



Use Attainability Analysis

for

WBID 2073 Birch Creek

Submitted by  
SES, Inc.

To  
Missouri Department of Natural Resources  
Water Protection Program

On

November 4, 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): Birch Creek
Missouri Water Body Identification (WBID) Number: 2073
8-digit HUC: 07140103
County(ies), Listed Upstream to Downstream: Franklin
Upstream Legal Description (from Table H): T43N R1E Sec. 28
Downstream Legal Description (from Table H): T42N R1E Sec. 6
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): Commercial Court MO0130095
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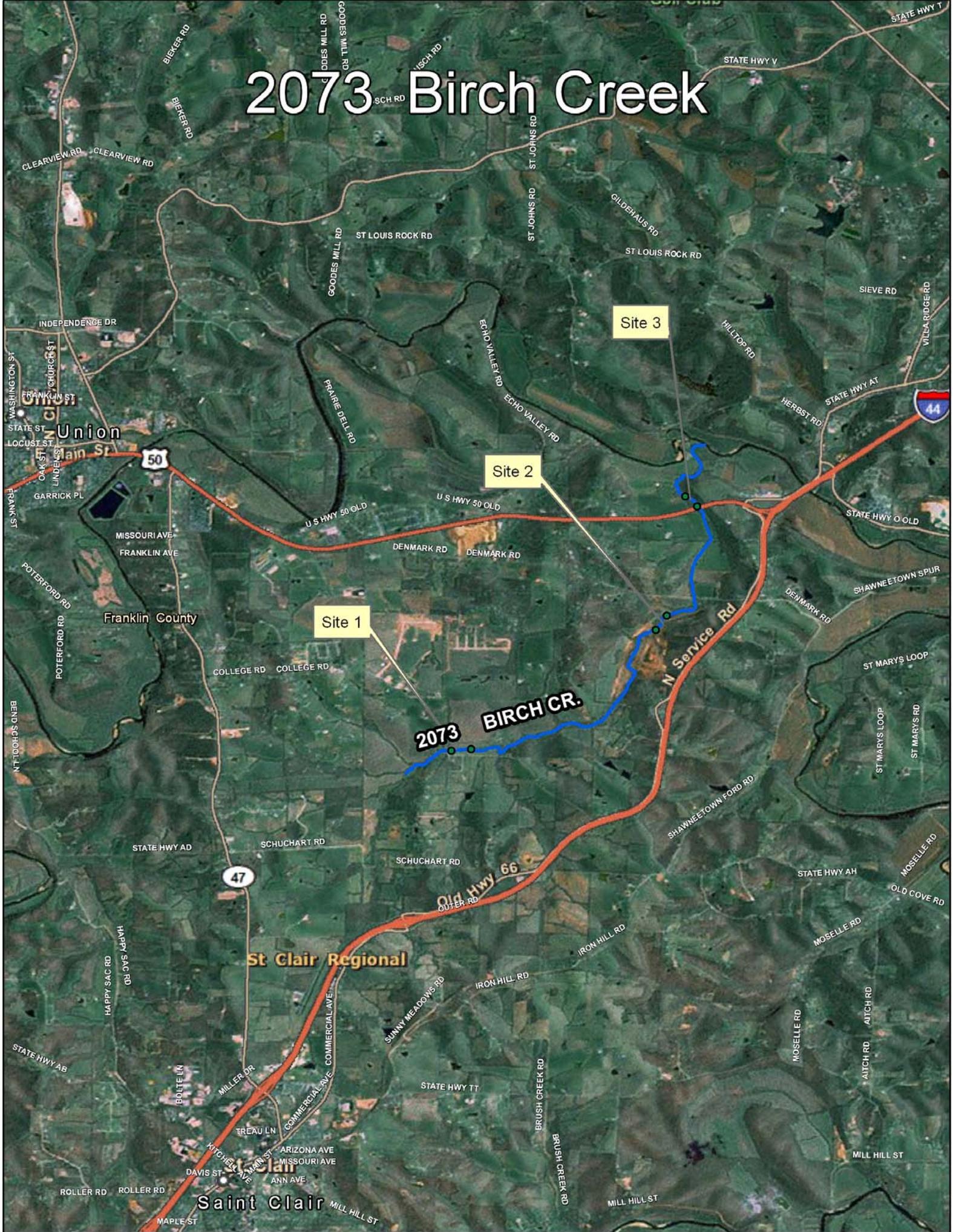
**III. UAA Surveyor** (please **PRINT** legibly)

Name of Surveyor: David Bender	Telephone Number: 913-307-0046
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 requirements listed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.**

**Signed:** David Bender **Date:** 10-04-08

# 2073 Birch Creek



WBID # 2073

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> 10/04/08 12:15	Location Description (e.g., road crossing): College Rd.
<b>Stream Name:</b> Birch Cr.	
Current Weather Conditions: Clear	Facility Name(s): Commercial Court
Weather Conditions for Past 10 days: 0.06 in	Permit Number(s): MO 0081485
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): 0678596	Northing (UTM Y): 4252831	Horizontal Accuracy: (EPE / FOM / PDOP) 3 Meters
Site 11	Easting (UTM X): 0678819	Northing (UTM Y): 4252855	Horizontal Accuracy: (EPE / FOM / PDOP) 5 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
72	Downstream	73	ATV Tracks	74	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.)				

**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:				

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

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

% Cobble	80% Gravel	% Sand	% Silt	% Mud/Clay	20% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

none
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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 checked="" type="checkbox"/> Solids	<input 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.

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: David Bender, Chris Schuler

Surveyor's Signature: David Bender

Date of Survey: 10/04/08

Organization: SES, Inc.

Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Birch Cr.</u> Waterbody ID: <u>2073</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>0678596</u> UTM Y: <u>4252831</u> +/- <u>3</u> (meters) <b>11</b> UTM X: <u>0678819</u> UTM Y: <u>4252855</u> +/- <u>5</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>David Bender, Chris Schuler</u>	<b>Dissolved Oxygen</b>  Date: <u>10/4/2008</u> Time: <u>12:15</u>  Dissolved Oxygen: <u>6.6</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>17.8</u> (°C)
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#### Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		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
	<b>1</b>	0.07	0.05	0.15	0.05	0.40	0.05	0.60	0.10	0.70	0.10	0.15	0.05	0.06	0.05	0.20	0.05	0.40	0.35	0.05	0.05	0.20	0.05
	<b>2</b>	0.14	0.05	0.30	0.05	0.80	0.25	1.20	0.50	1.40	0.25	0.30	0.15	0.12	0.05	0.40	0.05	0.80	0.25	0.10	0.05	0.40	0.20
	<b>3</b>	0.21	0.05	0.45	0.05	1.20	0.30	1.80	0.55	2.10	0.25	0.45	0.15	0.18	0.05	0.60	0.05	1.20	0.30	0.15	0.05	0.60	0.15
	<b>4</b>	0.28	0.05	0.60	0.05	1.60	0.40	2.40	0.60	2.80	0.30	0.60	0.15	0.24	0.05	0.80	0.05	1.60	0.35	0.20	0.05	0.80	0.20
	<b>5</b>	0.35	0.05	0.75	0.05	2.00	0.45	3.00	0.65	3.50	0.50	0.75	0.15	0.30	0.05	1.00	0.15	2.00	0.35	0.25	0.05	1.00	0.15
	<b>6</b>	0.42	0.05	0.90	0.05	2.40	0.45	3.60	0.70	4.20	0.65	0.90	0.10	0.36	0.05	1.20	0.20	2.40	0.30	0.30	0.05	1.20	0.15
	<b>7</b>	0.49	0.05	1.05	0.05	2.80	0.35	4.20	0.70	4.90	0.75	1.05	0.05	0.42	0.05	1.40	0.25	2.80	0.25	0.35	0.05	1.40	0.10
	<b>8</b>	0.56	0.05	1.20	0.05	3.20	0.35	4.80	0.65	5.60	0.65	1.20	0.05	0.48	0.05	1.60	0.15	3.20	0.15	0.40	0.05	1.60	0.05
	<b>9</b>	0.63	0.05	1.35	0.05	3.60	0.20	5.40	0.60	6.30	0.65	1.35	0.01	0.54	0.05	1.80	0.05	3.60	0.05	0.45	0.05	1.80	0.05
<b>Right Bank</b>		0.70	0.00	1.50	0.00	4.00	0.00	6.00	0.00	7.00	0.00	1.50	0.00	0.60	0.00	2.00	0.00	4.00	0.00	0.50	0.00	2.00	0.00
<b>Feature Type</b>		riffle		run		pool		pool		pool		run		riffle		run		pool		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 0.1 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: David Bender      Date: 10/4/2008



WBID # 2073

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> 10/04/08      13:05	Location Description (e.g., road crossing): Outer Rd.
<b>Stream Name:</b> Birch Cr.	
Current Weather Conditions: Clear	Facility Name(s): Commercial Court
Weather Conditions for Past 10 days: 0.06 in	Permit Number(s): MO 0081485
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): 0680870	Northing (UTM Y): 4264623	Horizontal Accuracy: (EPE / FOM / PDOP)	5 Meters
Site 11	Easting (UTM X): 0680985	Northing (UTM Y): 4254831	Horizontal Accuracy: (EPE / FOM / PDOP)	7 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
75	Downstream	76	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 type="checkbox"/> None of the above	<input checked="" type="checkbox"/> Other: Golfers
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 checked="" 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: Golf course
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: Golf course			

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

% Cobble	20% 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.)

None
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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 checked="" 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 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.)

Streams flow through middle of golf course

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

Printed Names of Personnel Collecting Data: David Bender, Chris Schuler

Surveyor's Signature: David Bender

Date of Survey: 10/04/08

Organization: SES, Inc.

Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Birch Cr.</u> Waterbody ID: <u>2073</u> Site #: <u>2</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>0680870</u> UTM Y: <u>4254623</u> +/- <u>5</u> (meters) <b>11</b> UTM X: <u>0680985</u> UTM Y: <u>4254831</u> +/- <u>7</u> (meters)  Average Stream Width: <u>6</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>David Bender, Chris Schuler</u>	<b>Dissolved Oxygen</b>
	Date: <u>10/4/2008</u> Time: <u>13:05</u>  Dissolved Oxygen: <u>6.5</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>18.8</u> (°C)

#### Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		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
	<b>1</b>	0.40	0.05	0.90	0.20	0.50	0.50	0.50	0.05	0.40	0.05	0.60	0.05	0.90	0.45	0.10	0.05	0.50	0.05	0.50	1.00	0.70	1.00
	<b>2</b>	0.80	0.15	1.80	0.55	1.00	0.45	1.00	0.05	0.80	0.15	1.20	0.20	1.80	6.00	0.20	0.05	1.00	0.10	1.00	1.00	1.40	1.00
	<b>3</b>	1.20	0.45	2.70	0.75	1.50	0.40	1.50	0.15	1.20	0.25	1.80	0.35	2.70	0.75	0.30	0.05	1.50	0.30	1.50	1.00	2.10	1.00
	<b>4</b>	1.60	0.90	3.60	0.60	2.00	0.35	2.00	0.20	1.60	0.25	2.40	0.40	3.60	1.00	0.40	0.05	2.00	0.35	2.00	0.95	2.80	1.00
	<b>5</b>	2.00	1.00	4.50	0.45	2.50	0.30	2.50	0.25	2.00	0.30	3.00	0.45	4.50	0.95	0.50	0.05	2.50	0.40	2.50	9.00	3.50	1.00
	<b>6</b>	2.40	1.00	5.40	0.55	3.00	0.25	3.00	0.30	2.40	0.25	3.60	0.40	5.40	0.95	0.60	0.05	3.00	0.35	3.00	0.50	4.20	1.00
	<b>7</b>	2.80	1.00	6.30	0.55	3.50	0.15	3.50	0.35	2.80	0.20	4.20	0.40	6.30	1.00	0.70	0.05	3.50	0.25	3.50	0.40	4.90	0.70
	<b>8</b>	3.20	1.00	7.20	0.50	4.00	0.10	4.00	0.45	3.20	0.15	4.80	0.45	7.20	1.00	0.80	0.05	4.00	0.15	4.00	0.20	5.60	0.35
	<b>9</b>	3.60	1.00	8.10	0.25	4.50	0.05	4.50	0.50	3.60	0.05	5.40	0.25	8.10	1.00	0.90	0.05	4.50	0.05	4.50	0.05	6.30	0.10
<b>Right Bank</b>		4.00	0.00	9.00	0.00	5.00	0.00	5.00	0.00	4.00	0.00	6.00	0.00	9.00	0.00	1.00	0.00	5.00	0.00	5.00	0.00	7.00	0.00
<b>Feature Type</b>		pool		pool		pool		pool		pool		pool		riffle		pool		pool		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: David Bender      Date: 10/4/2008



WBID # 2073

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> 10/04/08      13:45	Location Description (e.g., road crossing): US Hwy 50
<b>Stream Name:</b> Birch Cr.	
Current Weather Conditions: Clear	Facility Name(s): Commercial Court
Weather Conditions for Past 10 days: 0.06 in	Permit Number(s): MO 0081485
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): 0681300	Northing (UTM Y): 4256411	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters
Site 11	Easting (UTM X): 0681158	Northing (UTM Y): 4256549	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
77	Downstream	78	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.)				

**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:				

**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	20% Gravel	80% Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

None

**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 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.

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: David Bender, Chris Schuler

Surveyor's Signature: David Bender

Date of Survey: 10/04/08

Organization: SES, Inc.

Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Birch Cr.</u> Waterbody ID: <u>2073</u> Site #: <u>3</u>  Estimated Channel Incision: <u>4</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>0681300</u> UTM Y: <u>4256411</u> +/- <u>7</u> (meters) <b>11</b> UTM X: <u>0681158</u> UTM Y: <u>4256549</u> +/- <u>7</u> (meters)  Average Stream Width: <u>7</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>David Bender, Chris Schuler</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/4/2008</u> Time: <u>13:45</u>  Dissolved Oxygen: <u>6.9</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>17.3</u> (°C)
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#### Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		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	0.40	0.05	0.70	0.40	0.60	0.05	0.70	0.15	0.20	0.05	0.70	0.10	0.80	0.10	0.70	0.55	0.70	0.25	0.60	0.15	0.80	0.35
	2	0.80	0.20	1.40	0.55	1.20	0.35	1.40	0.55	0.40	0.15	1.40	0.30	1.60	0.10	1.40	0.95	1.40	0.30	1.20	0.20	1.60	0.40
	3	1.20	0.40	2.10	0.55	1.80	0.55	2.10	0.75	0.60	0.10	2.10	0.30	2.40	0.35	2.10	1.00	2.10	0.45	1.80	0.25	2.40	0.50
	4	1.60	0.40	2.80	0.55	2.40	0.65	2.80	0.90	0.80	0.10	2.80	0.40	3.20	0.75	2.80	1.00	2.80	0.70	2.40	0.55	3.20	0.55
	5	2.00	0.40	3.50	0.55	3.00	0.75	3.50	0.95	1.00	0.20	3.50	0.40	4.00	0.85	3.50	1.00	3.50	0.95	3.00	0.65	4.00	0.55
	6	2.40	0.35	4.20	0.60	3.60	0.75	4.20	0.10	1.20	0.20	4.20	0.35	4.80	0.85	4.20	1.00	4.20	1.00	3.60	0.60	4.80	0.40
	7	2.80	0.25	4.90	0.55	4.20	0.65	4.90	0.95	1.40	0.15	4.90	0.35	5.60	0.75	4.90	1.00	4.90	0.65	4.20	0.35	5.60	0.30
	8	3.20	0.15	5.60	0.45	4.80	0.55	5.60	0.60	1.60	0.05	5.60	0.25	6.40	0.80	5.60	1.00	5.60	0.55	4.80	0.20	6.40	0.45
	9	3.60	0.10	6.30	0.10	5.40	0.40	6.30	0.30	1.80	0.05	6.30	0.10	7.20	0.80	6.30	1.00	6.30	0.60	5.40	0.05	7.20	0.20
<b>Right Bank</b>		4.00	0.00	7.00	0.00	6.00	0.00	7.00	0.00	2.00	0.00	7.00	0.00	8.00	0.00	7.00	0.00	7.00	0.00	6.00	0.00	8.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>		pool		pool		pool		pool		pool		pool		pool		pool		pool		pool		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: David Bender

Date: 10/4/2008

