Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 1390 Little Sac River

Submitted by
Olsson Associates

To
Missouri Department of Natural Resources
Water Protection Program

On
May 30, 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): Little Sac R.
Missouri Water Body Identification (WBID) Number: 1390
8-digit HUC: 10290106
County(ies), Listed Upstream to Downstream: Greene
Upstream Legal Description (from Table H): 21,30N,20W
Downstream Legal Description (from Table H): 19,30N,20W
Number of sites evaluated: 3
List all site numbers, consecutively upstream to downstream: 1, 2, 3
Include a Site Location Map(s). The map must include all requirements detailed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol* (Section IV.D.8.a).

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

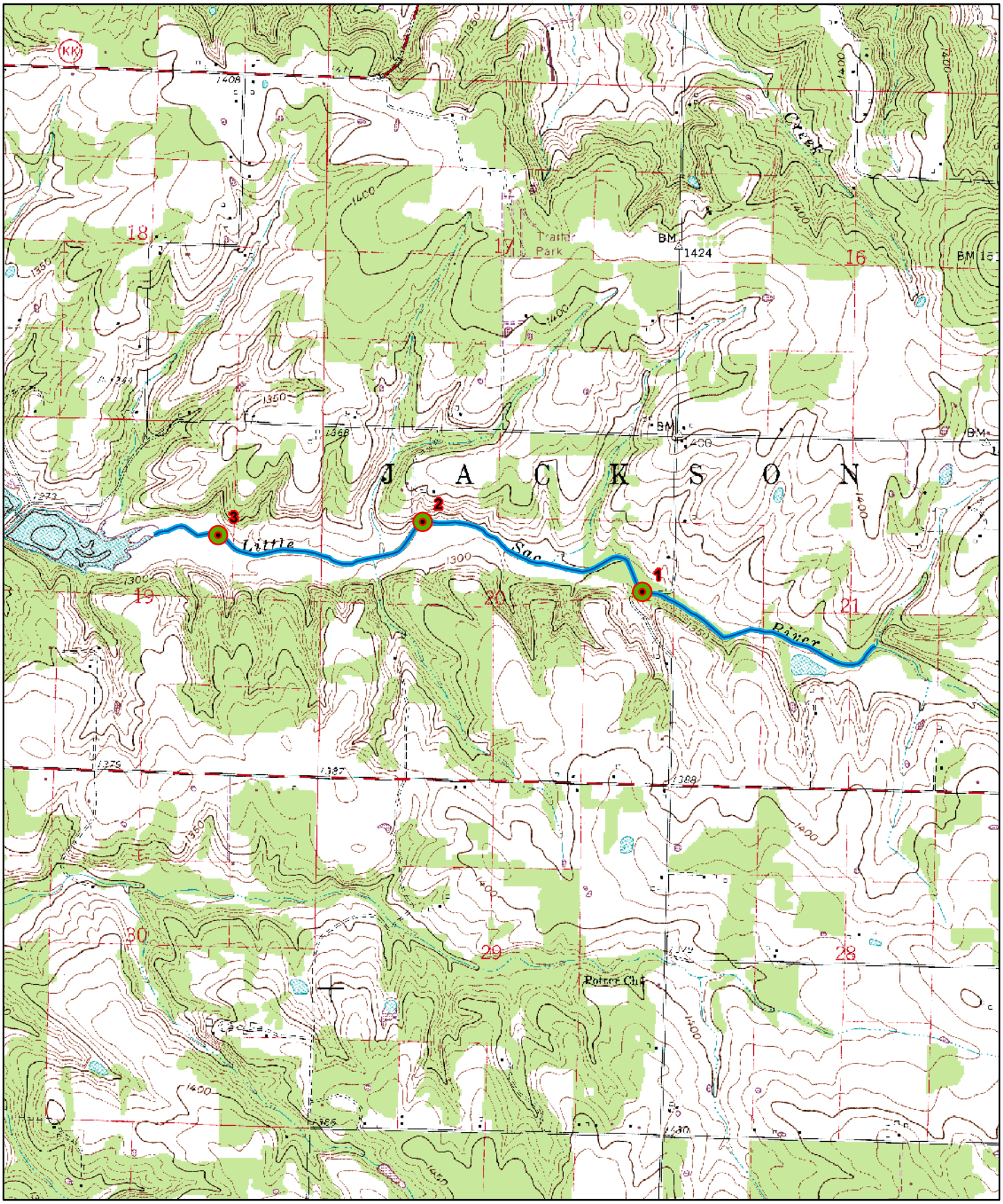
Facility Name(s) and Permit Number(s): MO-0113123 Speedy's #5

III. UAA Surveyor (please **PRINT** legibly)

Name of Surveyor: Rodney Holland	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 Analysies: Water Body Survey and Assessment Protocol*) and that this form is complete.

Signed:_____ **Date:** _____**4-2-08**_____



MISSOURI RECREATIONAL
USE ATTAINABILITY ANALYSIS

NORTH

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

Stream: L. Sac R.
WBID: 1390

Map Sheet: 1/1
County: Greene

OLSSON ASSOCIATES

WBID # 1390

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)

Date & Time: 4-2-08 1:10 p.m.	Location Description (e.g., road crossing):
Stream Name: Little Sac R.	160 meters upstream of bridge/culvert
Current Weather Conditions: Partly Cloudy	Facility Name(s): Speedy's #5
Weather Conditions for Past 10 days: 1.43" @ Springfield	Permit Number(s): MO-0113123
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought X; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)				
Site 01	Easting (UTM X): 486785	Northing (UTM Y): 4129017	Horizontal Accuracy: (EPE / FOM / PDOP)	65 Feet ~~Meters~~
Site 11	Easting (UTM X): 486650	Northing (UTM Y): 4129058	Horizontal Accuracy: (EPE / FOM / PDOP)	73 Feet ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1390-1-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1390-1-B	Downstream looking up				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1390-1-C	Crawfish trap				

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Stream Name & WBID # _____Little Sac R. #1390_____ Date of Survey __4-2-08_____

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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	X Fence	X No trespass sign	☐ Steep slopes	X Other:
Comments: Private Property				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

☐ Roads	X Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
☐ None of the above	Comments / Other: Crawfish trap			

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

% Concrete	70% Gravel	30% Sand	% Silt	% Mud/Clay	% Bedrock

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

Algae

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	X None	☐ Other:
Color:	☐ Clear	☐ Green	☐ Gray	X Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine sediments	X None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	X None	☐ 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.

Stream Name & WBID # _____Little Sac R. #1390_____ Date of Survey __4-2-08_____

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)
Pool	10 m	5m	20m	0.5m	1m

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: _____Rodney Holland, Chris Parks_____

Surveyor's Signature: Date of Survey: ____4-2-08_____

Organization: _____Olsson Associates_____ Position: Field Team Leader & Field Team Member

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: Little Sac R. Waterbody ID: 1390 Site #: 1

Estimated Channel Incision: _____ (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X 486785 UTM Y: 4129017 +/- 65 ft ~~(meters)~~

11 UTM X 486650 UTM Y: 4129058 +/- 73 ft ~~(meters)~~

Average Stream Width: 8 (meters) Length of Survey Segment: 160 (meters)

(To determne Length of Reach) (20x average stream width)

Field Staff: Rodney Holland, Chris Parks

Dissolved Oxygen

Date: 4/2/2008 Time: 1:15 p.m.

Dissolved Oxygen: 12.06 (mg/L)

Dissolved Oxygen: 112.8 (% sat)

Specific Cond: 156 (µS/cm)

Water Temperature: 14.1 (°C)

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.93	0.08	0.46	0.33	0.55	0.06	0.71	0.10	0.56	0.16	0.47	0.07	0.68	0.13	0.49	0.08	0.63	0.07	0.80	0.11	0.70	0.12
2	1.86	0.19	0.92	0.52	1.10	0.17	1.42	0.13	1.12	0.11	0.94	0.19	1.36	0.23	0.98	0.15	1.26	0.16	1.60	0.18	1.40	0.24
3	2.79	0.20	1.38	0.51	1.65	0.29	2.13	0.11	1.68	0.12	1.41	0.25	2.04	0.46	1.47	0.20	1.89	0.25	2.40	0.21	2.10	0.35
4	3.72	0.00	1.84	0.42	2.20	0.42	2.84	0.16	2.24	0.19	1.88	0.25	2.72	0.45	1.96	0.27	2.52	0.21	3.20	0.22	2.80	0.45
5	4.65	0.16	2.30	0.27	2.75	0.66	3.55	0.14	2.80	0.17	2.35	0.29	3.40	0.44	2.45	0.23	3.15	0.17	4.00	0.37	3.50	0.44
6	5.58	0.28	2.76	0.18	3.30	0.91	4.26	0.06	3.36	0.22	2.82	0.31	4.08	0.32	2.94	0.23	3.78	0.14	4.80	0.55	4.20	0.53
7	6.51	0.38	3.22	0.13	3.85	0.94	4.97	0.09	3.92	0.13	3.29	0.26	4.76	0.23	3.43	0.18	4.41	0.08	5.60	0.74	4.90	0.48
8	7.44	0.35	3.68	0.19	4.40	0.92	5.68	0.13	4.48	0.09	3.76	0.19	5.44	0.11	3.92	0.12	5.04	0.09	6.40	0.66	5.60	0.28
9	8.37	0.46	4.14	0.08	4.95	0.36	6.39	0.11	5.04	0.09	4.23	0.17	6.12	0.07	4.41	0.05	5.67	0.11	7.20	0.56	6.30	0.23
Right Bank	9.30	0	4.60	0	5.50	0	7.10	0	5.60	0	4.70	0	6.80	0	4.90	0	6.30	0	8.00	0	7.00	0
Feature Type (riffle, run, or pool)	riffle/pool*		riffle		pool		riffle		riffle		riffle		run		riffle		riffle		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 bv 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 0.94

MEDIAN 0.20

*Channel split in this location

Surveyor's Signature: _____ Date: 4/2/2008

WBID # 1390

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)

Date & Time: 4-2-08 2:55 p.m.	Location Description (e.g., road crossing):
Stream Name: Little Sac R.	150 meters upstream of private residents
Current Weather Conditions: Sunny	Facility Name(s): Speedy's #5
Weather Conditions for Past 10 days: 1.43" @ Springfield	Permit Number(s): MO-0113123
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought X; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)				
Site 01	Easting (UTM X): 485783	Northing (UTM Y): 4129379	Horizontal Accuracy: (EPE / FOM / PDOP)	72 Feet ~~Meters~~
Site 11	Easting (UTM X): 485644	Northing (UTM Y): 4129380	Horizontal Accuracy: (EPE / FOM / PDOP)	62 Feet ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1390-2-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1390-2-B	Downstream looking up				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1390-2-C	House				

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Stream Name & WBID # _____Little Sac #1390_____ Date of Survey __4-2-08_____

Site # ___2_____

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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	X Fence	☐ No trespass sign	☐ Steep slopes	X Other:
Comments: Private Property				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

☐ Roads	X Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	X Livestock Watering
☐ None of the above	Comments / Other:			

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

% Concrete	80% Gravel	20% Sand	% Silt	% Mud/Clay	% Bedrock

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

none

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	X None	☐ Other:
Color:	☐ Clear	☐ Green	☐ Gray	X Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine sediments	X None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	X None	☐ 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.

Stream Name & WBID # _____Little Sac #1390_____ Date of Survey __4-2-08_____

Site # ___2_____

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)
Pool	60 m	9.3m	20m	1m	1.3m

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: _____Rodney Holland, Chris Parks_____

Surveyor's Signature: Date of Survey: ____4-2-08_____

Organization: _____Olsson Associates_____ Position: Field Team Leader & Field Team Member

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: Little Sac R. Waterbody ID: 1390 Site #: 2

Estimated Channel Incision: _____ (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X 485783 UTM Y: 4129379 +/- 72 ft ~~(meters)~~

11 UTM X 485644 UTM Y: 4129380 +/- 62 ft ~~(meters)~~

Average Stream Width: 6.5 (meters) Length of Survey Segment: 150 (meters)

(To determne Length of Reach) (20x average stream width)

Field Staff: Rodney Holland, Chris Parks

Dissolved Oxygen

Date: 4/2/2008 Time: 3:00 p.m.

Dissolved Oxygen: 11.6 (mg/L)

Dissolved Oxygen: 113.1 (% sat)

Specific Cond: 172 (µS/cm)

Water Temperature: 15.3 (°C)

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.60	0.05	0.83	0.07	0.82	0.06	0.82	0.13	0.56	0.07	0.46	0.09	0.37	0.38	0.47	0.43	0.83	0.13	0.45	0.05	0.90	<0.05
2	1.20	0.09	1.66	0.12	1.64	0.19	1.64	0.21	1.12	0.14	0.92	0.61	0.74	0.58	0.94	0.78	1.66	0.33	0.90	0.13	1.80	0.06
3	1.80	0.14	2.49	0.19	2.46	0.21	2.46	0.22	1.68	0.08	1.38	0.68	1.11	0.59	1.37	0.87	2.49	0.53	1.35	0.18	2.70	0.05
4	2.40	0.19	3.32	0.30	3.28	0.24	3.28	0.21	2.24	0.11	1.84	0.67	1.48	0.56	1.80	0.75	3.32	0.66	1.80	0.28	3.60	0.15
5	3.00	0.27	4.15	0.52	4.10	0.28	4.10	0.22	2.80	0.16	2.30	0.68	1.84	0.43	2.23	0.68	4.15	0.67	2.25	0.34	4.50	0.13
6	3.60	0.23	4.98	0.79	4.93	0.30	4.92	0.22	3.36	0.12	2.76	0.67	2.22	0.37	2.66	0.63	4.95	0.66	2.70	0.30	5.40	0.16
7	4.20	0.23	5.81	0.60	5.74	0.49	5.74	0.24	3.92	0.15	3.22	0.53	2.59	0.32	3.09	0.54	5.81	0.62	3.15	0.35	6.30	0.20
8	4.80	0.41	6.64	0.44	6.56	0.43	6.56	0.16	4.48	0.19	3.68	0.38	2.96	0.30	3.52	0.43	6.64	0.59	3.60	0.41	7.20	0.21
9	5.40	0.56	7.47	0.52	7.38	0.49	7.38	0.10	5.04	0.14	4.14	0.25	3.33	0.19	3.95	0.33	7.47	0.45	4.05	0.44	8.10	0.31
Right Bank	6.00	0	8.30	0	8.20	0	8.20	0	5.60	0	4.60	0	3.70	0	4.70	0	8.30	0	4.50	0	9.00	0
Feature Type (riffle, run, or pool)	run		pool		run		riffle		riffle		run		run		pool		pool		run		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 bv 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 0.87

MEDIAN 0.30

Surveyor's Signature: _____ Date: 4/2/2008

WBID # 1390

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)

Date & Time: 4-2-08 4:02 p.m.	Location Description (e.g., road crossing):
Stream Name: Little Sac R.	160 meters upstream of Highway 65 bridge
Current Weather Conditions: Sunny	Facility Name(s): Speedy's #5
Weather Conditions for Past 10 days: 1.43" @ Springfield	Permit Number(s): MO-0013123
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought X; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)				
Site 01	Easting (UTM X): 484841	Northing (UTM Y): 4129227	Horizontal Accuracy: (EPE / FOM / PDOP)	73 Feet ~~Meters~~
Site 11	Easting (UTM X): 484726	Northing (UTM Y): 4129291	Horizontal Accuracy: (EPE / FOM / PDOP)	72 Feet ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1390-3-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1390-3-B	Downstream looking up				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1390-3-C	Highway 65 Bridge				

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Stream Name & WBID # _____Little Sac #1390_____ Date of Survey __4-2-08_____

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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	X Steep slopes	X Other:
Comments: Upstream of Highway 65 bridge				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

☐ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
X None of the above	Comments / Other:			

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

% Concrete	80% Gravel	20% Sand	% Silt	% Mud/Clay	% Bedrock

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

none

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	X None	☐ Other:
Color:	☐ Clear	☐ Green	☐ Gray	X Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine sediments	X None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	X None	☐ 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.

Stream Name & WBID # _____Little Sac #1390_____ Date of Survey __4-2-08_____

Site # ___3_____

Field Data Sheets for Recreational Use Stream Surveys

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

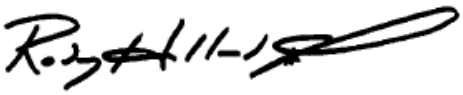
Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

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: _____Rodney Holland, Chris Parks_____

Surveyor's Signature:  Date of Survey: ____4-2-08_____

Organization: _____Olsson Associates_____ Position: Field Team Leader & Field Team Member

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: Little Sac R. Waterbody ID: 1390 Site #: 3

Estimated Channel Incision: _____ (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X 484841 UTM Y: 4129227 +/- 73 ft. ~~(meters)~~

11 UTM X 484726 UTM Y: 4129291 +/- 72 ft. ~~(meters)~~

Average Stream Width: 8.4 (meters) (To determne Length of Reach)

Length of Survey Segment: 168 (meters) (20x average stream width)

Field Staff: Rodney Holland, Chris Parks

Dissolved Oxygen

Date: 4/2/2008 Time: 4:10 p.m.

Dissolved Oxygen: 11.21 (mg/L)

Dissolved Oxygen: 108.7 (% sat)

Specific Cond: 179 (µS/cm)

Water Temperature: 14.7 (°C)

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.60	0.27	0.56	0.07	0.92	0.34	0.85	0.36	0.90	0.16	1.14	0.14	0.51	0.08	0.85	0.14	1.04	0.10	0.90	0.25	1.00	0.35
2	1.20	0.36	1.12	0.06	1.84	0.63	1.70	0.61	1.80	0.37	2.28	0.12	1.02	0.13	1.70	0.28	2.08	0.33	1.80	0.36	2.00	0.52
3	1.80	0.49	1.68	0.11	2.76	0.70	2.55	0.45	2.70	0.63	3.42	0.19	1.53	0.25	2.55	0.32	3.12	0.52	2.70	0.55	3.00	0.77
4	2.40	0.40	2.24	0.16	3.68	0.62	3.40	0.27	3.60	0.77	4.56	0.11	2.04	0.31	3.40	0.30	4.16	0.51	3.60	0.56	4.00	0.46
5	3.00	0.32	2.80	0.25	4.60	0.48	4.25	0.18	4.50	1.00	5.70	0.07	2.55	0.27	4.25	0.12	5.20	0.32	4.50	0.44	5.00	0.43
6	3.60	0.15	3.36	0.21	5.52	0.38	5.10	0.41	5.40	1.00	6.84	0.05	3.06	0.22	5.10	0.05	6.24	0.21	5.40	0.35	6.00	0.45
7	4.20	0.16	3.92	0.17	6.44	0.25	5.95	0.58	6.30	1.00	7.98	0.05	3.57	0.13	5.95	0.05	7.28	0.17	6.30	0.39	7.00	0.62
8	4.80	0.20	4.48	0.11	7.36	0.16	6.80	0.88	7.20	1.00	9.12	0.05	4.08	0.11	6.80	0.05	8.32	0.14	7.20	0.44	8.00	0.68
9	5.40	0.18	5.04	0.08	8.28	0.12	7.65	1.00	8.10	1.00	1.26	0.05	4.59	0.09	7.65	0.05	9.36	0.26	8.10	0.34	9.00	0.55
Right Bank	6.00	0	5.60	0	9.20	0	8.50	0	9.00	0	11.40	0	5.10	0	8.50	0	10.40	0	9.00	0	10.00	0
Feature Type (riffle, run, or pool)	riffle		riffle		run		pool		pool		riffle		riffle		run		run		run		run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
Depth measurements taken at 10 equally spaced locations along transect (determine bv 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 0.28

Surveyor's Signature: _____ Date: 4/2/2008

WBID 1390
SITE 2
PHOTO 1390-2-C
02APR03
3:41 PM
HOUSE

WBID 1390
SITE 3
PHOTO 1390-3-B
02APR03
DLU

WBID 1390
SITE 2
PHOTO 1390-2-B
02APR03
3:41 PM
DLU

WBID 1390
SITE 3
PHOTO 1390-3-A
02APR03
3:07 PM
DLU