



Missouri  
Department of  
Natural Resources

Use Attainability Analysis

for

WBID 0192 Brush 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): Brush Creek
Missouri Water Body Identification (WBID) Number: 192
8-digit HUC: 7110008
County(ies), Listed Upstream to Downstream: Montgomery, Lincoln
Upstream Legal Description (from Table H): T49N, R4W, Sec.2
Downstream Legal Description (from Table H): T50N, R3W, Sec. 33
Number of sites evaluated: 5
List all site numbers, <u>consecutively upstream to downstream</u> : 1, 2, 3, 4, 5
<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): Bellflower WWTF MO0103764
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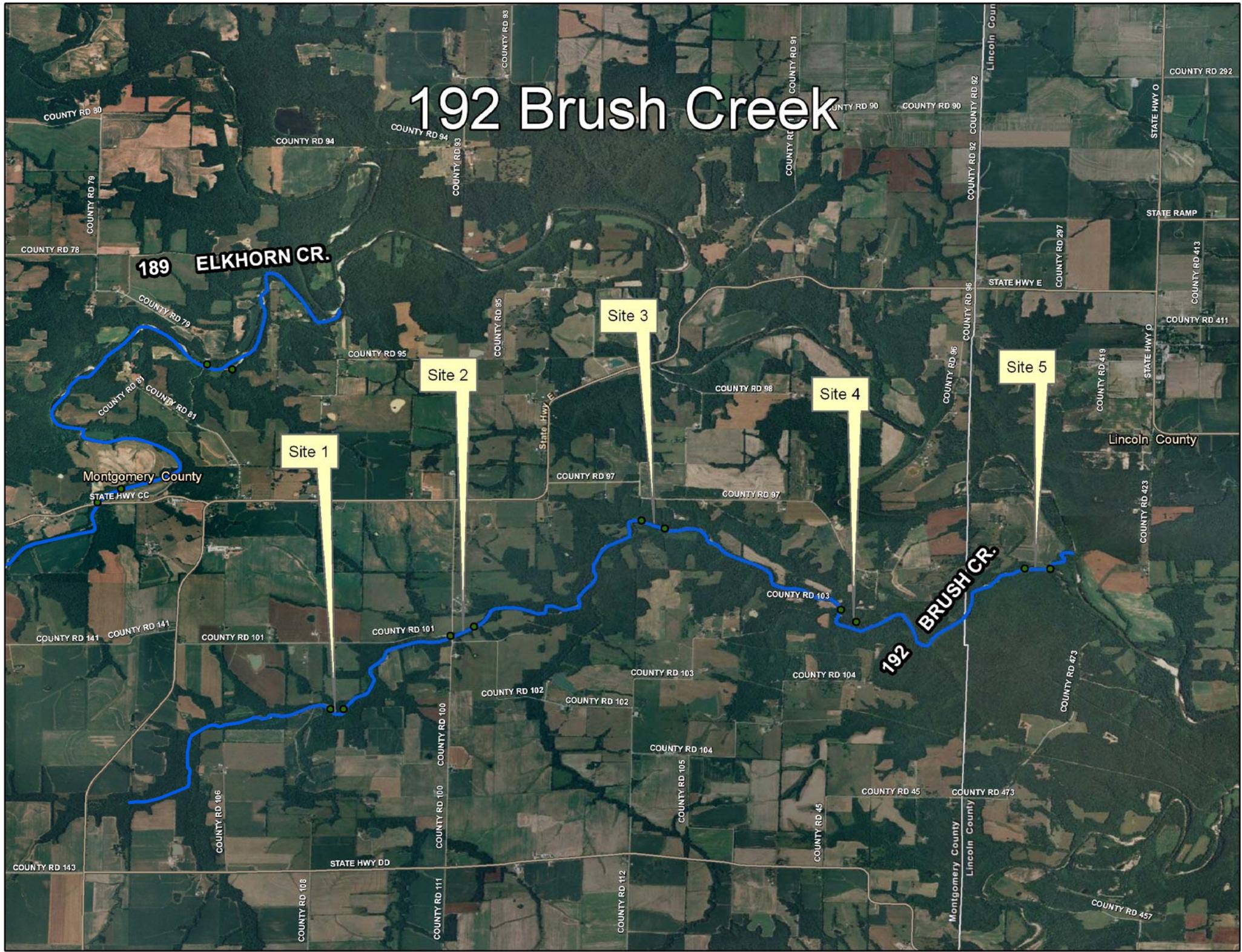
**III. UAA Surveyor** (please **PRINT** legibly)

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:** 9-22-08

# 192 Brush Creek



WBID # 192

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> 9/21/2008 15:20	Location Description (e.g., road crossing):
<b>Stream Name:</b> Brush Cr.	County RD 101
Current Weather Conditions: partly cloudy	Facility Name(s): Bellflower WWTF
Weather Conditions for Past 10 days: no precipitation	Permit Number(s): MO0103764
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): 0644622	Northing (UTM Y): 4323229	Horizontal Accuracy: (EPE / FOM / PDOP) 4 Meters
Site 11	Easting (UTM X): 0644740	Northing (UTM Y): 4323232	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
88	downstream				
89	road				
90	upstream				

**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 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:				

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

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

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

Algae on 5% of substrate.

**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.)

Moved site due to permission; ATV trail crosses stream.

**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: 9/21/2008

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Brush Cr.</u> Waterbody ID: <u>192</u> Site #: <u>1</u>  Estimated Channel Incision: <u>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>0644622</u> UTM Y: <u>4323229</u> +/- <u>4</u> (meters) <b>11</b> UTM X: <u>0644740</u> UTM Y: <u>4323232</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>David Bender, Chris Schueler</u>	<b>Dissolved Oxygen</b>  Date: <u>9/21/2008</u> Time: <u>15:20</u>  Dissolved Oxygen: <u>7.3</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>20</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	0.30	0.10	0.30	0.10	0.40	0.15	0.40	0.50	0.50	0.15	0.30	0.01	0.20	.01.05	0.40	0.05	0.30	0.05	0.40	0.10
2	0.60	0.05	0.60	0.35	0.60	0.30	0.80	0.35	0.80	0.45	1.00	0.25	0.60	0.05	0.40	0.05	0.80	0.15	0.60	0.20	0.80	0.45
3	0.90	0.05	0.90	0.65	0.90	0.45	1.20	0.65	1.20	0.49	1.50	0.25	0.90	0.15	0.60	0.05	1.20	0.10	0.90	0.30	1.20	0.60
4	1.20	0.05	1.20	0.95	1.20	0.55	1.60	0.75	1.60	0.35	2.00	0.35	1.20	0.20	0.80	0.10	1.60	0.15	1.20	0.30	1.60	0.75
5	1.50	0.10	1.50	1.00	1.50	0.60	2.00	0.80	2.00	0.25	2.50	0.45	1.50	0.20	1.00	0.05	2.00	0.20	1.50	0.40	2.00	0.90
6	1.80	0.10	1.80	1.00	1.80	0.75	2.40	0.85	2.40	0.25	3.00	0.45	1.80	0.20	1.20	0.05	2.40	0.35	1.80	0.40	2.40	0.90
7	2.10	0.05	2.10	1.00	2.10	0.60	2.80	0.95	2.80	0.15	3.50	0.45	2.10	0.15	1.40	0.05	2.80	0.40	2.10	0.45	2.80	0.75
8	2.40	0.05	2.40	1.00	2.40	0.55	3.20	0.90	3.20	0.10	4.00	0.40	2.40	0.15	1.60	0.05	3.20	0.50	2.40	0.50	3.20	0.75
9	2.70	0.05	2.70	0.75	2.70	0.45	3.60	0.40	3.60	0.05	4.50	0.30	2.70	0.10	1.80	0.05	3.60	0.35	2.70	0.35	3.60	0.50
<b>Right Bank</b>	3.00	0.00	3.00	0.00	3.00	0.00	4.00	0.00	4.00	0.00	5.00	0.00	3.00	0.00	2.00	0.00	4.00	0.00	3.00	0.00	4.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	riffle		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.

MAXIMUM      1.00

MEDIAN          0.33

Surveyor's Signature: David Bender      Date: 9/21/2008

WBID # 192

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> 9/21/2008	15:55	Location Description (e.g., road crossing):
<b>Stream Name:</b> Brush Cr.		County RD 100
Current Weather Conditions: partly cloudy		Facility Name(s): Bellflower WWTF
Weather Conditions for Past 10 days: no precipitation		Permit Number(s): MO0103764
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): 0645686	Northing (UTM Y): 4324094	Horizontal Accuracy: (EPE / FOM / PDOP) 3 Meters
Site 11	Easting (UTM X): 0645897	Northing (UTM Y): 4324211	Horizontal Accuracy: (EPE / FOM / PDOP) 9 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
91	ATV Tracks				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
92	downsteam				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
93	upstream				

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

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

30% Cobble	30% Gravel	% Sand	% Silt	% Mud/Clay	40% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

Algae 20%

**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.

**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: 9/21/2008

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Brush Cr.</u> Waterbody ID: <u>192</u> Site #: <u>2</u>  Estimated Channel Incision: <u>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>0645686</u> UTM Y: <u>4324094</u> +/- <u>3</u> (meters) <b>11</b> UTM X: <u>0645897</u> UTM Y: <u>4324211</u> +/- <u>9</u> (meters)  Average Stream Width: <u>3</u> (meters)      Length of Survey Segment: _____ (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>David Bender, Chris Schueler</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/21/2008</u> Time: <u>15:55</u>  Dissolved Oxygen: <u>10.1</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>20.1</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	
	1	0.30	0.05	0.30	0.20	0.70	0.25	0.70	0.20	0.50	0.05	0.60	0.05	0.70	0.40	0.60	0.15	0.60	0.15	0.70	0.05	0.60	0.25
	2	0.60	0.10	0.60	0.20	1.40	0.30	1.40	0.20	1.00	0.05	1.20	0.10	1.40	0.65	1.20	0.20	1.20	0.25	1.40	0.10	1.20	0.35
	3	0.90	0.25	0.90	0.30	2.10	0.25	2.10	0.10	1.50	0.05	1.80	0.20	2.10	0.35	1.80	0.25	1.80	0.25	2.10	0.10	1.80	0.30
	4	1.20	0.35	1.20	0.30	2.80	0.25	2.80	0.15	2.00	0.05	2.40	0.30	2.80	0.30	2.40	0.40	2.40	0.40	2.80	0.15	2.40	0.30
	5	1.50	0.25	1.50	0.30	3.50	0.25	3.50	0.10	2.50	0.10	3.00	0.30	3.50	0.35	3.00	0.25	3.00	0.50	3.50	0.15	3.00	0.35
	6	1.80	0.20	1.80	0.25	4.20	0.20	4.20	0.10	3.00	0.15	3.60	0.45	4.20	0.50	3.60	0.25	3.60	0.30	4.20	0.45	3.60	0.30
	7	2.10	0.10	2.10	0.15	4.90	0.15	4.90	0.05	3.50	0.15	4.20	0.40	4.90	0.40	4.20	0.30	4.20	0.30	4.90	0.35	4.20	0.35
	8	2.40	0.05	2.40	0.10	5.60	0.15	5.60	0.05	4.00	0.20	4.80	0.30	5.60	0.25	4.80	0.15	4.80	0.25	5.60	0.40	4.80	0.30
	9	2.70	0.01	2.70	0.01	6.30	0.10	6.30	0.20	4.50	0.15	5.40	0.10	6.30	0.05	5.40	0.15	5.40	0.10	6.30	0.15	5.40	0.10
<b>Right Bank</b>		3.00	0.00	3.00	0.00	7.00	0.00	7.00	0.00	5.00	0.00	6.00	0.00	7.00	0.00	6.00	0.00	6.00	0.00	7.00	0.00	6.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>		run		run		run		run		riffle		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.

MAXIMUM      0.65

MEDIAN      0.20

Surveyor's Signature: David Bender      Date: 9/21/2008

WBID # 192

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> 9/21/2008 16:45	Location Description (e.g., road crossing): C.R. 97
<b>Stream Name:</b> Brush Cr.	
Current Weather Conditions: clear	Facility Name(s): Bellflower WWTF
Weather Conditions for Past 10 days: no precipitation	Permit Number(s): MO0103764
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): 0647382	Northing (UTM Y): 4325454	Horizontal Accuracy: (EPE / FOM / PDOP) 10 Meters
Site 11	Easting (UTM X): 0647590	Northing (UTM Y): 4325367	Horizontal Accuracy: (EPE / FOM / PDOP) 10 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
94	downstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
95	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 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 checked="" 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%.)

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

1% algae on substrate

**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.

**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.)

Moved site upstream due to access.

**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: 9/21/2008

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Brush Cr.</u> Waterbody ID: <u>192</u> Site #: <u>3</u>  Estimated Channel Incision: <u>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>0647382</u> UTM Y: <u>4325454</u> +/- <u>10</u> (meters) <b>11</b> UTM X: <u>0647590</u> UTM Y: <u>4325367</u> +/- <u>10</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 Schueler</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9.21.08</u> Time: <u>16:45</u>  Dissolved Oxygen: <u>9.6</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>21.1</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	
	1	0.60	0.25	0.10	0.01	0.30	0.05	0.30	0.01	0.20	0.01	1.00	0.15	1.00	0.50	0.80	0.15	1.00	0.50	0.90	1.00	1.20	0.90
	2	1.20	0.45	0.20	0.05	0.60	0.15	0.60	0.05	0.40	0.01	2.00	0.35	2.00	0.60	1.60	0.20	2.00	0.75	1.80	1.00	2.40	1.00
	3	1.80	0.45	0.30	0.05	0.90	0.15	0.90	0.15	0.60	0.01	3.00	0.45	3.00	0.55	2.40	0.30	3.00	0.75	2.70	1.00	3.60	1.00
	4	2.40	0.34	0.40	0.05	1.20	0.10	1.20	0.15	0.80	0.01	4.00	0.60	4.00	0.45	3.20	0.45	4.00	0.70	3.60	1.00	4.80	1.00
	5	3.00	0.40	0.50	0.10	1.50	0.05	1.50	0.25	1.00	0.01	5.00	0.60	5.00	0.50	4.00	0.50	5.00	0.65	4.50	0.85	6.00	1.00
	6	3.60	0.30	0.60	0.10	1.80	0.05	1.80	0.30	1.20	0.01	6.00	0.60	6.00	0.50	4.80	0.50	6.00	0.60	5.40	0.55	7.20	1.00
	7	4.20	0.20	0.70	0.10	2.10	0.05	2.10	0.25	1.40	0.10	7.00	0.45	7.00	0.35	5.60	0.55	7.00	0.60	6.30	0.40	8.40	0.90
	8	4.80	0.10	0.80	0.05	2.40	0.05	2.40	0.20	1.60	0.01	8.00	0.45	8.00	0.30	6.40	0.55	8.00	0.55	7.20	0.15	9.60	0.95
	9	5.40	0.05	0.90	0.05	2.70	0.05	2.70	0.05	1.80	0.05	9.00	0.40	9.00	0.20	7.20	0.30	9.00	0.55	8.10	0.05	10.80	0.10
<b>Right Bank</b>		6.00	0.00	1.00	0.00	3.00	0.00	3.00	0.00	2.00	0.00	10.00	0.00	10.00	0.00	8.00	0.00	10.00	0.00	9.00	0.00	12.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>		pool		riffle	run	run		riffle		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.

MAXIMUM      1.00  
  
 MEDIAN          0.30

Surveyor's Signature: David Bender      Date: 9/21/2008

WBID # 192

Site # 4

**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> 9/22/2008 8:45	Location Description (e.g., road crossing):
<b>Stream Name:</b> Brush Cr.	C.R. 103
Current Weather Conditions: clear	Facility Name(s): Bellflower WWTF
Weather Conditions for Past 10 days: no precipitation	Permit Number(s): MO0103764
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): 0649197	Northing (UTM Y): 4324462	Horizontal Accuracy: (EPE / FOM / PDOP)	7 Meters	
Site 11	Easting (UTM X): 0649337	Northing (UTM Y): 4324320	Horizontal Accuracy: (EPE / FOM / PDOP)	14 Meters	

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
96	Downstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
97	Rock pile				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
98	Upstream				

**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%.)

10% Cobble	60% Gravel	30% 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 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 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.)

**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: 9/21/2008

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Brush Cr.</u> Waterbody ID: <u>192</u> Site #: <u>4</u>  Estimated Channel Incision: <u>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>0649197</u> UTM Y: <u>4324462</u> +/- <u>7</u> (meters) <b>11</b> UTM X: <u>0649337</u> UTM Y: <u>4324320</u> +/- <u>14</u> (meters)  Average Stream Width: <u>5</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 Schueler</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/22/2008</u> Time: <u>8:45</u>  Dissolved Oxygen: <u>7.3</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>18.3</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	
	1	0.10	0.05	0.30	0.01	0.20	0.05	0.30	0.05	0.20	0.05	0.05	0.30	0.05	0.30	0.35	0.20	0.00	0.20	0.05	0.30	0.05	
	2	0.20	0.05	0.60	0.05	0.40	0.20	0.60	0.35	0.40	0.10	0.10	0.15	0.60	0.15	0.60	0.50	0.40	0.00	0.40	0.25	0.60	0.20
	3	0.30	0.10	0.90	0.05	0.60	0.20	0.90	0.35	0.60	0.15	0.15	0.25	0.90	0.25	0.90	0.65	0.60	0.00	0.60	0.40	0.90	0.15
	4	0.40	0.10	1.20	0.05	0.80	0.25	1.20	0.35	0.80	0.15	0.20	0.35	1.20	0.35	1.20	0.70	0.80	0.00	0.80	0.45	1.20	0.15
	5	0.50	0.15	1.50	0.10	1.00	0.30	1.50	0.50	1.00	0.15	0.25	0.40	1.50	0.40	1.50	0.75	1.00	0.00	1.00	0.45	1.50	0.10
	6	0.60	0.10	1.80	0.15	1.20	0.25	1.80	0.45	1.20	0.15	0.30	0.60	1.80	0.60	1.80	0.65	1.20	0.00	1.20	0.30	1.80	0.20
	7	0.70	0.05	2.10	0.20	1.40	0.15	2.10	0.50	1.40	0.10	0.35	0.35	2.10	0.35	2.10	0.50	1.40	0.00	1.40	0.20	2.10	0.25
	8	0.80	0.10	2.40	0.10	1.60	0.10	2.40	0.35	1.60	0.15	0.40	0.20	2.40	0.20	2.40	0.40	1.60	0.00	1.60	0.15	2.40	0.15
	9	0.90	0.10	2.70	0.05	1.80	0.05	2.70	0.15	1.80	0.10	0.45	0.40	2.70	0.40	2.70	0.15	1.80	0.00	1.80	0.05	2.70	0.05
<b>Right Bank</b>		1.00	0.00	3.00	0.00	2.00	0.00	3.00	0.00	2.00	0.00	0.50	0.00	3.00	0.00	3.00	0.00	2.00	0.00	2.00	0.00	3.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>		rifle		run		run		pool		run		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.

MAXIMUM      0.75

MEDIAN          0.15

Surveyor's Signature: David Bender      Date: 9/22/2008

WBID # 192

Site # 5

**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> 9/22/2008                      11:21	Location Description (e.g., road crossing):
<b>Stream Name:</b> Brush Cr.	C.R. 97
Current Weather Conditions: clear	Facility Name(s): Bellflower WWTF
Weather Conditions for Past 10 days: no precipitation	Permit Number(s): MO0103764
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): 0650841	Northing (UTM Y): 4324968	Horizontal Accuracy: (EPE / FOM / PDOP) 8 Meters
Site 11	Easting (UTM X): 0651071	Northing (UTM Y): 4324964	Horizontal Accuracy: (EPE / FOM / PDOP) 5 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
99	downstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
100	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 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%.)

10% Cobble	80% Gravel	10% 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 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 # 5

**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: 9/21/2008

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Brush Cr.</u> Waterbody ID: <u>192</u> Site #: <u>5</u>  Estimated Channel Incision: <u>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>0650841</u> UTM Y: <u>4324968</u> +/- <u>8</u> (meters) <b>11</b> UTM X: <u>0651071</u> UTM Y: <u>4324964</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>David Bender, Chris Schueler</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/21/2008</u> Time: <u>11:21</u>  Dissolved Oxygen: <u>5.8</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>19.1</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	
	1	0.20	0.05	0.30	0.05	0.20	0.01	0.40	0.70	0.60	0.20	1.40	0.30	1.20	1.00	1.50	0.35	0.80	0.05	0.30	0.05	0.80	0.70
	2	0.40	0.15	0.60	0.05	0.40	0.05	0.80	0.85	1.20	0.45	2.80	1.00	2.40	1.00	3.00	0.25	1.60	0.15	0.60	0.10	1.60	0.65
	3	0.60	0.25	0.90	0.10	0.60	0.05	1.20	0.85	1.80	0.50	4.20	1.00	3.60	1.00	4.50	0.20	2.40	0.20	0.90	0.05	2.40	0.30
	4	0.80	0.30	1.20	0.15	0.80	0.05	1.60	0.70	2.40	1.00	5.60	1.00	4.80	0.95	6.00	0.25	3.20	0.20	1.20	0.01	3.20	0.15
	5	1.00	0.25	1.50	0.15	1.00	0.05	2.00	0.55	3.00	1.00	7.00	1.00	6.00	0.60	7.50	0.25	4.00	0.30	1.50	0.05	4.00	0.15
	6	1.20	0.25	1.80	0.15	1.20	0.05	2.40	0.40	3.60	1.00	8.40	1.00	7.20	0.65	9.00	0.10	4.80	0.40	1.80	0.05	4.80	0.20
	7	1.40	0.25	2.10	0.15	1.40	0.10	2.80	0.35	4.20	1.00	9.80	1.00	8.40	0.75	10.50	0.65	5.60	0.35	2.10	0.10	5.60	0.15
	8	1.60	0.20	2.40	0.10	1.60	0.10	3.20	0.30	4.80	0.60	11.20	0.65	9.60	0.45	12.00	0.80	6.40	0.30	2.40	0.15	6.40	0.20
	9	1.80	0.05	2.70	0.05	1.80	0.01	3.60	0.10	5.40	0.15	12.60	0.25	10.80	0.20	13.50	0.30	7.20	0.15	2.70	0.10	7.20	0.30
<b>Right Bank</b>		2.00	0.00	3.00	0.00	2.00	0.00	4.00	0.00	6.00	0.00	14.00	0.00	12.00	0.00	15.00	0.00	8.00	0.00	3.00	0.00	8.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>		run	run	run	run	riffle	riffle	pool	pool	riffle	riffle	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.

MAXIMUM      1.00  
  
 MEDIAN          0.25

Surveyor's Signature: David Bender      Date: 9/22/2008

**WBID# 0192 Brush Creek**



**Site# 1 Photo ID# 88, Downstream**



**Site# 1 Photo ID# 89, "Road"**



**Site# 1 Photo ID# 90, Upstream**



**Site# 2 Photo ID#91, "ATV Tracks"**

**WBID# 0192 Brush Creek**



**Site# 2 Photo ID# 92, Downstream**



**Site# 2 Photo ID# 93, Upstream**



**Site# 3 Photo ID# 94, Downstream**



**Site# 3 Photo ID# 95 Upstream**

**WBID# 0192 Brush Creek**



**Site# 4 Photo ID# 96, Downstream**



**Site# 4 Photo ID# 97 "Rockpile"**



**Site# 4 Photo ID# 98, Upstream**



**Site# 5 Photo ID# 99, Downstream**

**WBID# 192 Brush Creek**



**Site# 5 Photo ID# 100, Upstream**