



Missouri  
Department of  
Natural Resources

Use Attainability Analysis

for

WBID 1131 Laurie Hollow

Submitted by  
Olsson Associates

To  
Missouri Department of Natural Resources  
Water Protection Program

On  
October 14, 2008

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

**Data Sheet A – Water Body Identification**

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

Water Body Name (from USGS 7.5' quad): Laurie Hollow
Missouri Water Body Identification (WBID) Number: 1131
8-digit HUC: 10290109
County(ies), Listed Upstream to Downstream: Camden
Upstream Legal Description (from Table H): 18, 39N, 17
Downstream Legal Description (from Table H): Mouth
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)

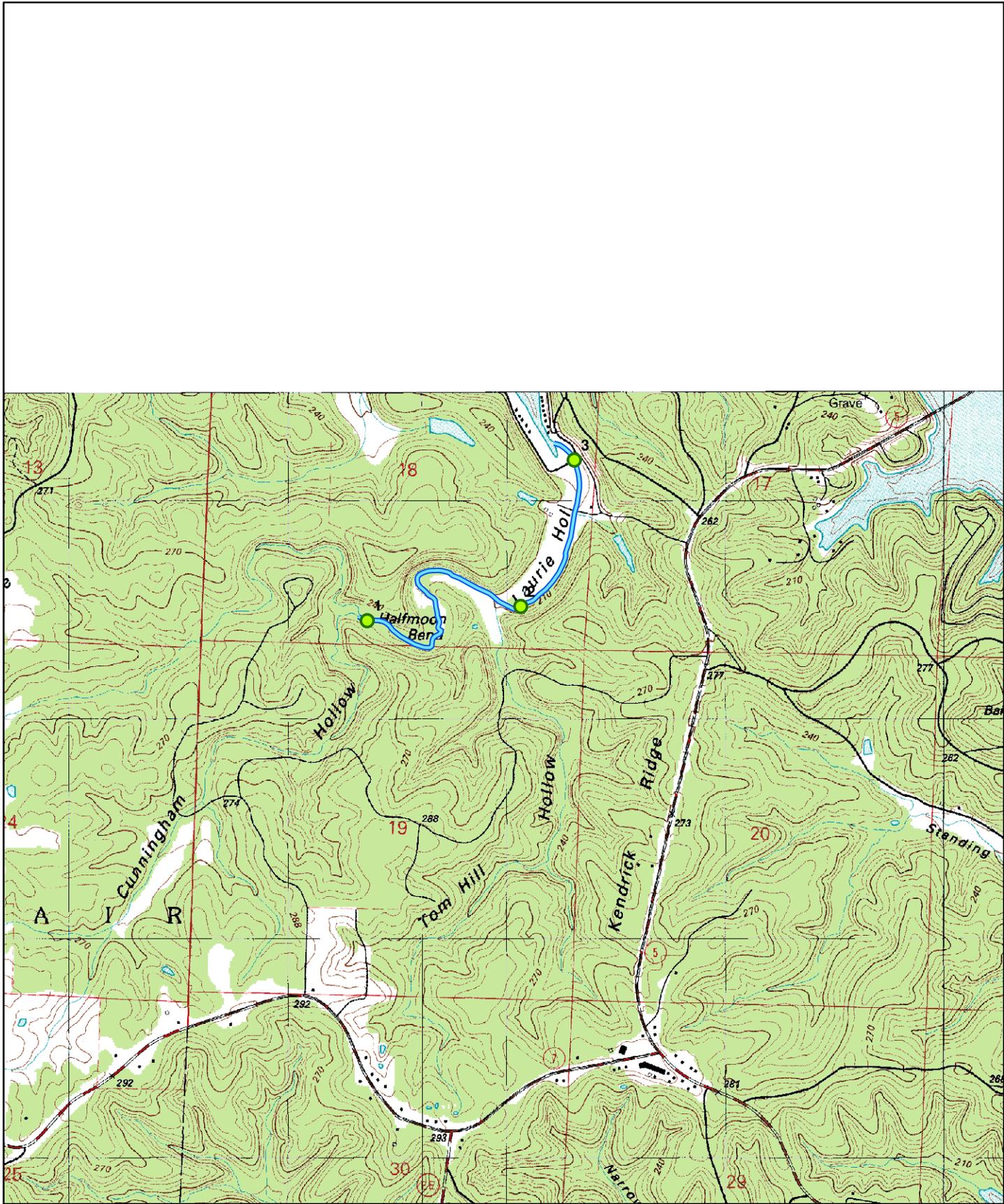
Facility Name(s) and Permit Number(s):  Sorrento Square WWTF MO 0130644 MO 0131644
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**III. UAA Surveyor** (please **PRINT** legibly)

Name of Surveyor: Eric Hertzler	Telephone Number: 417-890-8802
Organization/Employer: Olsson Associates	

**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:**  \_\_\_\_\_ **Date:** 08-22-08



**MISSOURI RECREATIONAL  
USE ATTAINABILITY ANALYSIS**



Feet  
0 1,000 2,000  
1 in. equals 2,000 ft.

**Stream:** Laurie Hollow  
**WBID:** 1131

**Map Sheet:** 1/1  
**County:** Camden



Project No. 008-1298

WBID # 1131

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> 08-18-08 4:12 pm	Location Description (e.g., road crossing):
<b>Stream Name:</b> Laurie Hollow	Off of Johnson Rd.
Current Weather Conditions: Sunny	Facility Name(s): Sorrento Square WWTF
Weather Conditions for Past 10 days: 0.17" @ Osage Beach	Permit Number(s): MO: 0131644
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): 514420	Northing (UTM Y): 4218659	Horizontal Accuracy: (EPE / FOM / PDOP)	63 ft.	<del>Meters</del>
Site 11	Easting (UTM X): 514544	Northing (UTM Y): 4218520	Horizontal Accuracy: (EPE / FOM / PDOP)	120 ft.	<del>Meters</del>

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1131-1-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1131-1-B	Downstream looking up				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Site # 1

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

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

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

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input 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: Private property				

**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%.)

% Cobble	100% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

NONE (dry)
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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 type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: dry
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

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

Site # 1

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

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

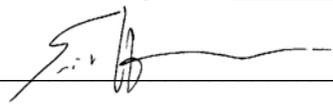
**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

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

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

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

Printed Names of Personnel Collecting Data: Eric Hertzler

Surveyor's Signature:  Date of Survey: 08-18-08

Organization: Olsson Associates Position: Field Service

**Field Data Sheets for Recreational Use Stream Surveys**  
**Data Sheet C - Field Survey Results**

Stream Name: <u>Laurie Hollow</u> Waterbody ID: <u>1131</u> Site #: <u>1</u>  Estimated Channel Incision: <u>0.3</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>514420</u> UTM Y: <u>4218659</u> +/- <u>63</u> ft. (meters) <b>11</b> UTM X: <u>514544</u> UTM Y: <u>4218520</u> +/- <u>120</u> ft. (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>Eric Hertzler / Austin Lohkamp</u>	<b>Dissolved Oxygen</b>  Date: <u>8/18/2008</u> Time: <u>4:12 p.m.</u>  Dissolved Oxygen: <u>*0</u> (mg/L)  Dissolved Oxygen: <u>*0</u> (% sat)  Specific Cond: <u>*0</u> (µS/cm)  Water Temperature: <u>*0</u> (°C)  DRY*
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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	0.52	0.00	0.47	0.00	0.43	0.00	0.57	0.00	0.63	0.00	0.51	0.00	0.48	0.00	0.81	0.00	0.79	0.00	0.45	0.00	0.30	0.00
2	1.04	0.00	0.94	0.00	0.86	0.00	1.14	0.00	1.26	0.00	1.02	0.00	0.96	0.00	1.62	0.00	1.58	0.00	0.90	0.00	0.60	0.00
3	1.56	0.00	1.41	0.00	1.29	0.00	1.71	0.00	1.89	0.00	1.53	0.00	1.44	0.00	2.43	0.00	2.37	0.00	1.35	0.00	0.90	0.00
4	2.08	0.00	1.88	0.00	1.72	0.00	2.28	0.00	2.52	0.00	2.04	0.00	1.92	0.00	3.24	0.00	3.16	0.00	1.80	0.00	1.20	0.00
5	2.60	0.00	2.35	0.00	2.15	0.00	2.85	0.00	3.15	0.00	2.55	0.00	2.40	0.00	4.05	0.00	3.95	0.00	2.25	0.00	1.50	0.00
6	3.12	0.00	2.82	0.00	2.58	0.00	3.42	0.00	3.78	0.00	3.06	0.00	2.88	0.00	4.86	0.00	4.74	0.00	2.70	0.00	1.80	0.00
7	3.64	0.00	3.29	0.00	3.01	0.00	3.99	0.00	4.41	0.00	3.57	0.00	3.36	0.00	5.67	0.00	5.53	0.00	3.15	0.00	2.10	0.00
8	4.16	0.00	3.76	0.00	3.44	0.00	4.56	0.00	5.04	0.00	4.08	0.00	3.84	0.00	6.48	0.00	6.32	0.00	3.60	0.00	2.40	0.00
9	4.68	0.00	4.23	0.00	3.87	0.00	5.13	0.00	5.67	0.00	4.59	0.00	4.32	0.00	7.29	0.00	7.11	0.00	4.05	0.00	2.70	0.00
<b>Right Bank</b>	5.20	0.00	4.70	0.00	4.30	0.00	5.70	0.00	6.30	0.00	5.10	0.00	4.80	0.00	8.10	0.00	7.90	0.00	4.50	0.00	3.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	DRY																					

**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      0.00  
 MEDIAN      0.00

Surveyor's Signature:



Date: 8/18/2008

WBID # 1131

Site # 2

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

**Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

<b>Date &amp; Time:</b> 8-20-08 11:24 A.M.	Location Description (e.g., road crossing):
<b>Stream Name:</b> Laurie Hollow	Downstream of Johnson Rd site by ½ mile
Current Weather Conditions: cloudy	Facility Name(s): Sorrento Square WWTF
Weather Conditions for Past 10 days: 0.17" @ Osage Beach	Permit Number(s): MO: 0131644
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): 514714	Northing (UTM Y): 4218870	Horizontal Accuracy: (EPE / FOM / PDOP)	130 ft. <del>Meters</del>
Site 11	Easting (UTM X): 514816	Northing (UTM Y): 4218811	Horizontal Accuracy: (EPE / FOM / PDOP)	117 ft. <del>Meters</del>

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1131-2-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1131-2-B	Downstream looking up				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

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

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

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

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input 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%.)

% Cobble	80% 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 (dry)
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**Water Characteristics\*:** (Mark all that apply.)

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

\*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)

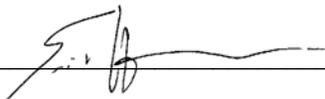
**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

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: Eric Hertzler

Surveyor's Signature:  Date of Survey: 08-20-08

Organization: Olsson Associates Position: Field Service

**Field Data Sheets for Recreational Use Stream Surveys**  
**Data Sheet C - Field Survey Results**

Stream Name: <u>Laurie Hollow</u> Waterbody ID: <u>1131</u> Site #: <u>2</u>  Estimated Channel Incision: <u>0.45</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>514714</u> UTM Y: <u>4218870</u> +/- <u>130</u> ft. (meters) <b>11</b> UTM X: <u>514816</u> UTM Y: <u>4218811</u> +/- <u>117</u> ft. (meters)  Average Stream Width: <u>6.5</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Eric Hertzler / Austin Lohkamp</u>	<b>Dissolved Oxygen</b>  Date: <u>8/20/2008</u> Time: <u>11:30 a.m.</u>  Dissolved Oxygen: <u>0</u> (mg/L)  Dissolved Oxygen: <u>0</u> (% sat)  Specific Cond: <u>0</u> (µS/cm)  Water Temperature: <u>0</u> (°C)  (DRY)
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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	0.65	0.00	0.61	0.00	0.70	0.00	0.57	0.00	0.45	0.00	0.51	0.00	0.78	0.00	0.81	0.00	0.84	0.00	0.58	0.00	0.64	0.00
2	1.30	0.00	1.22	0.00	1.40	0.00	1.14	0.00	0.90	0.00	1.02	0.00	1.56	0.00	1.62	0.00	1.68	0.00	1.16	0.00	1.28	0.00
3	1.95	0.00	1.83	0.00	2.10	0.00	1.71	0.00	1.35	0.00	1.53	0.00	2.34	0.00	2.43	0.00	2.52	0.00	1.74	0.00	1.92	0.00
4	2.60	0.00	2.44	0.00	2.80	0.00	2.28	0.00	1.80	0.00	2.04	0.00	3.12	0.00	3.24	0.00	3.36	0.00	2.32	0.00	2.56	0.00
5	3.25	0.00	3.05	0.00	3.50	0.00	2.85	0.00	2.25	0.00	2.55	0.00	3.90	0.00	4.05	0.00	4.20	0.00	2.90	0.00	3.20	0.00
6	3.90	0.00	3.66	0.00	4.20	0.00	3.42	0.00	2.70	0.00	3.06	0.00	4.68	0.00	4.86	0.00	5.04	0.00	3.48	0.00	3.84	0.00
7	4.55	0.00	4.27	0.00	4.90	0.00	3.99	0.00	3.15	0.00	3.57	0.00	5.46	0.00	5.67	0.00	5.88	0.00	4.06	0.00	4.48	0.00
8	5.20	0.00	4.88	0.00	5.60	0.00	4.56	0.00	3.60	0.00	4.08	0.00	6.24	0.00	6.48	0.00	6.72	0.00	4.64	0.00	5.12	0.00
9	5.85	0.00	5.49	0.00	6.30	0.00	5.13	0.00	4.05	0.00	4.59	0.00	7.02	0.00	7.29	0.00	7.56	0.00	5.22	0.00	5.76	0.00
<b>Right Bank</b>	6.50	0.00	6.10	0.00	7.00	0.00	5.70	0.00	4.50	0.00	5.10	0.00	7.80	0.00	8.10	0.00	8.40	0.00	5.80	0.00	6.40	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	DRY																					

**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      0.00  
 MEDIAN      0.00

Surveyor's Signature:



Date: 08-20-08

WBID # 1131

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> 08-20-08                      12:30 p.m.	Location Description (e.g., road crossing):  Lake Rd. 5-81 Bridge
<b>Stream Name:</b> Laurie Hollow	
Current Weather Conditions: cloudy	Facility Name(s): Sorrento Square WWTF
Weather Conditions for Past 10 days: 0.17" @ Osage Beach	Permit Number(s): MO 0131644
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): 515325	Northing (UTM Y): 4219277	Horizontal Accuracy: (EPE / FOM / PDOP)    61 ft. <del>Meters</del>
Site 11	Easting (UTM X): 515306	Northing (UTM Y): 4219398	Horizontal Accuracy: (EPE / FOM / PDOP)    68 ft. <del>Meters</del>

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1131-3-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1131-3-B	Downstream looking up				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Site # 3

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

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

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

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input 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: Private property (Field/yard)				

**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	80% 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 (dry)
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**Water Characteristics\*:** (Mark all that apply.)

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

\*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: Eric Hertzler

Surveyor's Signature:  Date of Survey: 08-20-08

Organization: Olsson Associates Position: Field Service

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Laurie Hollow</u> Waterbody ID: <u>1131</u> Site #: <u>3</u>  Estimated Channel Incision: <u>0.2</u> (m) (height between low bank width and water)  GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) <b>01</b> UTM X: <u>515325</u> UTM Y: <u>4219277</u> +/- <u>61</u> ft. (meters) <b>11</b> UTM X: <u>515306</u> UTM Y: <u>4219398</u> +/- <u>68</u> ft. (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>Eric Hertzler / Austin Lohkamp</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>8/20/2008</u> Time: <u>12:30 p.m.</u>  Dissolved Oxygen: <u>0</u> (mg/L)  Dissolved Oxygen: <u>0</u> (% sat)  Specific Cond: <u>0</u> (µS/cm)  Water Temperature: <u>0</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	0.53	0.00	0.67	0.00	0.50	0.00	0.47	0.00	0.67	0.00	0.61	0.00	0.52	0.00	0.73	0.00	0.61	0.00	0.55	0.00	0.63	0.00
	2	1.06	0.00	1.34	0.00	1.00	0.00	0.94	0.00	1.34	0.00	1.22	0.00	1.04	0.00	1.46	0.00	1.22	0.00	1.10	0.00	1.26	0.00
	3	1.59	0.00	2.01	0.00	1.50	0.00	1.41	0.00	2.01	0.00	1.83	0.00	1.56	0.00	2.19	0.00	1.83	0.00	1.65	0.00	1.89	0.00
	4	2.12	0.00	2.68	0.00	2.00	0.00	1.88	0.00	2.68	0.00	2.44	0.00	2.08	0.00	2.92	0.00	2.44	0.00	2.20	0.00	2.52	0.00
	5	2.65	0.00	3.35	0.00	2.50	0.00	2.35	0.00	3.35	0.00	3.05	0.00	2.60	0.00	3.65	0.00	3.05	0.00	2.75	0.00	3.15	0.00
	6	3.18	0.00	4.02	0.00	3.00	0.00	2.82	0.00	4.02	0.00	3.66	0.00	3.12	0.00	4.38	0.00	3.66	0.00	3.30	0.00	3.78	0.00
	7	3.71	0.00	4.69	0.00	3.50	0.00	3.29	0.00	4.69	0.00	4.27	0.00	3.64	0.00	5.11	0.00	4.27	0.00	3.85	0.00	4.41	0.00
	8	4.24	0.00	5.36	0.00	4.00	0.00	3.76	0.00	5.36	0.00	4.88	0.00	4.16	0.00	5.84	0.00	4.88	0.00	4.40	0.00	5.04	0.00
9	4.77	0.00	6.03	0.00	4.50	0.00	4.23	0.00	6.03	0.00	5.49	0.00	4.68	0.00	6.57	0.00	5.49	0.00	4.95	0.00	5.67	0.00	
<b>Right Bank</b>		5.30	0.00	6.70	0.00	5.00	0.00	4.70	0.00	6.70	0.00	6.10	0.00	5.20	0.00	7.30	0.00	6.10	0.00	5.50	0.00	6.30	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>		Dry		Dry		Dry		Dry		Dry		Dry		Dry		Dry		Dry		Dry		Dry	

**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      0.00  
 MEDIAN      0.00

Surveyor's Signature: \_\_\_\_\_

Date: 8/20/2008

