



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 1320 East Fork Drywood Creek

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): E. Fk. Drywood Cr.
Missouri Water Body Identification (WBID) Number: 1320
8-digit HUC: 10290104
County(ies), Listed Upstream to Downstream: Barton
Upstream Legal Description (from Table H): 8, 32N, 32 W
Downstream Legal Description (from Table H): Mouth
Number of sites evaluated: 8
List all site numbers, <u>consecutively upstream to downstream</u> : 1,2,3,4,5,6,7,8
Include a Site Location Map(s). 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)

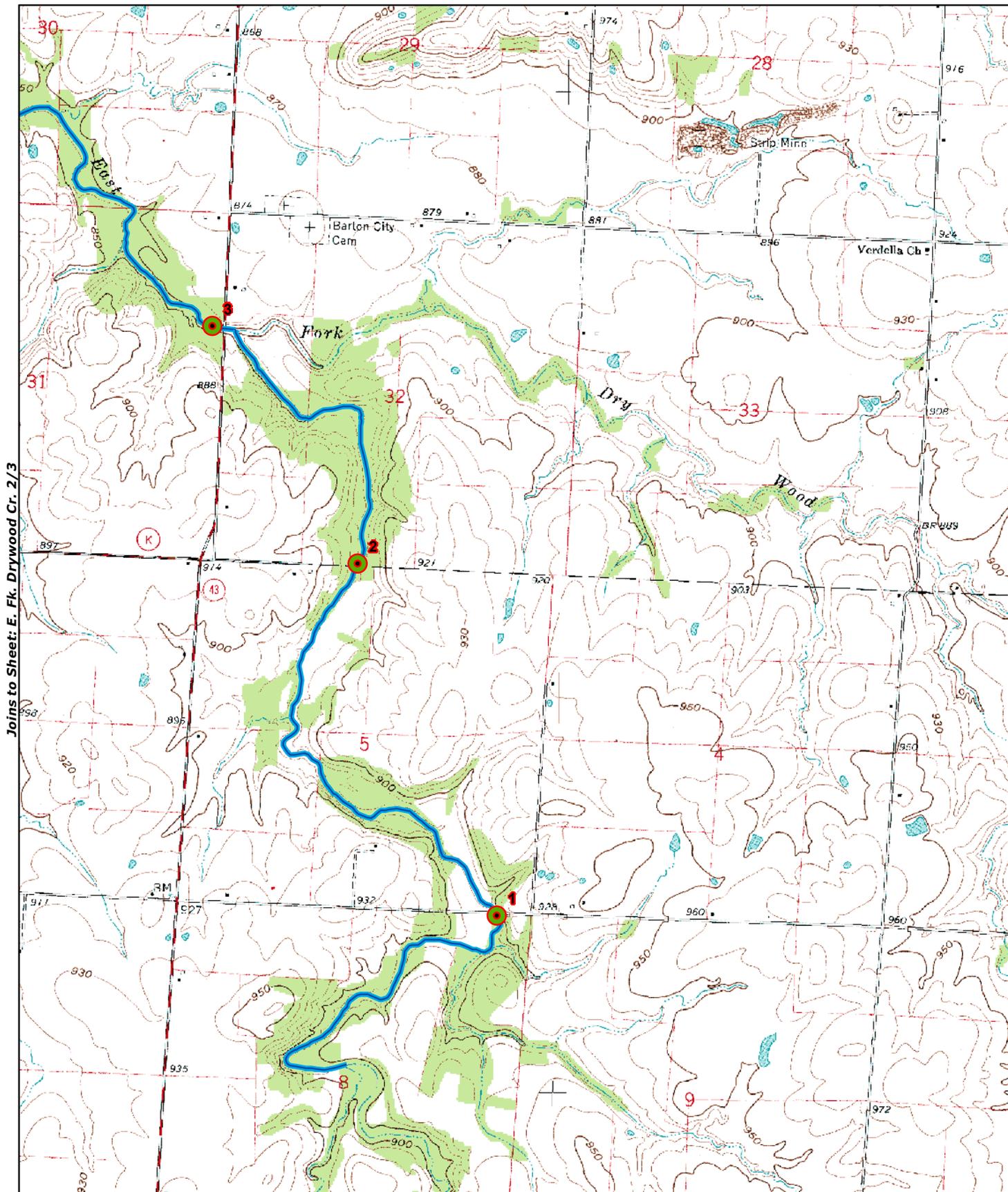
Facility Name(s) and Permit Number(s): Liberal Municipal WWTF MO-0045837
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III. UAA Surveyor (please **PRINT** legibly)

Name of Surveyor: Rodney Holland	Telephone Number: 417-890-8802
Organization/Employer: Olsson Associates	

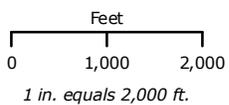
Please verify that you have completed all sections of all data sheets, checked all applicable boxes, provided a map (that includes all requirements listed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.

Signed:  Date: 5-22-08



Joins to Sheet: E. Fk. Drywood Cr. 2/3

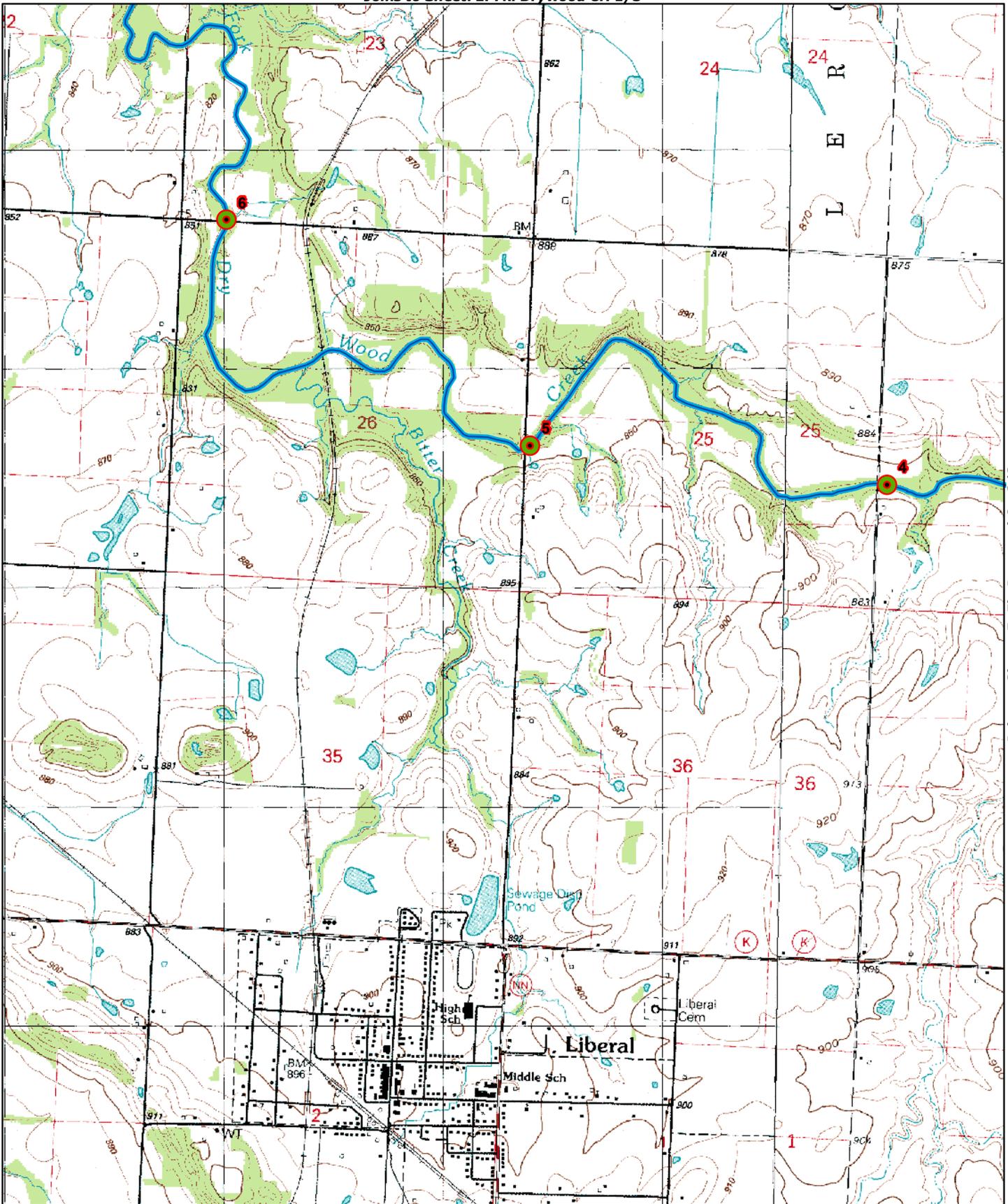
**MISSOURI RECREATIONAL
USE ATTAINABILITY ANALYSIS**



Stream: E. Fk. Drywood Cr.
WBID: 1320

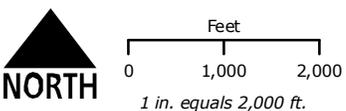
Map Sheet: 3/3
County: Barton





Joins to Sheet: E. Fk. Drywood Cr. 3/3

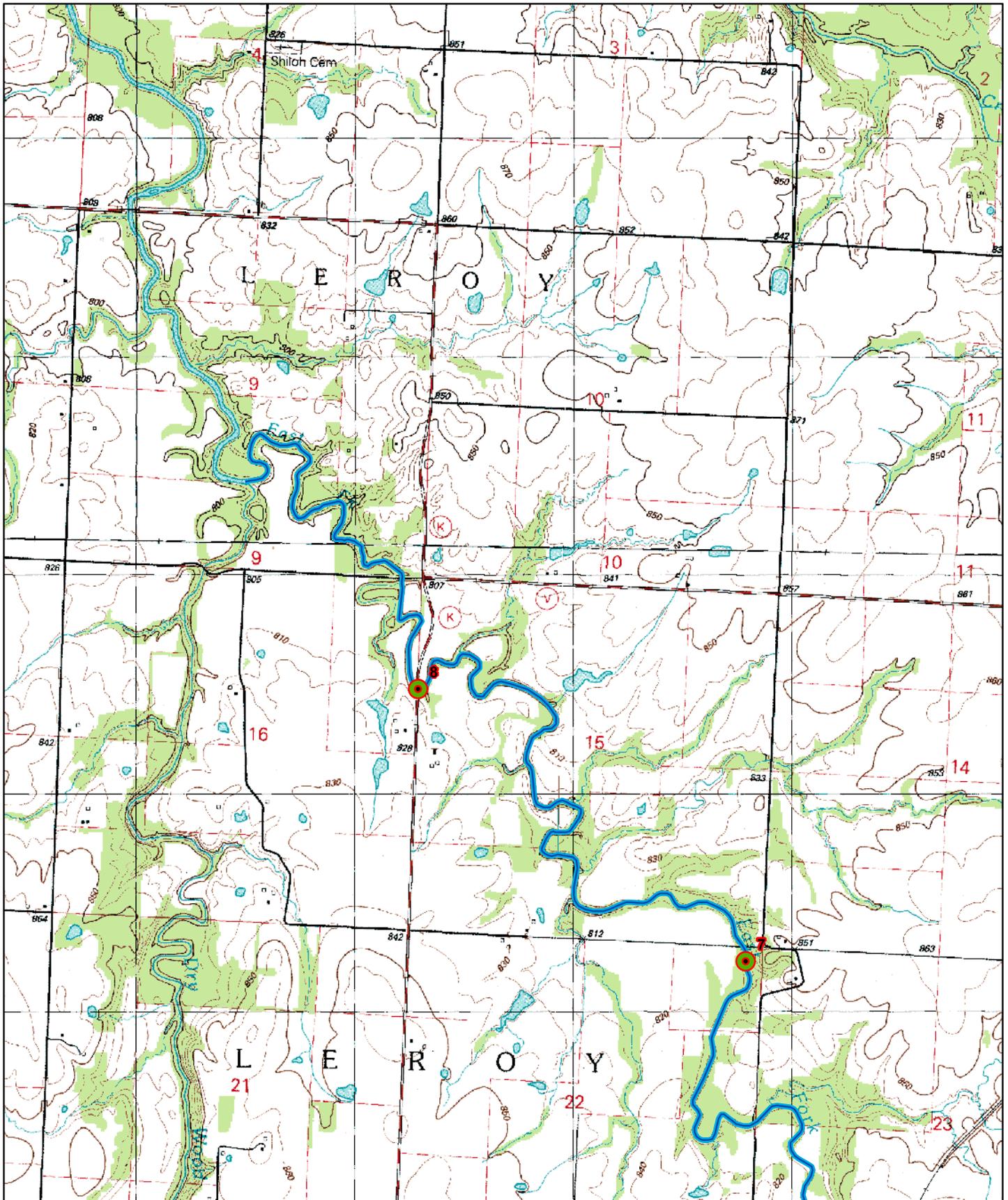
MISSOURI RECREATIONAL USE ATTAINABILITY ANALYSIS



Stream: E. Fk. Drywood Cr.
WBID:1320

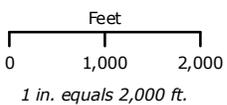
Map Sheet:2/3
County: Barton





Joins to Sheet: E. Fk. Drywood Cr. 2/3

**MISSOURI RECREATIONAL
USE ATTAINABILITY ANALYSIS**



Stream: E. Fk. Drywood Cr.
WBID: 1320

Map Sheet: 1/3
County: Barton



WBID # 1320

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: 5-22-08	9:50 a.m.	Location Description (e.g., road crossing):
Stream Name: E. Fk. Drywood Creek		10 meters downstream NW 30 th Road bridge
Current Weather Conditions: Overcast		Facility Name(s): Liberal Municipal WWTF
Weather Conditions for Past 10 days: 0.13" @ Nevada		Permit Number(s): MO-0045837
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): 370894	Northing (UTM Y): 4156806	Horizontal Accuracy: (EPE / FOM / PDOP)	44 ft.	Meters
Site 11	Easting (UTM X): 370793	Northing (UTM Y): 4156908	Horizontal Accuracy: (EPE / FOM / PDOP)	62 ft.	Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-1-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-1-B	Bridge				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-1-C	Downstream looking up				

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 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 checked="" type="checkbox"/> Other:
Comments: Private property				

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	60% Gravel	20% Sand	% Silt	% Mud/Clay	20% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on rocks

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: Brownish
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)

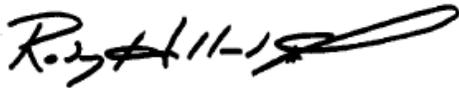
Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

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: Rodney Holland, Christopher Park

Surveyor's Signature:  Date of Survey: 5-22-08

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: <u>E. Fk Drywood Creek</u> Waterbody ID: <u>1320</u> Site #: <u>1</u> Estimated Channel Incision: <u>0.4</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>3708974</u> UTM Y: <u>4156806</u> +/- <u>44</u> ft. (meters) 11 UTM X: <u>370793</u> UTM Y: <u>4156909</u> +/- <u>62</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>Rodney Holland and Christopher Parks</u>	Dissolved Oxygen Date: <u>5/22/2008</u> Time: <u>9:55 a.m.</u> Dissolved Oxygen: <u>6.69</u> (mg/L) Dissolved Oxygen: <u>72.1</u> (% sat) Specific Cond: <u>411</u> (µS/cm) Water Temperature: <u>19.7</u> (°C)
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Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		Distance (m)	Depth (m)																				
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	0.51	0.19	0.25	0.10	0.23	0.12	0.63	0.53	0.70	0.36	0.65	0.11	0.38	0.11	0.45	0.06	0.56	0.61	0.62	0.64	0.58	0.11
	2	1.02	0.31	0.50	0.19	0.46	0.15	1.26	0.52	1.40	0.59	1.30	0.15	0.76	0.19	0.90	0.38	1.12	0.63	1.24	0.48	1.16	0.28
	3	1.53	0.46	0.75	0.18	0.69	0.17	1.89	0.58	2.10	0.47	1.95	0.18	1.14	0.22	1.35	0.35	1.68	0.71	1.86	0.86	1.74	0.32
	4	2.04	0.49	1.00	0.15	0.92	0.18	2.52	0.51	2.80	0.50	2.60	0.20	1.52	0.27	1.80	0.36	2.24	0.75	2.48	0.92	2.32	0.31
	5	2.55	0.48	1.25	0.14	1.15	0.21	3.15	0.52	3.50	0.46	3.25	0.36	1.90	0.26	2.25	0.22	2.80	0.69	3.10	0.81	2.90	0.32
	6	3.06	0.43	1.50	0.08	1.38	0.12	3.78	0.49	4.20	0.53	3.90	0.37	2.28	0.24	2.70	0.27	3.36	0.54	3.72	0.65	3.48	0.35
	7	3.57	0.42	1.75	0.05	1.61	0.06	4.41	0.48	4.90	0.54	4.55	0.35	2.66	0.19	3.15	0.21	3.92	0.48	4.34	0.47	4.06	0.36
	8	4.08	0.26	2.00	0.05	1.84	0.05	5.04	0.53	5.60	0.41	5.20	0.21	3.04	0.17	3.60	0.18	4.48	0.36	4.96	0.33	4.64	0.22
	9	4.59	0.18	2.25	0.05	2.07	0.05	5.67	0.31	6.30	0.37	5.85	0.14	3.42	0.13	4.05	0.13	5.04	0.22	5.58	0.28	5.22	0.13
Right Bank		5.10	0.00	2.50	0.00	2.30	0.00	6.30	0.00	7.00	0.00	6.50	0.00	3.80	0.00	4.50	0.00	5.60	0.00	6.20	0.00	5.80	0.00
Feature Type <small>(riffle, run, or pool)</small>		Run		Riffle		Riffle		Pool		Pool		Run		Riffle		Run		Pool		Pool		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.

MAXIMUM 0.92

MEDIAN 0.31

Surveyor's Signature: _____

Date: 5/22/2008

WBID # 1320

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: 5-22-08	10:30 a.m.	Location Description (e.g., road crossing):
Stream Name: E. Fk. Drywood Creek		Private property
Current Weather Conditions: Overcast		Facility Name(s): Liberal Municipal WWTF
Weather Conditions for Past 10 days: 0.13" @ Nevada		Permit Number(s): MO - 0045837
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): 370225	Northing (UTM Y): 4158370	Horizontal Accuracy: (EPE / FOM / PDOP)	35 ft.	Meters
Site 11	Easting (UTM X): 370274	Northing (UTM Y): 4158521	Horizontal Accuracy: (EPE / FOM / PDOP)	61 ft.	Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-2-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-2-B	Livestock watering				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-2-C	Downstream looking up				

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 # 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.)

<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 checked="" type="checkbox"/> Other:
Comments: Private property				

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 checked="" type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

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

% Cobble	50% Gravel	10% Sand	% Silt	10% Mud/Clay	30% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on rocks

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: Brownish
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 # 2

Field Data Sheets for Recreational Use Stream Surveys

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

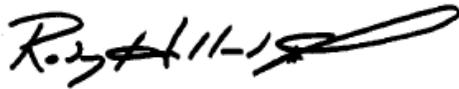
Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

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

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, Christopher Park

Surveyor's Signature:  Date of Survey: 5-22-08

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: <u>E. Fk Drywood Creek</u> Waterbody ID: <u>1320</u> Site #: <u>2</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) 01 UTM X: <u>370225</u> UTM Y: <u>4158370</u> +/- <u>35</u> ft. (meters) 11 UTM X: <u>370274</u> UTM Y: <u>4158521</u> +/- <u>61</u> ft. (meters) Average Stream Width: <u>7</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Rodney Holland and Christopher Parks</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5/22/2008</u> Time: <u>10:35 a.m.</u> Dissolved Oxygen: <u>8.61</u> (mg/L) Dissolved Oxygen: <u>93.1</u> (% sat) Specific Cond: <u>250</u> (µS/cm) Water Temperature: <u>20.7</u> (°C)
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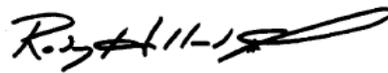
Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		Distance (m)	Depth (m)																				
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		0.43	0.09	7.10	0.58	0.79	0.15	0.86	0.09	0.69	0.31	0.52	0.18	0.65	0.12	0.74	0.11	0.81	0.38	0.89	0.26	0.87	0.31
2		0.86	0.11	14.20	0.55	1.58	0.20	1.72	0.15	1.38	0.35	1.04	0.21	1.30	0.11	1.48	0.18	1.62	0.37	1.78	0.41	1.74	0.44
3		1.29	0.11	21.30	0.42	2.37	0.22	2.58	0.24	2.07	0.42	1.56	0.10	1.95	0.21	2.22	0.25	2.43	0.40	2.67	0.62	2.61	0.49
4		1.72	0.07	28.40	0.43	3.16	0.23	3.44	0.41	2.76	0.45	2.08	0.08	2.60	0.31	2.96	0.30	3.24	0.56	3.56	0.65	3.48	0.56
5		2.15	0.06	35.50	0.40	3.95	0.29	4.30	0.48	3.45	0.41	2.60	0.06	3.25	0.32	3.70	0.41	4.05	0.59	4.45	0.55	4.35	0.58
6		2.58	0.08	42.60	0.43	4.74	0.28	5.16	0.39	4.14	0.38	3.12	0.10	3.90	0.21	4.44	0.49	4.86	0.47	5.34	0.44	5.22	0.57
7		3.01	0.05	49.70	0.51	5.53	0.17	6.02	0.32	4.83	0.21	3.64	0.15	4.55	0.12	5.18	0.38	5.67	0.42	6.23	0.41	6.09	0.41
8		3.44	0.05	56.80	0.76	6.32	0.13	6.88	0.35	5.52	0.19	4.16	0.13	5.20	0.08	5.92	0.25	6.48	0.33	7.12	0.38	6.96	0.33
9		3.87	0.05	63.90	0.75	7.11	0.05	7.74	0.42	6.21	0.15	4.68	0.16	5.85	0.10	6.66	0.19	7.29	0.25	8.01	0.27	7.83	0.22
Right Bank		4.30	0.00	71.00	0.00	7.90	0.00	8.60	0.00	6.90	0.00	5.20	0.00	6.50	0.00	7.40	0.00	8.10	0.00	8.90	0.00	8.70	0.00
Feature Type <small>(riffle, run, or pool)</small>		Riffle	Run	Run	Run	Run	Run	Riffle	Run	Run	Run												

Typo corrected from 43.00 m.

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 0.76
 MEDIAN 0.30

Surveyor's Signature:  Date: 5/22/2008

WBID # 1320

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: 5-22-08	11:10 a.m.	Location Description (e.g., road crossing):
Stream Name: E. Fk. Drywood Creek		10 meters downstream of Hwy. 43 Bridge
Current Weather Conditions: Overcast		Facility Name(s): Liberal Municipal WWTF
Weather Conditions for Past 10 days: 0.13" @ Nevada		Permit Number(s): MO - 0045837
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): 369401	Northing (UTM Y): 4159503	Horizontal Accuracy: (EPE / FOM / PDOP)	117 ft.	Meters
Site 11	Easting (UTM X): 369401	Northing (UTM Y): 4159624	Horizontal Accuracy: (EPE / FOM / PDOP)	121 ft.	Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-3-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-3-B	HWY 43Bridge				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-3-C	Downstream looking up				

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 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 checked="" type="checkbox"/> Other:
Comments: Private property				

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	40% Gravel	10% Sand	% Silt	10% Mud/Clay	40% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on rocks

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: Brownish
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 # 3

Field Data Sheets for Recreational Use Stream Surveys

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

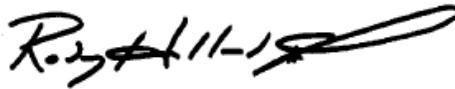
Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

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, Christopher Park

Surveyor's Signature:  Date of Survey: 5-22-08

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: <u>E. Fk Drywood Creek</u> Waterbody ID: <u>1320</u> Site #: <u>3</u> Estimated Channel Incision: <u>0.4</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>369614</u> UTM Y: <u>4159503</u> +/- <u>117</u> ft. (meters) 11 UTM X: <u>369401</u> UTM Y: <u>4159624</u> +/- <u>121</u> ft. (meters) Average Stream Width: <u>5.5</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Rodney Holland and Christopher Parks</u>	Dissolved Oxygen Date: <u>5/22/2008</u> Time: <u>11:15 a.m.</u> Dissolved Oxygen: <u>9.01</u> (mg/L) Dissolved Oxygen: <u>98.6</u> (% sat) Specific Cond: <u>220</u> (µS/cm) Water Temperature: <u>22.1</u> (°C)
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Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		Distance (m)	Depth (m)																				
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	0.71	0.35	0.32	0.05	0.52	0.32	0.48	0.45	0.53	0.38	0.59	0.06	0.62	0.15	0.61	0.22	0.64	0.50	0.59	0.45	0.61	0.28
	2	1.42	0.38	0.64	0.09	1.04	0.40	0.96	0.41	1.06	0.39	1.18	0.13	1.24	0.19	1.22	0.34	1.28	0.48	1.18	0.53	1.22	0.50
	3	2.13	0.39	0.96	0.11	1.56	0.43	1.44	0.52	1.59	0.37	1.77	0.45	1.86	0.22	1.83	0.39	1.92	0.47	1.77	0.50	1.83	0.52
	4	2.84	0.32	1.28	0.18	2.08	0.49	1.92	0.53	2.12	0.45	2.36	0.41	2.48	0.21	2.44	0.49	2.56	0.53	2.36	0.64	2.44	0.48
	5	3.55	0.40	1.60	0.21	2.60	0.56	2.40	0.57	2.65	0.39	2.95	0.35	3.10	0.18	3.05	0.54	3.20	0.42	2.95	0.52	3.05	0.55
	6	4.26	0.42	1.92	0.17	3.12	0.52	2.88	0.50	3.18	0.46	3.54	0.36	3.72	0.16	3.66	0.62	3.84	0.46	3.54	0.47	3.66	0.61
	7	4.97	0.38	2.24	0.19	3.64	0.42	3.36	0.48	3.71	0.29	4.13	0.35	4.34	0.05	4.27	0.58	4.48	0.38	4.13	0.39	4.27	0.31
	8	5.68	0.35	2.56	0.11	4.16	0.36	3.84	0.37	4.24	0.32	4.72	0.28	4.96	0.05	4.88	0.45	5.12	0.22	4.72	0.41	4.88	0.26
9	6.39	0.32	2.88	0.12	4.68	0.28	4.32	0.26	4.77	0.22	5.31	0.19	5.58	0.08	5.49	0.31	5.76	0.19	5.31	0.53	5.49	0.19	
Right Bank		7.10	0.00	3.20	0.00	5.20	0.00	4.80	0.00	5.30	0.00	5.90	0.00	6.20	0.00	6.10	0.00	6.40	0.00	5.90	0.00	6.10	0.00
	Feature Type <small>(riffle, run, or pool)</small>	run		riffle		run		run		run		run		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 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 0.64

MEDIAN 0.38

Surveyor's Signature: _____

Date: 5/22/2008

WBID # 1320

Site # 4

Field Data Sheets for Recreational Use Stream Surveys

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

(must be completed for each site)

Date & Time: 5-22-08	11:50 a.m.	Location Description (e.g., road crossing):
Stream Name: E. Fk. Drywood Creek		10 meters downstream of 110 th Lane Bridge
Current Weather Conditions: Overcast		Facility Name(s): Liberal Municipal WWTF
Weather Conditions for Past 10 days: 0.13" @ Nevada		Permit Number(s): MO - 0045837
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): 367945	Northing (UTM Y): 4160671	Horizontal Accuracy: (EPE / FOM / PDOP)	133 ft.	Meters
Site 11	Easting (UTM X): 367764	Northing (UTM Y): 4160637	Horizontal Accuracy: (EPE / FOM / PDOP)	125 ft.	Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-4-A	Upstream looking down & Bridge				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-4-B	Livestock watering				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-4-C	Downstream looking up				

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 # 4

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 checked="" type="checkbox"/> Other:
Comments: Private property				

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 checked="" type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

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

% Cobble	50% Gravel	10% Sand	% Silt	10% Mud/Clay	30% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on rocks

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 checked="" 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 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 # 4

Field Data Sheets for Recreational Use Stream Surveys

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

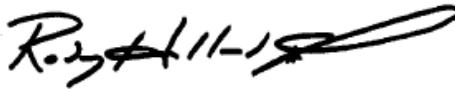
Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

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, Christopher Park

Surveyor's Signature:  Date of Survey: 5-22-08

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: <u>E. Fk Drywood Creek</u> Waterbody ID: <u>1320</u> Site #: <u>4</u> Estimated Channel Incision: <u>0.4</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>367945</u> UTM Y: <u>4160671</u> +/- <u>133</u> ft. (meters) 11 UTM X: <u>367764</u> UTM Y: <u>4160637</u> +/- <u>125</u> ft. (meters) Average Stream Width: <u>8</u> (meters) Length of Survey Segment: <u>160</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Rodney Holland and Christopher Parks</u>	Dissolved Oxygen Date: <u>5/22/2008</u> Time: <u>11:15 a.m.</u> Dissolved Oxygen: <u>7.65</u> (mg/L) Dissolved Oxygen: <u>83.8</u> (% sat) Specific Cond: <u>335</u> (µS/cm) Water Temperature: <u>20.7</u> (°C)
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Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		Distance (m)	Depth (m)																				
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	0.39	0.91	0.46	0.86	0.71	0.81	0.53	0.76	0.47	0.69	0.36	0.55	0.21	0.73	0.50	0.83	0.52	0.81	0.39	0.79	0.46
	2	1.86	0.51	1.82	0.49	1.72	0.62	1.62	0.66	1.52	0.35	1.38	0.44	1.10	0.38	1.46	0.48	1.66	0.71	1.62	0.44	1.58	0.53
	3	2.79	0.73	2.73	0.59	2.58	0.76	2.43	0.51	2.28	0.41	2.07	0.68	1.65	0.51	2.19	0.54	2.49	0.68	2.43	0.51	2.37	0.70
	4	3.72	0.72	3.64	0.70	3.44	0.81	3.24	0.58	3.04	0.44	2.76	0.72	2.20	0.62	2.92	0.57	3.32	0.66	3.24	0.52	3.16	0.73
	5	4.65	0.73	4.55	0.72	4.30	0.89	4.05	0.62	3.80	0.49	3.45	0.66	2.75	0.61	3.65	0.60	4.15	0.59	4.05	0.43	3.95	0.72
	6	5.58	0.70	5.46	0.68	5.16	0.72	4.86	0.60	4.56	0.51	4.14	0.57	3.30	0.58	4.38	0.67	4.98	0.61	4.86	0.55	4.74	0.38
	7	6.51	0.52	6.37	0.51	6.02	0.67	5.67	0.53	5.32	0.47	4.83	0.59	3.85	0.44	5.11	0.71	5.81	0.45	5.67	0.44	5.53	0.59
	8	7.44	0.48	7.28	0.48	6.88	0.43	6.48	0.47	6.08	0.30	5.52	0.45	4.40	0.49	5.84	0.72	6.64	0.38	6.48	0.38	6.32	0.55
	9	8.37	0.31	8.19	0.28	7.74	0.42	7.29	0.38	6.84	0.29	6.21	0.32	4.95	0.51	6.57	0.75	7.47	0.21	7.29	0.33	7.11	0.48
Right Bank		9.30	0.00	9.10	0.00	8.60	0.00	8.10	0.00	7.60	0.00	6.90	0.00	5.50	0.00	7.30	0.00	8.30	0.00	8.10	0.00	7.90	0.00
Feature Type		run		run		run		run		run		run		run		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 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 0.89

MEDIAN 0.52

Surveyor's Signature: _____

Date: 5/22/2008

WBID # 1320

Site # 5

Field Data Sheets for Recreational Use Stream Surveys

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

(must be completed for each site)

Date & Time: 5-22-08	2:05 p.m.	Location Description (e.g., road crossing):
Stream Name: E. Fk. Drywood Creek		50 meters downstream of 120 th Lane
Current Weather Conditions: Overcast		Facility Name(s): Liberal Municipal WWTF
Weather Conditions for Past 10 days: 0.13" @ Nevada		Permit Number(s): MO - 0045837
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): 366309	Northing (UTM Y): 4160828	Horizontal Accuracy: (EPE / FOM / PDOP) 73 ft. Meters
Site 11	Easting (UTM X): 366061	Northing (UTM Y): 4160918	Horizontal Accuracy: (EPE / FOM / PDOP) 64 ft. Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-5-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-5-B	Bridge				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-5-C	Downstream looking up				

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 type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: Private property				

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	60% Gravel	10% Sand	% Silt	% Mud/Clay	30% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on rocks

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 checked="" 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 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 # 5

Field Data Sheets for Recreational Use Stream Surveys

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

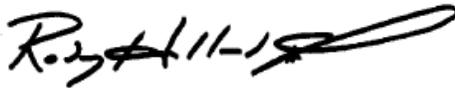
Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

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

Comments: (Please record any additional comments here.)

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

Printed Names of Personnel Collecting Data: Rodney Holland, Christopher Park

Surveyor's Signature:  Date of Survey: 5-22-08

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: <u>E. Fk Drywood Creek</u> Waterbody ID: <u>1320</u> Site #: <u>5</u> Estimated Channel Incision: <u>0.5</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>366309</u> UTM Y: <u>4160828</u> +/- <u>73</u> ft. (meters) 11 UTM X: <u>366061</u> UTM Y: <u>4160918</u> +/- <u>64</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>Rodney Holland and Christopher Parks</u>	Dissolved Oxygen Date: <u>5/22/2008</u> Time: <u>2:15 p.m.</u> Dissolved Oxygen: <u>8.16</u> (mg/L) Dissolved Oxygen: <u>93.3</u> (% sat) Specific Cond: <u>318</u> (µS/cm) Water Temperature: <u>22.5</u> (°C)
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Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		Distance (m)	Depth (m)																				
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		0.43	0.05	0.62	0.32	0.68	0.21	0.65	0.28	0.46	0.06	0.67	0.49	0.59	0.51	0.62	0.29	0.65	0.39	0.68	0.19	0.66	0.31
2		0.86	0.05	1.24	0.18	1.36	0.31	1.30	0.36	0.92	0.08	1.34	0.68	1.18	0.73	1.24	0.31	1.30	0.40	1.36	0.22	1.32	0.42
3		1.29	0.05	1.86	0.33	2.04	0.46	1.95	0.48	1.38	0.10	2.01	0.62	1.77	0.69	1.86	0.35	1.95	0.42	2.04	0.35	1.98	0.40
4		1.72	0.12	2.48	0.48	2.72	0.51	2.60	0.57	1.84	0.15	2.68	0.61	2.36	0.51	2.48	0.43	2.60	0.48	2.72	0.41	2.64	0.51
5		2.15	0.18	3.10	0.62	3.40	0.72	3.25	0.72	2.30	0.10	3.35	0.57	2.95	0.42	3.10	0.48	3.25	0.62	3.40	0.51	3.30	0.68
6		2.58	0.11	3.72	0.85	4.08	0.96	3.90	0.81	2.76	0.17	4.02	0.49	3.54	0.41	3.72	0.65	3.90	0.63	4.08	0.76	3.96	0.71
7		3.01	0.15	4.34	1.00	4.76	1.00	4.55	0.88	3.22	0.21	4.69	0.38	4.13	0.37	4.34	0.80	4.55	0.60	4.76	0.63	4.62	0.73
8		3.44	0.17	4.96	1.00	5.44	1.00	5.20	0.95	3.68	0.15	5.36	0.27	4.72	0.19	4.96	0.83	5.20	0.41	5.44	0.62	5.28	0.62
9		3.87	0.06	5.58	0.84	6.12	1.00	5.85	0.77	4.14	0.09	6.03	0.12	5.31	0.09	5.58	0.68	5.85	0.35	6.12	0.49	5.94	0.55
Right Bank		4.30	0.00	6.20	0.00	6.80	0.00	6.50	0.00	4.60	0.00	6.70	0.00	5.90	0.00	6.20	0.00	6.50	0.00	6.80	0.00	6.60	0.00
Feature Type <small>(riffle, run, or pool)</small>		riffle		run		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.

MAXIMUM 1.00

MEDIAN 0.46

Surveyor's Signature: _____

Date: 5/22/2008

WBID # 1320

Site # 6

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: 5-22-08	3:00 p.m.	Location Description (e.g., road crossing):
Stream Name: E. Fk. Drywood Creek		10 meters downstream of NW 60 th Road
Current Weather Conditions: Overcast		Facility Name(s): Liberal Municipal WWTF
Weather Conditions for Past 10 days: 0.13" @ Nevada		Permit Number(s): MO - 0045837
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): 364973	Northing (UTM Y): 4161892	Horizontal Accuracy: (EPE / FOM / PDOP)	88 ft.	Meters
Site 11	Easting (UTM X): 364930	Northing (UTM Y): 4162042	Horizontal Accuracy: (EPE / FOM / PDOP)	91 ft.	Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-6-A	Upstream looking down & Livestock watering				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-6-B	Bridge				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-6-C	Downstream looking up				

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 # 6

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 checked="" type="checkbox"/> Other:
Comments: Private property				

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 checked="" type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

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

% Cobble	60% Gravel	30% Sand	% Silt	% Mud/Clay	10% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on rocks

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 checked="" 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 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 # 6

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, Christopher Park

Surveyor's Signature:  Date of Survey: 5-22-08

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: <u>E. Fk Drywood Creek</u> Waterbody ID: <u>1320</u> Site #: <u>6</u> Estimated Channel Incision: <u>0.5</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>364973</u> UTM Y: <u>4161892</u> +/- <u>88</u> ft. (meters) 11 UTM X: <u>364930</u> UTM Y: <u>4162042</u> +/- <u>91</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>Rodney Holland and Christopher Parks</u>	Dissolved Oxygen Date: <u>5/22/2008</u> Time: <u>3:05 p.m.</u> Dissolved Oxygen: <u>8.77</u> (mg/L) Dissolved Oxygen: <u>99.4</u> (% sat) Specific Cond: <u>300</u> (µS/cm) Water Temperature: <u>23.7</u> (°C)
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Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station	Distance (m)	Depth (m)																					
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	0.32	0.09	0.34	0.06	0.48	0.19	0.53	<0.05	0.58	0.13	0.61	0.21	0.57	0.05	0.54	0.11	0.56	0.19	0.48	0.09	0.34	0.06	
2	0.64	0.11	0.68	0.18	0.96	0.21	1.06	0.08	1.16	0.11	1.22	0.30	1.14	0.21	1.08	0.20	1.12	0.28	0.96	0.29	0.68	0.11	
3	0.96	0.07	1.02	0.19	1.44	0.31	1.59	0.23	1.74	0.26	1.83	0.58	1.71	0.30	1.62	0.33	1.68	0.41	1.44	0.42	1.02	0.15	
4	1.28	0.12	1.36	0.17	1.92	0.36	2.12	0.28	2.32	0.24	2.44	0.72	2.28	0.42	2.16	0.51	2.24	0.62	1.92	0.48	1.36	0.21	
5	1.60	0.13	1.70	0.13	2.40	0.42	2.65	0.33	2.90	0.22	3.05	0.85	2.85	0.38	2.70	0.56	2.80	0.73	2.40	0.58	1.70	0.18	
6	1.92	0.21	2.04	0.11	2.88	0.41	3.18	0.39	3.48	0.19	3.66	0.78	3.42	0.33	3.24	0.42	3.36	0.78	2.88	0.61	2.04	0.16	
7	2.24	0.24	2.38	0.15	3.36	0.38	3.71	0.37	4.06	0.15	4.27	0.62	3.99	0.40	3.78	0.38	3.92	0.74	3.36	0.66	2.38	0.14	
8	2.56	0.31	2.72	0.18	3.84	0.39	4.24	0.30	4.64	0.21	4.88	0.54	4.56	0.39	4.32	0.41	4.48	0.52	3.84	0.51	2.72	0.10	
9	2.88	0.18	3.06	0.10	4.32	0.21	4.77	0.32	5.22	0.24	5.49	0.42	5.13	0.22	4.86	0.35	5.04	0.41	4.32	0.48	3.06	0.08	
Right Bank	3.20	0.00	3.40	0.00	4.80	0.00	5.30	0.00	5.80	0.00	6.10	0.00	5.70	0.00	5.40	0.00	5.60	0.00	4.80	0.00	3.40	0.00	
Feature Type <small>(riffle, run, or pool)</small>	riffle		riffle		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 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 0.85

MEDIAN 0.28

Surveyor's Signature: _____

Date: 5/22/2008

WBID # 1320

Site # 7

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: 5-22-08	3:40 p.m.	Location Description (e.g., road crossing):
Stream Name: E. Fk. Drywood Creek		50 meters downstream of 130 th Lane bridge
Current Weather Conditions: Overcast		Facility Name(s): Liberal Municipal WWTF
Weather Conditions for Past 10 days: 0.13" @ Nevada		Permit Number(s): MO - 0045837
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): 364750	Northing (UTM Y): 4162707	Horizontal Accuracy: (EPE / FOM / PDOP)	121 ft.	Meters
Site 11	Easting (UTM X): 364547	Northing (UTM Y): 4162866	Horizontal Accuracy: (EPE / FOM / PDOP)	119 ft.	Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-7-A	Upstream looking down & Bridge				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-7-B	No trespassing				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-7-C	Downstream looking up				

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 # 7

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

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	60% Gravel	30% Sand	% Silt	% Mud/Clay	10% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on rocks

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 checked="" 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 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 # 7

Field Data Sheets for Recreational Use Stream Surveys

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

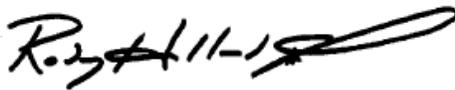
Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

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, Christopher Park

Surveyor's Signature:  Date of Survey: 5-22-08

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: <u>E. Fk Drywood Creek</u> Waterbody ID: <u>1320</u> Site #: <u>7</u> Estimated Channel Incision: <u>0.4</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>364750</u> UTM Y: <u>4162707</u> +/- <u>121</u> ft. (meters) 11 UTM X: <u>364547</u> UTM Y: <u>4162866</u> +/- <u>119</u> ft. (meters) Average Stream Width: <u>7</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Rodney Holland and Christopher Parks</u>	Dissolved Oxygen Date: <u>5/22/2008</u> Time: <u>3:50 p.m.</u> Dissolved Oxygen: <u>8.4</u> (mg/L) Dissolved Oxygen: <u>94.8</u> (% sat) Specific Cond: <u>289</u> (µS/cm) Water Temperature: <u>24.9</u> (°C)
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Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		Distance (m)	Depth (m)																				
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	0.81	0.21	0.51	0.13	0.62	0.64	0.64	0.30	0.59	0.22	0.63	0.42	0.71	0.40	0.76	0.26	0.81	0.32	0.75	0.47	0.79	0.68
	2	1.62	0.21	1.02	0.19	1.24	0.46	1.28	0.49	1.18	0.40	1.26	0.47	1.42	0.32	1.52	0.22	1.62	0.41	1.50	0.49	1.58	0.58
	3	2.43	0.64	1.53	0.21	1.86	0.89	1.92	0.53	1.77	0.43	1.89	0.50	2.13	0.49	2.28	0.36	2.43	0.38	2.25	0.42	2.37	0.43
	4	3.24	1.00	2.04	0.25	2.48	0.83	2.56	0.45	2.36	0.40	2.52	0.47	2.84	0.58	3.04	0.41	3.24	0.31	3.00	0.41	3.16	0.40
	5	4.05	1.00	2.55	0.22	3.10	0.24	3.20	0.42	2.95	0.41	3.15	0.41	3.55	0.64	3.80	0.48	4.05	0.32	3.75	0.42	3.95	0.48
	6	4.86	1.00	3.06	0.19	3.72	0.55	3.84	0.53	3.54	0.38	3.78	0.40	4.26	0.62	4.56	0.58	4.86	0.40	4.50	0.38	4.74	0.52
	7	5.67	1.00	3.57	0.08	4.34	0.54	4.48	0.91	4.13	0.43	4.41	0.50	4.97	0.55	5.32	0.52	5.67	0.49	5.25	0.41	5.53	0.47
	8	6.48	0.76	4.08	0.11	4.96	0.57	5.12	1.00	4.72	0.52	5.04	0.38	5.68	0.41	6.08	0.61	6.48	0.51	6.00	0.28	6.32	0.36
	9	7.29	0.52	4.59	0.13	5.58	0.36	5.76	1.00	5.31	0.63	5.67	0.26	6.39	0.28	6.84	0.63	7.29	0.60	6.75	0.19	7.11	0.24
Right Bank		8.10	0.00	5.10	0.00	6.20	0.00	6.40	0.00	5.90	0.00	6.30	0.00	7.10	0.00	7.60	0.00	8.10	0.00	7.50	0.00	7.90	0.00
Feature Type <small>(riffle, run, or pool)</small>		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.

MAXIMUM 1.00

MEDIAN 0.43

Surveyor's Signature: _____

Date: 5/22/2008

WBID # 1320

Site # 8

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: 5-22-08	4:25 p.m.	Location Description (e.g., road crossing):
Stream Name: E. Fk. Drywood Creek		10 meters downstream of Highway K bridge
Current Weather Conditions: Overcast		Facility Name(s): Liberal Municipal WWTF
Weather Conditions for Past 10 days: 0.13" @ Nevada		Permit Number(s): MO - 0045837
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): 363230	Northing (UTM Y): 4164719	Horizontal Accuracy: (EPE / FOM / PDOP) 66 ft. Meters
Site 11	Easting (UTM X): 363229	Northing (UTM Y): 4164922	Horizontal Accuracy: (EPE / FOM / PDOP) 73 ft. Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-8-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-8-B	Hwy K Bridge				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1320-8-C	Downstream looking up				

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 # 8

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 checked="" type="checkbox"/> Other:
Comments: Private property				

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	60% Gravel	20% Sand	% Silt	% Mud/Clay	20% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on rocks

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 checked="" 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 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 # 8

Field Data Sheets for Recreational Use Stream Surveys

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

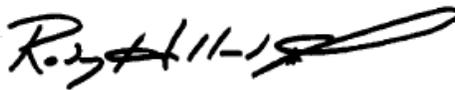
Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

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, Christopher Park

Surveyor's Signature:  Date of Survey: 5-22-08

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: <u>E. Fk Drywood Creek</u> Waterbody ID: <u>1320</u> Site #: <u>8</u> Estimated Channel Incision: <u>0.4</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>363230</u> UTM Y: <u>4164719</u> +/- <u>66</u> ft. (meters) 11 UTM X: <u>363229</u> UTM Y: <u>4164922</u> +/- <u>73</u> ft. (meters) Average Stream Width: <u>4.5</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Rodney Holland and Christopher Parks</u>	Dissolved Oxygen Date: <u>5/22/2008</u> Time: <u>4:25 p.m.</u> Dissolved Oxygen: <u>8.17</u> (mg/L) Dissolved Oxygen: <u>91.7</u> (% sat) Specific Cond: <u>287</u> (µS/cm) Water Temperature: <u>24</u> (°C)
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Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	0.21	0.15	0.38	0.11	0.42	0.08	0.48	0.28	0.51	0.36	0.54	0.10	0.53	0.22	0.56	0.64	0.48	0.78	0.51	0.46	0.49	0.25
	2	0.42	0.40	0.76	0.30	0.84	0.22	0.96	0.38	1.02	0.42	1.08	0.22	1.06	0.26	1.12	0.66	0.96	0.89	1.02	0.49	0.98	0.35
	3	0.63	0.39	1.14	0.51	1.26	0.42	1.44	0.49	1.53	0.58	1.62	0.31	1.59	0.30	1.68	0.58	1.44	1.00	1.53	0.52	1.47	0.48
	4	0.84	0.46	1.52	0.43	1.68	0.65	1.92	0.61	2.04	0.67	2.16	0.36	2.12	0.36	2.24	0.51	1.92	1.00	2.04	0.48	1.96	0.52
	5	1.05	0.38	1.90	0.52	2.10	0.72	2.40	0.73	2.55	0.71	2.70	0.38	2.65	0.49	2.80	0.48	2.40	0.76	2.55	0.47	2.45	0.60
	6	1.26	0.30	2.28	0.55	2.52	0.52	2.88	0.67	3.06	0.80	3.24	0.42	3.18	0.51	3.36	0.39	2.88	0.69	3.06	0.36	2.94	0.69
	7	1.47	0.28	2.66	0.48	2.94	0.61	3.36	0.82	3.57	0.77	3.78	0.36	3.71	0.36	3.92	0.36	3.36	0.54	3.57	0.40	3.43	0.53
	8	1.68	0.15	3.04	0.51	3.36	0.62	3.84	0.87	4.08	0.73	4.32	0.28	4.24	0.27	4.48	0.40	3.84	0.48	4.08	0.38	3.92	0.37
	9	1.89	0.10	3.42	0.46	3.78	0.61	4.32	0.78	4.59	0.72	4.86	0.21	4.77	0.30	5.04	0.35	4.32	0.51	4.59	0.24	4.41	0.26
Right Bank		2.10	0.00	3.80	0.00	4.20	0.00	4.80	0.00	5.10	0.00	5.40	0.00	5.30	0.00	5.60	0.00	4.80	0.00	5.10	0.00	4.90	0.00
Feature Type <small>(riffle, run, or pool)</small>		run		run		run		run		run		run		run		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 by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

MAXIMUM 1.00

MEDIAN 0.47

Surveyor's Signature: _____

Date: 5/22/2008





