

Use Attainability Analysis
for
Water Body Identification # 0035
Bobs Creek

Conducted by:
Environmental Resources Coalition

To:
Missouri Department of Natural Resources
Water Protection Program

Submitted: November 28, 2005



Stream Description – WB ID: 0035 – Bobs Creek

Bobs Creek (WB# 0035) is located in the River Hills (Level IV region 72f) of the Interior River Valleys and Hills eco-region. Chapman et al. (2002) characterized the region as the following:

Smooth to moderately dissected, forested river side-slopes and bluffs, some loess-covered hills, and areas with karst features are characteristic of the River Hills region. This region, which lies along the Missouri River as well as the Mississippi River, is a transition zone between the loess-covered and till-covered plains to the north by the Central Irregular Plains eco-region and the rocky soils of the more dissected interior Ozark Highlands regions. The River Hills are less forested than interior areas in the Ozarks. Ridges and valleys have a deep soil mantle but the steep slopes are stony with frequent rock outcrops. Loess, which can be thick in some areas, mantles the ridges and uplands. Deep, sandy and silty, moderately to poorly drained alluvium covers the river valleys. Paleozoic bedrock is relatively resistant to erosion along the Missouri River, and consequently the Missouri River alluvial valley is relatively narrow in this region, a contrast to the wide plain of neighboring 47d. Land cover throughout this region is varied, with row crops, improved pasture, woodland, and oak and mesic mixed hardwood forests.

The Bobs Creek classified stream segment (WB# 0035) is a twelve and a half mile long class C stream located in central Lincoln County. The stream segment begins at Harrell Road (County Road 630) just west of Highway W and continues south to southeast to where it becomes a class P stream segment. Slightly over six miles of this classified stream segment lies upstream of the Lincoln County PWSD # 1 wastewater treatment facility (WWTF) (MO0121886) outfall. The majority of the surrounding area is large wooded areas, farm pastures and rural residences dot the landscape.

Chapman, S.S., Omernik, J.M., Griffith, G.E., Schroeder, W.A., Nigh, T.A., and Wilton, T.F., 2002, Ecoregions of Iowa and Missouri (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,800,000).

Note: During the first visit to each site, ERC selected an assessment location (either upstream or downstream) based on which side appeared deepest or most likely for whole body recreation.

Field Data Sheets for Recreational Use Stream Surveys

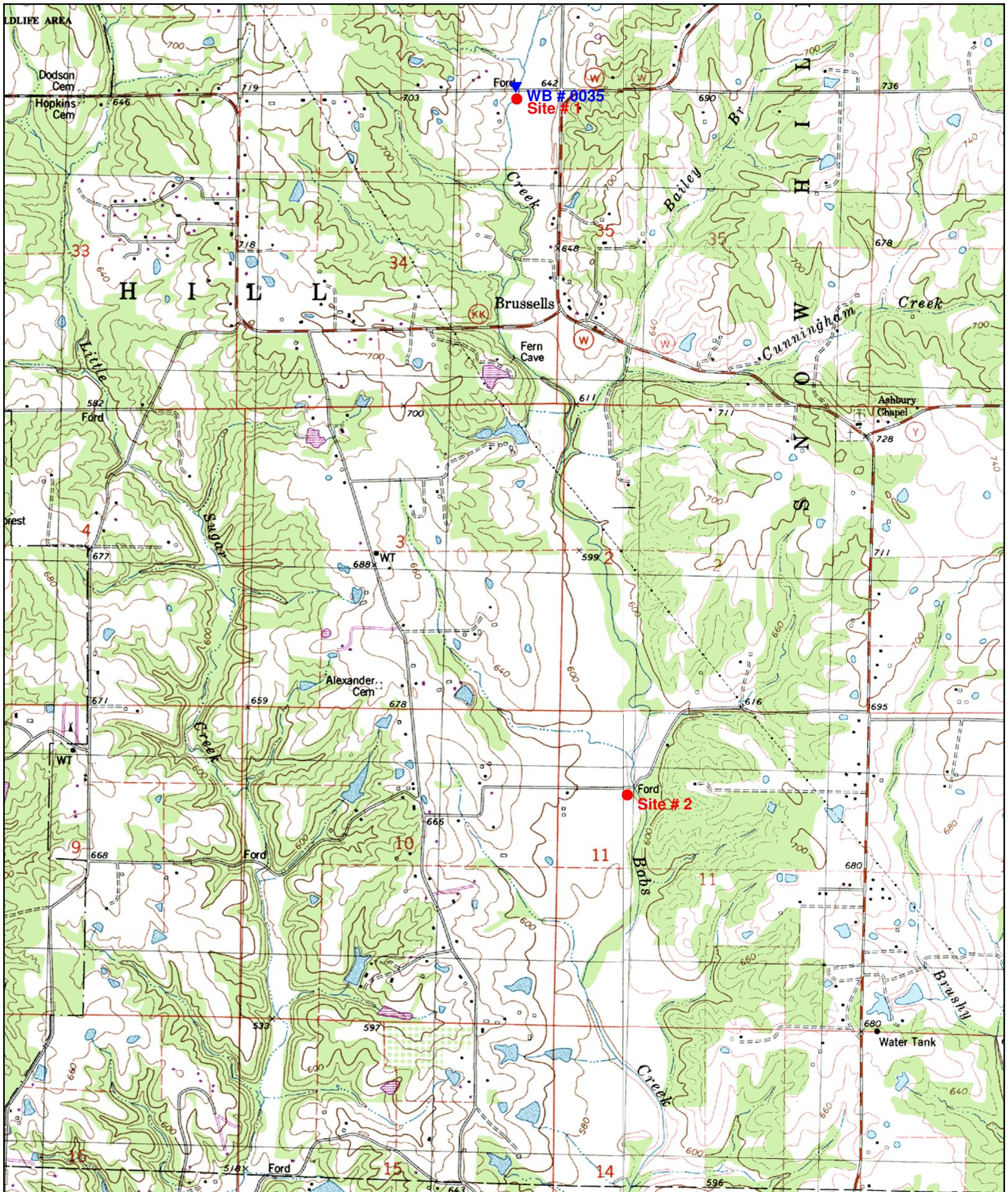
Data Sheet A: Water Body Identification

Water Body Name: Bobs Creek
8 – digit HUC: 07110004
Missouri WBID # 0035
County: Lincoln
Upstream Legal Description: Sec. 27, T50N, R1E, Lincoln County
Downstream Legal Description: Sec. 34, T49N, R2E, Lincoln County
Upstream Coordinates: Latitude 39.0611378 ° N , Longitude -90.8810188 ° W
Downstream Coordinates: Latitude 38.9643266 ° N , Longitude -90.7829668 ° W
Discharger Facility Name(s): Lincoln Count PWSD # 1 WWTF
Discharger Permit Number(s): MO0121886
Number of Sites Evaluated: 5
Name of Surveyor and Telephone Number: Robert R. Bacon, (573) 634-7078
Organization: Environmental Resources Coalition (ERC)
Position: Director of Aquatic Services

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA sheet is true and accurate.

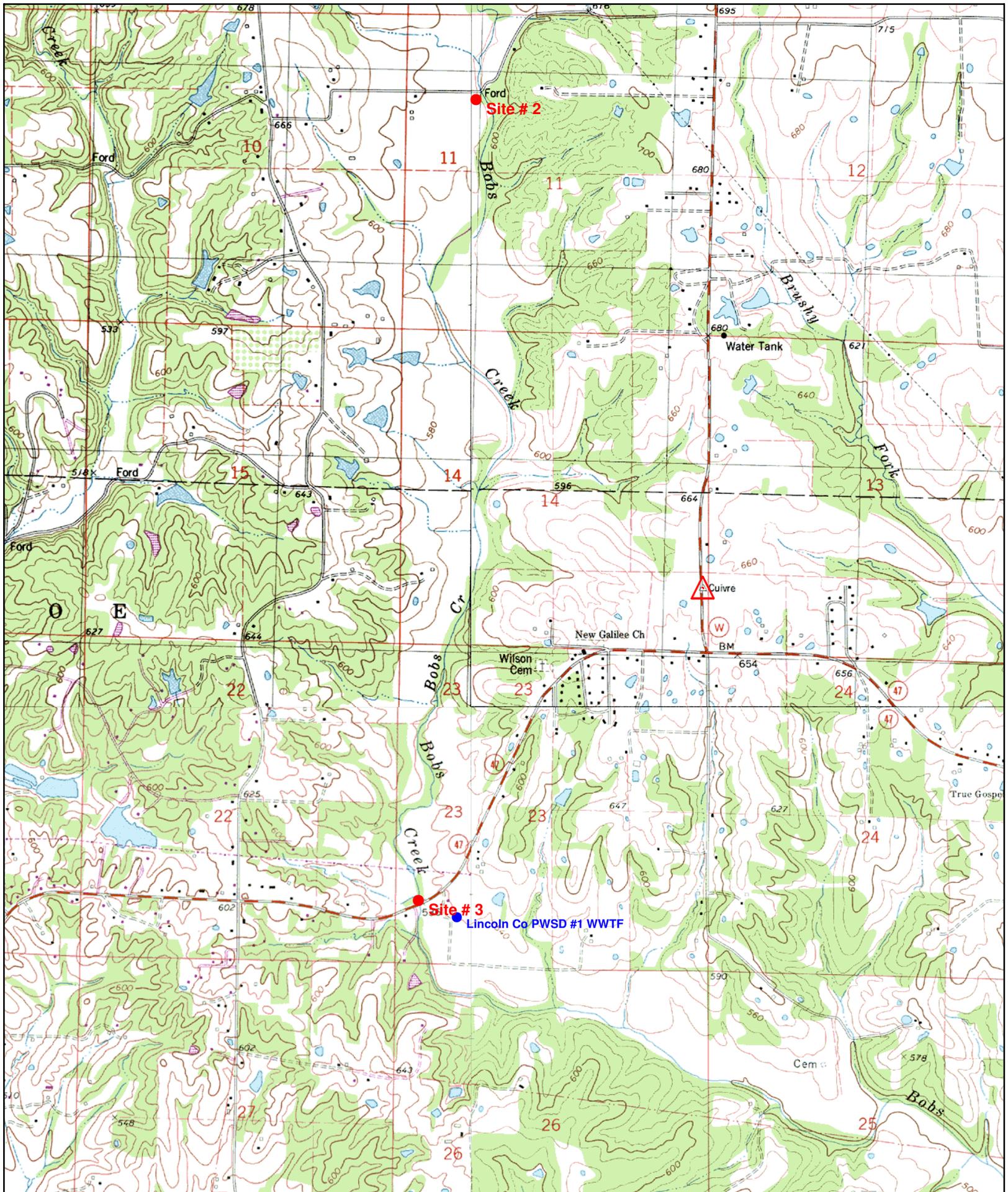
Signed: Robert R. Bacon

Date: 11-28-2005



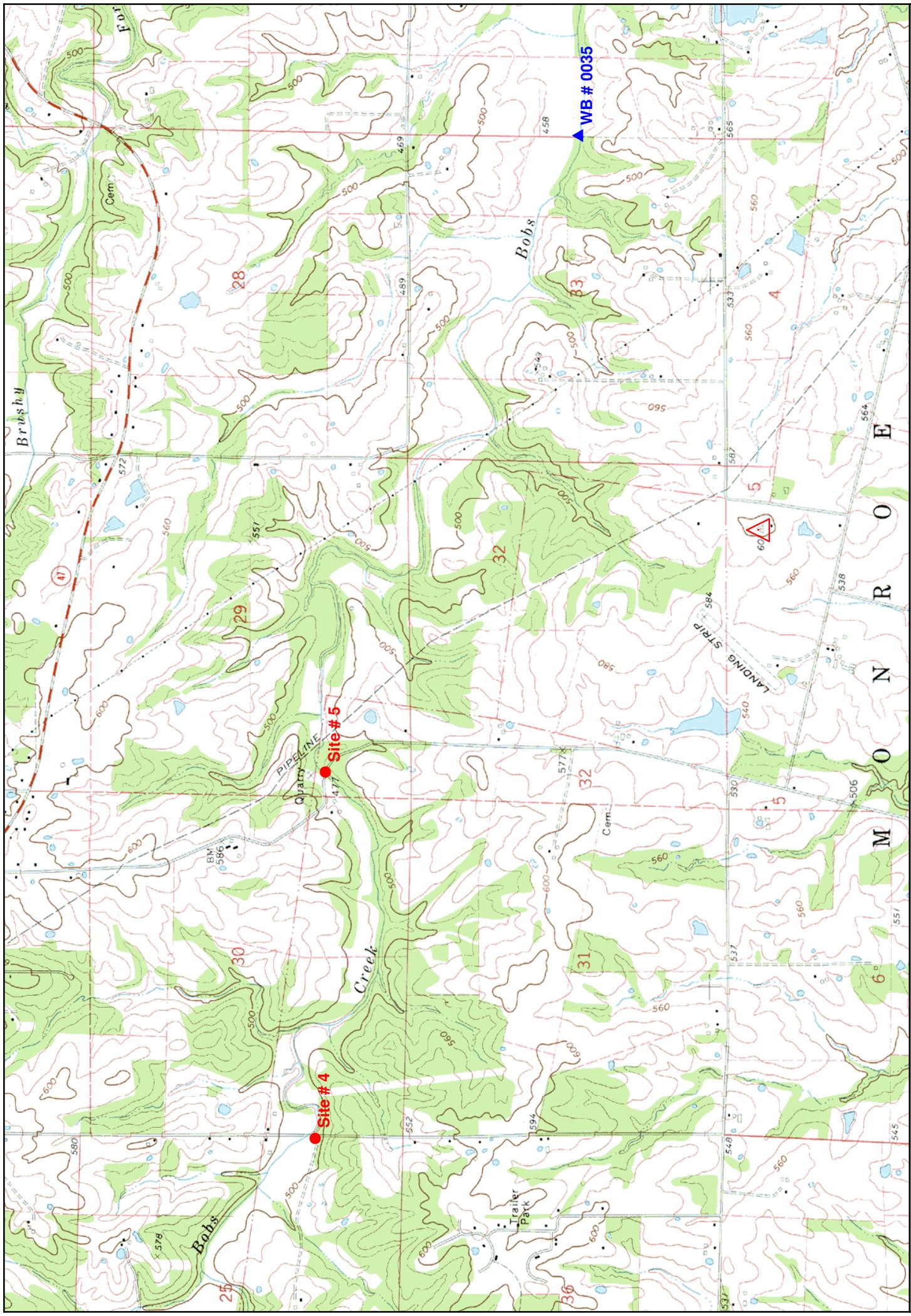
Name: TROY
 Date: 11/23/2005
 Scale: 1 inch equals 2000 feet

Location: 039.0373781° N 090.8821044° W



Name: TROY
Date: 11/23/2005
Scale: 1 inch equals 2000 feet

Location: 039.0049566° N 090.8730452° W



Name: MARYKNOLL

Date: 11/23/2005

Scale: 1 inch equals 2000 feet

Location: 038.9699373° N 090.8138830° W

Weather Conditions

Weather conditions for the field surveys and the previous ten days are listed in the tables below.

Data from the Weather Underground (weatherunderground.com)

Warrenton, Missouri (KMOWARRE3)

Latitude: 38.792 ° N, Longitude: -91.152 ° W

Date	Precipitation (Inches)	Min. Temp (°F)	Max. Temp (°F)	Avg. Temp (°F)
04/15/2005	0	46	71	60
04/16/2005	0	49	71	57
04/17/2005	0	55	80	68
04/18/2005	0	54	80	69
04/19/2005	0	58	78	65
04/20/2005	0.11	58	79	65
04/21/2005	0	58	72	62
04/22/2005	0.12	48	60	54
04/23/2005	0.18	38	49	43
04/24/2005	0	34	56	45
04/25/2005	0.07	39	60	49

Date	Precipitation (Inches)	Min. Temp (°F)	Max. Temp (°F)	Avg. Temp (°F)
05/28/2005	0.01	50	77	64
05/29/2005	0.15	56	78	66
05/30/2005	0	59	74	66
05/31/2005	0	63	80	71
06/01/2005	0	58	82	71
06/02/2005	0	60	79	69
06/03/2005	0	58	83	71
06/04/2005	0.01	69	91	80
06/05/2005	0.03	65	88	78
06/06/2005	0.09	63	84	73
06/07/2005	0	67	90	77

WB # 0035 – Bobs Creek

Site # 1 - County Road 630 – Harrell Road

GPS Location

**39.0613641 North
90.8812995 West**

Upstream Views

04/25/05

06/07/05



Downstream Views

04/25/05

06/07/05



Physical Dimensions – Site # 1

	04/25/05	06/07/05
Assessment Location	Upstream	Upstream
Time	2:30 PM	1:45 PM
Stream Type	Run	Run
Width (m)	3.66	3.25
Length (m)	15.24	15.24
Avg. Depth (cm)	10.77	7.25
Maximum Depth (cm)*	18.0	14.0
Flow Present	Yes – very low flow	Yes – very low flow
Flow (cfs)	-	-

SUBSTRATE

Cobble	0%	0%
Gravel	100%	100%
Sand	0%	0%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%

OTHER

Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	None	Periphyton
<i>Water Characteristics</i>		
Odor	None	None
Color	Clear	Clear
Bottom Deposits	None	Periphyton
Surface Deposits	None	None

* Maximum depth is the maximum measured depth within the stream cross-section.

NOTES: Site # 1 is the uppermost site on Bobs Creek.

WB # 0035 – Bobs Creek

Site # 2 - Taylor School Road

GPS Location

**39.0283019 North
90.8748043 West**

Upstream Views

04/25/05

06/07/05



Downstream Views

04/25/05

06/07/05



Physical Dimensions – Site # 2

	04/25/05	06/07/05
Assessment Location	Downstream	Downstream
Time	2:45 PM	2:00 PM
Stream Type	Run	Run
Width (m)	8.13	7.92
Length (m)	60.96	60.96
Avg. Depth (cm)	19.40	19.93
Maximum Depth (cm)*	39.0	47.0
Flow Present	Yes	Yes
Flow (cfs)	-	-

SUBSTRATE

Cobble	0%	5%
Gravel	80%	90%
Sand	20%	5%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%

OTHER

Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	None	None
<i>Water Characteristics</i>		
Odor	None	None
Color	Clear	Clear
Bottom Deposits	Periphyton	None
Surface Deposits	None	None

* Maximum depth is the maximum measured depth within the stream cross-section.

NOTES:

06/07/05 – tire tracks by stream possibly from an ATV or a small tractor

WB # 0035 – Bobs Creek

Site # 3 - Highway 47

GPS Location

**38.9909459 North
90.8782094 West**

Upstream Views

04/25/05

06/07/05



Downstream Views

04/25/05

06/07/05



Physical Dimensions – Site # 3

	04/25/05	06/07/05
Assessment Location	Downstream	Downstream
Time	3:00 PM	1:29 PM
Stream Type	Run	Run
Width (m)	6.71	4.57
Length (m)	60.96	60.96
Avg. Depth (cm)	12.58	13.88
Maximum Depth (cm)*	26.0	26.0
Flow Present	Yes	Yes
Flow (cfs)	-	-

SUBSTRATE

Cobble	0%	0%
Gravel	100%	60%
Sand	0%	40%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%

OTHER

Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	0% macrophytes	algae, periphyton
<i>Water Characteristics</i>		
Odor	None	None
Color	Clear	Clear
Bottom Deposits	Light periphyton layer	periphyton
Surface Deposits	Red bacteria in areas	None

* Maximum depth is the maximum measured depth within the stream cross-section.

NOTES:

06/07/05 – ATV tracks near stream

WB # 0035 – Bobs Creek

Site # 4 - South Chantilly Road

GPS Location

38.9765212 North
90.8422842 West

Upstream Views

04/25/05



06/07/05



Downstream Views

04/25/05



06/07/05



Physical Dimensions – Site # 4

	04/25/05	06/07/05
Assessment Location	Downstream	Downstream
Time	3:20 PM	2:04 PM
Stream Type	Run	Run
Width (m)	7.01	11.73
Length (m)	15.24	15.24
Avg. Depth (cm)	8.88	9.48
Maximum Depth (cm)*	17.0	38.0
Flow Present	Yes	Yes
Flow (cfs)	-	-

SUBSTRATE

Cobble	0%	0%
Gravel	90%	100%
Sand	10%	0%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%

OTHER

Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	None	Thick periphyton growth
<i>Water Characteristics</i>		
Odor	None	None
Color	Green (lightly)	Clear
Bottom Deposits	Periphyton growth	Thick periphyton growth
Surface Deposits	None	None

* Maximum depth is the maximum measured depth within the stream cross-section.

NOTES:

06/07/05 – Assessment team found footprints near stream

WB # 0035 – Bobs Creek

Site # 5 - South Ethlyn Road

GPS Location

**38.9760358 North
90.820695 West**

Upstream Views

04/25/05

06/07/05



Downstream Views

04/25/05

06/07/05



Physical Dimensions – Site # 5

	04/25/05	06/07/05
Assessment Location	Downstream	Downstream
Time	3:35 PM	2:17 PM
Stream Type	Run	Run
Width (m)	9.45	3.2
Length (m)	18.29	18.29
Avg. Depth (cm)	16.71	12.33
Maximum Depth (cm)*	41	19
Flow Present	Yes	Yes
Flow (cfs)	3.11	-

SUBSTRATE

Cobble	0%	20%
Gravel	0%	30%
Sand	100%	50%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%

OTHER

Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	5% macrophytes	15% macrophytes
<i>Water Characteristics</i>		
Odor	None	None
Color	Light green	Cloudy
Bottom Deposits	None	periphyton
Surface Deposits	None	Scum and oil film

* Maximum depth is the maximum measured depth within the stream cross-section.

Evidence of Possible Human Use WB 0035

09/01/05

Note: Picture of sign of church camp located just downstream of Site # 5. The sign indicates swimming, which occurs in the camp's two ponds. Also the owner expressed that kids routinely fish, play and wade in the stream when the water is higher.

Sign located on gravel off of South Ethlyn Road



Creek Crossing at El Shaddai Ranch

Upstream View



Downstream View



Site Descriptions

Site # 1: Site # 1 of Bobs Creek is located just off Harrell Rd or County Road 630 just west of Highway W in Lincoln County. This location is the uppermost assessment site for the classified stream segment, and is located approximately six miles upstream of the Waste Water Treatment Facility outfall. The site is surrounded by pastures, large wooded areas, and rural residences.

Site # 2: Site # 2 of Bobs Creek is located just off Taylor School Road. This site is located approximately two and one quarter miles above the WWTF outfall. The area is surrounded by large wooded areas, farm pastures, and few rural residences.

Site # 3: Site # 3 of Bobs Creek is located just off Highway 47. The banks are steep and brush covered making access to stream difficult. This assessment site is located just upstream of the WWTF outfall. Surrounding conditions include farm fields, large wooded areas, and rural residences.

Site # 4: Site # 4 of Bobs Creek is located on South Chantilly Road, which is approximately two and one third miles below the WWTF outfall. Large wooded areas and a few open fields surround the site. The stream banks are steep and brush covered making access to stream difficult.

Site # 5: Site # 5 of Bobs Creek is located on South Ethlyn Road, which is approximately six and one half miles below the WWTF outfall. The site is surrounded predominately by large wooded areas.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on the UAA data sheets, are true and accurate.

Signed: Robert D. Becca

Date: 11-28-2005

Organization: ERC

Position: Dir. of Aquatic Services

Summaries of Interviews

The following interviews were conducted by Abby Welschmeyer with adjacent landowners and potential creek users. The interviews were conducted in-person, or over the phone. Some of the questions asked are as follows:

- How long have you lived near this body of water?
- Do you or your family use this body of water for recreational activities?
 - If not used, why?
 - If used, what type of activities, how many times per year, and under what flow conditions (low, medium, or high)?
- Have you seen other people using the water body? (If so, many of the same aforementioned questions apply.)

To assist in the collection of interviews, letters were developed detailing the water quality rule, our affiliation with the Department of Natural Resources, and our contact information. These letters were left at residences near the water body when no one answered the door. This turned out to be a very effective way of quickly collecting key interviews with people most familiar with the resource.

Date: 05/26/05

Time: 11:45 AM

Name: Betty Lynn

Reason for Interview: lives near site #1

Betty Lynn has lived near Bobs Creek for three years. She stated that her family uses the stream for wading, fishing, and finding frogs during the summer months. Ms. Lynn commented that her neighbors had dug a hole out of the creek in order to have adequate water for swimming, fishing, and wading. She also said she and her neighbors sit by the creek in lawn chairs during the summer evenings.

Summaries of Interviews (cont'd)

Date: 08/25/05

Time: 11:04 AM

Name: Leo Dougherty

Reason for Interview: owns land along stream between sites 1 & 2 – phone interview

Leo Dougherty has owned about one half of a mile along Bobs Creek for the past 32 years. He stated that his family uses the stream for swimming and fishing about once a week throughout the summer months. The swimming activities happen more frequently than the fishing. He commented that there is one spot along the stream that can be five feet deep at times but mainly the stream is about one and half feet deep. Mr. Dougherty knows that his neighbors use the stream for swimming several times during the summer as well.

Date: 08/25/05

Time: 1:44 PM

Name: Parren Boyse

Reason for Interview: lives and owns land near site # 2 – phone interview

Parren Boyse has lived near Bobs Creek for 86 years. He owns approximately one quarter of a mile along the stream. He commented that although he does not use the stream it would be a good place for kids to play. He also mentioned that there are no deep holes on his property but he has seen people bring their kids to wade in the water.

Please note that the three previous interviews were referring to locations upstream of the WWTF outfall.

Date: 08/25/05

Time: 11:26 AM

Name: Darrell Westhoff

Reason for Interview: farms land along stream downstream of WWTF – phone interview

Darrell Westhoff has farmed about one half of a mile along Bobs Creek for the past 30 years. Mr. Westhoff does not use the stream due to the fact that the WWTF outflow is on his land. However, he has seen other neighbor kids wading in the stream upstream of the WWTF outfall. Mr. Westhoff also mentioned that there are no deep holes on the section of stream where he farms.

Summaries of Interviews (cont'd)

Date: 05/26/05

Time: 11:00 AM

Name: Bryan E. Short

Reason for Interview: lives near site #5

Bryan Short has lived near Bobs Creek for five years and owns approximately one mile of land along the stream. Mr. Short uses the stream for swimming, fishing, wading, and floating during the summer months. He stated that he hosts an annual youth camp for children in the summer, at which time many people utilize the stream for recreation (fishing and wading). He commented that his neighbors also use the stream for activities similar to his own.

Date: 05/26/05

Time: 10:43 AM

Name: Robert Lober

Reason for Interview: lives near site #5

Robert Lober has lived near Bobs Creek for 15 years. He stated that he uses the stream for fishing and has a rope swing near the stream, but it is used only to swing over the water, not to jump in it. Mr. Lober stated that he has noticed a change in the water in the past fifteen years. He commented that he has seen people in the stream during summer months.