



Use Attainability Analysis

for

WBID 0169 Sulphur Creek

Submitted by

MEC Water Resources

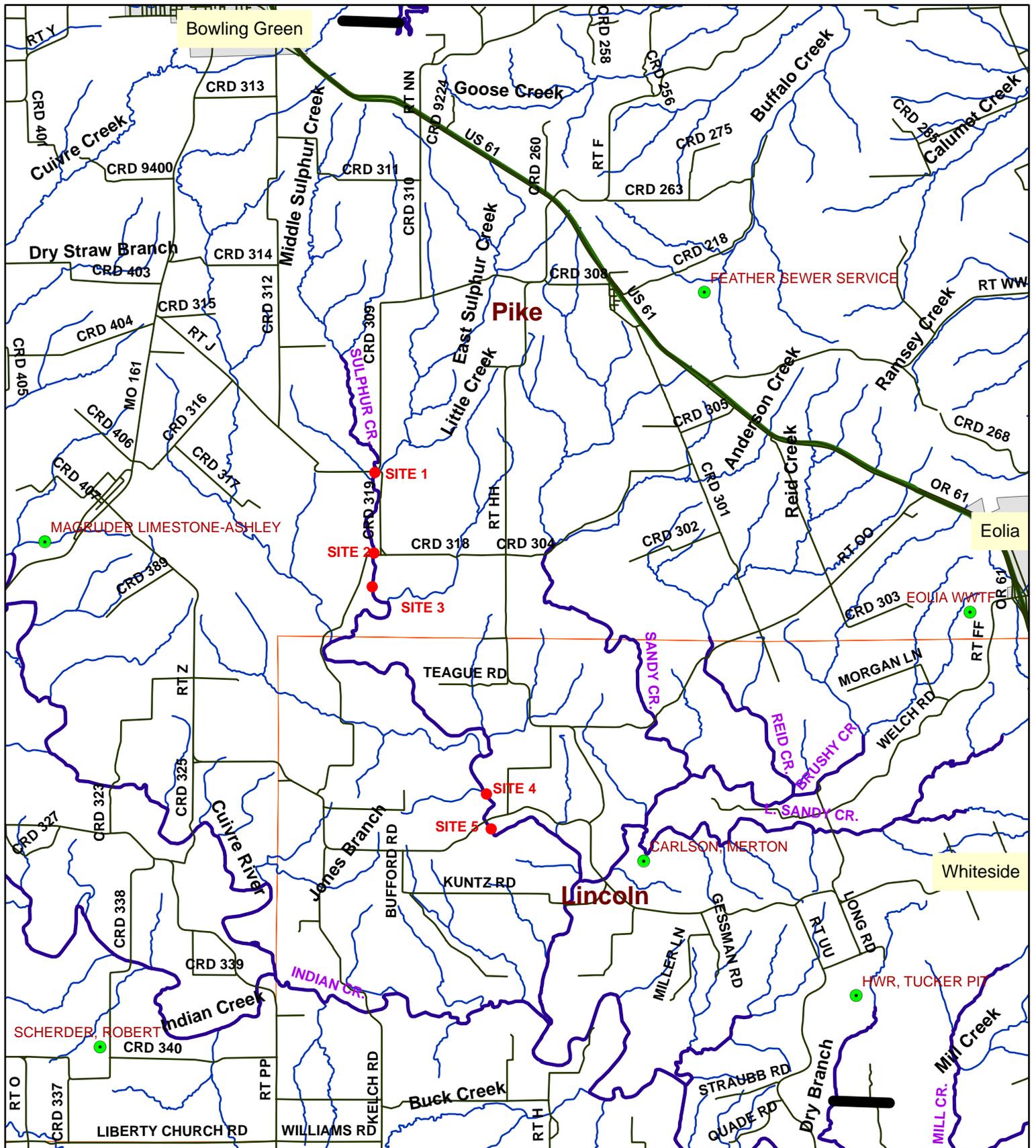
To

Missouri Department of Natural Resources

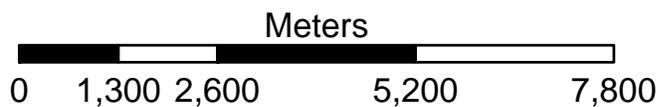
Water Protection Program

On

May 29, 2008



**Sulphur Creek
WBID 0169
Pike County**



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: 5/19/08 07:00	Location Description (e.g., road crossing): Rt. J crossing
Stream Name: Sulphur Creek	
Current Weather Conditions: overcast	Facility Name(s): Lazy Acres Subdivision
Weather Conditions for Past 10 days: 1.15" precipitation	Permit Number(s): MO 0129984
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): 0658749	Northing (UTM Y): 4346817	Horizontal Accuracy: (EPE / FOM / PDOP) 24 feet
Site 11	Easting (UTM X): 0658705	Northing (UTM Y): 4346619	Horizontal Accuracy: (EPE / FOM / PDOP) 21 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3054	upstream	3055	downstream	3056	ATV tracks at Transect 10
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 # 01

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 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 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:			
Tracks at Transects 4 and 10				

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

5% Cobble	10% Gravel	-% Sand	-% Silt	-% Mud/Clay	85% Bedrock
-----------	------------	---------	---------	-------------	-------------

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

Benthic algae

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 type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

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

Site # 01

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: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sulphur Creek</u> Waterbody ID: <u>0169</u> Site #: <u>0169 01</u> Estimated Channel Incision: <u>0.10</u> (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: <u>658749</u> UTM Y: <u>4346817</u> +/- <u>24</u> (feet) 11 UTM X: <u>658705</u> UTM Y: <u>4346619</u> +/- <u>21</u> (feet) Average Stream Width: <u>6.2</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	Dissolved Oxygen Date: <u>5/19/2008</u> Time: <u>7:00</u> Dissolved Oxygen: <u>8.48</u> (mg/L) Dissolved Oxygen: <u>82.4</u> (% sat) Specific Cond: <u>393.0</u> (µS/cm) Water Temperature: <u>14.0</u> (°C)
---	--

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	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	0.35	0.15	0.94	0.20	1.12	0.38	0.53	0.03	0.30	0.02	0.70	0.12	0.42	0.06	0.76	0.20	0.57	0.06	0.38	0.15	0.75	0.24
2	0.70	0.15	1.88	0.25	2.24	0.46	1.06	0.06	0.60	0.02	1.40	0.12	0.84	0.15	1.52	0.05	1.14	0.21	0.76	0.15	1.50	0.32
3	1.05	0.15	2.82	0.34	3.36	0.44	1.59	0.15	0.90	0.06	2.10	0.25	1.26	0.27	2.28	0.01	1.71	0.39	1.14	0.12	2.25	0.37
4	1.40	0.18	3.76	0.31	4.48	0.50	2.12	0.15	1.20	0.08	2.80	0.25	1.68	0.27	3.04	0.02	2.28	0.39	1.52	0.15	3.00	0.40
5	1.75	0.16	4.70	0.38	5.60	0.50	2.65	0.15	1.50	0.10	3.50	0.25	2.10	0.27	3.80	0.06	2.85	0.39	1.90	0.12	3.75	0.28
6	2.10	0.15	5.64	0.33	6.72	0.48	3.18	0.15	1.80	0.08	4.20	0.08	2.52	0.26	4.56	0.12	3.42	0.39	2.28	0.08	4.50	0.28
7	2.45	0.15	6.58	0.34	7.84	0.40	3.71	0.10	2.10	0.10	4.90	0.08	2.94	0.21	5.32	0.27	3.99	0.29	2.66	0.08	5.25	0.31
8	2.80	0.16	7.52	0.38	8.96	0.32	4.24	0.08	2.40	0.06	5.60	0.08	3.36	0.15	6.08	0.27	4.56	0.21	3.04	0.02	6.00	0.33
9	3.15	0.10	8.46	0.24	10.08	0.31	4.77	0.02	2.70	0.03	6.30	0.08	3.78	0.01	6.84	0.29	5.13	0.06	3.42	0.01	6.75	0.01
Right Bank	3.50	0.00	9.40	0.00	11.20	0.00	5.30	0.00	3.00	0.00	7.00	0.00	4.20	0.00	7.60	0.00	5.70	0.00	3.80	0.00	7.50	0.00
Feature Type <small>(riffle, run, or pool)</small>	Riffle		Run		Run		Run		Riffle		Run		Riffle		Run		Run		Riffle		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

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: 5/19/08 10:50	Location Description (e.g., road crossing): Louisville Rd. crossing
Stream Name: Sulphur Creek	
Current Weather Conditions: overcast	Facility Name(s): Lazy Acres Subdivision
Weather Conditions for Past 10 days: 1.15" precipitation	Permit Number(s): MO 0129984
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): 0658732	Northing (UTM Y): 4345244	Horizontal Accuracy: (EPE / FOM / PDOP) 17 feet
Site 11	Easting (UTM X): 0658707	Northing (UTM Y): 4345064	Horizontal Accuracy: (EPE / FOM / PDOP) 15 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3061	downstream	3062	upstream	3063	Rope swing at Transect 1
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3064	Rope swing at Transect 1				
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 # 02

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 type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property- pasture				

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 checked="" 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:			
Rope swing under bridge				

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

25% Cobble	35% Gravel	10% Sand	-% Silt	-% Mud/Clay	30% Bedrock
------------	------------	----------	---------	-------------	-------------

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

Benthic algae

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 type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

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

Site # 02

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: _____ Jennifer Hrabik and Renee Martin _____

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sulphur Creek</u> Waterbody ID: <u>0169</u> Site #: <u>0169 02</u> Estimated Channel Incision: <u>0.10</u> (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: <u>658732</u> UTM Y: <u>4345244</u> +/- <u>17</u> (feet) 11 UTM X: <u>658707</u> UTM Y: <u>4345064</u> +/- <u>15</u> (feet) Average Stream Width: <u>6.6</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	Dissolved Oxygen
	Date: <u>5/19/2008</u> Time: <u>10:50</u> Dissolved Oxygen: <u>10.80</u> (mg/L) Dissolved Oxygen: <u>105.7</u> (% sat) Specific Cond: <u>382.0</u> (µS/cm) Water Temperature: <u>15.5</u> (°C)

Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		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	
	1	0.30	0.17	1.20	0.21	1.00	0.27	0.42	0.24	0.68	0.23	0.50	0.05	0.57	0.26	0.78	0.20	0.45	0.04	0.76	0.15	0.60	0.26
	2	0.60	0.19	2.40	0.16	2.00	0.44	0.84	0.46	1.36	0.27	1.00	0.08	1.14	0.33	1.56	0.27	0.90	0.04	1.52	0.16	1.20	0.42
	3	0.90	0.21	3.60	0.38	3.00	0.51	1.26	0.45	2.04	0.31	1.50	0.05	1.71	0.36	2.34	0.47	1.35	0.08	2.28	0.27	1.80	0.60
	4	1.20	0.24	4.80	0.59	4.00	0.71	1.68	0.44	2.72	0.25	2.00	0.05	2.28	0.38	3.12	0.62	1.80	0.06	3.04	0.39	2.40	0.73
	5	1.50	0.24	6.00	0.59	5.00	0.80	2.10	0.41	3.40	0.21	2.50	0.05	2.85	0.34	3.90	0.62	2.25	0.16	3.80	0.52	3.00	0.79
	6	1.80	0.24	7.20	0.74	6.00	0.53	2.52	0.33	4.08	0.20	3.00	0.08	3.42	0.27	4.68	0.62	2.70	0.20	4.56	0.68	3.60	0.90
	7	2.10	0.31	8.40	0.75	7.00	0.46	2.94	0.28	4.76	0.15	3.50	0.10	3.99	0.28	5.46	0.56	3.15	0.14	5.32	0.73	4.20	0.71
	8	2.40	0.27	9.60	0.62	8.00	0.36	3.36	0.25	5.44	0.08	4.00	0.01	4.56	0.28	6.24	0.48	3.60	0.15	6.08	0.60	4.80	0.52
	9	2.70	0.23	10.80	0.39	9.00	0.20	3.78	0.15	6.12	0.02	4.50	0.09	5.13	0.16	7.02	0.34	4.05	0.08	6.84	0.58	5.40	0.19
Right Bank		3.00	0.00	12.00	0.00	10.00	0.00	4.20	0.00	6.80	0.00	5.00	0.00	5.70	0.00	7.80	0.00	4.50	0.00	7.60	0.00	6.00	0.00
Feature Type		Riffle		Pool		Pool		Run		Run		Riffle		Run		Run		Run		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: _____ Date: _____

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: 5/19/08 11:30	Location Description (e.g., road crossing): 600 m downstream of Site 2
Stream Name: Sulphur Creek	
Current Weather Conditions: overcast	Facility Name(s): Lazy Acres Subdivision
Weather Conditions for Past 10 days: 1.15" precipitation	Permit Number(s): MO 0129984
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): 0658698	Northing (UTM Y): 4344589	Horizontal Accuracy: (EPE / FOM / PDOP) 17 feet
Site 11	Easting (UTM X): 0658722	Northing (UTM Y): 4344396	Horizontal Accuracy: (EPE / FOM / PDOP) 20 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3065	upstream	3066	downstream		
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 # 03

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 type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property- fields				

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	10% Gravel	-% Sand	-% Silt	-% Mud/Clay	80% Bedrock
------------	------------	---------	---------	-------------	-------------

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

Abundant benthic algae Filamentous algae

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 type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

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

Site # 03

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: _____ Jennifer Hrabik and Renee Martin _____

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sulphur Creek</u> Waterbody ID: <u>0169</u> Site #: <u>0169 03</u> Estimated Channel Incision: <u>0.10</u> (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: <u>658698</u> UTM Y: <u>4344589</u> +/- <u>17</u> (feet) 11 UTM X: <u>658722</u> UTM Y: <u>4344396</u> +/- <u>20</u> (feet) Average Stream Width: <u>9.0</u> (meters) Length of Survey Segment: <u>180</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	Dissolved Oxygen Date: <u>5/19/2008</u> Time: <u>11:30</u> Dissolved Oxygen: <u>11.88</u> (mg/L) Dissolved Oxygen: <u>119.5</u> (% sat) Specific Cond: <u>412.0</u> (µS/cm) Water Temperature: <u>15.6</u> (°C)
---	---

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	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	0.53	0.07	0.64	0.20	1.10	0.21	0.74	0.04	0.50	0.07	0.90	0.17	0.94	0.08	1.24	0.08	1.19	0.36	1.10	0.54	1.10	0.30
2	1.06	0.08	1.28	0.44	2.20	0.31	1.48	0.08	1.00	0.13	1.80	0.31	1.88	0.10	2.48	0.03	2.38	0.36	2.20	0.56	2.20	0.40
3	1.59	0.07	1.92	0.44	3.30	0.17	2.22	0.09	1.50	0.15	2.70	0.44	2.82	0.19	3.72	0.12	3.57	0.33	3.30	0.60	3.30	0.46
4	2.12	0.38	2.56	0.43	4.40	0.12	2.96	0.02	2.00	0.20	3.60	0.59	3.76	0.27	4.96	0.08	4.76	0.36	4.40	0.59	4.40	0.50
5	2.65	0.33	3.20	0.43	5.50	0.31	3.70	0.09	2.50	0.22	4.50	0.83	4.70	0.38	6.20	0.13	5.95	0.36	5.50	0.60	5.50	0.52
6	3.18	0.12	3.84	0.51	6.60	0.27	4.44	0.15	3.00	0.25	5.40	0.81	5.64	0.27	7.44	0.13	7.14	0.36	6.60	0.60	6.60	0.51
7	3.71	0.17	4.48	0.55	7.70	0.27	5.18	0.08	3.50	0.28	6.30	0.73	6.58	0.33	8.68	0.19	8.33	0.32	7.70	0.56	7.70	0.52
8	4.24	0.20	5.12	0.36	8.80	0.30	5.92	0.07	4.00	0.15	7.20	0.42	7.52	0.30	9.92	0.16	9.52	0.26	8.80	0.46	8.80	0.46
9	4.77	0.25	5.76	0.25	9.90	0.25	6.66	0.05	4.50	0.12	8.10	0.21	8.46	0.13	11.16	0.18	10.71	0.27	9.90	0.34	9.90	0.31
Right Bank	5.30	0.00	6.40	0.00	11.00	0.00	7.40	0.00	5.00	0.00	9.00	0.00	9.40	0.00	12.40	0.00	11.90	0.00	11.00	0.00	11.00	0.00
Feature Type <small>(riffle, run, or pool)</small>	Run		Run		Run		Riffle		Riffle		Run											

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

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: 5/19/08 9:30	Location Description (e.g., road crossing): 600 m upstream of Rt. Z crossing
Stream Name: Sulphur Creek	
Current Weather Conditions: overcast	Facility Name(s): Lazy Acres Subdivision
Weather Conditions for Past 10 days: 1.15" precipitation	Permit Number(s): MO 0129984
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): 0660931	Northing (UTM Y): 4340544	Horizontal Accuracy: (EPE / FOM / PDOP) 14 feet
Site 11	Easting (UTM X): 0661055	Northing (UTM Y): 4340341	Horizontal Accuracy: (EPE / FOM / PDOP) 18 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3059	upstream	3060	downstream		
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 # 04

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: Private property- fields				

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	30% Gravel	30% Sand	-% Silt	-% Mud/Clay	30% Bedrock
------------	------------	----------	---------	-------------	-------------

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

Benthic algae

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 type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

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

Site # 04

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	240 m	30	50	>1.0	>1.0

Comments: (Please record any additional comments here.)

Pool at Transect 11 caused by steep eroded bank on right bank and steep bluff on left bank.

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

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sulphur Creek</u> Waterbody ID: <u>0169</u> Site #: <u>0169_04</u> Estimated Channel Incision: <u>0.10</u> (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: <u>660931</u> UTM Y: <u>4340544</u> +/- <u>14</u> (feet) 11 UTM X: <u>661055</u> UTM Y: <u>4340341</u> +/- <u>18</u> (feet) Average Stream Width: <u>13.0</u> (meters) Length of Survey Segment: <u>260</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5/19/2008</u> Time: <u>9:30</u> Dissolved Oxygen: <u>11.16</u> (mg/L) Dissolved Oxygen: <u>111.6</u> (% sat) Specific Cond: <u>436.0</u> (µS/cm) Water Temperature: <u>15.3</u> (°C)
--	--

Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		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	
	1	1.04	0.02	1.24	0.08	1.53	0.54	1.45	0.59	1.27	0.40	1.14	0.27	0.90	0.04	0.90	0.07	0.85	0.30	1.24	0.25	3.00	>1.00
	2	2.08	0.04	2.48	0.15	3.06	0.51	2.90	0.63	2.54	0.48	2.28	0.33	1.80	0.04	1.80	0.12	1.70	0.60	2.48	0.27	6.00	>1.00
	3	3.12	0.05	3.72	0.38	4.59	0.46	4.35	0.55	3.81	0.48	3.42	0.27	2.70	0.03	2.70	0.14	2.55	0.91	3.72	0.45	9.00	>1.00
	4	4.16	0.05	4.96	0.60	6.12	0.41	5.80	0.61	5.08	0.52	4.56	0.24	3.60	0.04	3.60	0.16	3.40	0.92	4.96	0.61	12.00	>1.00
	5	5.20	0.10	6.20	0.56	7.65	0.45	7.25	0.50	6.35	0.54	5.70	0.25	4.50	0.08	4.50	0.18	4.25	0.93	6.20	0.61	15.00	>1.00
	6	6.24	0.20	7.44	0.63	9.18	0.40	8.70	0.46	7.62	0.54	6.84	0.27	5.40	0.15	5.40	0.17	5.10	0.90	7.44	0.47	18.00	>1.00
	7	7.28	0.25	8.68	0.62	10.71	0.31	10.15	0.40	8.89	0.51	7.98	0.26	6.30	0.27	6.30	0.32	5.95	0.81	8.68	0.51	21.00	>1.00
	8	8.32	0.20	9.92	0.54	12.24	0.18	11.60	0.26	10.16	0.40	9.12	0.27	7.20	0.34	7.20	0.40	6.80	0.65	9.92	0.41	24.00	>1.00
	9	9.36	0.08	11.16	0.33	13.77	0.08	13.05	0.16	11.43	0.25	10.26	0.27	8.10	0.18	8.10	0.23	7.65	0.48	11.16	0.28	27.00	>1.00
Right Bank		10.40	0.00	12.40	0.00	15.30	0.00	14.50	0.00	12.70	0.00	11.40	0.00	9.00	0.00	9.00	0.00	8.50	0.00	12.40	0.00	30.00	0.00
Feature Type <small>(riffle, run, or pool)</small>		Riffle		Run		Riffle		Riffle		Run		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: _____ Date: _____

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: 5/19/08 8:15	Location Description (e.g., road crossing): 200 m downstream of Rt. Z crossing
Stream Name: Sulphur Creek	
Current Weather Conditions: overcast	Facility Name(s): Lazy Acres Subdivision
Weather Conditions for Past 10 days: 1.15" precipitation	Permit Number(s): MO 0129984
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): 0661023	Northing (UTM Y): 4339864	Horizontal Accuracy: (EPE / FOM / PDOP) 14 feet
Site 11	Easting (UTM X): 0661212	Northing (UTM Y): 4339813	Horizontal Accuracy: (EPE / FOM / PDOP) 17 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3057	upstream	3058	downstream		
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 # 05

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 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%.)

5% Cobble	10% Gravel	40% Sand	-% Silt	-% Mud/Clay	45% Bedrock
-----------	------------	----------	---------	-------------	-------------

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

Benthic algae

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 type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

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

Site # 05

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: _____ Jennifer Hrabik and Renee Martin _____

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sulphur Creek</u> Waterbody ID: <u>0169</u> Site #: <u>0169 05</u> Estimated Channel Incision: <u>0.20</u> (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: <u>661023</u> UTM Y: <u>4339864</u> +/- <u>14</u> (feet) 11 UTM X: <u>661212</u> UTM Y: <u>4339813</u> +/- <u>17</u> (feet) Average Stream Width: <u>14.0</u> (meters) Length of Survey Segment: <u>280</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	Dissolved Oxygen
	Date: <u>5/19/2008</u> Time: <u>8:15</u> Dissolved Oxygen: <u>8.19</u> (mg/L) Dissolved Oxygen: <u>82.2</u> (% sat) Specific Cond: <u>437.0</u> (µS/cm) Water Temperature: <u>15.2</u> (°C)

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	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	1.50	0.61	1.50	0.50	1.75	0.99	2.12	0.61	1.77	0.54	1.60	0.60	1.70	0.50	1.23	0.45	0.90	0.36	0.66	0.13	0.70	0.24
2	3.00	0.76	3.00	0.52	3.50	0.97	4.24	0.64	3.54	0.60	3.20	0.60	3.40	0.55	2.46	0.47	1.80	0.36	1.32	0.19	1.40	0.26
3	4.50	0.75	4.50	>1.00	5.25	>1.00	6.36	0.68	5.31	0.59	4.80	0.63	5.10	0.60	3.69	0.47	2.70	0.36	1.98	0.20	2.10	0.25
4	6.00	0.93	6.00	>1.00	7.00	>1.00	8.48	0.70	7.08	0.60	6.40	0.69	6.80	0.66	4.92	0.46	3.60	0.28	2.64	0.20	2.80	0.25
5	7.50	>1.00	7.50	>1.00	8.75	0.96	10.60	0.60	8.85	0.60	8.00	0.75	8.50	0.56	6.15	0.33	4.50	0.24	3.30	0.18	3.50	0.24
6	9.00	>1.00	9.00	>1.00	10.50	0.93	12.72	0.65	10.62	0.60	9.60	0.81	10.20	0.64	7.38	0.18	5.40	0.16	3.96	0.20	4.20	0.24
7	10.50	>1.00	10.50	>1.00	12.25	0.71	14.84	0.60	12.39	0.58	11.20	0.62	11.90	0.36	8.61	0.12	6.30	0.12	4.62	0.08	4.90	0.27
8	12.00	0.90	12.00	0.86	14.00	0.64	16.96	0.70	14.16	0.60	12.80	0.33	13.60	0.28	9.84	0.15	7.20	0.22	5.28	0.06	5.60	0.25
9	13.50	0.07	13.50	0.42	15.75	0.60	19.08	0.48	15.93	0.43	14.40	0.34	15.30	0.31	11.07	0.32	8.10	0.16	5.94	0.06	6.30	0.17
Right Bank	15.00	0.00	15.00	0.00	17.50	0.00	21.20	0.00	17.70	0.00	16.00	0.00	17.00	0.00	12.30	0.00	9.00	0.00	6.60	0.00	7.00	0.00
Feature Type <small>(riffle, run, or pool)</small>	Pool		Run		Run		Riffle		Run													

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____



AES

WBID#0169

Site # 1

upstream

WBID#0169
Site #1
DNstream





WBID #0169
Site #1
Transect #10

ATV Tracks



AES

WBID # 0169

SITE # 2

DN STREAM



AES

WBID # 0169
SITE # 2
UP STREAM



WBID #0169

Site #2

Transect #1

Rope Swing

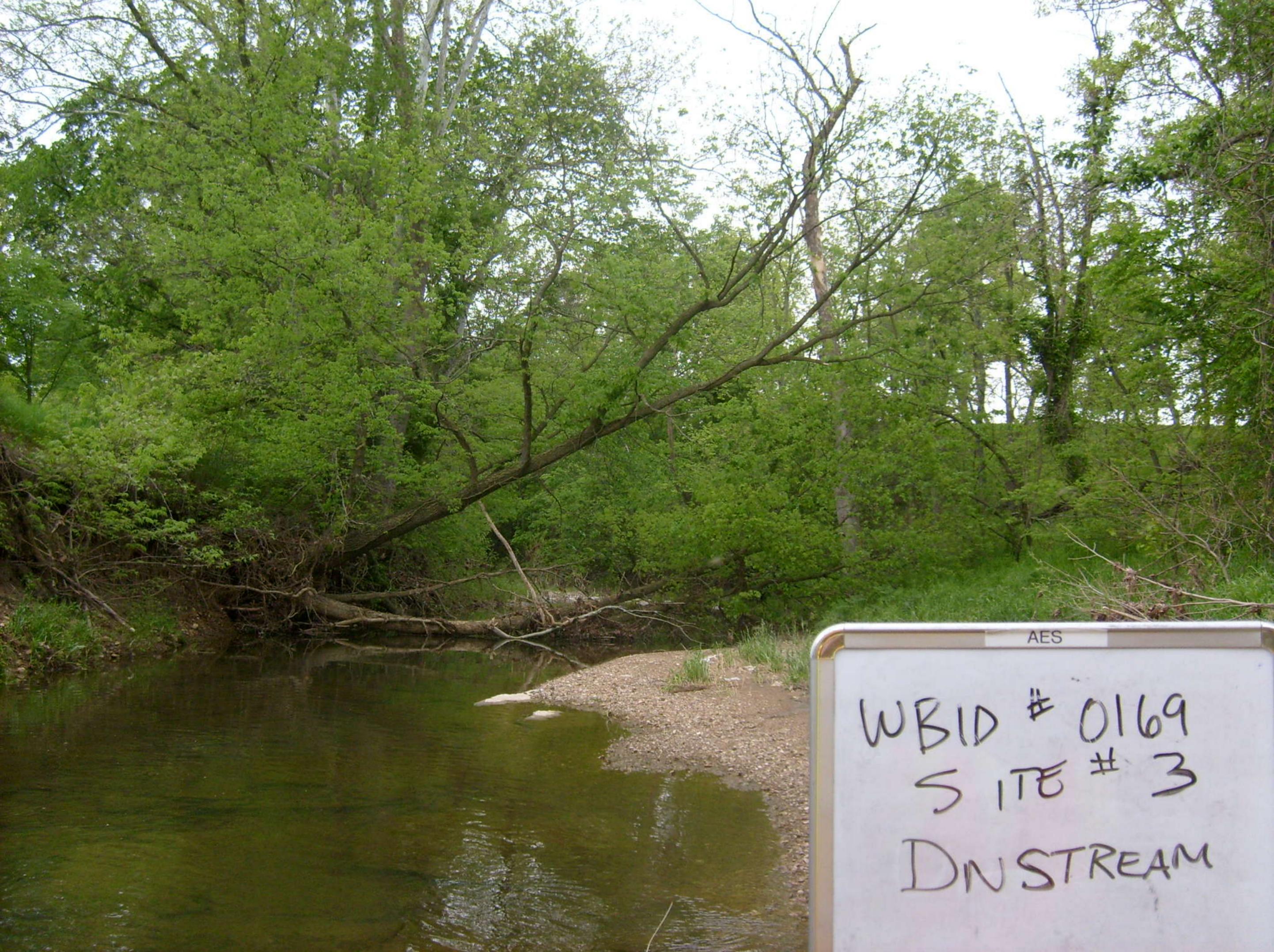


WBID #0169
Site #2
Transect #1
Rope Swing

AES

WBID # 0169
SITE # 3
UP STREAM





AES

WBID # 0169
SITE # 3

DINSTREAM



AES

WBID#0169

Site #24

Upstream

AES

WBID#0169
Site #4
Dnstream



WBID #0169
Site #5
Upstream



WBID #0169
Site #5
Downstream