



## Use Attainability Analysis

for

WBID 1845 Hoosier Creek (formerly Houston 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): Houston Creek
Missouri Water Body Identification (WBID) Number: 1845
8-digit HUC: 07140102
County(ies), Listed Upstream to Downstream: Franklin
Upstream Legal Description (from Table H): T41N R1W Sec. 2
Downstream Legal Description (from Table H): T41N R1W Sec. 11
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): Woodcock MHP MO0114367
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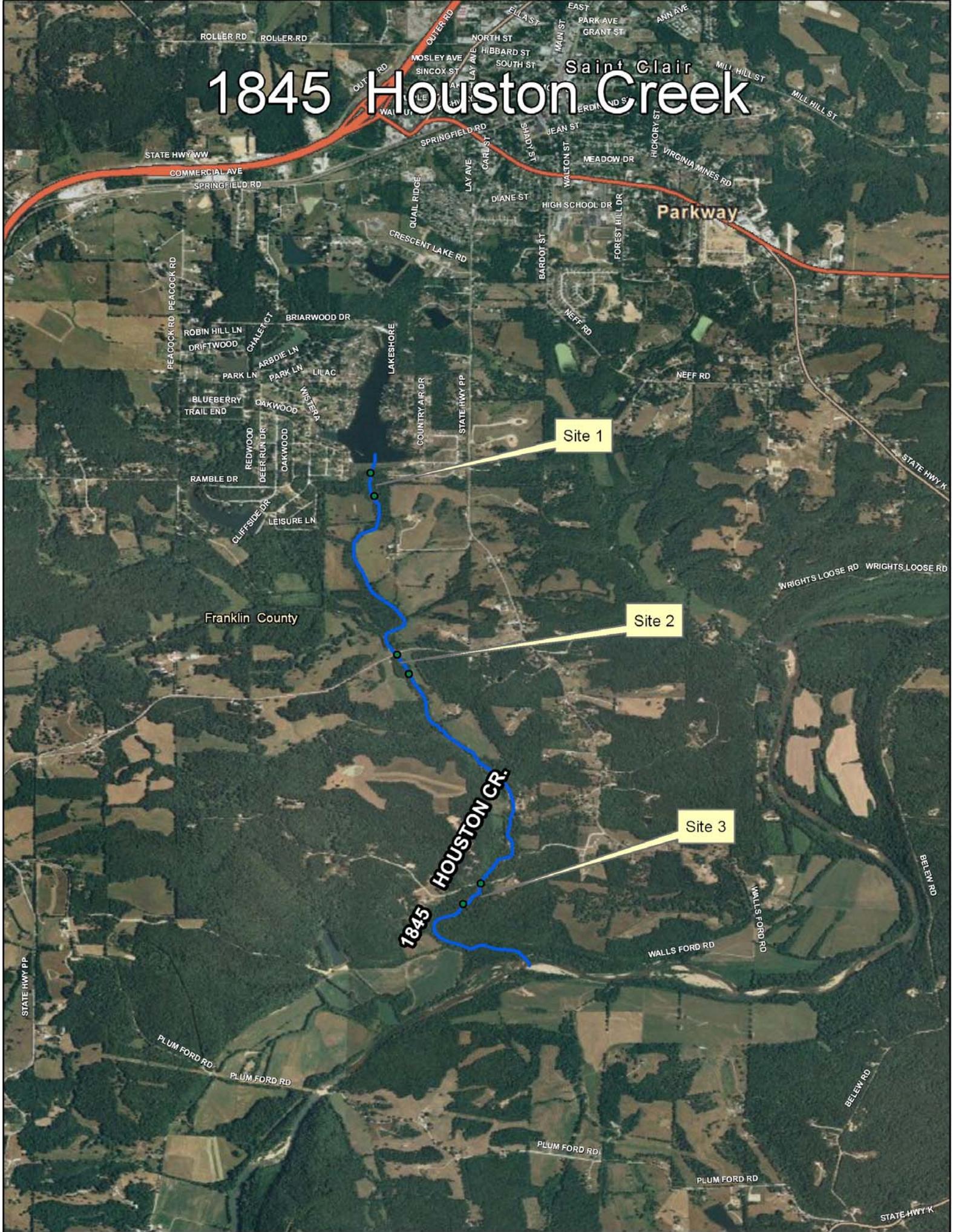
#### III. UAA Surveyor (please PRINT legibly)

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: 10-03-08

# 1845 Houston Creek



Site 1

Site 2

Site 3

1845 HOUSTON CR.

Franklin County

Saint Clair

Parkway

STATE HWY PP

STATE HWY K

WBID # 1845

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> 10/03/08      12:20	Location Description (e.g., road crossing): Walls Ford Rd.
<b>Stream Name:</b> Houston Cr.	
Current Weather Conditions: Clear	Facility Name(s): Woodcock MHP
Weather Conditions for Past 10 days: 0.06 in	Permit Number(s): MO 0114367
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): 0675372	Northing (UTM Y): 4243138	Horizontal Accuracy: (EPE / FOM / PDOP)      2 Meters
Site 11	Easting (UTM X): 0675402	Northing (UTM Y): 4242971	Horizontal Accuracy: (EPE / FOM / PDOP)      4 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
46	Downstream	47	fence	48	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 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 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%.)

50% Cobble	50% 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 100% 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 checked="" 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 checked="" type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that 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: 10/03/08

Organization: SES, Inc.

Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Houston Cr.</u> Waterbody ID: <u>1845</u> Site #: <u>1</u> Estimated Channel Incision: <u>1</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) <b>01</b> UTM X: <u>0675372</u> UTM Y: <u>4243138</u> +/- <u>2</u> (meters) <b>11</b> UTM X: <u>0375402</u> UTM Y: <u>4242971</u> +/- <u>4</u> (meters) Average Stream Width: <u>1</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>10/3/2008</u> Time: <u>12:20</u> Dissolved Oxygen: <u>4</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>13.6</u> (°C)
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#### Transect Cross-Section

	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	0.00	0.10	0.00	0.20	0.01	0.20	0.05	0.30	0.35	0.10	0.01	0.25	0.01	0.10	0.05	0.10	0.01	0.10	0.05	0.10	0.01
2	0.20	0.00	0.20	0.00	0.40	0.05	0.40	0.10	0.60	0.40	0.20	0.01	0.50	0.05	0.20	0.15	0.20	0.01	0.20	0.05	0.20	0.01
3	0.30	0.00	0.30	0.05	0.60	0.05	0.60	0.15	0.90	0.55	0.30	0.01	0.75	0.10	0.30	0.10	0.30	0.05	0.30	0.10	0.30	0.05
4	0.40	0.00	0.40	0.05	0.80	0.05	0.80	0.30	1.20	0.60	0.40	0.01	1.00	0.20	0.40	0.20	0.40	0.05	0.40	0.10	0.40	0.05
5	0.50	0.05	0.50	0.01	1.00	0.05	1.00	0.45	1.50	0.55	0.50	0.01	1.25	0.20	0.50	0.15	0.50	0.10	0.50	0.15	0.50	0.10
6	0.60	0.00	0.60	0.05	1.20	0.05	1.20	0.40	1.80	0.55	0.60	0.01	1.50	0.25	0.60	0.10	0.60	0.05	0.60	0.05	0.60	0.05
7	0.70	0.00	0.70	0.05	1.40	0.05	1.40	0.45	2.10	0.55	0.70	0.01	1.75	0.15	0.70	0.05	0.70	0.05	0.70	0.01	0.70	0.05
8	0.80	0.00	0.80	0.00	1.60	0.05	1.60	0.20	2.40	0.45	0.80	0.01	2.00	0.05	0.80	0.01	0.80	0.01	0.80	0.01	0.80	0.05
9	0.90	0.00	0.90	0.00	1.80	0.01	1.80	0.15	2.70	0.20	0.90	0.01	2.25	0.05	0.90	0.01	0.90	0.01	0.90	0.01	0.90	0.05
<b>Right Bank</b>	1.00	0.00	1.00	0.00	2.00	0.00	2.00	0.00	3.00	0.00	1.00	0.00	2.50	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	riffle	pool	pool	pool	pool	pool	riffle	pool	pool	pool	pool	run	pool	pool	run	pool	run	pool	run	pool	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: David Bender      Date: 10/3/2008



WBID # 1845

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> 10/03/08      11:30	Location Description (e.g., road crossing): State Hwy PP
<b>Stream Name:</b> Houston Cr.	
Current Weather Conditions: Clear	Facility Name(s): Woodcock MHP
Weather Conditions for Past 10 days: 0.06 in	Permit Number(s): MO 0114367
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): 0675561	Northing (UTM Y): 4241799	Horizontal Accuracy: (EPE / FOM / PDOP)      2 Meters
Site 11	Easting (UTM X): 0675634	Northing (UTM Y): 4241661	Horizontal Accuracy: (EPE / FOM / PDOP)      3 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
44	Downstream	45	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 type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input checked="" type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

**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	70% Gravel	20% Sand	% Silt	% 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 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: 10/03/08

Organization: SES, Inc.

Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Houston Cr.</u> Waterbody ID: <u>1845</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>0675561</u> UTM Y: <u>4241799</u> +/- <u>2</u> (meters) <b>11</b> UTM X: <u>0675634</u> UTM Y: <u>4241661</u> +/- <u>3</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 Schuler</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/3/2008</u> Time: <u>11:30</u>  Dissolved Oxygen: <u>9.6</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>15.8</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	0.10	0.50	0.30	0.50	0.10	0.40	0.05	0.50	0.05	0.50	0.05	0.70	0.05	0.50	0.05	0.40	0.05	0.50	0.05	0.20	0.05
2	0.40	0.15	1.00	0.50	1.00	0.35	0.80	0.15	1.00	0.10	1.00	0.15	1.40	0.15	1.00	0.10	0.80	0.05	1.00	0.10	0.40	0.10
3	0.60	0.20	1.50	0.55	1.50	0.45	1.20	0.01	1.50	0.10	1.50	0.25	2.10	0.02	1.50	0.15	1.20	0.05	1.50	0.05	0.60	0.05
4	0.80	0.15	2.00	0.50	2.00	0.35	1.60	0.01	2.00	0.10	2.00	0.15	2.80	0.30	2.00	0.20	1.60	0.05	2.00	0.10	0.80	0.05
5	1.00	0.15	2.50	0.50	2.50	0.25	2.00	0.05	2.50	0.15	2.50	0.20	3.50	0.40	2.50	0.30	2.00	0.15	2.50	0.10	1.00	0.05
6	1.20	0.15	3.00	0.45	3.00	0.20	2.40	0.05	3.00	0.20	3.00	0.30	4.20	0.50	3.00	0.40	2.40	0.10	3.00	0.15	1.20	0.05
7	1.40	0.10	3.50	0.35	3.50	0.15	2.80	0.05	3.50	0.10	3.50	0.35	4.90	0.55	3.50	0.45	2.80	0.20	3.50	0.25	1.40	0.05
8	1.60	0.10	4.00	0.25	4.00	0.10	3.20	0.15	4.00	0.05	4.00	0.40	5.60	0.45	4.00	0.30	3.20	0.05	4.00	0.15	1.60	0.05
9	1.80	0.05	4.50	0.10	4.50	0.05	3.60	0.05	4.50	0.05	4.50	0.40	6.30	0.20	4.50	0.10	3.60	0.01	4.50	0.05	1.80	0.01
<b>Right Bank</b>	2.00	0.00	5.00	0.00	5.00	0.00	4.00	0.00	5.00	0.00	5.00	0.00	7.00	0.00	5.00	0.00	4.00	0.00	5.00	0.00	2.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	pool		pool		pool		riffle		run		pool		riffle									

**Notes:** Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.1 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: 10/3/2008



WBID # 1845

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> 10/03/08      13:10	Location Description (e.g., road crossing): Sandpiper
<b>Stream Name:</b> Houston Cr.	
Current Weather Conditions: Clear	Facility Name(s): Woodcock MHP
Weather Conditions for Past 10 days: 0.06 in	Permit Number(s): MO 0114367
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): 0676086	Northing (UTM Y): 4240112	Horizontal Accuracy: (EPE / FOM / PDOP)      5 Meters
Site 11	Easting (UTM X): 0675988	Northing (UTM Y): 4239948	Horizontal Accuracy: (EPE / FOM / PDOP)      5 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
49	Downstream	50	ATV tracks	51	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 type="checkbox"/> Fence	<input checked="" 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 checked="" 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	30% Gravel	70% Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

Algae on 10% of substrate.
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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 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: 10/03/08

Organization: SES, Inc.

Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Houston Cr.</u> Waterbody ID: <u>1845</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>0676086</u> UTM Y: <u>4240112</u> +/- <u>5</u> (meters) <b>11</b> UTM X: <u>0675988</u> UTM Y: <u>4239948</u> +/- <u>5</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>10/3/2008</u> Time: <u>13:10</u> Dissolved Oxygen: <u>9.1</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>15.4</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	0.30	0.05	0.40	0.01	0.70	0.01	0.30	0.01	0.40	0.35	0.40	0.25	0.20	0.01	0.30	0.01	0.60	0.05	0.30	0.05	0.30	0.01
	2	0.60	0.10	0.80	0.15	1.40	0.20	0.60	0.05	0.80	0.25	0.80	0.45	0.40	0.05	0.60	0.05	1.20	0.40	0.60	0.50	0.60	0.05
	3	0.90	0.25	1.20	0.30	2.10	0.40	0.90	0.05	1.20	0.25	1.20	0.40	0.60	0.10	0.90	0.10	1.80	0.75	0.90	0.25	0.90	0.05
	4	1.20	0.25	1.60	0.60	2.80	0.65	1.20	0.05	1.60	0.25	1.60	0.35	0.80	0.10	1.20	0.15	2.40	1.00	1.20	0.25	1.20	0.05
	5	1.50	0.20	2.00	0.80	3.50	0.85	1.50	0.05	2.00	0.25	2.00	0.25	1.00	0.15	1.50	0.20	3.00	1.00	1.50	0.30	1.50	0.05
	6	1.80	0.20	2.40	0.85	4.20	0.90	1.80	0.05	2.40	0.20	2.40	0.20	1.20	0.15	1.80	0.20	3.60	1.00	1.80	0.20	1.80	0.05
	7	2.10	0.15	2.80	0.55	4.90	1.00	2.10	0.05	2.80	0.10	2.80	0.15	1.40	0.10	2.10	0.20	4.20	1.00	2.10	0.10	2.10	0.05
	8	2.40	0.05	3.20	0.40	5.60	0.35	2.40	0.05	3.20	0.05	3.20	0.15	1.60	0.10	2.40	0.20	4.80	1.00	2.40	0.05	2.40	0.05
	9	2.70	0.01	3.60	0.20	6.30	0.20	2.70	0.05	3.60	0.05	3.60	0.10	1.80	0.05	2.70	0.15	5.40	1.00	2.70	0.05	2.70	0.01
<b>Right Bank</b>		3.00	0.00	4.00	0.00	7.00	0.00	3.00	0.00	4.00	0.00	4.00	0.00	2.00	0.00	3.00	0.00	6.00	0.00	3.00	0.00	3.00	0.00
<b>Feature Type</b>		pool		pool		pool		run		pool		riffle											

**Notes:** Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.1 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: 10/3/2008

