Use Attainability Analysis

for

Water Body Identification # 0144

Davis Creek

Conducted by:

Environmental Resources Coalition

To:

Missouri Department of Natural Resources
Water Protection Program

Submitted: July 14, 2005

Environmental Resources Coalition

Stream Description – WB ID: 0144 – Davis Creek

Davis Creek (WB 0031) is a five mile Class C stream. The water body is located in central Audrain County in the Eastern Section of the Glaciated Plains physiographic region (Thom and Wilson 1980). The Glaciated Plains physiographic region covers the northern third of Missouri and is characterized by soils and topography that resulted from the influence of the Kansasan stage of the Pleistocene glaciation. However, the Eastern Section of the Glaciated Plains physiographic region is distinguished by regions of flat, claypan soils and rugged river breaks and the upland soils are primarily of glacial till derivation. The streams in this section flow eastward to the Mississippi River or southward to the lower Missouri River.

Davis Creek is the receiving water body for the Lakeside Estates Subdivision (MO0113948) and forms the northern and more distant northwestern border of the city of Mexico. The classified reach runs from either 1 ¾ or ¼ of a mile upstream of County Road 929 (site # 5) and flows northeast to the confluence with the South Fork of the Salt River. The effluent from the Lakeside Estates Subdivision enters Davis Creek by an unnamed tributary between assessment site # 3 and site # 4. Five sites of the stream were assessed for physical characteristics. During this assessment, the field team did not find sufficient depth to support whole body contact recreation (maximum depth of at least one meter or average depth of at least ½ meter.)

Thom, R. H. and J. H. Wilson. 1980. The Natural Divisions of Missouri. Trans. Mo. Acad. Sci. 14: 9-23.

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

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A: Water Body Identification

Water Body Name: Davis Creek
8 – digit HUC: 07110006
Missouri WBID # 0144
County: Audrain County
Upstream Legal Description: Sec. 30, T51N, R9W, Audrain County
Downstream Legal Description: Sec. 24, T51N, R9W, Audrain County
Upstream Coordinates: Latitude 39.1697941° N , Longitude 91.9527761° W
Downstream Coordinates: Latitude 39.1899635 ° N , Longitude 91.8759956 ° W
Discharger Facility Name(s): Lakeside Estates Subdivision
Discharger Permit Number(s): MO0113948
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: 7-14-2005

Weather Conditions

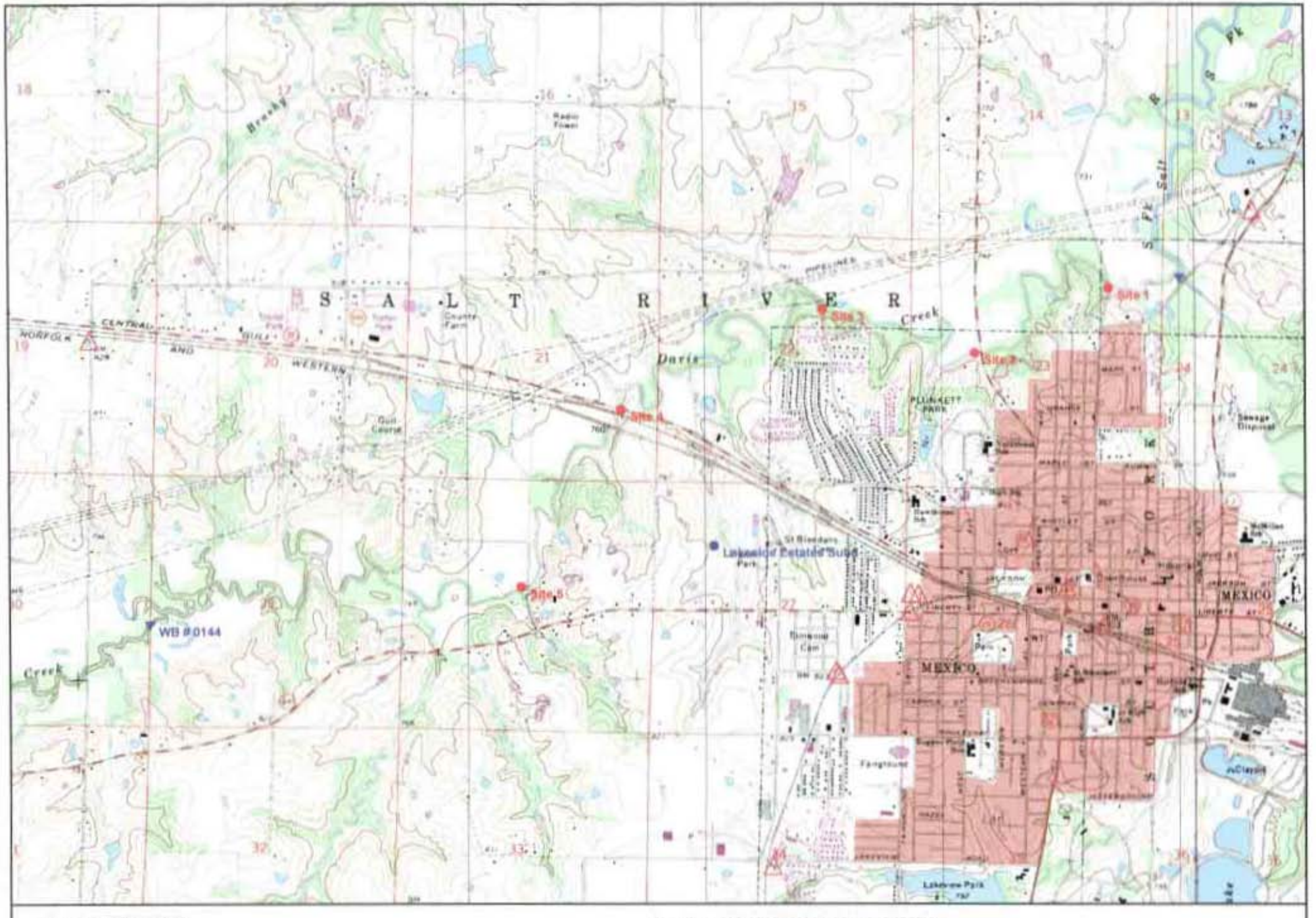
Weather conditions for the field surveys and the previous ten days are listed in the tables below.

Data from the Midwestern Regional Climate Center
Mexico, Missouri - Station ID: 235207

Date	Precipitation (Inches)	Min. Temp (°F)	Max. Temp (°F)	Average Temp (°F)
04/15/2005	0	38	67	53
04/16/2005	0	40	73	57
04/17/2005	0	45	78	62
04/18/2005	0	49	80	65
04/19/2005	0	54	80	67
04/20/2005	Trace	58	81	70
04/21/2005	0.12	58	78	68
04/22/2005	1.23	55	74	65
04/23/2005	0	41	59	50
04/24/2005	0	33	52	43
04/25/2005	0	33	58	46

Date	Precipitation (Inches)	Min. Temp (°F)	Max. Temp (°F)	Average Temp (°F)
05/28/2005	0.03	51	75	63
05/29/2005	Trace	51	78	65
05/30/2005	0.55	58	79	69
05/31/2005	0	60	77	69
05/01/2005	0	60	79	70
05/02/2005	0	57	80	69
05/03/2005	0	59	82	71
05/04/2005	0	60	85	73
05/05/2005	0.28	64	91	78
06/06/2005	0	62	85	74
06/07/2005	Missing	64	89	77

* Missing indicates that data was not available from the Midwestern Regional Climate Center



Name: MEXICO WEST
Date: 7/12/2005
Scale: 1 inch equals 2500 feet

Location: 039.1796813° N 091.9150927° W

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WB # 0144 – Davis Creek

Site # 1 - Extension of Jefferson St. CR 363

GPS Location	39.1893884 North 91.8815011 West
Elevation (feet)	792.8

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	9:23 AM	9:10 AM
Stream Type	Pool	Pool
Width (m)	9.60	8.38
Length (m)	60.96	60.96
Ave Depth (cm)	38.90	26.45
Maximum Depth (cm)*	63.9	50.0
Flow Present	Yes	Yes
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	30% emergent
Water Characteristics		
Odor	Several dead animals	Dead animals
Color	Very turbid	Turbid
Bottom Deposits	None	None
Surface Deposits	None	Oily film

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

NOTES: Site # 1 is the farthest downstream site on Davis Creek. The creek bank is used by local resident(s) to dispose trash and fish and game carcasses.

WB # 0144 – Davis Creek

Site # 2 - Hwy 15 North of Mexico

GPS Location 39.185641 North
91.8914309 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	Upstream	Upstream
Time	9:40 AM	9:30 AM
Stream Type	Run	Run
Width (m)	8.23	9.91
Length (m)	30.48	30.48
Ave Depth (cm)	19.40	19.50
Maximum Depth (cm)*	29.0	30.0
Flow Present	No	No
Flow (cfs)	-	-
SUBSTRATE		
Cobble	0%	0%
Gravel	70%	100%
Sand	30%	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	Algae, Periphyton 100%
Water Characteristics		
Odor	None	None
Color	Turbid	Turbid
Bottom Deposits	None	Periphyton
Surface Deposits	None	None

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

NOTES:

WB # 0144 – Davis Creek

Site # 3 - Gravel Rd Extension of Kentucky St.

GPS Location 39.1881466 North
91.902762 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	9:55 AM	9:10 AM
Stream Type	Run	Run
Width (m)	7.34	6.25
Length (m)	18.29	18.29
Ave Depth (cm)	38.07	12.83
Maximum Depth (cm)*	57.0	26.0
Flow Present	No	No
Flow (cfs)	-	-

SUBSTRATE

Cobble	100%	10%
Gravel	0%	90%
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		Algae 10% cover
Water Characteristics		
Odor	None	None
Color	Very turbid	Slightly turbid
Bottom Deposits	Periphyton	None
Surface Deposits	Foam	None

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

NOTES:

WB # 0144 – Davis Creek

Site # 4 - Hwy 22 Bridge

GPS Location 39.182307 North
91.9178167 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	Upstream	Upstream
Time	10:10 AM	9:52 AM
Stream Type	Run	Run
Width (m)	9.49	7.92
Length (m)	45.72	45.72
Ave Depth (cm)	43.33	31.14
Maximum Depth (cm)*	76.0	81.0
Flow Present	No	No
Flow (cfs)	-	-
SUBSTRATE		
Cobble	0%	0%
Gravel	0%	10%
Sand	20%	80%
Silt	80%	10%
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
Water Characteristics		
Odor	None	None
Color	Very turbid	Turbid
Bottom Deposits	None	None
Surface Deposits	Foam	Foam, scum

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

NOTES:

WB # 0144 – Davis Creek

Site # 5 - County Road # 929, Golf Course Road

GPS Location 39.1719885 North
91.9253212 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	10:41 AM	10:07 AM
Stream Type	Pool	Pool
Width (m)	6.10	4.11
Length (m)	45.72	45.72
Ave Depth (cm)	24.20	8.93
Maximum Depth (cm)*	37.1	14.0
Flow Present	Yes	Yes
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	80-90% Periphyton
Water Characteristics		
Odor	None	None
Color	Turbid	Clear
Bottom Deposits	None	None
Surface Deposits	None	None

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

NOTES:

Site Descriptions

Site #1: Site #1 of Davis Creek is located on County Road 353 and is the lowermost site of the classified reach. Large wooded areas and cropland surround the stream at this site. The water at this location was consistently very turbid throughout the assessment. This site had steep banks which contain a large amount of trash, such as appliances, a mattress, car parts, and several animal carcasses. This location had the overwhelming smell of the rotting animal carcasses during our assessment.

Site #2: Site #2 of Davis Creek is located on Highway 15 just north of the Mexico city limits. A few pipes cross the stream at this site. The stream is very slow flowing and contains a great deal of woody debris. The banks are much more gradual sloping than site # 1. Several snakes were spotted at this location during the assessment. At this site the water body is surrounded by large wooded areas, cropland and a small business.

Site #3: Site #3 of Davis Creek is located on a gravel extension of Kentucky Street, just north of the Mexico city limits. The banks are steep at the site, and various types of trash, including a couch, animal carcasses, a shopping cart, and concrete slabs are prevalent. The water was very turbid at this location during our assessment. The surrounding conditions include large wooded areas, some cropland and a few houses on the right descending bank.

Site #4: Site #4 of Davis Creek is located off the Highway 22 bridge northwest of the Mexico city limits. A railroad bridge also crosses the stream at this site. This location is one of the deeper locations on Davis Creek due to the bank stabilization work around the bridges. This bank stabilization has restricted the stream width which has caused the stream bed to degrade or deepen. Access in and out of the stream is difficult due to a sharp drop at edge of water. The water at this location was very turbid and very slow moving. Throughout the assessment there were surface deposits of foam and scum present. This site is located upstream of the regulated point source discharge.

Site #5: Site #5 of Davis Creek is located on County Road 929 near the Mexico Golf Course and is our uppermost site on Davis Creek. This site is located upstream of the regulated point source discharge. Cropland and large wooded areas surround the stream at this site.

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

Signed: Robert A. Burns

Date: 2-14-2005

Organization: EHI

Position: Dir of Aquatic Services

Summaries of Interviews

The following interviews were conducted by Abby Welschmeyer and Anna Welschmeyer with landowners and creek users during the months of May and June of 2005. Questions were asked of the interviewee either in person or over the phone, and survey sheets were completed based on the information acquired by the interviewer. The questions asked are as follows:

- How long have you lived near this body of water?
- Do you or your family utilize this body of water for recreational activities?
- If not used, why?
- If used, what types of activities, what season, how many times per period, and what flow conditions (low, medium, or high)?
- Have you witnessed other people utilizing the water body? (If so, the aforementioned questions apply.)

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

Date: 06/30/05
Time: 3:13 PM
Name: Christina Unger
Reason for interview: owns business near site #1

Christina Unger has owned Unger Photography near Davis Creek for 6 years. She stated that she does not use the water body for recreation because she has no need. Ms. Unger also stated that she lives near site #5 on Davis Creek. She said that she has not seen people getting in the stream there, but that teenagers hang around the bridge quite frequently.

Date: 05/25/05
Time: 12:28 PM
Name: Mary Roe
Reason for Interview: lives near site #1

Mary Roe has lived near Davis Creek for 40 years, and does not use the water body for recreation because of lack of depth. She commented that she has not seen people using the water body for any sort of recreational activities.

Summaries of Interviews (cont'd)

Date: 07/06/05
Time: 7:06 PM
Name: Chad Shoemaker
Reason for Interview: owns land between sites #1 and 3 – phone interview

Chad Shoemaker has owned land along Davis Creek for five years. Mr. Shoemakers stated that he does use the stream for fishing and wading several times during the summer months. He owns approximately108 acres along the stream, which he estimates to be about ¾ miles. Shoemaker estimated that in the riffles the stream could be three to four feet deep while the pool depths could possibly reach five to seven feet deep in places. He commented that he has seen foot prints around the stream where kids have been around the creek. He also mentioned that people wade, fish, and do some boating (john boats and canoes) on the creek periodically.

Date: 06/30/05
Time: 5:42 PM
Name: Larry Huffman
Reason for Interview: owns land and lives near site #2 – phone interview

Larry Huffman has lived near and owned land along Davis Creek for 15 years. Mr. Huffman stated that he does not use the stream for recreation because he has no need. He also commented that he has never seen anyone near the water body.

Date: 05/25/05
Time: 12:54 PM
Name: Katie Nichols
Reason for Interview: lives near site #3

Katie Nichols has lived near Davis Creek for 36 years. She does not use the water body for recreation, stating that the water is "nasty, trashy, and dirty".

Summaries of Interviews (cont'd)

Date: 05/25/05
Time: 12:58 PM
Name: Debbie Eikel
Reason for Interview: lives near site #3

Debbie Eikel has lived near Davis Creek for 36 years. She does not use the water body for recreational activities because it is "nasty and scummy". Ms. Eikel stated two years ago a family lived nearby, and they had a rope swing over the creek. (Note: Assessment team did not find a rope swing). They swam and fished in the water. However, since they moved, she has not seen anyone using it.

Date: 05/25/05
Time: 1:35 PM
Name: Cheryl Gibbons
Reason for Interview: lives near site #3

Cheryl Gibbons has lived near Davis Creek for four years. She does not use the stream for recreational activities because it is hard to access, and she is not interested in using it. Ms. Gibbons also stated that she has not seen anyone near the stream.

Date: 06/30/05
Time: 4:08 PM
Name: Elizabeth Schlutius
Reason for Interview: owns land near site #3

Elizabeth Schlutius has lived near Davis Creek for 16 years and does not use it for recreational activities. She stated as a one-time adventure, her child took a small canoe down the creek. Ms. Schlutius commented that the nearby bridge is a 'hang-out' spot for many teenagers, but she has never seen anyone get in the stream.

Summaries of Interviews (cont'd)

Date: 06/30/05
Time: 5:37 PM
Name: Billy Sue Raboin
Reason for Interview: lives near site #4 – phone interview

Billy Sue Raboin has lived near Davis Creek for 16 years. She stated that in the last ten years, her children used the water body for swimming and wading several times during the summer months. Ms. Raboin commented that she has not seen anyone using the water body for recreation, and claimed that was probably due to private property lines and the traffic on Highway 22.

Date: 05/25/05
Time: 1:20 PM
Name: Pat Bahr
Reason for Interview: lives near site #5

Pat Bahr has lived near Davis Creek for 46 years and does not use the water body because people dump their garbage in it. Ms. Bahr also stated that she has not seen anyone in the stream.