Use Attainability Analysis

for

Waterbody Identification # 3105

Lateral Main Ditch # 2

Conducted by:

Environmental Resources Coalition

To:

Missouri Department of Natural Resources
Water Protection Program

Submitted: December 22, 2005

Stream Description – WB ID: 3105 – Lateral Main Ditch # 2

Lateral Main Ditch # 2 (WB 3105) is located in the Pleistocene Valley Plains (Level IV Region 73b) of the Mississippi River Alluvial Plain eco-region. Chapman et al. (2002) characterized the region as the following:

> *A broad, flat, alluvial plain, the **Pleistocene Valley Plains** eco-region is distinct from the dissected topography of the neighboring Ozark Highlands (39). The region was formed from Pleistocene glacial outwash deposits from the Mississippi and Ohio Rivers and subsequently covered with fertile, thick, alluvial and eolian deposits. Sand dune fields and eolian deposits also occur in the plain between the Bluff Hills (Crowley's Ridge) (74a) and the Ozark Highlands (39) to the west, and along the eastern border of Sikeston Ridge, center of the New Madrid Seismic zone. Most of the area was historically covered with bald cypress, tupelo swamp forest, and mixed deciduous bottomland forest. Natural grasslands occupied sandy terraces. Today, row crop agriculture dominates the landscape with primary production in soybeans, cotton, and rice.*

Lateral Main Ditch # 2 is an eleven and one half mile long class P stream in southern Stoddard County. The classified stream reach begins south of Highway 114 west of the town of Dexter, Missouri and runs south to join an unnamed ditch which combined form Ditch # 2, just north of the Stoddard and New Madrid County line. Approximately two miles are upstream of where the of the city of Dexter's wastewater treatment facility (WWTF) outfall enters the stream and approximately nine mile are upstream of where the city of Bernie's WWTF (MO0048054) enters the stream. The majority of the surrounding area is in agricultural production, with exception of a few residences which dot the landscape. This waterbody is primarily used for field drainage.

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 contact recreation.

Field Data Sheets for Recreational Use Stream Surveys

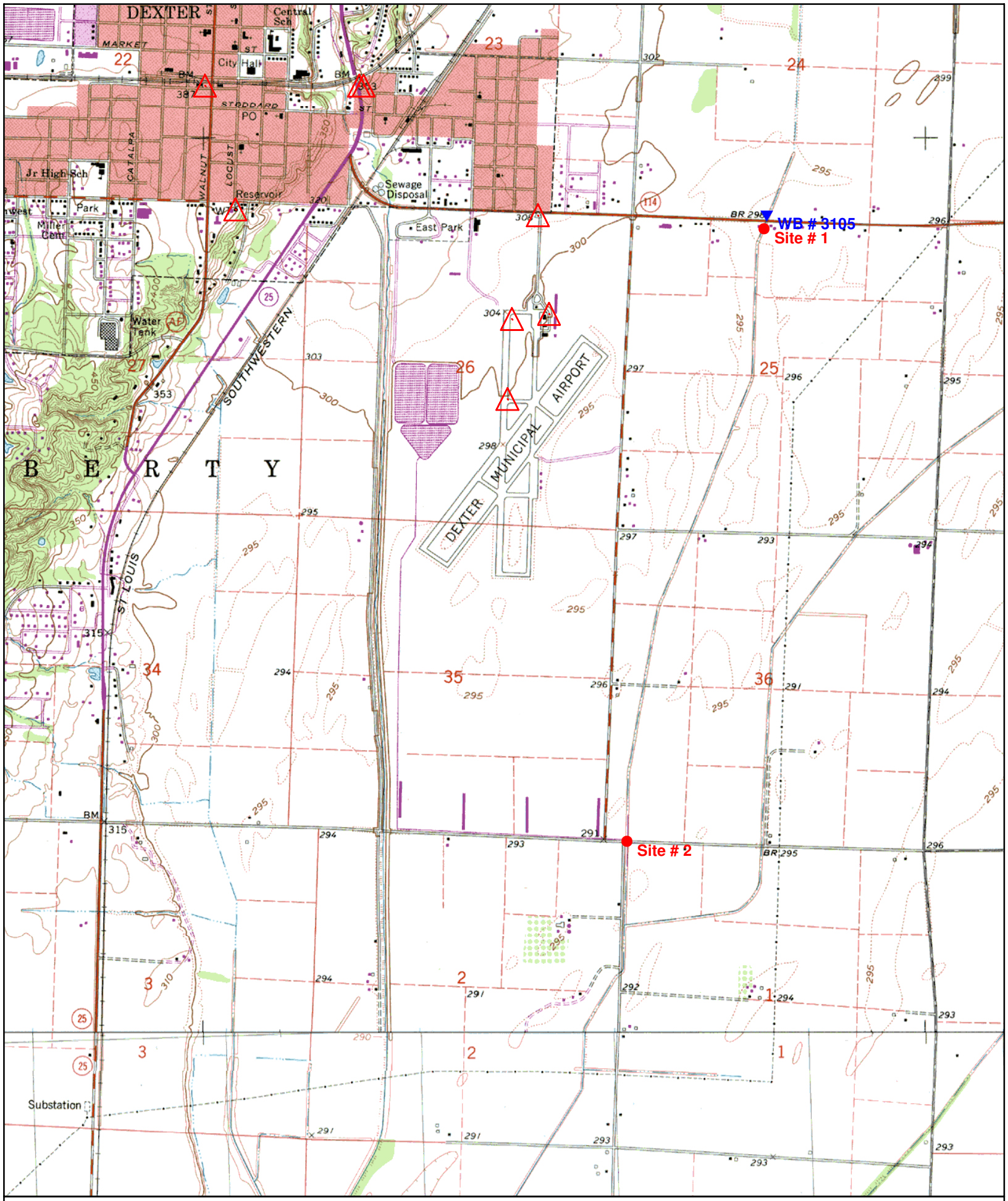
Data Sheet A: Waterbody Identification

Waterbody Name: Lateral Main Ditch # 2
8 – digit HUC: 08020204
Missouri WBID # 3105
County: Stoddard County
Upstream Legal Description: Sec. 25, T25N, R10E, Stoddard County
Downstream Legal Description: Sec. 24, T23N, R10E, Stoddard County
Upstream Coordinates: Latitude 36.787873 ° N , Longitude 89.925815 ° W
Downstream Coordinates: Latitude 36.628893 ° N , Longitude 89.939911 ° W
Discharger Facility Name(s): Dexter Municipal WWTF and Bernie Municipal WWTF
Discharger Permit Number(s): Bernie Municipal WWTF, MO048054
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.

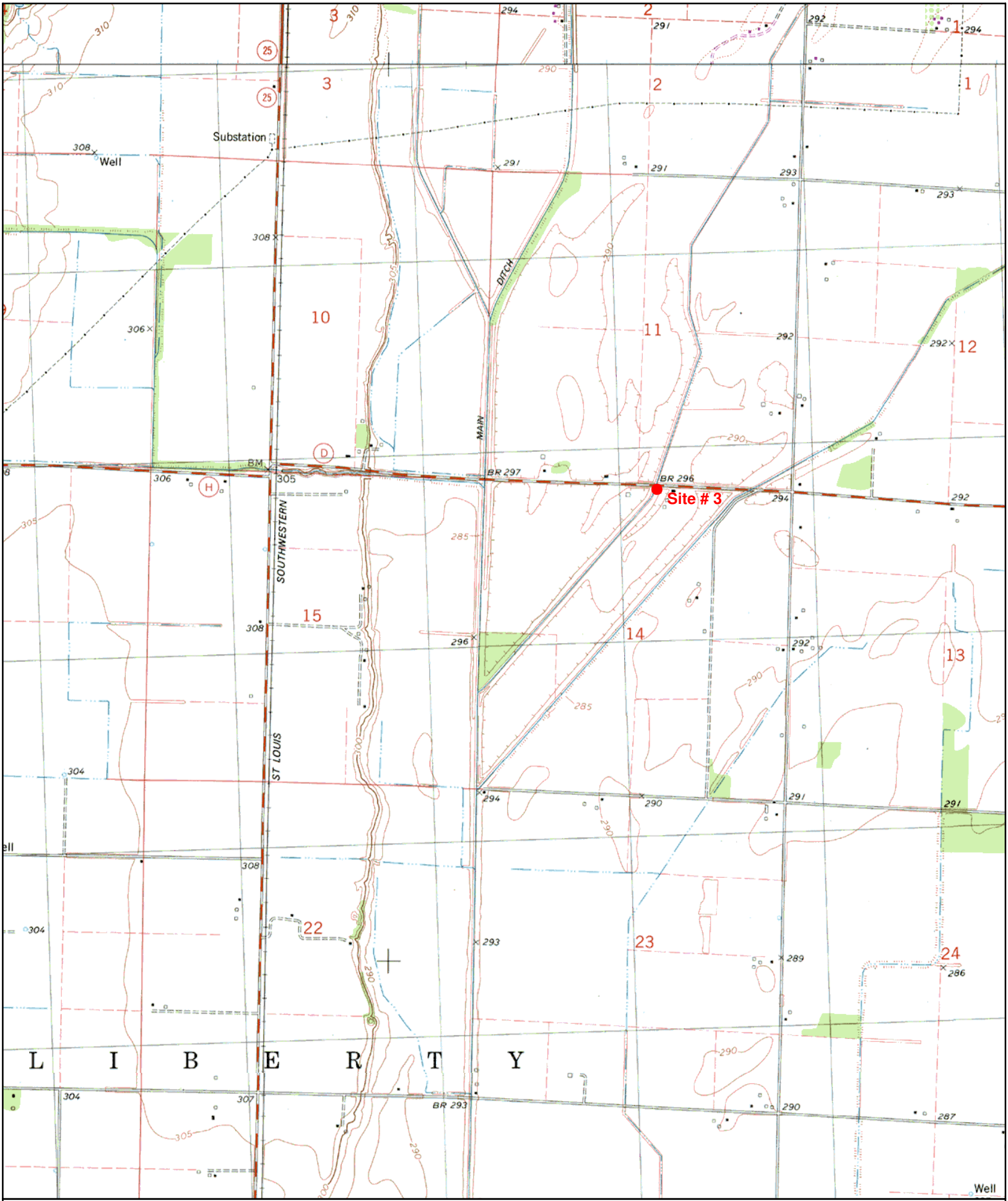
Signed: Robert R Bacon

Date: 12-22-2005



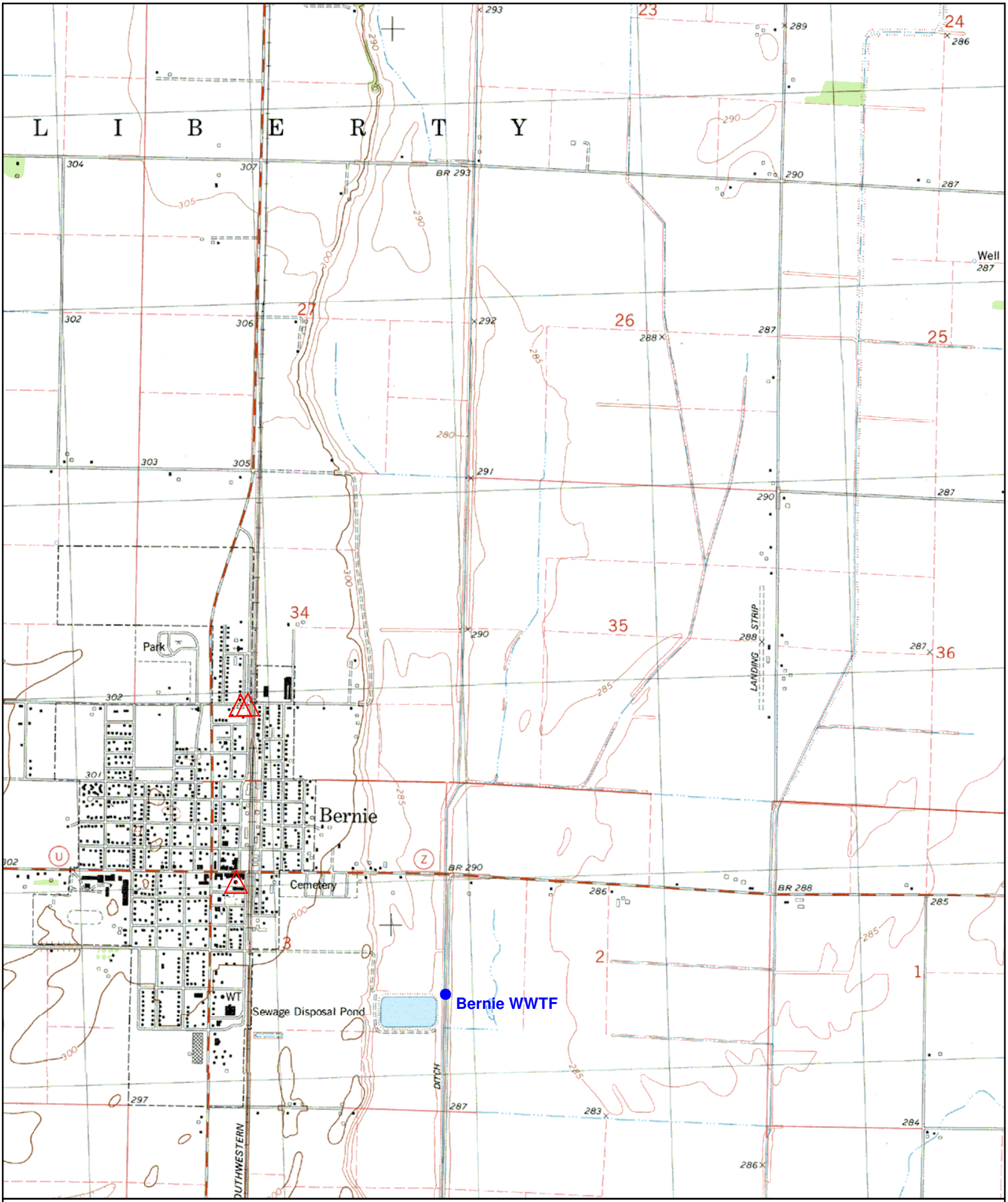
Name: DEXTER
Date: 12/16/2005
Scale: 1 inch equals 2000 feet

Location: 036.7701433° N 089.9410271° W



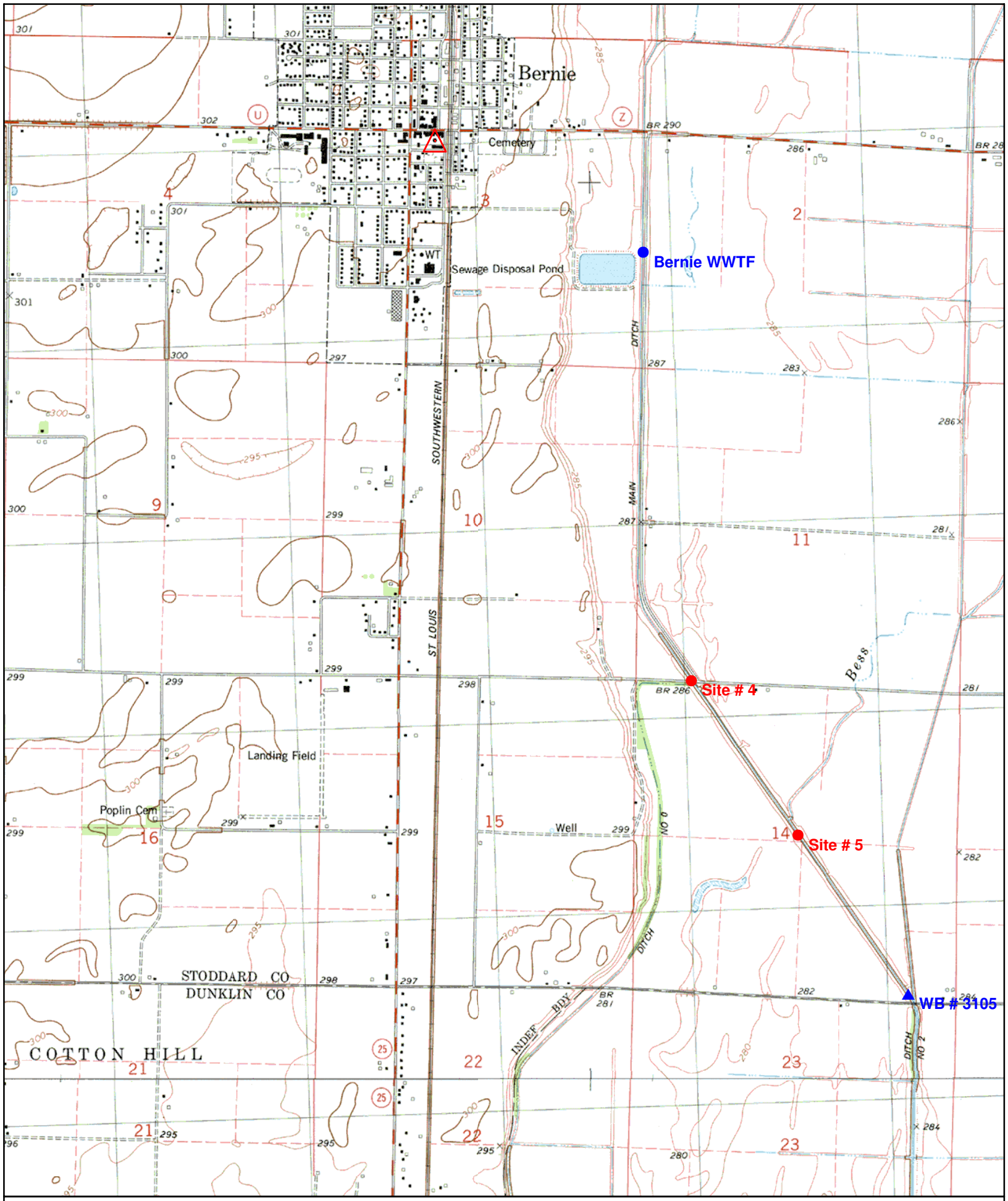
Name: BERNIE
Date: 12/16/2005
Scale: 1 inch equals 2000 feet

Location: 036.7250541° N 089.9517263° W



Name: BERNIE
Date: 12/16/2005
Scale: 1 inch equals 2000 feet

Location: 036.6817566° N 089.9519467° W



Name: BERNIE
Date: 12/16/2005
Scale: 1 inch equals 2000 feet

Location: 036.6472831° N 089.9633344° W

Weather Conditions

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

Data from the Midwest Regional Climate Center
Bernie, Missouri - Station ID: 232595

Date	Precipitation (Inches)	Min. Temp (ºF)	Max. Temp (ºF)	Avg. Temp (ºF)
04/06/2005	0.25	55	65	60
04/07/2005	0.72	56	62	59
04/08/2005	0.12	51	69	60
04/09/2005	0	49	75	62
04/10/2005	0	51	79	65
04/11/2005	0	60	66	63
04/12/2005	0.88	57	67	62
04/13/2005	0.08	51	57	54
04/14/2005	0.17	44	69	57
04/15/2005	0.07	44	73	59
04/16/2005	0	46	77	62

Date	Precipitation (Inches)	Min. Temp (ºF)	Max. Temp (ºF)	Avg. Temp (ºF)
05/23/2005	0.22	62	88	75
05/24/2005	0	58	78	68
05/25/2005	0	53	78	66
05/26/2005	0	54	81	68
05/27/2005	Trace	54	84	69
05/28/2005	Trace	54	84	69
05/29/2005	0	57	83	70
05/30/2005	0	56	85	71
05/31/2005	0	60	84	72
06/01/2005	0	63	80	72
06/02/2005	0.03	63	73	68

Weather Conditions (continued)

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

Temperature data from the Midwest Regional Climate Center
Bernie, Missouri - Station ID: 232595

Precipitation data from the MU Commercial Agriculture Automated Weather Station Network
Dunklin County, Rhodes Memorial Research Farm - (1.5 miles north of Clarkton, MO)

Date	Precipitation (Inches)	Min. Temp (ºF)	Max. Temp (ºF)	Avg. Temp (ºF)
10/17/2005	0	45	81	63
10/18/2005	0	47	84	66
10/19/2005	0	56	89	73
10/20/2005	0.01	58	80	69
10/21/2005	0	57	62	60
10/22/2005	0	44	65	55
10/23/2005	0	44	54	49
10/24/2005	0	37	55	46
10/25/2005	0	36	57	47
10/26/2005	0	32	62	47
10/27/2005	0	34	61	48

WB # 3105 – Lateral Main Ditch # 2

Site # 1 - Highway 114

GPS Location **36.788033 North**
89.9259174 West

Upstream Views

Upstream view is out of the classified reach

Downstream Views

04/15/05

06/02/05

10/27/05

Physical Dimensions – Site # 1

	04/15/05	06/02/05
Assessment Location	Downstream	Downstream
Time	3:10 PM	4:14 PM
Stream Type	Run	Run
Width (m)	8.53	7.32
Length (m)	22.86	22.86
Avg. Depth (cm)	34.88	40.00
Maximum Depth (cm)*	69	65
Flow Present	Yes	Yes
Flow (cfs)	-	-
SUBSTRATE		
Cobble	0%	0%
Gravel	0%	0%
Sand	0%	0%
Silt	20%	0%
Mud / Clay	80%	100%
Bedrock	0%	0%
	100%	100%
OTHER		
Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	50-60% vegetation cover	30% vegetation cover
Water Characteristics		
Odor	None	None
Color	Turbid (red clay turbidity)	Turbid
Bottom Deposits	None	None
Surface Deposits	None	None

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

NOTES: Site # 1 is the uppermost site on Lateral Main Ditch # 2.

Physical Dimensions – Site # 1 (continued)

	10/27/05
Assessment Location	Downstream
Time	7:46 AM
Stream Type	Run
Width (m)	5.18
Length (m)	22.86
Avg. Depth (cm)	22.17
Maximum Depth (cm)*	42.0
Flow Present	Yes
Flow (cfs)	-

SUBSTRATE

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

OTHER

Uses Observed	None
Evidence of Human Use (WBCR)	None
Aquatic Vegetation	15% vegetation cover
Water Characteristics	
Odor	None
Color	Turbid
Bottom Deposits	None
Surface Deposits	None

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

NOTES: Site # 1 is the uppermost site on Lateral Main Ditch # 2.

WB # 3105 – Lateral Main Ditch # 2

Site # 2 - Intersection of County Road 717 and 732

GPS Location **36.7589176 North**
89.9339315 West

Upstream Views

04/15/05

06/02/05

Downstream Views

04/15/05

06/02/05

WB # 3105 – Lateral Main Ditch # 2

Site # 2 - (continued)

Upstream View
10/26/05

Downstream View
10/26/05

Physical Dimensions – Site # 2

	04/15/05	06/02/05
Assessment Location	Downstream	Downstream
Time	3:55 PM	4:30 PM
Stream Type	Run	Run
Width (m)	8.53	6.71
Length (m)	121.92	121.92
Avg. Depth (cm)	31.13	42.25
Maximum Depth (cm)*	53.0	59.0
Flow Present	Yes	Yes
Flow (cfs)	4.9	8.5
SUBSTRATE		
Cobble	0%	0%
Gravel	0%	0%
Sand	0%	0%
Silt	20%	0%
Mud / Clay	80%	100%
Bedrock	0%	0%
	100%	100%
OTHER		
Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	50% submergent and emergent plants	70% submergent and emergent plants
Water Characteristics		
Odor	None	Sewage smell
Color	Turbid (red clay turbidy)	Turbid
Bottom Deposits	None	None
Surface Deposits	Foam from small tributary ditch – Dexter WWTF	Foam from small tributary ditch – Dexter WWTF

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

Physical Dimensions – Site # 2 (continued)

	10/26/05	10/26/05
Assessment Location	Upstream	Downstream
Time	6:29 PM	6:40 PM
Stream Type	Run	Run
Width (m)	5.79	5.79
Length (m)	121.92	121.92
Avg. Depth (cm)	20.65	12.85
Maximum Depth (cm)*	37.0	24.0
Flow Present	Yes	Yes
Flow (cfs)	-	-
SUBSTRATE		
Cobble	0%	0%
Gravel	0%	0%
Sand	20%	10%
Silt	0%	30%
Mud / Clay	80%	60%
Bedrock	0%	0%
	100%	100%
OTHER		
Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	40% macrophyte cover	40% macrophyte cover
Water Characteristics		
Odor	None	None
Color	Clear / lightly turbid	Clear / lightly turbid
Bottom Deposits	None	None
Surface Deposits	None	None

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

Tributary ditch where the City of Dexter's WWTF discharge enters the waterbody (WB # 3105)

Note: A small tributary ditch (pictured above) discharges a green plume of water and mixes with Lateral Main Ditch # 2.

The GPS location is the same as coordinates for Site # 2

WB # 3105 – Lateral Main Ditch # 2

Site # 3 - Highway D

GPS Location **36.7302622 North**
89.9429772 West

Upstream Views

04/15/05

06/02/05

Downstream Views

04/15/05

06/02/05

WB # 3105 – Lateral Main Ditch # 2

Site # 3 - (continued)

Upstream View
10/26/05

Downstream View
10/26/05

Physical Dimensions – Site # 3

	04/15/05	06/02/05
Assessment Location	Downstream	Downstream
Time	4:30 PM	4:53 PM
Stream Type	Run	Run
Width (m)	12.8	13.26
Length (m)	30.48	30.48
Avg. Depth (cm)	33.90	46.63
Maximum Depth (cm)*	73.0	75.0
Flow Present	Yes	Yes
Flow (cfs)	9.5	3.31
SUBSTRATE		
Cobble	0%	0%
Gravel	0%	0%
Sand	0%	0%
Silt	40%	40%
Mud / Clay	60%	60%
Bedrock	0%	0%
	100%	100%
OTHER		
Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	60% macrophyte and filamentous algae cover	60% macrophyte and filamentous algae cover
Water Characteristics		
Odor	None	None
Color	Turbid and green	Turbid and green
Bottom Deposits	Fine sediment	Fine sediments
Surface Deposits	Foam and particulates	Foam and particulates

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

Physical Dimensions – Site # 3 (continued)

	10/26/05	10/26/05
Assessment Location	Upstream	Downstream
Time	6:13 PM	6:25 PM
Stream Type	Run	Run
Width (m)	3.05	3.66
Length (m)	160.94	30.48
Avg. Depth (cm)	9.91	10.23
Maximum Depth (cm)*	18.0	16.0
Flow Present	Yes	Yes
Flow (cfs)	-	-
SUBSTRATE		
Cobble	0%	0%
Gravel	0%	0%
Sand	0%	0%
Silt	100%	100%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%
OTHER		
Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	10% macrophyte and filamentous algae cover	10% macrophyte and filamentous algae cover
Water Characteristics		
Odor	None	None
Color	Turbid	Turbid
Bottom Deposits	None	None
Surface Deposits	None	None

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

WB # 3105 – Lateral Main Ditch # 2

Site # 4 - Junction of County Roads 784 and 709

GPS Location **36.7303156 North**
89.942902 West

Upstream Views

04/15/05

06/02/05

Downstream Views

04/15/05

06/02/05

WB # 3105 – Lateral Main Ditch # 2

Site # 4 - (continued)

Upstream View
10/26/05

Downstream View
10/26/05

Physical Dimensions – Site # 4

	06/02/05	10/26/05
Assessment Location	Upstream	Upstream
Time	5:28 PM	5:47 PM
Stream Type	Run	Run
Width (m)	7.11	7.32
Length (m)	60.96	60.96
Avg. Depth (cm)	44.69	22.38
Maximum Depth (cm)*	69.0	38.0
Flow Present	Yes	Yes
Flow (cfs)	-	-
SUBSTRATE		
Cobble	0%	0%
Gravel	0%	10%
Sand	20%	40%
Silt	40%	20%
Mud / Clay	40%	30%
Bedrock	0%	0%
	100%	100%
OTHER		
Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	10% filamentous algae and 10% emergent coverage	20% filamentous algae and 5 % emergent coverage
Water Characteristics		
Odor	None	None
Color	Turbid and green	Turbid and green
Bottom Deposits	Some soft fine sediment	Some soft fine sediment
Surface Deposits	Foam and floating particulates	Oil deposits and foam

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

Physical Dimensions – Site # 4 (continued)

	10/26/05
Assessment Location	Downstream
Time	5:58 PM
Stream Type	Run
Width (m)	6.71
Length (m)	60.96
Avg. Depth (cm)	16.00
Maximum Depth (cm)*	29.0
Flow Present	Yes
Flow (cfs)	-

SUBSTRATE

Cobble	0%
Gravel	0%
Sand	45%
Silt	25%
Mud / Clay	30%
Bedrock	0%
	100%

OTHER

Uses Observed	None
Evidence of Human Use (WBCR)	None
Aquatic Vegetation	20% filamentous algae and 5% macrophyte coverage
Water Characteristics	
Odor	None
Color	Turbid and green
Bottom Deposits	None
Surface Deposits	Foam

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

WB 3105 – Bernie WWTF Discharge Pipe

County Road 709

GPS Location **36.663523 North**
89.942902 West

WB # 3105 – Lateral Main Ditch # 2

Site # 5 - County Road 784 - approximately two-thirds of a mile downstream of Site #4

GPS Location **36.6363379 North**
89.9466422 West

Upstream Views

06/02/05 **10/26/05**

Downstream Views

06/02/05 **10/26/05**

Physical Dimensions – Site # 5

	06/02/05	10/26/05
Assessment Location	Downstream	Downstream
Time	5:44 PM	5:40 PM
Stream Type	Run	Run
Width (m)	11.28	9.75
Length (m)	60.96	60.96
Avg. Depth (cm)	48.50	24.59
Maximum Depth (cm)*	72.0	37.0
Flow Present	Yes	Yes
Flow (cfs)	-	-
SUBSTRATE		
Cobble	0%	0%
Gravel	0%	0%
Sand	40%	0%
Silt	60%	80%
Mud / Clay	0%	20%
Bedrock	0%	0%
	100%	100%
OTHER		
Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	None	None
Water Characteristics		
Odor	Sewage	None
Color	Turbid	Turbid
Bottom Deposits	None	None
Surface Deposits	None	None

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

Site Descriptions

Ditch # 6 has a <u>thriving population</u> of snakes, that appeared to be the poisonous cottonmouth water moccasin (*Ancistrodon piscivoru*). It was quite common to see several of these snakes in the water and on the bank while conducting a stream assessment.

<u>Site #1:</u> Site # 1 of Lateral Main Ditch # 2 is located on Highway 114, is the uppermost site of the reach, and is approximately two mile upstream of where the city of Dexter's Waste Water Treatment Facility enters the waterbody. Farm fields surround this site. The site water was turbid during all visits. Trash was visible on banks and in the stream bed.

<u>Site #2:</u> Site # 2 of Lateral Main Ditch # 2 is located at the intersection of County Road 717 and 732 and has steep banks. Agriculture farm fields surround this site. Dexter's WWTF outflow enters the waterbody by much smaller ditch just upstream of the bridge. The bed of the ditch contains tires and other large discarded items. During our assessment, the water consistently had a sewage odor and remained very turbid.

<u>Site #3:</u> Site # 3 of Lateral Main Ditch # 2 is located at Hwy D. Farm fields surround the area. Banks are very steep and the waterbody is hard to access. Numerous field drainage pipes are visible at this site.

<u>Site #4:</u> Site # 4 of Lateral Main Ditch # 2 is located at the intersection of County Road 784 and 709. Farm fields surround the area. Appliances, trash, drainage pipes, tires and snakes can be seen when visiting the site. The site is approximately one and one half miles downstream of the Bernie WWTF outfall. The water at this location was consistently turbid and green, with an oily film and foam on the surface. Banks are steep and slightly brush covered. Data collected from this site on 04/15/05 was omitted due to a lost field assessment sheet.

<u>Site #5:</u> Site # 5 of Lateral Main Ditch # 2 is located two-thirds of a mile downstream of Site # 4 and just under two-thirds of a mile above the end of the classified segment. Farm fields entirely surround the stream at this location. The banks are very steep (12-16 feet) and brush covered. This was a newly created assessment site on 06/02/05.

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 Becan

Date: 12-22-2005

Organization: ERC

Position: Dir. of Aquatic Services

Summaries of Interviews

The following interviews were conducted by Abby Welschmeyer (ERC, Field Manager) and Robert Bacon (ERC, Director of Aquatic Services) 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 waterbody? (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 waterbody 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: 04/15/05
Time: 3:55 PM
Name: Larry Gulley
Reason for Interview: stopped at Site # 2 to ask questions

Larry Gulley has lived near Lateral Main Ditch # 2 for 54 years. He does not use it because the WWTF is nearby, making the stream unclean. He has not seen anyone else use the stream for recreation, and stated he believes that it is because the WWTF empties into it.

Date: 06/02/05
Time: 6:24 PM
Name: Linda Riley
Reason for Interview: lives near waterbody

Linda Riley has lived near Lateral Main Ditch #2 for 41 years and uses the stream to fish only – never for swimming or wading. She has seen people fishing and frog gigging numerous times during the summer months but nobody gets into the water.

Summaries of Interviews (continued)

Date: 06/02/05
Time: 6:15 PM
Name: Scott Stratman
Reason for Interview: lives near waterbody

Scott Stratman has lived near Lateral Main Ditch #2 for 50 years. He does not use the stream for recreational activities because it lacks depth and because there are several large water moccasins that live near the stream. Mr. Stratman stated that he has seen people fishing from the bridges.

Date: 06/02/05
Time: 6:45 PM
Name: Gene Cobb
Reason for Interview: lives near waterbody

Gene Cobb has lived near Lateral Ditch #2 for 18 years. He does not use the stream for recreational activities because there are too many snakes and because people dump various chemicals and trash in it. Mr. Cobb commented that he has seen people fishing from the road, but has never seen anyone in the water.

Date: 06/02/05
Time: 7:06 PM
Name: David Mayberry
Reason for Interview: lives near waterbody

David Mayberry has lived near Lateral Main Ditch #2 for 32 years and uses the stream for fishing and frog gigging during the summer months. He and his family own and farm approximately one mile along the waterbody. Mr. Mayberry stated that he has seen people fishing at the creek, but has never seen anyone in the water.

Date: 06/02/05
Time: 7:25 PM
Name: Gary Mayberry
Reason for Interview: lives near waterbody

Gary Mayberry has lived near Lateral Main Ditch #2 for 65 years and owns approximately one mile along it. He uses it for fishing occasionally in the spring and summer months. He stated that at the time of the interview the stream was much deeper than it had been the previous week due to local field irrigation. Mr. Mayberry stated that the stream runs all year round, but rarely has considerable depth. He has seen people fishing from bridges during the summer months after a rain.