



Use Attainability Analysis

for

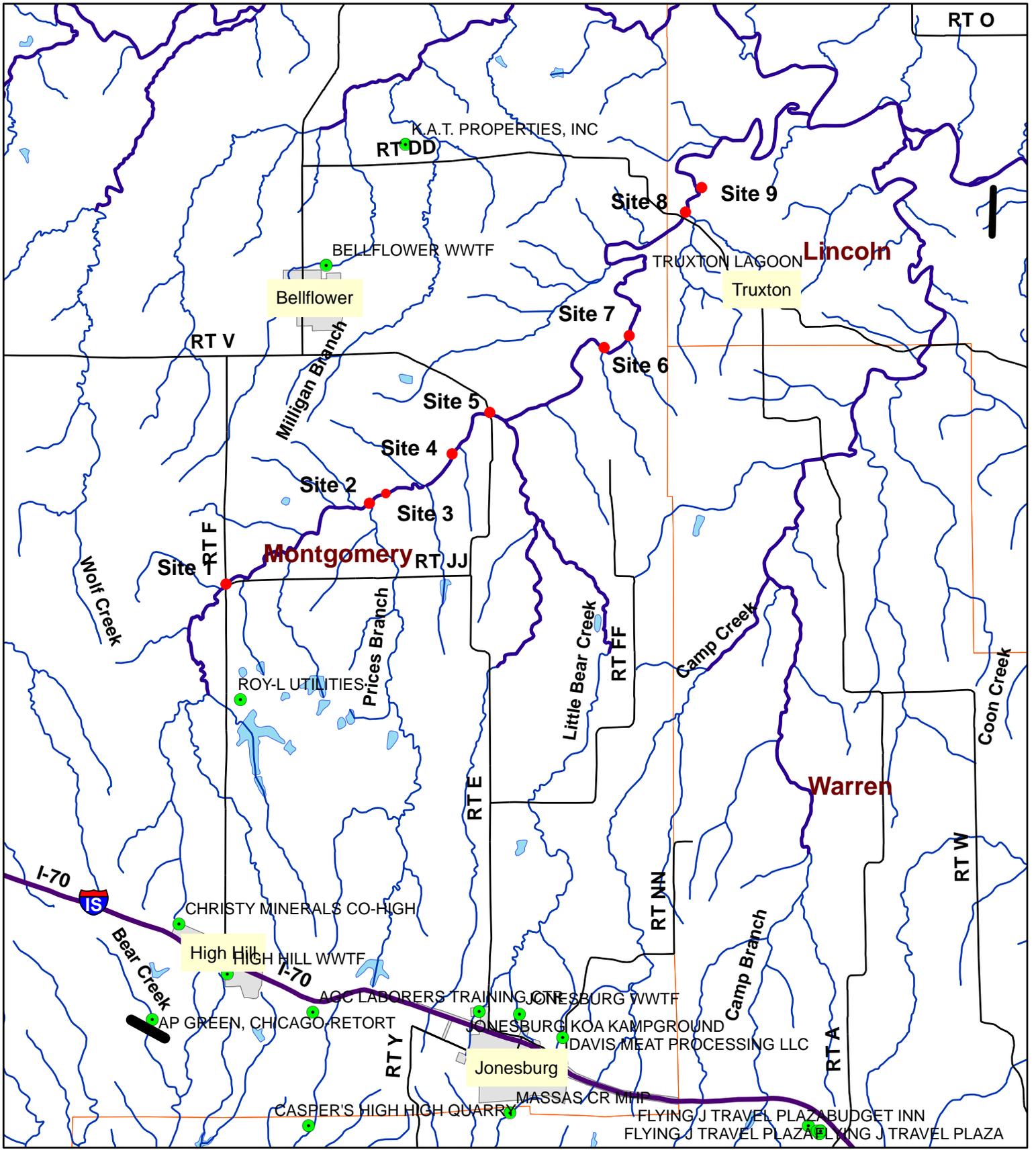
WBID 0193 Bear Creek

Submitted by  
MEC Water Resources

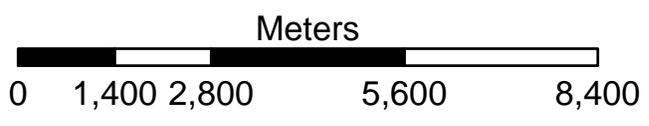
To  
Missouri Department of Natural Resources  
Water Protection Program

On  
May 29, 2008





**Bear Creek  
WBID 0193  
Montgomery County**



**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 1 of 3)  
(must be completed for each site)

<b>Date &amp; Time:</b> 4/9/08 08:30	Location Description (e.g., road crossing):
<b>Stream Name:</b> Bear Creek	Rt. F road crossing
Current Weather Conditions: cloudy	Facility Name(s): Lincoln County Egg Farm
Weather Conditions for Past 10 days: 1.03" of Precipitation	Permit Number(s): MO 0107026
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): 0640797	Northing (UTM Y): 4312285	Horizontal Accuracy: (EPE / FOM / PDOP)	22 ft	
Site 11	Easting (UTM X): 0640937	Northing (UTM Y): 4312432	Horizontal Accuracy: (EPE / FOM / PDOP)	18 ft	

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2874	Upstream site 1	2875	Downstream site 1	2876	Fence on S. side of stream at Transect 11
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Site # 01

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input checked="" type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: At Transect 11				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: none				

**Substrate\*:** (These values should add up to 100%.)

20% Cobble	50% Gravel	20% Sand	-% Silt	10% Mud/Clay	-% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

Benthic algae
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input checked="" type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Site # 01

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 3 of 3)

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: \_\_\_\_\_ Date of Survey: \_\_\_\_\_

Organization: \_\_\_\_\_ Position: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet C - Field Survey Results**

Stream Name: <u>Bear Creek</u>	Waterbody ID: <u>0193</u>	Site #: <u>0193_01</u>
Estimated Channel Incision: <u>0.2</u> (m) (height between low bank width and water)		
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)		
<b>01</b> UTM X: <u>640797</u>	UTM Y: <u>4312285</u>	+/- <u>22</u> (feet)
<b>11</b> UTM X: <u>640937</u>	UTM Y: <u>4312432</u>	+/- <u>18</u> (feet)
Average Stream Width: <u>8.0</u> (meters)	Length of Survey Segment: <u>160</u> (meters)	
(To determine Length of Reach) (20x average stream width)		
Field Staff: <u>Jennifer Hrabik and Renee Martin</u>		

Dissolved Oxygen	
Date: <u>4/9/2008</u>	Time: <u>8:30</u>
Dissolved Oxygen: <u>11.08</u> (mg/L)	
Dissolved Oxygen: <u>97.3</u> (% sat)	
Specific Cond: <u>152.0</u> (µS/cm)	
Water Temperature: <u>9.7</u> (°C)	

rwc

**Transect Cross-Section**

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.52	0.05	0.56	0.32	0.82	0.33	0.80	0.30	0.86	0.15	0.97	0.15	0.70	0.05	0.77	0.30	0.83	0.18	1.38	0.44	0.52	0.28
2	1.04	0.15	1.12	0.40	1.64	0.45	1.60	0.30	1.72	0.25	1.94	0.08	1.40	0.05	1.54	0.33	1.66	0.25	2.76	0.32	1.04	0.15
3	1.56	0.10	1.68	0.45	2.46	0.50	2.40	0.32	2.58	0.20	2.91	0.10	2.10	0.08	2.31	0.30	2.49	0.31	4.14	0.48	1.56	0.10
4	2.08	0.20	2.24	0.45	3.28	0.50	3.20	0.27	3.44	0.20	3.88	0.10	2.80	0.09	3.08	0.28	3.32	0.35	5.52	0.20	2.08	0.05
5	2.60	0.20	2.80	0.50	4.10	0.36	4.00	0.20	4.30	0.20	4.85	0.12	3.50	0.11	3.85	0.30	4.15	0.35	6.90	0.30	2.60	0.05
6	3.12	0.24	3.36	0.45	4.92	0.25	4.80	0.15	5.16	0.15	5.82	0.08	4.20	0.13	4.62	0.32	4.98	0.35	8.28	0.38	3.12	0.08
7	3.64	0.22	3.92	0.52	5.74	0.20	5.60	0.15	6.02	0.12	6.79	0.06	4.90	0.12	5.39	0.32	5.81	0.42	9.66	0.24	3.64	0.05
8	4.16	0.26	4.48	0.44	6.56	0.20	6.40	0.08	6.88	0.02	7.76	0.15	5.60	0.17	6.16	0.38	6.64	0.35	11.04	0.00	4.16	0.05
9	4.68	0.15	5.04	0.25	7.38	0.15	7.20	0.05	7.74	0.02	8.73	0.22	6.30	0.20	6.93	0.38	7.47	0.32	12.42	0.25	4.68	0.01
<b>Right Bank</b>	5.20	0.00	5.60	0.00	8.20	0.00	8.00	0.00	8.60	0.00	9.70	0.00	7.00	0.00	7.70	0.65	8.30	0.00	13.80	0.00	5.20	0.00
<b>Feature Type</b>	riffle	run	run	run	run	run	run	riffle	riffle	run	run	run										

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)  
(must be completed for each site)

<b>Date &amp; Time:</b> 4/9/08 09:27	Location Description (e.g., road crossing): Prices Branch Rd. crossing
<b>Stream Name:</b> Bear Creek	
Current Weather Conditions: cloudy	Facility Name(s): Lincoln County Egg Farm
Weather Conditions for Past 10 days: 1.03” of Precipitation	Permit Number(s): MO 0107026
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0643891	Northing (UTM Y): 4314029	Horizontal Accuracy: (EPE / FOM / PDOP) 17 ft
Site 11	Easting (UTM X): 0644062	Northing (UTM Y): 4314198	Horizontal Accuracy: (EPE / FOM / PDOP) 18 ft

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2877	Upstream site 2	2878	Downstream site 2		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Site # 02

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Fence at Transect 4 Rural residential at Transect 8				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: none				

**Substrate\*:** (These values should add up to 100%.)

10% Cobble	70% Gravel	15% Sand	-% Silt	5% Mud/Clay	-% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

Sparse benthic algae
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Site # 02

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization (continued)**

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: \_\_\_\_\_ Date of Survey: \_\_\_\_\_

Organization: \_\_\_\_\_ Position: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet C - Field Survey Results**

Stream Name: <u>Bear Creek</u>	Waterbody ID: <u>0193</u>	Site #: <u>0193_02</u>
Estimated Channel Incision: <u>0.5</u> (m) (height between low bank width and water)		
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)		
<b>01</b> UTM X: <u>643891</u>	UTM Y: <u>4314029</u>	+/- <u>17</u> (feet)
<b>11</b> UTM X: <u>644062</u>	UTM Y: <u>4314198</u>	+/- <u>18</u> (feet)
Average Stream Width: <u>8.5</u> (meters)	Length of Survey Segment: <u>170</u> (meters)	
(To determine Length of Reach) (20x average stream width)		
Field Staff: <u>Jennifer Hrabik and Renee Martin</u>		

Dissolved Oxygen	
Date: <u>4/9/2008</u>	Time: <u>9:27</u>
Dissolved Oxygen: <u>10.02</u> (mg/L)	
Dissolved Oxygen: <u>86.8</u> (% sat)	
Specific Cond: <u>146.8</u> (µS/cm)	
Water Temperature: <u>9.6</u> (°C)	

rwc

		Transect Cross-Section																					
		01		02		03		04		05		06		07		08		09		10		11	
Station		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
<b>Left Bank</b>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		0.70	0.55	1.17	0.25	0.55	0.03	1.04	0.25	0.60	0.05	0.63	0.10	0.79	0.08	0.55	0.48	0.83	0.35	1.05	0.41	1.25	0.10
2		1.40	0.52	2.34	0.05	1.10	0.10	2.08	0.34	1.20	0.05	1.26	0.18	1.58	0.15	1.10	0.48	1.66	0.38	2.10	0.43	2.50	0.27
3		2.10	0.60	3.51	0.01	1.65	0.15	3.12	0.33	1.80	0.05	1.89	0.24	2.37	0.12	1.65	0.40	2.49	0.35	3.15	0.40	3.75	0.40
4		2.80	0.60	4.68	0.01	2.20	0.24	4.16	0.25	2.40	0.08	2.52	0.37	3.16	0.18	2.20	0.32	3.32	0.30	4.20	0.28	5.00	0.40
5		3.50	0.58	5.85	0.01	2.75	0.20	5.20	0.35	3.00	0.10	3.15	0.50	3.95	0.18	2.75	0.25	4.15	0.26	5.25	0.22	6.25	0.35
6		4.20	0.56	7.02	0.05	3.30	0.20	6.24	0.45	3.60	0.15	3.78	0.64	4.74	0.15	3.30	0.22	4.98	0.30	6.30	0.23	7.50	0.40
7		4.90	0.47	8.19	0.05	3.85	0.20	7.28	0.55	4.20	0.20	4.41	0.75	5.53	0.15	3.85	0.15	5.81	0.28	7.35	0.15	8.75	0.32
8		5.60	0.30	9.36	0.15	4.40	0.16	8.32	0.56	4.80	0.20	5.04	0.81	6.32	0.13	4.40	0.12	6.64	0.25	8.40	0.12	10.00	0.25
9		6.30	0.16	10.53	0.18	4.95	0.15	9.36	0.44	5.40	0.30	5.67	0.90	7.11	0.10	4.95	0.08	7.47	0.13	9.45	0.18	11.25	0.15
<b>Right Bank</b>		7.00	0.00	11.70	0.00	5.50	0.00	10.40	0.00	6.00	0.00	6.30	0.00	7.90	0.00	5.50	0.00	8.30	0.00	10.50	0.00	12.50	0.00
<b>Feature Type</b>		run	rifle	rifle	run	rifle	run	rifle	run	rifle	run	rifle	rifle	run	run	run							

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)  
(must be completed for each site)

<b>Date &amp; Time:</b> 4/9/08 10:07	Location Description (e.g., road crossing):
<b>Stream Name:</b> Bear Creek	100 m downstream of site 2
Current Weather Conditions: cloudy	Facility Name(s): Lincoln County Egg Farm
Weather Conditions for Past 10 days: 1.03” of Precipitation	Permit Number(s): MO 0107026
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0644246	Northing (UTM Y): 4314239	Horizontal Accuracy: (EPE / FOM / PDOP) 17 ft
Site 11	Easting (UTM X): 0644504	Northing (UTM Y): 4314361	Horizontal Accuracy: (EPE / FOM / PDOP) 17 ft

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2879	Upstream site 3	2880	Downstream site 3	2881	Possible crossing near residence at Transect 7
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2882	Possible crossing near residence at Transect 7	2883	Trash dump at Transect 9	2884	Trash dump at Transect 9
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 03

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: pasture Rural residential at Transect 9				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input checked="" type="checkbox"/> Roads <sup>1</sup>	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: <sup>1</sup> Possible crossing at Transect 7 Trash dump at Transect 9				

**Substrate\*:** (These values should add up to 100%.)

15% Cobble	50% Gravel	10% Sand	-% Silt	10% Mud/Clay	15% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

Benthic algae
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input checked="" type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Site # 03

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 3 of 3)

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: \_\_\_\_\_ Date of Survey: \_\_\_\_\_

Organization: \_\_\_\_\_ Position: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet C - Field Survey Results**

Stream Name: <u>Bear Creek</u> Waterbody ID: <u>0193</u> Site #: <u>0193_03</u>  Estimated Channel Incision: <u>0.5</u> (m) (height between low bank width and water)  GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) <b>01</b> UTM X: <u>644246</u> UTM Y: <u>4314239</u> +/- <u>17</u> (feet) <b>11</b> UTM X: <u>644504</u> UTM Y: <u>4314361</u> +/- <u>17</u> (feet)  Average Stream Width: <u>11.0</u> (meters)      Length of Survey Segment: <u>220</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Jennifer Hrabik and Renee Martin</u>	<p align="center"><b>Dissolved Oxygen</b></p> Date: <u>4/9/2008</u> Time: <u>10:07</u>  Dissolved Oxygen: <u>11.13</u> (mg/L)  Dissolved Oxygen: <u>100.1</u> (% sat)  Specific Cond: <u>154.3</u> (µS/cm)  Water Temperature: <u>9.9</u> (°C)
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rwc

**Transect Cross-Section**

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1.22	0.62	2.25	0.37	0.85	0.04	0.77	0.10	0.90	0.05	0.97	0.10	1.07	0.20	1.10	0.17	1.20	0.26	0.90	0.20	1.10	0.10
2	2.44	0.45	4.50	0.85	1.70	0.02	1.54	0.16	1.80	0.12	1.94	0.15	2.14	0.26	2.20	0.35	2.40	0.25	1.80	0.30	2.20	0.05
3	3.66	0.40	6.75	0.01	2.55	0.18	2.31	0.23	2.70	0.20	2.91	0.13	3.21	0.35	3.30	0.31	3.60	0.35	2.70	0.50	3.30	0.12
4	4.88	0.30	9.00	0.00	3.40	0.00	3.08	0.30	3.60	0.15	3.88	0.13	4.28	0.31	4.40	0.28	4.80	0.27	3.60	0.58	4.40	0.35
5	6.10	0.32	11.25	0.00	4.25	0.00	3.85	0.27	4.50	0.20	4.85	0.08	5.35	0.37	5.50	0.35	6.00	0.18	4.50	0.45	5.50	0.31
6	7.32	0.32	13.50	0.00	5.10	0.00	4.62	0.33	5.40	0.20	5.82	0.15	6.42	0.28	6.60	0.47	7.20	0.10	5.40	0.38	6.60	0.30
7	8.54	0.35	15.75	0.00	5.95	0.10	5.39	0.34	6.30	0.12	6.79	0.27	7.49	0.32	7.70	0.33	8.40	0.04	6.30	0.28	7.70	0.40
8	9.76	0.30	18.00	0.35	6.80	0.22	6.16	0.35	7.20	0.10	7.76	0.55	8.56	0.30	8.80	0.30	9.60	0.05	7.20	0.23	8.80	0.42
9	10.98	0.22	20.25	0.33	7.65	0.40	6.93	0.34	8.10	0.01	8.73	0.30	9.63	0.31	9.90	0.31	10.80	0.20	8.10	0.17	9.90	0.33
<b>Right Bank</b>	12.20	0.00	22.50	0.00	8.50	0.00	7.70	0.00	9.00	0.00	9.70	0.00	10.70	0.00	11.00	0.00	12.00	0.00	9.00	0.00	11.00	0.00
<b>Feature Type</b>	run		riffle		riffle		run		riffle		riffle		run									

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)  
(must be completed for each site)

<b>Date &amp; Time:</b> 4/9/08 11:20	Location Description (e.g., road crossing):
<b>Stream Name:</b> Bear Creek	Melvin Rd. crossing
Current Weather Conditions: sunny and clear	Facility Name(s): Lincoln County Egg Farm
Weather Conditions for Past 10 days: 1.03” of Precipitation	Permit Number(s): MO 0107026
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0645681	Northing (UTM Y): 4315095	Horizontal Accuracy: (EPE / FOM / PDOP) 17 ft
Site 11	Easting (UTM X): 0645846	Northing (UTM Y): 4315277	Horizontal Accuracy: (EPE / FOM / PDOP) 19 ft

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2885	Low water crossing Upstream site 4	2886	Downstream site 4		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 04

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Rural residential at Transect 3				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: Low water crossing at Transect 1				

**Substrate\*:** (These values should add up to 100%.)

5% Cobble	80% Gravel	10% Sand	-% Silt	5% Mud/Clay	-% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

Sparse benthic algae
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Site # 04

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization (continued)**

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: \_\_\_\_\_ Date of Survey: \_\_\_\_\_

Organization: \_\_\_\_\_ Position: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet C - Field Survey Results**

Stream Name: <u>Bear Creek</u> Waterbody ID: <u>0193</u> Site #: <u>0193_04</u>  Estimated Channel Incision: <u>0.5</u> (m) (height between low bank width and water)  GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) <b>01</b> UTM X: <u>645681</u> UTM Y: <u>4315095</u> +/- <u>17</u> (feet) <b>11</b> UTM X: <u>645846</u> UTM Y: <u>4315277</u> +/- <u>19</u> (feet)  Average Stream Width: <u>11.5</u> (meters)      Length of Survey Segment: <u>230</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Jennifer Hrabik and Renee Martin</u>	<p align="center"><b>Dissolved Oxygen</b></p> Date: <u>4/9/2008</u> Time: <u>11:20</u>  Dissolved Oxygen: <u>12.04</u> (mg/L)  Dissolved Oxygen: <u>110.2</u> (% sat)  Specific Cond: <u>158.8</u> (µS/cm)  Water Temperature: <u>11.1</u> (°C)
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rwc

**Transect Cross-Section**

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.58	0.20	0.80	0.25	1.40	0.50	1.40	0.55	1.54	0.58	1.61	0.40	1.54	0.52	1.15	0.22	1.05	0.10	0.94	0.05	0.79	0.15
2	1.16	0.20	1.60	0.32	2.80	0.65	2.80	0.90	3.08	0.72	3.22	0.40	3.08	0.35	2.30	0.15	2.10	0.10	1.88	0.10	1.58	0.30
3	1.74	0.30	2.40	0.36	4.20	0.71	4.20	>1	4.62	0.87	4.83	0.36	4.62	0.27	3.45	0.22	3.15	0.10	2.82	0.15	2.37	0.45
4	2.32	0.22	3.20	0.27	5.60	0.75	5.60	>1	6.16	0.70	6.44	0.41	6.16	0.30	4.60	0.15	4.20	0.15	3.76	0.32	3.16	0.52
5	2.90	0.35	4.00	0.23	7.00	0.85	7.00	>1	7.70	0.51	8.05	0.47	7.70	0.31	5.75	0.15	5.25	0.20	4.70	0.47	3.95	0.65
6	3.48	0.34	4.80	0.12	8.40	0.68	8.40	>1	9.24	0.50	9.66	0.51	9.24	0.29	6.90	0.10	6.30	0.25	5.64	0.54	4.74	0.70
7	4.06	0.36	5.60	0.12	9.80	0.45	9.80	>1	10.78	0.30	11.27	0.50	10.78	0.23	8.05	0.11	7.35	0.28	6.58	0.55	5.53	0.73
8	4.64	0.35	6.40	0.10	11.20	0.35	11.20	0.85	12.32	0.15	12.88	0.48	12.32	0.29	9.20	0.05	8.40	0.17	7.52	0.56	6.32	0.77
9	5.22	0.20	7.20	0.01	12.60	0.20	12.60	0.51	13.86	0.20	14.49	0.32	13.86	0.25	10.35	0.05	9.45	0.05	8.46	0.45	7.11	0.40
<b>Right Bank</b>	5.80	0.00	8.00	0.00	14.00	0.00	14.00	0.00	15.40	0.00	16.10	0.00	15.40	0.00	11.50	0.00	10.50	0.00	9.40	0.00	7.90	0.25
<b>Feature Type</b>	run	run	riffle	riffle	run	run	run	run	run	run												

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)  
(must be completed for each site)

<b>Date &amp; Time:</b> 4/9/08 12:30	Location Description (e.g., road crossing):
<b>Stream Name:</b> Bear Creek	Rt. E crossing
Current Weather Conditions: sunny and clear	Facility Name(s): Lincoln County Egg Farm
Weather Conditions for Past 10 days: 1.03” of Precipitation	Permit Number(s): MO 0107026
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0646492	Northing (UTM Y): 4315985	Horizontal Accuracy: (EPE / FOM / PDOP) 24 ft
Site 11	Easting (UTM X): 0646741	Northing (UTM Y): 4315878	Horizontal Accuracy: (EPE / FOM / PDOP) 17 ft

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2887	Upstream site 5	2888	Downstream site 5		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 05

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: none				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: none				

**Substrate\*:** (These values should add up to 100%.)

-% Cobble	70% Gravel	20% Sand	-% Silt	10% Mud/Clay	-% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

benthic algae
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Site # 05

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization (continued)**

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: \_\_\_\_\_ Date of Survey: \_\_\_\_\_

Organization: \_\_\_\_\_ Position: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet C - Field Survey Results**

Stream Name: <u>Bear Creek</u>	Waterbody ID: <u>0193</u>	Site #: <u>0193_05</u>
Estimated Channel Incision: <u>0.5</u> (m) (height between low bank width and water)		
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)		
<b>01</b> UTM X: <u>646492</u>	UTM Y: <u>4315985</u>	+/- <u>24</u> (feet)
<b>11</b> UTM X: <u>646741</u>	UTM Y: <u>4315878</u>	+/- <u>17</u> (feet)
Average Stream Width: <u>13.0</u> (meters)	Length of Survey Segment: <u>260</u> (meters)	
(To determine Length of Reach) (20x average stream width)		
Field Staff: <u>Jennifer Hrabik and Renee Martin</u>		

Dissolved Oxygen	
Date: <u>4/9/2008</u>	Time: <u>12:30</u>
Dissolved Oxygen: <u>12.16</u> (mg/L)	
Dissolved Oxygen: <u>112.5</u> (% sat)	
Specific Cond: <u>167.2</u> (µS/cm)	
Water Temperature: <u>12.3</u> (°C)	

rwc

		Transect Cross-Section																					
		01		02		03		04		05		06		07		08		09		10		11	
Station		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
<b>Left Bank</b>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		1.15	0.37	1.35	0.70	1.40	0.15	1.02	0.17	1.05	0.05	1.25	0.25	1.40	0.50	1.47	0.48	1.14	0.20	1.60	0.21	1.52	0.14
2		2.30	0.30	2.70	0.75	2.80	0.20	2.04	0.00	2.10	0.11	2.50	0.30	2.80	0.63	2.94	0.38	2.28	0.45	3.20	0.25	3.04	0.20
3		3.45	0.28	4.05	0.65	4.20	0.18	3.06	0.05	3.15	0.15	3.75	0.43	4.20	0.55	4.41	0.45	3.42	0.55	4.80	0.22	4.56	0.20
4		4.60	0.26	5.40	0.50	5.60	0.10	4.08	0.05	4.20	0.15	5.00	0.55	5.60	0.41	5.88	0.43	4.56	0.42	6.40	0.21	6.08	0.20
5		5.75	0.20	6.75	0.45	7.00	0.05	5.10	0.15	5.25	0.18	6.25	0.55	7.00	0.27	7.35	0.43	5.70	0.25	8.00	0.20	7.60	0.15
6		6.90	0.20	8.10	0.40	8.40	0.10	6.12	0.20	6.30	0.10	7.50	0.57	8.40	0.20	8.82	0.45	6.84	0.25	9.60	0.18	9.12	0.16
7		8.05	0.20	9.45	0.34	9.80	0.05	7.14	0.23	7.35	0.05	8.75	0.62	9.80	0.12	10.29	0.50	7.98	0.22	11.20	0.10	10.64	0.16
8		9.20	0.15	10.80	0.25	11.20	0.05	8.16	0.24	8.40	0.13	10.00	0.43	11.20	0.05	11.76	0.48	9.12	0.22	12.80	0.10	12.16	0.13
9		10.35	0.14	12.15	0.30	12.60	0.01	9.18	0.01	9.45	0.05	11.25	0.03	12.60	0.20	13.23	0.63	10.26	0.20	14.40	0.01	13.68	0.13
<b>Right Bank</b>		11.50	0.00	13.50	0.00	14.00	0.00	10.20	0.00	10.50	0.00	12.50	0.00	14.00	0.00	14.70	0.00	11.40	0.00	16.00	0.00	15.20	0.00
<b>Feature Type</b>		run		run		riffle		riffle		riffle		run											

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)  
(must be completed for each site)

<b>Date &amp; Time:</b> 4/9/08 13:40	Location Description (e.g., road crossing):
<b>Stream Name:</b> Bear Creek	Wells Rd. crossing
Current Weather Conditions: sunny and clear	Facility Name(s): Lincoln County Egg Farm
Weather Conditions for Past 10 days: 1.03” of Precipitation	Permit Number(s): MO 0107026
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0648962	Northing (UTM Y): 4317385	Horizontal Accuracy: (EPE / FOM / PDOP) 18 ft
Site 11	Easting (UTM X): 0649177	Northing (UTM Y): 4317336	Horizontal Accuracy: (EPE / FOM / PDOP) 16 ft

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2889	Upstream site 6	2890	Downstream site 6	2891	Low water crossing at transect 1
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 06

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Rural residential at transect 1				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: Low water crossing at transect 1				

**Substrate\*:** (These values should add up to 100%.)

5% Cobble	80% Gravel	10% Sand	-% Silt	5% Mud/Clay	-% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

Sparse benthic algae
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Site # 06

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 3 of 3)

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: \_\_\_\_\_ Date of Survey: \_\_\_\_\_

Organization: \_\_\_\_\_ Position: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet C - Field Survey Results**

Stream Name: <u>Bear Creek</u>	Waterbody ID: <u>0193</u>	Site #: <u>0193_06</u>
Estimated Channel Incision: <u>0.1</u> (m) (height between low bank width and water)		
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)		
<b>01</b> UTM X: <u>648962</u>	UTM Y: <u>4317385</u>	+/- <u>18</u> (feet)
<b>11</b> UTM X: <u>649177</u>	UTM Y: <u>4317336</u>	+/- <u>16</u> (feet)
Average Stream Width: <u>15.0</u> (meters)	Length of Survey Segment: <u>300</u> (meters)	
(To determine Length of Reach) (20x average stream width)		
Field Staff: <u>Jennifer Hrabik and Renee Martin</u>		

Dissolved Oxygen	
Date: <u>4/9/2008</u>	Time: <u>13:40</u>
Dissolved Oxygen: <u>12.69</u> (mg/L)	
Dissolved Oxygen: <u>123.8</u> (% sat)	
Specific Cond: <u>207.9</u> (µS/cm)	
Water Temperature: <u>14.0</u> (°C)	

**Transect Cross-Section**

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1.64	0.15	1.85	0.17	1.30	0.12	1.05	0.35	1.57	0.35	1.40	0.39	1.40	0.41	1.40	0.25	1.75	0.45	1.94	0.11	1.05	0.30
2	3.28	0.20	3.70	0.20	2.60	0.00	2.10	0.45	3.14	0.42	2.80	>1	2.80	>1	2.80	0.30	3.50	0.75	3.88	0.10	2.10	0.38
3	4.92	0.24	5.55	0.10	3.90	0.15	3.15	0.47	4.71	0.48	4.20	>1	4.20	>1	4.20	0.40	5.25	0.80	5.82	0.15	3.15	0.42
4	6.56	0.24	7.40	0.13	5.20	0.27	4.20	0.41	6.28	0.47	5.60	>1	5.60	>1	5.60	0.65	7.00	0.58	7.76	0.20	4.20	0.36
5	8.20	0.23	9.25	0.20	6.50	0.30	5.25	0.35	7.85	0.45	7.00	>1	7.00	>1	7.00	0.98	8.75	0.36	9.70	0.20	5.25	0.27
6	9.84	0.20	11.10	0.15	7.80	0.25	6.30	0.30	9.42	0.35	8.40	>1	8.40	>1	8.40	1.00	10.50	0.40	11.64	0.18	6.30	0.10
7	11.48	0.13	12.95	0.26	9.10	0.10	7.35	0.22	10.99	0.30	9.80	>1	9.80	>1	9.80	1.00	12.25	0.40	13.58	0.17	7.35	0.05
8	13.12	0.20	14.80	0.25	10.40	0.05	8.40	0.18	12.56	0.22	11.20	1.00	11.20	0.92	11.20	0.85	14.00	0.35	15.52	0.20	8.40	0.01
9	14.76	0.15	16.65	0.10	11.70	0.01	9.45	0.05	14.13	0.15	12.60	0.42	12.60	0.45	12.60	0.25	15.75	0.37	17.46	0.02	9.45	0.01
<b>Right Bank</b>	16.40	0.00	18.50	0.00	13.00	0.00	10.50	0.00	15.70	0.00	14.00	0.00	14.00	0.00	14.00	0.00	17.50	0.00	19.40	0.00	10.50	0.00
<b>Feature Type</b>	run	run	riffle	run	run	pool	pool	pool	run	riffle	riffle											

rwc

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)  
(must be completed for each site)

<b>Date &amp; Time:</b> 4/9/08 14:30	Location Description (e.g., road crossing): Truxton Rd. crossing
<b>Stream Name:</b> Bear Creek	
Current Weather Conditions: sunny and clear	Facility Name(s): Lincoln County Egg Farm
Weather Conditions for Past 10 days: 1.03” of Precipitation	Permit Number(s): MO 0107026
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0649503	Northing (UTM Y): 4317642	Horizontal Accuracy: (EPE / FOM / PDOP) 20 ft
Site 11	Easting (UTM X): 0649565	Northing (UTM Y): 4317888	Horizontal Accuracy: (EPE / FOM / PDOP) 19 ft

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2892	Upstream site 7	2893	Downstream site 7		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 07

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: By bridge				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: none				

**Substrate\*:** (These values should add up to 100%.)

5% Cobble	85% Gravel	10% Sand	-% Silt	-% Mud/Clay	-% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

Sparse benthic algae
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Site # 07

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 3 of 3)

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: \_\_\_\_\_ Date of Survey: \_\_\_\_\_

Organization: \_\_\_\_\_ Position: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet C - Field Survey Results**

Stream Name: <u>Bear Creek</u>	Waterbody ID: <u>0193</u>	Site #: <u>0193_07</u>
Estimated Channel Incision: <u>0.5</u> (m) (height between low bank width and water)		
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)		
<b>01</b> UTM X: <u>649503</u>	UTM Y: <u>4317642</u>	+/- <u>20</u> (feet)
<b>11</b> UTM X: <u>649565</u>	UTM Y: <u>4317888</u>	+/- <u>19</u> (feet)
Average Stream Width: <u>15.0</u> (meters)	Length of Survey Segment: <u>300</u> (meters)	
(To determine Length of Reach) (20x average stream width)		
Field Staff: <u>Jennifer Hrabik and Renee Martin</u>		

Dissolved Oxygen	
Date: <u>4/9/2008</u>	Time: <u>14:30</u>
Dissolved Oxygen: <u>10.44</u> (mg/L)	
Dissolved Oxygen: <u>102.4</u> (% sat)	
Specific Cond: <u>213.6</u> (µS/cm)	
Water Temperature: <u>15.0</u> (°C)	

rwc

Transect Cross-Section																							
Station		01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																					
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12	0	0	0	0	0	0	0	0	0
1	1.52	0.42	1.50	0.15	1.75	0.15	0.97	0.14	1.65	0.06	1.65	0.08	1.30	0.15	1.60	>1	1.75	0.20	1.48	0.16	1.13	0.56	
2	3.04	0.60	3.00	0.21	3.50	0.19	1.94	0.05	3.30	0.06	3.30	0.10	2.60	0.25	3.20	>1	3.50	0.35	2.96	0.22	2.26	0.86	
3	4.56	0.65	4.50	0.32	5.25	0.28	2.91	0.01	4.95	0.18	4.95	0.16	3.90	0.27	4.80	>1	5.25	0.27	4.44	0.17	3.39	0.91	
4	6.08	0.67	6.00	0.41	7.00	0.30	3.88	0.05	6.60	0.12	6.60	0.08	5.20	0.10	6.40	>1	7.00	0.40	5.92	0.15	4.52	0.70	
5	7.60	0.76	7.50	0.56	8.75	0.35	4.85	0.01	8.25	0.23	8.25	0.15	6.50	0.02	8.00	>1	8.75	0.32	7.40	0.05	5.65	0.52	
6	9.12	0.87	9.00	0.81	10.50	0.40	5.82	0.25	9.90	0.38	9.90	0.32	7.80	0.10	9.60	0.87	10.50	0.25	8.88	0.01	6.78	0.35	
7	10.64	1.00	10.50	>1	12.25	0.45	6.79	0.38	11.55	0.45	11.55	0.22	9.10	0.11	11.20	0.62	12.25	0.20	10.36	0.05	7.91	0.25	
8	12.16	1.00	12.00	>1	14.00	0.46	7.76	0.50	13.20	0.53	13.20	0.10	10.40	0.20	12.80	0.41	14.00	0.12	11.84	0.05	9.04	0.08	
9	13.68	>1	13.50	0.75	15.75	0.61	8.73	0.46	14.85	0.40	14.85	0.08	11.70	0.05	14.40	0.11	15.75	0.08	13.32	0.03	10.17	0.06	
<b>Right Bank</b>	15.20	0.00	15.00	0.00	17.50	0.00	9.70	0.00	16.50	0.00	16.50	0.00	13.00	0.00	16.00	0.00	17.50	0.00	14.80	0.00	11.30	0.00	
<b>Feature Type</b>																							
(riffle, run, or pool)	pool	pool	run	riffle	run	riffle	run	riffle	riffle	run	run	riffle	run	run	run	run	riffle	run	run	riffle	run	run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)  
(must be completed for each site)

<b>Date &amp; Time:</b> 4/14/08 07:50	Location Description (e.g., road crossing):  Rt. DD crossing
<b>Stream Name:</b> Bear Creek	
Current Weather Conditions: sunny and clear	Facility Name(s): Lincoln County Egg Farm
Weather Conditions for Past 10 days: 1.03" of Precipitation	Permit Number(s): MO 0107026
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0650721	Northing (UTM Y): 4320307	Horizontal Accuracy: (EPE / FOM / PDOP) 19 ft
Site 11	Easting (UTM X): 0650847	Northing (UTM Y): 4320592	Horizontal Accuracy: (EPE / FOM / PDOP) 19 ft

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2894	Upstream site 8	2895	Downstream site 8		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 08

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: none				

**Substrate\*:** (These values should add up to 100%.)

5% Cobble	65% Gravel	15% Sand	-% Silt	15% Mud/Clay	-% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

Sparse benthic algae
----------------------

**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Site # 08

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 3 of 3)

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: \_\_\_\_\_ Date of Survey: \_\_\_\_\_

Organization: \_\_\_\_\_ Position: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet C - Field Survey Results**

Stream Name: <u>Bear Creek</u>	Waterbody ID: <u>0193</u>	Site #: <u>0193_08</u>
Estimated Channel Incision: <u>1.0</u> (m) (height between low bank width and water)		
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)		
<b>01</b> UTM X: <u>650721</u>	UTM Y: <u>4320307</u>	+/- <u>19</u> (feet)
<b>11</b> UTM X: <u>650847</u>	UTM Y: <u>4320592</u>	+/- <u>19</u> (feet)
Average Stream Width: <u>20.0</u> (meters)	Length of Survey Segment: <u>300</u> (meters)	
(To determine Length of Reach) (20x average stream width)		
Field Staff: <u>Jennifer Hrabik and Renee Martin</u>		

Dissolved Oxygen	
Date: <u>4/14/2008</u>	Time: <u>7:50</u>
Dissolved Oxygen: <u>11.81</u> (mg/L)	
Dissolved Oxygen: <u>94.9</u> (% sat)	
Specific Cond: <u>149.7</u> (µS/cm)	
Water Temperature: <u>6.7</u> (°C)	

rwc

Transect Cross-Section																							
Station		01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																					
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	2.72	0.34	2.73	0.33	2.37	0.32	1.85	0.15	1.90	0.10	2.02	0.16	0.95	0.26	0.58	0.26	1.00	0.19	1.16	0.28	4.00	0.74	
2	5.44	0.37	5.46	0.40	4.74	0.42	3.70	0.24	3.80	0.15	4.04	0.13	1.90	0.36	1.16	0.28	2.00	0.18	2.32	0.27	8.00	>1	
3	8.16	0.37	8.19	0.51	7.11	0.52	5.55	0.38	5.70	0.31	6.06	0.08	2.85	0.41	1.74	0.37	3.00	0.17	3.48	0.29	12.00	>1	
4	10.88	0.40	10.92	0.58	9.48	0.55	7.40	0.50	7.60	0.37	8.08	0.01	3.80	0.34	2.32	0.51	4.00	0.27	4.64	0.29	16.00	0.74	
5	13.60	0.38	13.65	0.61	11.85	0.62	9.25	0.65	9.50	0.42	10.10	0.01	4.75	0.17	2.90	0.51	5.00	0.27	5.80	0.40	20.00	0.00	
6	16.32	0.41	16.38	0.60	14.22	0.67	11.10	0.75	11.40	0.48	12.12	0.00	5.70	0.12	3.48	0.51	6.00	0.27	6.96	0.46	24.00	0.10	
7	19.04	0.44	19.11	0.69	16.59	0.67	12.95	0.72	13.30	0.46	14.14	0.00	6.65	0.21	4.06	0.44	7.00	0.31	8.12	0.54	28.00	0.12	
8	21.76	0.51	21.84	0.72	18.96	0.58	14.80	0.77	15.20	0.19	16.16	0.27	7.60	0.18	4.64	0.44	8.00	0.44	9.28	0.54	32.00	0.34	
9	24.48	0.56	24.57	0.64	21.33	0.50	16.65	0.45	17.10	0.20	18.18	0.45	8.55	0.03	5.22	0.38	9.00	0.32	10.44	0.54	36.00	0.27	
<b>Right Bank</b>	27.20	0.00	27.30	0.00	23.70	0.00	18.50	0.00	19.00	0.00	20.20	0.00	9.50	0.00	5.80	0.10	10.00	0.00	11.60	0.00	40.00	0.00	
<b>Feature Type</b>																							
(riffle, run, or pool)	run	run	run	run	run	run	run	run	run	riffle	riffle	riffle	run	run									

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)  
(must be completed for each site)

<b>Date &amp; Time:</b> 4/14/08 08:52	Location Description (e.g., road crossing): 300 m downstream of Site 8
<b>Stream Name:</b> Bear Creek	
Current Weather Conditions: sunny and clear	Facility Name(s): Lincoln County Egg Farm
Weather Conditions for Past 10 days: 1.03” of Precipitation	Permit Number(s): MO 0107026
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0651069	Northing (UTM Y): 4320836	Horizontal Accuracy: (EPE / FOM / PDOP) 17 ft
Site 11	Easting (UTM X): 0650922	Northing (UTM Y): 4320941	Horizontal Accuracy: (EPE / FOM / PDOP) 18 ft

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2896	downstream site 9	2897	upstream site 9		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 09

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property Steep slopes on right descending bank				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: none				

**Substrate\*:** (These values should add up to 100%.)

5% Cobble	55% Gravel	20% Sand	-% Silt	15% Mud/Clay	5% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

Sparse benthic algae
----------------------

**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Site # 09

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 3 of 3)

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: \_\_\_\_\_ Date of Survey: \_\_\_\_\_

Organization: \_\_\_\_\_ Position: \_\_\_\_\_

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet C - Field Survey Results**

Stream Name: <u>Bear Creek</u> Waterbody ID: <u>0193</u> Site #: <u>0193 09</u>  Estimated Channel Incision: <u>0.1</u> (m) (height between low bank width and water)  GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) <b>01</b> UTM X: <u>651069</u> UTM Y: <u>4320836</u> +/- <u>17</u> (feet) <b>11</b> UTM X: <u>650922</u> UTM Y: <u>4320941</u> +/- <u>18</u> (feet)  Average Stream Width: <u>10.0</u> (meters)      Length of Survey Segment: <u>200</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Jennifer Hrabik and Renee Martin</u>	<p align="center"><b>Dissolved Oxygen</b></p> Date: <u>4/14/2008</u> Time: <u>8:52</u>  Dissolved Oxygen: <u>11.69</u> (mg/L)  Dissolved Oxygen: <u>94.8</u> (% sat)  Specific Cond: <u>151.5</u> (µS/cm)  Water Temperature: <u>6.4</u> (°C)
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rwc

**Transect Cross-Section**

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.85	0.13	1.00	0.19	1.05	0.09	1.02	0.19	1.01	0.17	1.55	0.10	1.30	0.07	1.40	0.50	1.72	0.51	0.95	0.20	0.86	0.08
2	1.70	0.15	2.00	0.42	2.10	0.27	2.04	0.27	2.02	0.23	3.10	0.31	2.60	0.12	2.80	0.47	3.44	0.93	1.90	0.27	1.72	0.20
3	2.55	0.20	3.00	0.54	3.15	0.44	3.06	0.41	3.03	0.36	4.65	0.10	3.90	0.15	4.20	0.66	5.16	0.83	2.85	0.27	2.58	0.24
4	3.40	0.32	4.00	0.65	4.20	0.64	4.08	0.31	4.04	0.45	6.20	0.02	5.20	0.18	5.60	0.63	6.88	0.76	3.80	0.41	3.44	0.32
5	4.25	0.41	5.00	0.75	5.25	0.73	5.10	0.40	5.05	0.48	7.75	0.15	6.50	0.20	7.00	0.48	8.60	0.73	4.75	0.41	4.30	0.36
6	5.10	0.39	6.00	0.79	6.30	0.76	6.12	0.16	6.06	0.52	9.30	0.20	7.80	0.20	8.40	0.51	10.32	0.52	5.70	0.41	5.16	0.24
7	5.95	0.47	7.00	0.74	7.35	0.72	7.14	0.18	7.07	0.46	10.85	0.29	9.10	0.26	9.80	0.59	12.04	0.44	6.65	0.40	6.02	0.10
8	6.80	0.53	8.00	0.69	8.40	0.89	8.16	0.18	8.08	0.42	12.40	0.25	10.40	0.16	11.20	0.53	13.76	0.24	7.60	0.37	6.88	0.10
9	7.65	0.52	9.00	0.48	9.45	0.86	9.18	0.04	9.09	0.24	13.95	0.13	11.70	0.09	12.60	0.66	15.48	0.20	8.55	0.09	7.74	0.06
<b>Right Bank</b>	8.50	0.27	10.00	0.08	10.50	0.58	10.20	0.00	10.10	0.00	15.50	0.00	13.00	0.00	14.00	0.21	17.20	0.00	9.50	0.00	8.60	0.00
<b>Feature Type</b> (riffle, run, or pool)	run	run	run	run	run	run	run	run	run	riffle	riffle	riffle	run	run	run	run	run	riffle	riffle	riffle	riffle	riffle

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

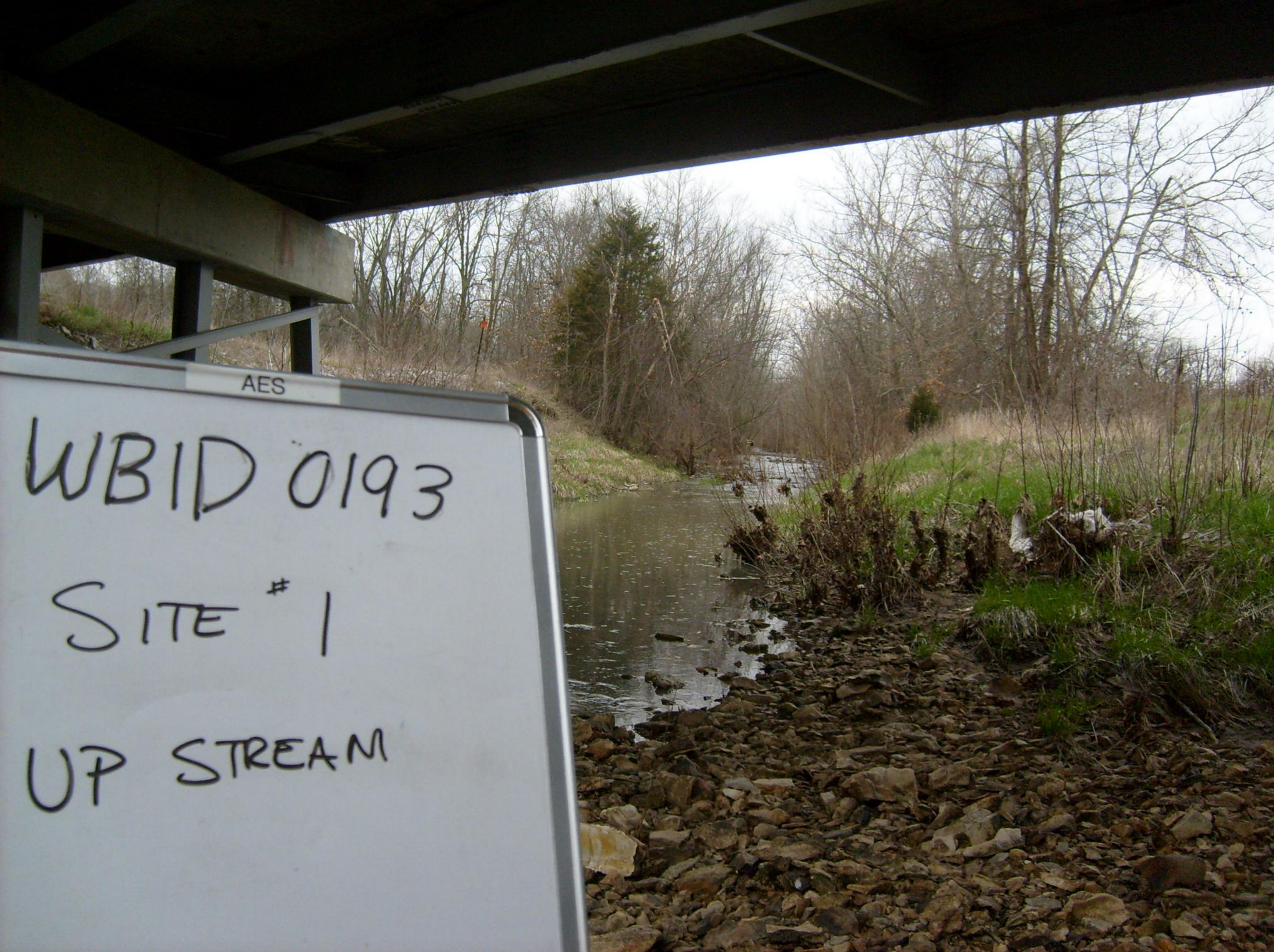
Signed: \_\_\_\_\_ Date: \_\_\_\_\_

AES

WBID 0193

SITE # 1

UP STREAM



AES

WBID 0193

SITE # 1

DN STREAM



A photograph of a stream in a wooded area. A large, fallen log lies across the stream bed. A fence line runs across the middle ground, supported by wooden posts. The trees are mostly bare, suggesting a late autumn or winter setting. The ground is covered with grass and fallen leaves.

**WBID #0193**

**Site 1**

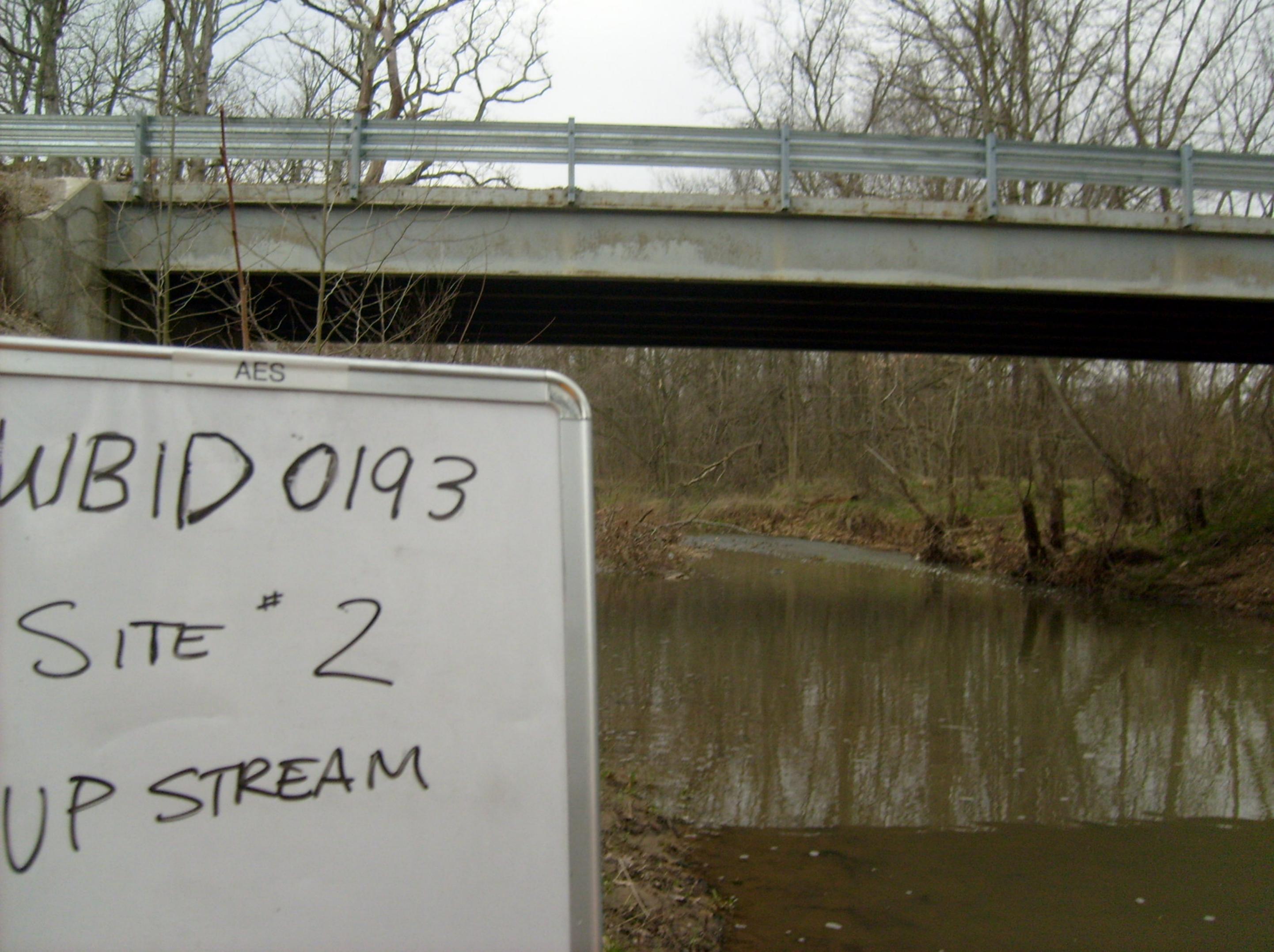
**Fence on South  
side of stream  
at Transect 11**

AES

WBID 0193

SITE # 2

UP STREAM



AES

WBID 0193

SITE # 2

DN STREAM



AES

WBID 0193

SITE # 3

UP STREAM

AES

WBID 0193

SITE # 3

DN STREAM





**WBID #0193**

**Site 3**

**Possible  
crossing near  
residence at  
Transect 7**



**WBID #0193**

**Site 3**

**Possible crossing  
near residence at  
Transect 7**



**WBID #0193**

**Site 3**

**Trash dump at  
Transect 9**



**WBID #0193**

**Site 3**

**Trash dump at  
Transect 9**

AES

WBID 0193

SITE # 4

UP STREAM

- Low H<sub>2</sub>O Crossing -





AES

WBID 0193

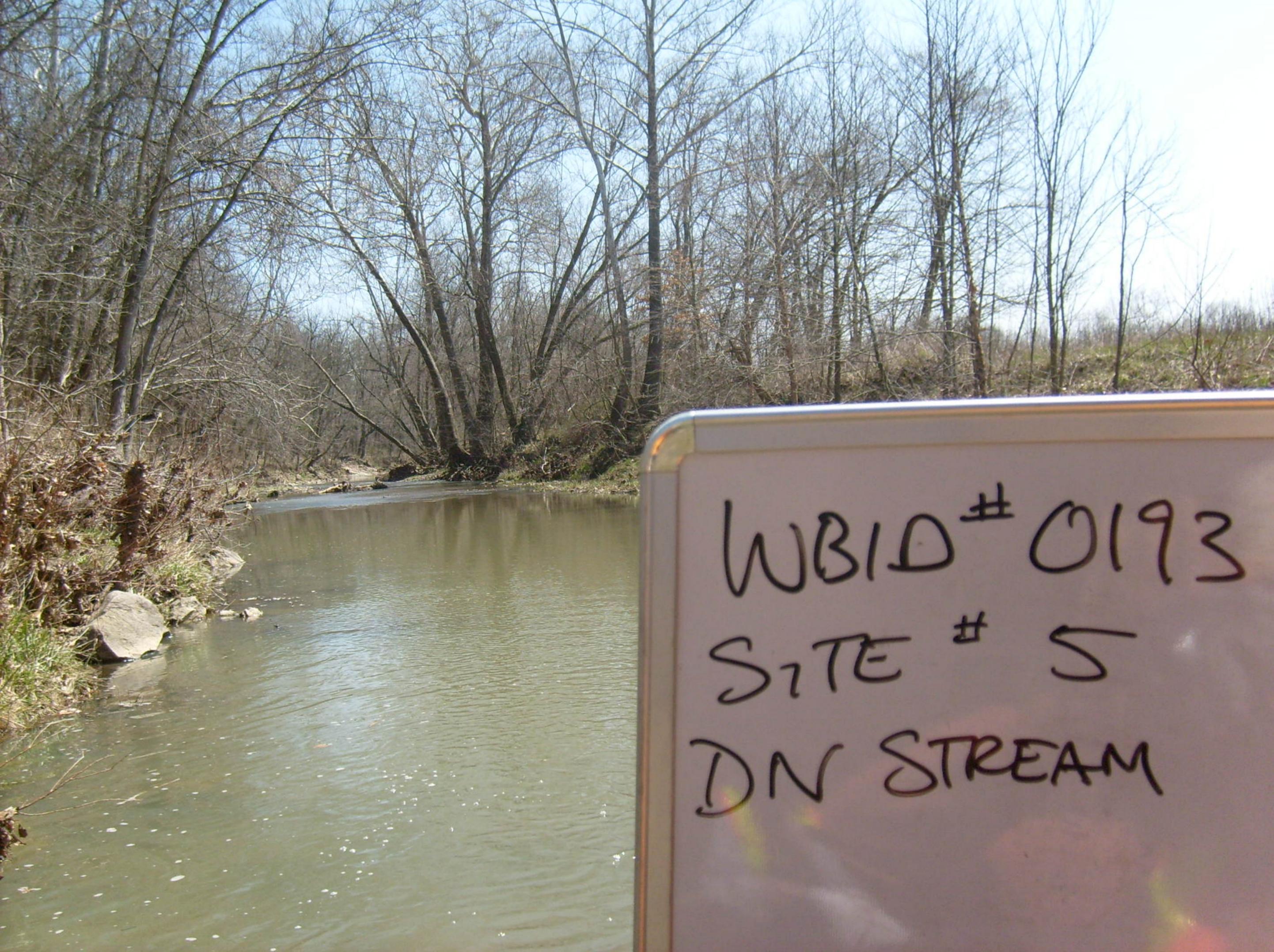
SITE # 4

DN STREAM

WBID # 0193

SITE # 5

UPSTREAM



WBID# 0193  
SITE # 5  
DN STREAM



AES

WBID 0193  
Site 6  
upstream

AES

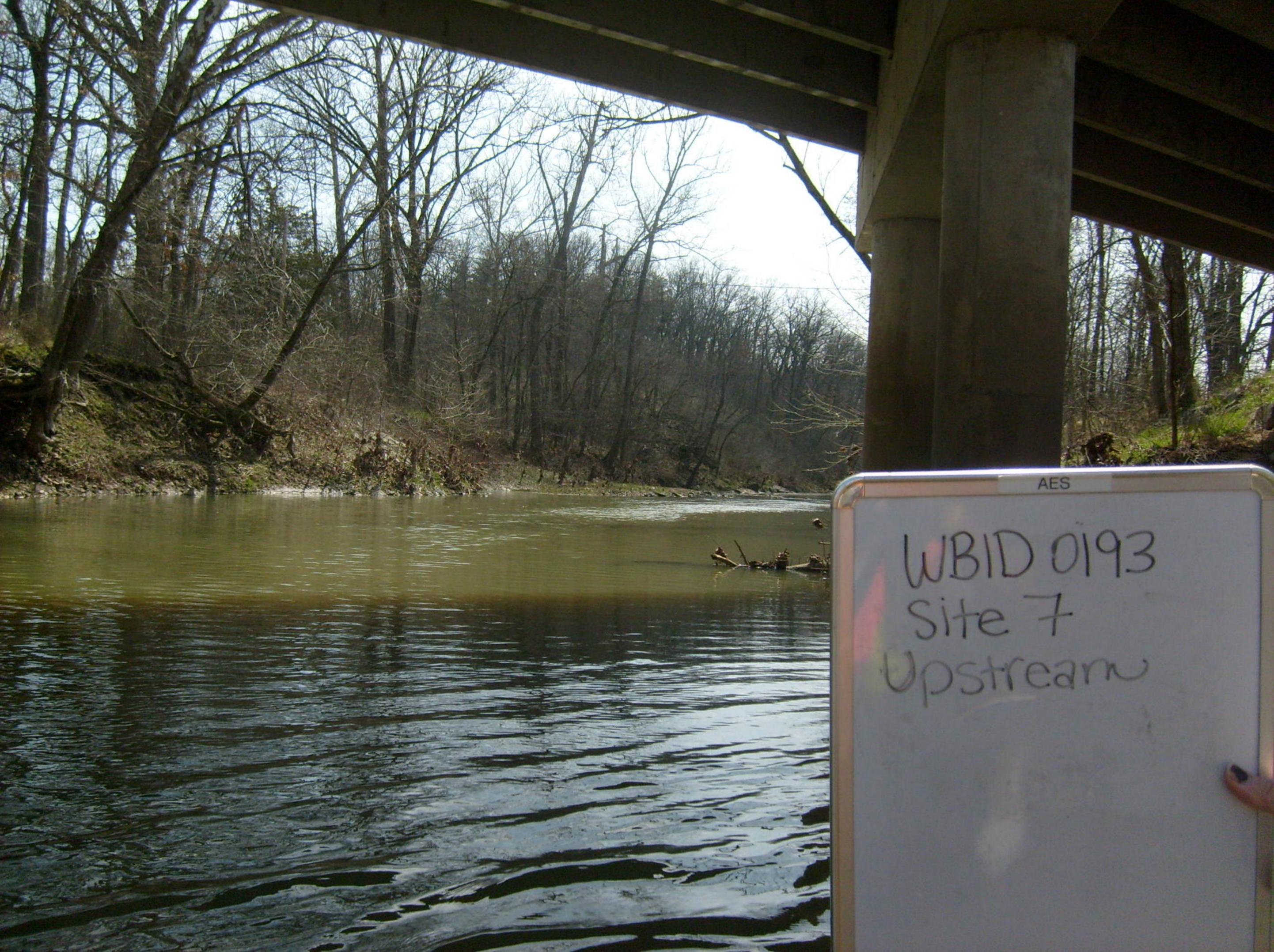
WBID 0193  
Site 6  
Dnstream





AES

WBID 0193  
Site 6  
low H<sub>2</sub>O Crossing



AES

WBID 0193  
Site 7  
Upstream

AES

WBID 0193  
Site 7  
Dnstream

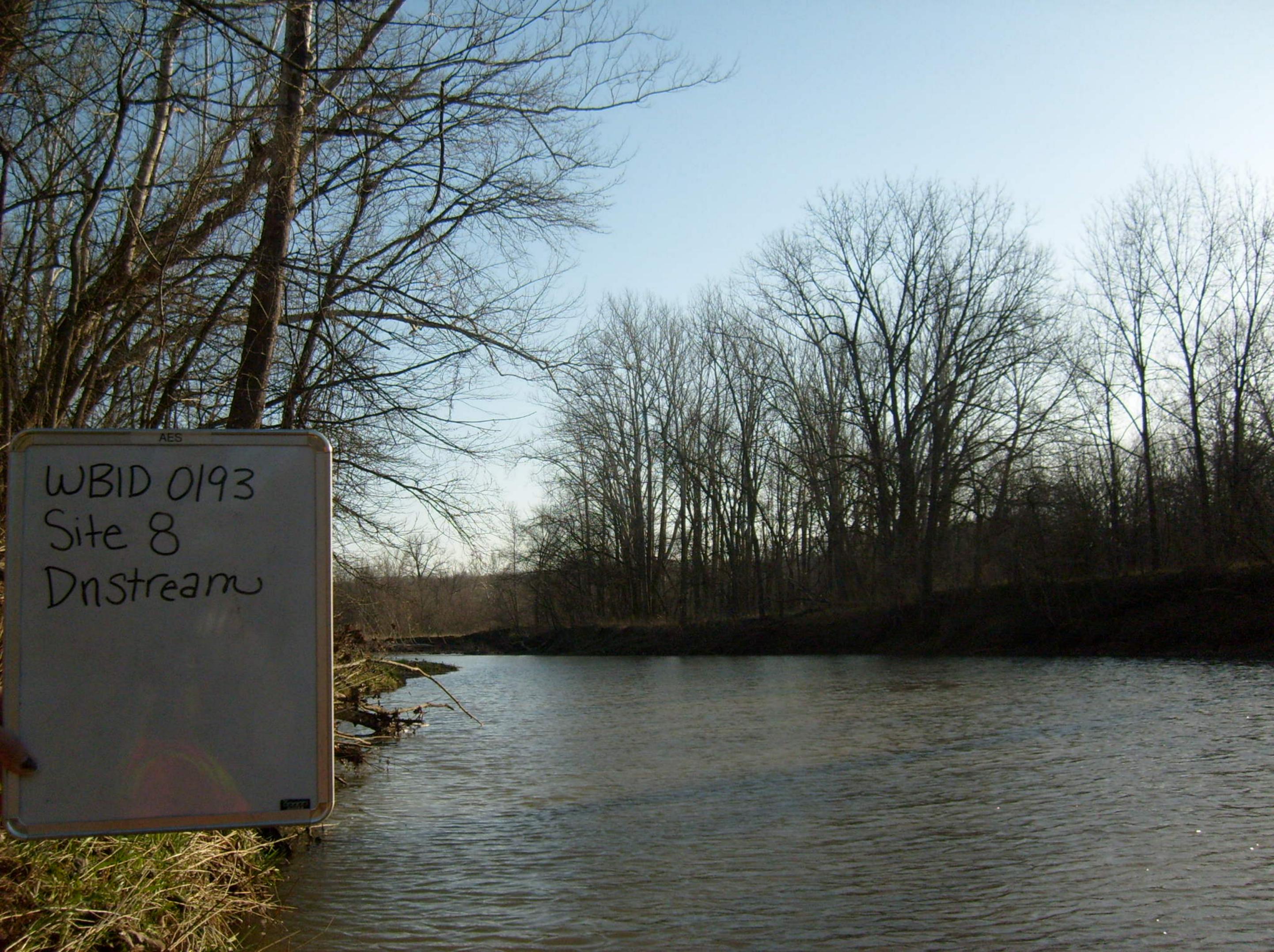


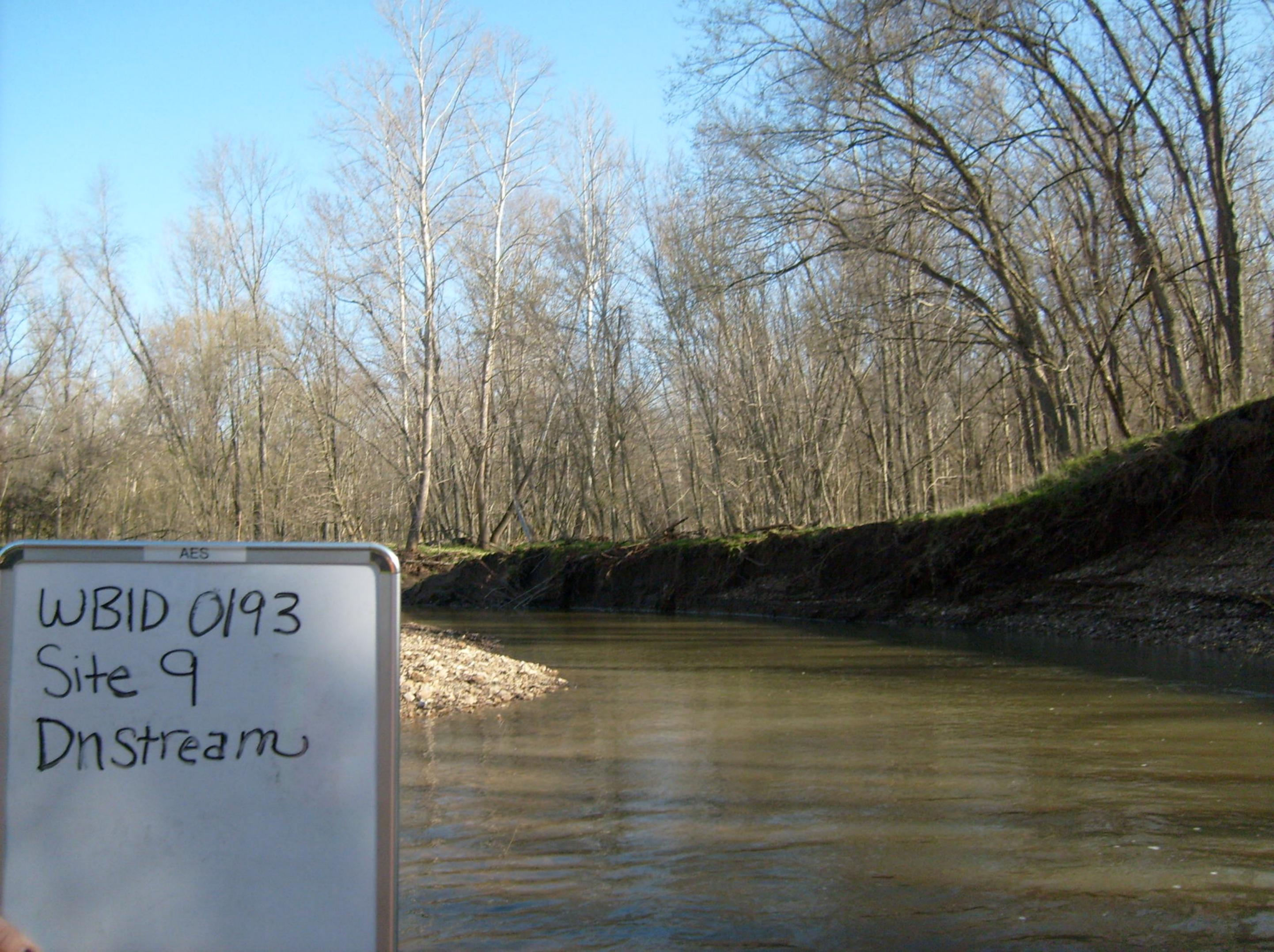
AES

WBID 0193  
Site 8  
Upstream



AES  
WBID 0193  
Site 8  
Dnstream





AES

WBID 0193

Site 9

Dnstream



AES

WBID 0193  
Site 9  
UpStream