



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 3731 Little Cedar Creek

Submitted by

MEC Water Resources

To

Missouri Department of Natural Resources

Water Protection Program

On

October 17, 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): <i>Little Cedar Creek</i>
Missouri Water Body Identification (WBID) Number: <i>3731</i>
8-digit HUC: <i>10300102</i>
County(ies), Listed Upstream to Downstream: <i>Boone, Boone</i>
Upstream Legal Description (from Table H): <i>05, 48N, 11W</i>
Downstream Legal Description (from Table H): <i>17, 48N, 11W</i>
Number of sites evaluated: <i>3</i>
List all site numbers, <u>consecutively upstream to downstream</u> : <i>Site 1, Site 2, Site 3</i>
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)

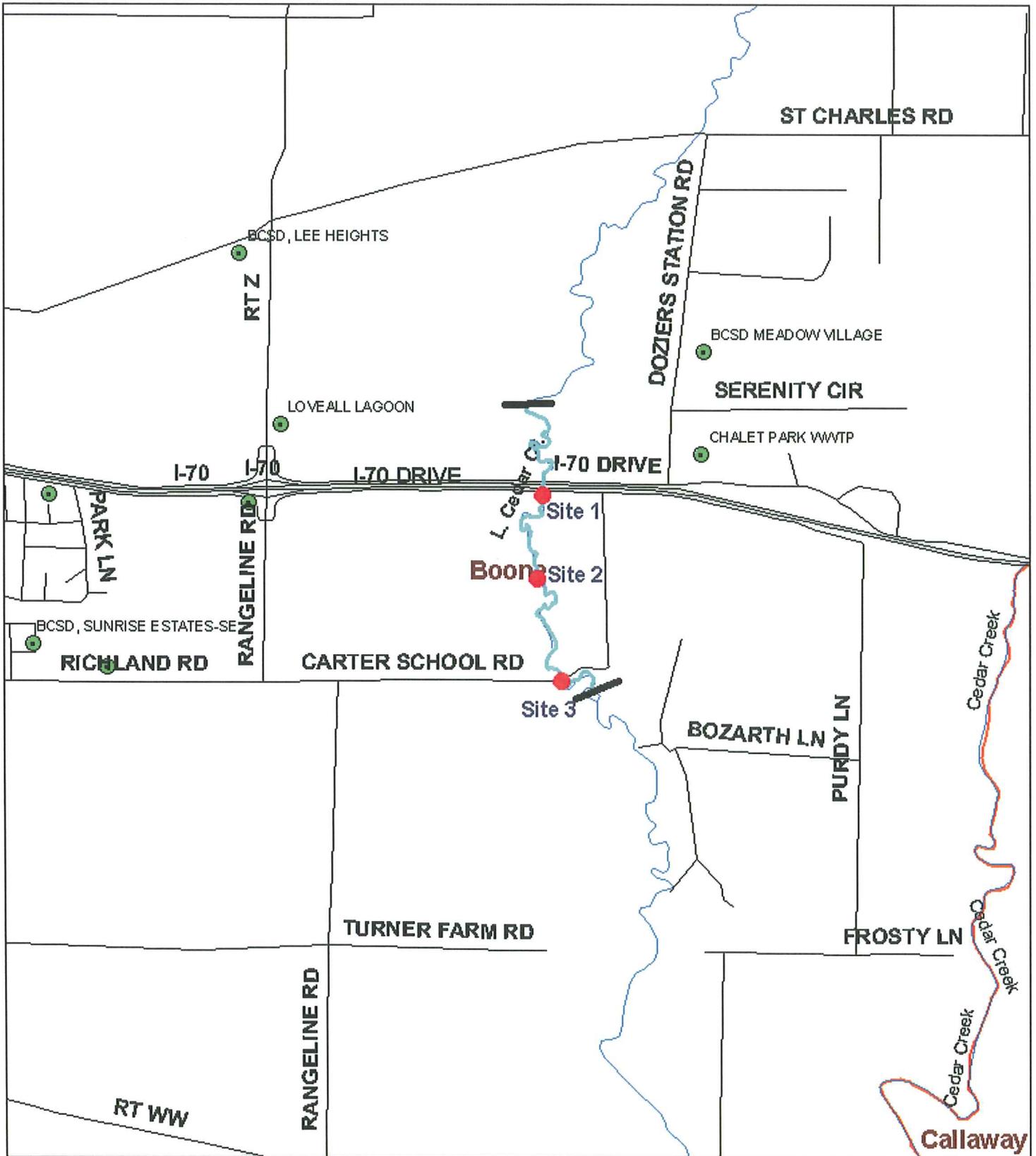
Facility Name(s) and Permit Number(s):

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

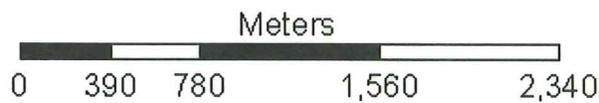
Name of Surveyor: <i>Jonathan Witte, Cody Luebbering</i> Telephone Number: <i>(573) 443-4100</i>
Organization/Employer: <i>MEL Water Resources Inc.</i>

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: *Cody Luebbering* Date: *9-16-08*



**L. Cedar Creek
WBID 3731
Boone County**



WBID # 3731

Site # 01

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: <u>8.15.08</u> <u>1335</u>	Location Description (e.g., road crossing):
Stream Name: <u>Little Cedar Creek</u>	<u>at I-70 crossing</u>
Current Weather Conditions: <u>80° F, Mostly Cloudy</u>	Facility Name(s):
Weather Conditions for Past 10 days: <u>.7 inch rainfall</u>	Permit Number(s):
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): <u>570678</u>	Northing (UTM Y): <u>4312479</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>7.1</u> Meters
Site 11	Easting (UTM X): <u>570664</u>	Northing (UTM Y): <u>4312342</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>10.1</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>3731-01-021</u>	<u>Up Stream</u>	<u>3731-01-022</u>	<u>Dn Stream</u>		

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 Data Sheet D- Recreational Use Interview when conducting interviews.)				
<u>N/A</u>				

A

Stream Name & WBID # L. Cedar Cr. #3731

Date of Survey 8.15.08

Site # 1

Field Data Sheets for Recreational Use Stream Surveys

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

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

<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 checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: <u>pasture</u>
Comments: <u>Riparian zone ~ 75m</u>				

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: <u>N/A</u>			

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

<u>5</u> % Cobble	<u>5</u> % Gravel	<u>20</u> % Sand	<u>20</u> % Silt	<u>50</u> % Mud/Clay	<u>0</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Few aa grasses, algal growth uncommon

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 checked="" type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>brown</u>
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.

Stream Name & WBID # L. Cedar Cr. # 3731

Date of Survey 8.15.08

Site # 1

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

Comments: (Please record any additional comments here.)

N/A

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

Printed Names of Personnel Collecting Data: Jonathan Witte, Cody Luebbering

Surveyor's Signature: Cody Luebbering Date of Survey: 8.15.08

Organization: MEC Water Resources Position: Water Quality Scientist I

ANC 9-16-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Little Cedar Cr.</u> Waterbody ID: <u>3731</u> Site #: <u>1</u> Estimated Channel Incision: <u>0</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>570678</u> UTM Y: <u>4312479</u> +/- <u>7.1</u> (meters) 11 UTM X: <u>570664</u> UTM Y: <u>4312342</u> +/- <u>10.1</u> (meters) Average Stream Width: <u>4</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JW, CL</u>	Dissolved Oxygen
	Date: <u>8/15/2008</u> Time: <u>1335</u> Dissolved Oxygen: <u>6.15</u> (mg/L) Dissolved Oxygen: <u>67.5</u> (% sat) Specific Cond: <u>211.5</u> (µS/cm) Water Temperature: <u>21.5</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	0.32	0.22	0.42	0.14	0.29	0.02	0.48	0.11	0.36	0.12	0.22	0.06	0.78	0.21	0.60	0.10	0.48	0.09	0.43	0.18	0.56	0.18
2	0.64	0.33	0.84	0.17	0.58	0.03	0.96	0.18	0.72	0.19	0.44	0.15	1.56	0.30	1.20	0.49	0.96	0.18	0.86	0.30	1.12	0.20
3	0.96	0.38	1.26	0.28	0.87	0.10	1.44	0.17	1.08	0.21	0.66	0.20	2.34	0.50	1.80	0.82	1.44	0.20	1.29	0.46	1.68	0.17
4	1.28	0.33	1.68	0.34	1.16	0.11	1.92	0.18	1.44	0.20	0.88	0.18	3.12	0.63	2.40	0.97	1.92	0.23	1.72	0.46	2.24	0.14
5	1.60	0.42	2.10	0.37	1.45	0.11	2.40	0.17	1.80	0.30	1.10	0.14	3.90	0.76	3.00	0.99	2.40	0.29	2.15	0.50	2.80	0.16
6	1.92	0.45	2.52	0.38	1.74	0.16	2.88	0.20	2.16	0.30	1.32	0.17	4.68	0.74	3.60	>1	2.88	0.28	2.58	0.47	3.36	0.20
7	2.24	0.38	2.94	0.41	2.03	0.20	3.36	0.22	2.52	0.25	1.54	0.13	5.46	0.57	4.20	0.91	3.36	0.27	3.01	0.40	3.92	0.30
8	2.56	0.35	3.36	0.35	2.32	0.21	3.84	0.15	2.88	0.18	1.76	0.10	6.24	0.43	4.80	0.81	3.84	0.20	3.44	0.22	4.48	0.16
9	2.88	0.18	3.78	0.14	2.61	0.17	4.32	0.08	3.24	0.14	1.98	0.03	7.02	0.19	5.40	0.69	4.32	0.11	3.87	0.08	5.04	0.14
Right Bank	3.20	0.00	4.20	0.00	2.90	0.00	4.80	0.00	3.60	0.00	2.20	0.00	7.80	0.00	6.00	0.00	4.80	0.00	4.30	0.00	5.60	0.00
Feature Type <small>(riffle, run, or pool)</small>	Run		Pool		Pool		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.

Surveyor's Signature: _____ Date: 8/15/2008

WBID # 3731

Site # 02

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: <u>8-15-08</u> <u>12:44</u>	Location Description (e.g., road crossing): <u>Site 02 : 0570639 UTMx</u> <u>4311937 UTM y</u> at <u>Transect 1</u>
Stream Name: <u>Little Cedar Creek</u>	
Current Weather Conditions: <u>Mostly Cloudy, 80°F</u>	Facility Name(s):
Weather Conditions for Past 10 days: <u>.7in/ rainfall</u>	Permit Number(s):
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): <u>570639</u>	Northing (UTM Y): <u>4311937</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>10.0</u> Meters
Site 11	Easting (UTM X): <u>570707</u>	Northing (UTM Y): <u>4311835</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>15.3</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>3731-02-020</u>	<u>Downstream</u>	<u>3731-02-019</u>	<u>Upstream</u>		

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 Data Sheet D- Recreational Use Interview when conducting interviews.) <p style="text-align: center;"><u>N/A</u></p>				

Stream Name & WBID # Little Clear Creek

Date of Survey 8-15-08

Site # 3731

Field Data Sheets for Recreational Use Stream Surveys

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

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

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: <p style="text-align: center;">N/A</p>				

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: <p style="text-align: center;">N/A</p>			

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

0 % Cobble	3 % Gravel	12 % Sand	25 % Silt	60 % Mud/Clay	0 % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Uncommon algal growth
Aquatic grasses are present but not abundant

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: <u>Brown</u>
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.

Stream Name & WBID # Little Clear Creek 3731

Date of Survey 8-15-08

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)
		N/A			

Comments: (Please record any additional comments here.)

N/A

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

Printed Names of Personnel Collecting Data: Jonathan W. Ite , Cody Lubbering

Surveyor's Signature: Cody Lubbering Date of Survey: 8-15-08

Organization: MEC Water Resources Position: Water Quality Scientist I

RUC 9-16-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Little Cedar Creek</u> Waterbody ID: <u>3731</u> Site #: <u>2</u> Estimated Channel Incision: <u>0.1</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>570639</u> UTM Y: <u>4311937</u> +/- <u>10</u> (meters) 11 UTM X: <u>570707</u> UTM Y: <u>4311835</u> +/- <u>15.3</u> (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>JW, CL</u>	Dissolved Oxygen
	Date: <u>8/15/2008</u> Time: <u>1244</u> Dissolved Oxygen: <u>6.28</u> (mg/L) Dissolved Oxygen: <u>70.2</u> (% sat) Specific Cond: <u>234.9</u> (µS/cm) Water Temperature: <u>20.7</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	0.22	0.13	0.45	0.09	0.38	0.18	0.46	0.19	0.32	0.12	0.45	0.19	0.42	0.12	0.26	0.08	0.49	0.24	0.47	0.22	0.32	0.07
2	0.44	0.15	0.90	0.12	0.76	0.14	0.92	0.21	0.64	0.13	0.90	0.33	0.84	0.17	0.52	0.07	0.98	0.22	0.94	0.32	0.64	0.00
3	0.66	0.14	1.35	0.22	1.14	0.06	1.38	0.23	0.96	0.10	1.35	0.33	1.26	0.20	0.78	0.18	1.47	0.20	1.41	0.42	0.96	0.03
4	0.88	0.08	1.80	0.27	1.52	0.10	1.84	0.23	1.28	0.02	1.80	0.33	1.68	0.20	1.04	0.20	1.96	0.20	1.88	0.50	1.28	0.08
5	1.10	0.04	2.25	0.00	1.90	0.04	2.30	0.21	1.60	0.04	2.25	0.40	2.10	0.27	1.30	0.19	2.45	0.17	2.35	0.53	1.60	0.20
6	1.32	0.00	2.70	0.00	2.28	0.04	2.76	0.17	1.92	0.08	2.70	36.00	2.52	0.20	1.56	0.17	2.94	0.31	2.82	0.60	1.92	0.26
7	1.54	0.00	3.15	0.10	2.66	0.02	3.22	0.09	2.24	0.11	3.15	0.29	2.94	0.19	1.82	0.14	3.43	0.51	3.29	0.44	2.24	0.17
8	1.76	0.02	3.60	0.18	3.04	0.03	3.68	0.08	2.56	0.08	3.60	0.15	3.36	0.22	2.08	0.09	3.92	0.39	3.76	0.26	2.56	0.17
9	1.98	0.05	4.05	0.08	3.42	0.02	4.14	0.04	2.88	0.04	4.05	0.07	3.78	0.14	2.34	0.05	4.41	0.23	4.23	0.09	2.88	0.09
Right Bank	2.20	0.00	4.50	0.00	3.80	0.00	4.60	0.00	3.20	0.00	4.50	0.00	4.20	0.00	2.60	0.00	4.90	0.00	4.70	0.00	3.20	0.00
Feature Type <small>(riffle, run, or pool)</small>	Riffle		Run		Riffle		Run		Riffle		Run		Run		Run		Run		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.

Surveyor's Signature: _____ Date: 8/15/2008

WBID # 3731

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: <u>8.15.08</u> <u>1145</u>	Location Description (e.g., road crossing): <u>at Carter School Rd. Crossing</u>
Stream Name: <u>L. Cedar Creek</u>	
Current Weather Conditions: <u>80°F, Mostly Sunny</u>	Facility Name(s):
Weather Conditions for Past 10 days: <u>7 inch rainfall</u>	Permit Number(s):
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): <u>570706</u>	Northing (UTM Y): <u>4311443</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>14.0</u> Meters
Site 11	Easting (UTM X): <u>570802</u>	Northing (UTM Y): <u>4311343</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>8.5</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>3731-03-017</u>	<u>Downstream</u>	<u>3731-03-018</u>	<u>Upstream</u>		

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 Data Sheet D- Recreational Use Interview when conducting interviews.)

N/A

Handwritten squiggle

Stream Name & WBID # Little Cedar Creek 3731

Date of Survey 8-15-08

Site # 27011

Field Data Sheets for Recreational Use Stream Surveys

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

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

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: <u>pasture</u>
Comments: <u>Riparian ~ 75m</u>				

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: <u>N/A</u>			

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

<u>0</u> % Cobble	<u>5</u> % Gravel	<u>60</u> % Sand	<u>15</u> % Silt	<u>20</u> % Mud/Clay	<u>0</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Few aq. plants,
Little algal growth

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: <u>brown</u>
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.

Stream Name & WBID # Little Cedar Creek 3731 Date of Survey 8-15-08
 Site # 3

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

Comments: (Please record any additional comments here.)

N/A

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

Printed Names of Personnel Collecting Data: Jonathan Witte, Cody Luebbering

Surveyor's Signature: Cody Luebbering Date of Survey: 8-15-08

Organization: MEC Water Resources Position: Water Quality Scientist I

ALC 9-16-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Little Cedar Creek</u>	Waterbody ID: <u>3731</u>	Site #: <u>3</u>	Dissolved Oxygen	
Estimated Channel Incision: <u>0</u> (m) (height between low bank width and water)			Date: <u>8/15/2008</u>	Time: <u>1145</u>
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)			Dissolved Oxygen: <u>4.63</u> (mg/L)	
01 UTM X: <u>570706</u>	UTM Y: <u>4311443</u>	+/- <u>8.5</u> (meters)	Dissolved Oxygen: <u>49.5</u> (% sat)	
11 UTM X: <u>570802</u>	UTM Y: <u>4311343</u>	+/- <u>14</u> (meters)	Specific Cond: <u>247</u> (µS/cm)	
Average Stream Width: <u>8</u> (meters)		Length of Survey Segment: <u>160</u> (meters)	Water Temperature: <u>20.5</u> (°C)	
(To determine Length of Reach)			(20x average stream width)	
Field Staff: <u>JW, CL</u>				

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	0.51	>1	0.61	0.09	0.45	0.12	0.53	0.12	0.47	0.13	0.56	0.39	0.23	0.04	0.63	0.13	0.52	0.20	0.60	0.20	0.45	0.12
2	1.02	>1	1.22	0.32	0.90	0.10	1.06	0.31	0.94	0.35	1.12	0.61	0.46	0.06	1.26	0.24	1.04	0.51	1.20	0.30	0.90	0.22
3	1.53	>1	1.83	0.54	1.35	0.00	1.59	0.38	1.41	0.63	1.68	0.80	0.69	0.11	1.89	0.30	1.56	0.50	1.80	0.39	1.35	0.30
4	2.04	0.90	2.44	0.66	1.80	0.09	2.12	0.52	1.88	0.70	2.24	0.85	0.92	0.13	2.52	0.54	2.08	0.53	2.40	0.67	1.80	0.45
5	2.55	0.71	3.05	0.66	2.25	0.09	2.65	0.49	2.35	0.62	2.80	0.94	1.15	0.14	3.15	0.68	2.60	0.54	3.00	0.80	2.25	0.45
6	3.06	0.48	3.66	0.70	2.70	0.10	3.18	0.49	2.82	0.52	3.36	0.92	1.38	0.16	3.78	0.74	3.12	0.53	3.60	0.77	2.70	0.44
7	3.57	0.44	4.27	0.73	3.15	0.23	3.71	0.51	3.29	0.44	3.92	0.69	1.61	0.15	4.41	0.68	3.64	0.52	4.20	0.78	3.15	0.36
8	4.08	0.32	4.88	0.55	3.60	0.40	4.24	0.42	3.76	0.14	4.48	0.51	1.84	0.14	5.04	0.50	4.16	0.47	4.80	0.71	3.60	0.26
9	4.59	0.15	5.49	0.19	4.05	0.40	4.77	0.22	4.23	0.05	5.04	0.20	2.07	0.10	5.67	0.40	4.68	0.33	5.40	0.45	4.05	0.15
Right Bank	5.10	0.00	6.10	0.00	4.50	0.00	5.30	0.00	4.70	0.00	5.60	0.00	2.30	0.00	6.30	0.00	5.20	0.00	6.00	0.00	4.50	0.00
Feature Type	Run		Pool		Riffle		Pool		Run		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.

Surveyor's Signature: _____ Date: 8/15/2008



