranted. If you have any questions please contact Amanda Kincaid of my staff at (502)564.7005, ext. 147.

Sincerely,

Crail A Potts.

**Executive Director and** 

State Historic Preservation Officer

CP: agk

cc: A. Abner (KYTC-DEA)

