



Missouri  
Department of  
Natural Resources

## Use Attainability Analysis

for

WBID 0288 East Branch Elkhorn Creek

Submitted by  
SES, Inc.

To  
Missouri Department of Natural Resources  
Water Protection Program

On

October 14, 2008

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

**Data Sheet A – Water Body Identification**

**I. Water Body Information** (for water body being surveyed)

Water Body Name (from USGS 7.5' quad): East Branch Elkhorn Creek
Missouri Water Body Identification (WBID) Number: 288
8-digit HUC: 10240010
County(ies), Listed Upstream to Downstream: Nodaway
Upstream Legal Description (from Table H): T63N R36W Sec 19
Downstream Legal Description (from Table H): T63N R37W Sec 35
Number of sites evaluated: 3
List all site numbers, <u>consecutively upstream to downstream</u> : 1, 2, 3
<b>Include a Site Location Map(s).</b> The map must include all requirements detailed in the <i>Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol</i> (Section IV.D.8.a).

**II. Facility Information** (list all permitted discharges to this water body segment)

Facility Name(s) and Permit Number(s): ANR Maitland Compres sta MO0106241
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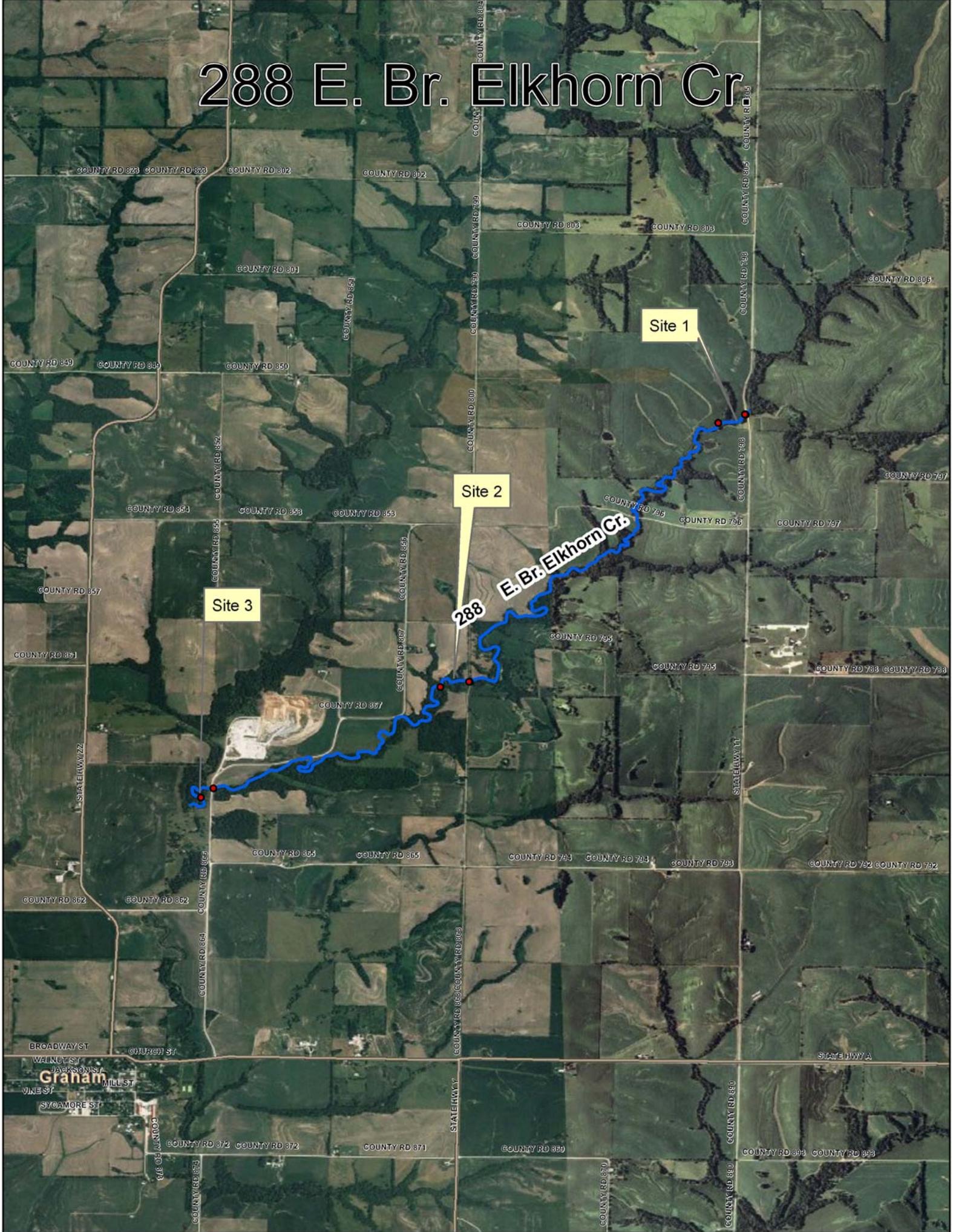
**III. UAA Surveyor** (please **PRINT** legibly)

Name of Surveyor: Gilisa Gould	Telephone Number: 913-304-0046
Organization/Employer: SES, Inc.	

**Please verify that you have completed all sections of all data sheets, checked all applicable boxes, provided a map (that includes all requirments listed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.**

**Signed:** \_\_\_\_\_ Gilisa Gould \_\_\_\_\_ **Date:** \_\_\_\_\_ 9-02-08 \_\_\_\_\_

# 288 E. Br. Elkhorn Cr.



WBID # 288

Site # 1

**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> 8-20-08 12:57	Location Description (e.g., road crossing): CR 798
<b>Stream Name:</b> E. Br. Elkhorn Cr.	
Current Weather Conditions: Cloudy	Facility Name(s): ANR Maitland Compres sta
Weather Conditions for Past 10 days: 0.13 cm	Permit Number(s): MO0106241
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): 0330703	Northing (UTM Y): 4457451	Horizontal Accuracy: (EPE / FOM / PDOP)	3 Meters
Site 11	Easting (UTM X): 0330532	Northing (UTM Y): 4457384	Horizontal Accuracy: (EPE / FOM / PDOP)	5 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
48	Downstream	49	Upstream		
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 the 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 # 1

**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 checked="" type="checkbox"/> Other: Crop Fields
Comments:				

**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
<input checked="" type="checkbox"/> None of the above	Comments / Other:			

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

% Cobble	% Gravel	70% Sand	% Silt	30% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

None in water; banks are vegetated.
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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 checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" 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 affect another use.

Site # 1

**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: Bryan Deimeke and Gilisa Gould

Surveyor's Signature: Gilisa Gould Date of Survey: 8-20-08

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>E. Br. Elkhorn Cr.</u> Waterbody ID: <u>288</u> Site #: <u>1</u> Estimated Channel Incision: <u>3</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>0330703</u> UTM Y: <u>4457451</u> +/- <u>3</u> (meters) <b>11</b> UTM X: <u>0330532</u> UTM Y: <u>4457384</u> +/- <u>5</u> (meters) Average Stream Width: <u>3</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width) Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	<b>Dissolved Oxygen</b> Date: <u>8/20/2008</u> Time: <u>12:57</u> Dissolved Oxygen: <u>12.7</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>21.6</u> (°C)
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#### 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	0.10	0.01	0.40	0.05	0.10	0.01	0.10	0.01	0.10	0.01	0.40	0.01	0.10	0.01	0.20	0.10	0.20	0.01	0.20	0.01	0.30	0.01
2	0.20	0.05	0.80	0.05	0.20	0.01	0.20	0.01	0.20	0.05	0.80	0.10	0.20	0.05	0.40	0.10	0.40	0.01	0.40	0.10	0.60	0.01
3	0.30	0.05	1.20	0.05	0.30	0.05	0.30	0.01	0.30	0.05	1.20	0.20	0.30	0.05	0.60	0.15	0.60	0.05	0.60	0.10	0.90	0.10
4	0.40	0.05	1.60	0.10	0.40	0.05	0.40	0.01	0.40	0.01	1.60	0.25	0.40	0.01	0.80	0.20	0.80	0.10	0.80	0.10	1.20	0.15
5	0.50	0.01	2.00	0.10	0.50	0.05	0.50	0.01	0.50	0.01	2.00	0.25	0.50	0.01	1.00	0.20	1.00	0.15	1.00	0.05	1.50	0.35
6	0.60	0.10	2.40	0.10	0.60	0.01	0.60	0.01	0.60	0.05	2.40	0.25	0.60	0.01	1.20	0.20	1.20	0.15	1.20	0.05	1.80	0.40
7	0.70	0.10	2.80	0.10	0.70	0.01	0.70	0.01	0.70	0.05	2.80	0.20	0.70	0.01	1.40	0.10	1.40	0.15	1.40	0.05	2.10	0.35
8	0.80	0.10	3.20	0.05	0.80	0.01	0.80	0.01	0.80	0.01	3.20	0.15	0.80	0.01	1.60	0.05	1.60	0.10	1.60	0.05	2.40	0.25
9	0.90	0.05	3.60	0.05	0.90	0.01	0.90	0.01	0.90	0.01	3.60	0.10	0.90	0.01	1.80	0.05	1.80	0.10	1.80	0.05	2.70	0.15
<b>Right Bank</b>	1.00	0.00	4.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	4.00	0.00	1.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	3.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	run		pool		run		riffle		run		pool		run		pool		run		run		pool	

**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 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: Gilisa Gould      Date: 9/2/2008

WBID # 288

Site # 2

**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> 8-20-08 13:53	Location Description (e.g., road crossing): CR 868
<b>Stream Name:</b> E. Br. Elkhorn Cr.	
Current Weather Conditions: Overcast	Facility Name(s): ANR Maitland Compres sta
Weather Conditions for Past 10 days: 0.13 cm	Permit Number(s): MO0106241
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): 0328910	Northing (UTM Y): 4455281	Horizontal Accuracy: (EPE / FOM / PDOP)	3 Meters
Site 11	Easting (UTM X): 0328727	Northing (UTM Y): 4455240	Horizontal Accuracy: (EPE / FOM / PDOP)	7 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
50	Downstream	51	Dam	52	Dam
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
53	Upstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at the 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.)				

**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 checked="" type="checkbox"/> Other: farmland
Comments:				

**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
<input checked="" type="checkbox"/> None of the above	Comments / Other:			

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

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

Fibrous algae in 5% of stream; duckweed in 1% of stream; banks are vegetated
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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 checked="" 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 affect another use.



## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>E. Br. Elkhorn Cr.</u> Waterbody ID: <u>288</u> Site #: <u>2</u> Estimated Channel Incision: <u>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>0328910</u> UTM Y: <u>4455281</u> +/- <u>3</u> (meters) <b>11</b> UTM X: <u>0328727</u> UTM Y: <u>4455240</u> +/- <u>7</u> (meters) Average Stream Width: <u>3</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width) Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>8/20/2008</u> Time: <u>13:53</u> Dissolved Oxygen: <u>11.4</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>26.6</u> (°C)
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#### 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	0.30	0.05	0.50	0.40	0.10	0.01	0.30	0.01	0.30	0.05	0.50	0.10	0.60	1.00	0.40	0.60	0.60	0.25	0.50	0.20	0.30	0.20
2	0.60	0.10	1.00	0.60	0.20	0.01	0.60	0.05	0.60	0.10	1.00	0.25	1.20	1.00	0.80	0.95	1.20	0.40	1.00	0.10	0.60	0.30
3	0.90	0.15	1.50	0.75	0.30	0.01	0.90	0.10	0.90	0.10	1.50	0.20	1.80	0.95	1.20	1.00	1.80	0.40	1.50	0.15	0.90	0.25
4	1.20	0.15	2.00	0.60	0.40	0.00	1.20	0.10	1.20	0.10	2.00	0.20	2.40	0.95	1.60	0.80	2.40	0.35	2.00	0.20	1.20	0.25
5	1.50	0.20	2.50	0.50	0.50	0.01	1.50	0.20	1.50	0.05	2.50	0.20	3.00	0.90	2.00	0.75	3.00	0.25	2.50	0.25	1.50	0.25
6	1.80	0.15	3.00	0.35	0.60	0.01	1.80	0.20	1.80	0.05	3.00	0.20	3.60	0.75	2.40	0.60	3.60	0.25	3.00	0.25	1.80	0.15
7	2.10	0.10	3.50	0.25	0.70	0.00	2.10	0.20	2.10	0.10	3.50	0.20	4.20	0.70	2.80	0.45	4.20	0.20	3.50	0.40	2.10	0.15
8	2.40	0.10	4.00	0.15	0.80	0.01	2.40	0.20	2.40	0.10	4.00	0.25	4.80	0.40	3.20	0.25	4.80	0.20	4.00	0.40	2.40	0.10
9	2.70	0.05	4.50	0.10	0.90	0.01	2.70	0.15	2.70	0.05	4.50	0.20	5.40	0.20	3.60	0.10	5.40	0.10	4.50	0.40	2.70	0.05
<b>Right Bank</b>	3.00	0.00	5.00	0.00	1.00	0.00	3.00	0.00	3.00	0.00	5.00	0.00	6.00	0.00	4.00	0.00	6.00	0.00	5.00	0.00	3.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	pool		pool		riffle		pool		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 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: Gilisa Gould      Date: 9/2/2008

WBID # 288

Site # 3

**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> 8-20-08 14:36	Location Description (e.g., road crossing): Elkhorn Rd.
<b>Stream Name:</b> E. Br. Elkhorn Cr.	
Current Weather Conditions: Overcast	Facility Name(s): ANR Maitland Compres sta
Weather Conditions for Past 10 days: 0.13 cm	Permit Number(s): MO0106241
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): 0327258	Northing (UTM Y): 4454429	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters
Site 11	Easting (UTM X): 0327199	Northing (UTM Y): 4454361	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
54	Fence	55	Cattle Trail	56	Downstream
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
57	Log jam at transect 9	58	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at the 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 # 3

**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 type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Fence crosses creek				

**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 checked="" type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

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

% Cobble	10% Gravel	60% Sand	% Silt	30% Mud/Clay	% Bedrock

**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

None in water; banks are vegetated
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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 type="checkbox"/> Fine sediments	<input checked="" 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 affect another use.

Site # 3

**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: Bryan Deimeke and Gilisa Gould

Surveyor's Signature: Gilisa Gould Date of Survey: 8-20-08

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>E. Br. Elkhorn R.</u> Waterbody ID: <u>288</u> Site #: <u>3</u>  Estimated Channel Incision: <u>3</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>0327258</u> UTM Y: <u>4454429</u> +/- <u>7</u> (meters) <b>11</b> UTM X: <u>0327199</u> UTM Y: <u>4454361</u> +/- <u>6</u> (meters)  Average Stream Width: <u>2</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>8/20/2008</u> Time: <u>14:36</u>  Dissolved Oxygen: <u>13.3</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>26.1</u> (°C)
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#### 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	0.20	0.01	0.10	0.01	0.20	0.01	0.10	0.01	0.10	0.01	0.20	0.01	0.30	0.01	0.10	0.01	0.40	0.05	0.05	0.01	0.10	0.01
2	0.40	0.01	0.20	0.01	0.40	0.10	0.20	0.05	0.20	0.01	0.40	0.05	0.60	0.05	0.20	0.01	0.80	0.05	0.10	0.01	0.20	0.01
3	0.60	0.01	0.30	0.05	0.60	0.20	0.30	0.05	0.30	0.01	0.60	0.10	0.90	0.10	0.30	0.01	1.20	0.05	0.15	0.01	0.30	0.01
4	0.80	0.01	0.40	0.01	0.80	0.20	0.40	0.10	0.40	0.01	0.80	0.15	1.20	0.15	0.40	0.01	1.60	0.01	0.20	0.01	0.40	0.01
5	1.00	0.05	0.50	0.01	1.00	0.10	0.50	0.05	0.50	0.01	1.00	0.15	1.50	0.25	0.50	0.01	2.00	0.00	0.25	0.01	0.50	0.01
6	1.20	0.05	0.60	0.01	1.20	0.10	0.60	0.05	0.60	0.01	1.20	0.15	1.80	0.30	0.60	0.01	2.40	0.00	0.30	0.01	0.60	0.01
7	1.40	0.05	0.70	0.01	1.40	0.20	0.70	0.05	0.70	0.01	1.40	0.10	2.10	0.40	0.70	0.01	2.80	0.10	0.35	0.01	0.70	0.01
8	1.60	0.01	0.80	0.01	1.60	0.15	0.80	0.01	0.80	0.01	1.60	0.10	2.40	0.30	0.80	0.01	3.20	0.10	0.40	0.01	0.80	0.01
9	1.80	0.10	0.90	0.01	1.80	0.05	0.90	0.01	0.90	0.01	1.80	0.01	2.70	0.20	0.90	0.01	3.60	0.10	0.45	0.01	0.90	0.01
<b>Right Bank</b>	2.00	0.00	1.00	0.00	2.00	0.00	1.00	0.00	1.00	0.00	2.00	0.00	3.00	0.00	1.00	0.00	4.00	0.00	0.50	0.00	1.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	run		pool		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 0.1 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: Gilisa Gould      Date: 9/2/2008

**WBID# 0288 East Branch Elkhorn Creek**



**Site# 1 Photo ID# 48, Downstream**



**Site# 1 Photo ID# 49, Upstream**



**Site# 2 Photo ID# 50, Downstream**



**Site# 2 Photo ID# 51, "Dam"**

**WBID# 0288 East Branch Elkhorn Creek**



**Site# 2 Photo ID# 52, “Dam”**



**Site# 2 Photo ID# 53, Upstream**



**Site# 3 Photo ID# 54, “Fence”**



**Site# 3 Photo ID# 55, “Cow Trail”**

**WBID# 0288 East Branch Elkhorn Creek**



**Site# 3 Photo ID# 56, Downstream**



**Site# 3 Photo ID# 57, “Log Jam T9”**



**Site# 3 Photo ID# 58, Upstream**