



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 1622 Massie Creek

Submitted by

MEC Water Resources

To

Missouri Department of Natural Resources

Water Protection Program

On

May 29, 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>Massie Creek</i>
Missouri Water Body Identification (WBID) Number: <i>1622</i>
8-digit HUC: <i>10300200</i>
County(ies), Listed Upstream to Downstream: <i>Warren</i>
Upstream Legal Description (from Table H): <i>10, 46N, 4W</i>
Downstream Legal Description (from Table H): <i>36, 47N, 4W</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).

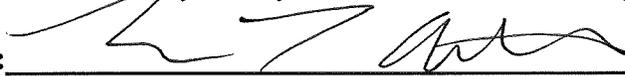
II. Facility Information (list all permitted discharges to this water body segment)

Facility Name(s) and Permit Number(s): <i>Massas Creek MHP</i> <i>MO-0115177</i>
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III. UAA Surveyor (please PRINT legibly)

Name of Surveyor: <i>T. Altheimer, J. VeVerke</i> Telephone Number: <i>573-443-4100</i>
Organization/Employer: <i>MEC Water Resources</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:  Date: *5/13/08*

QMC 5-27-08

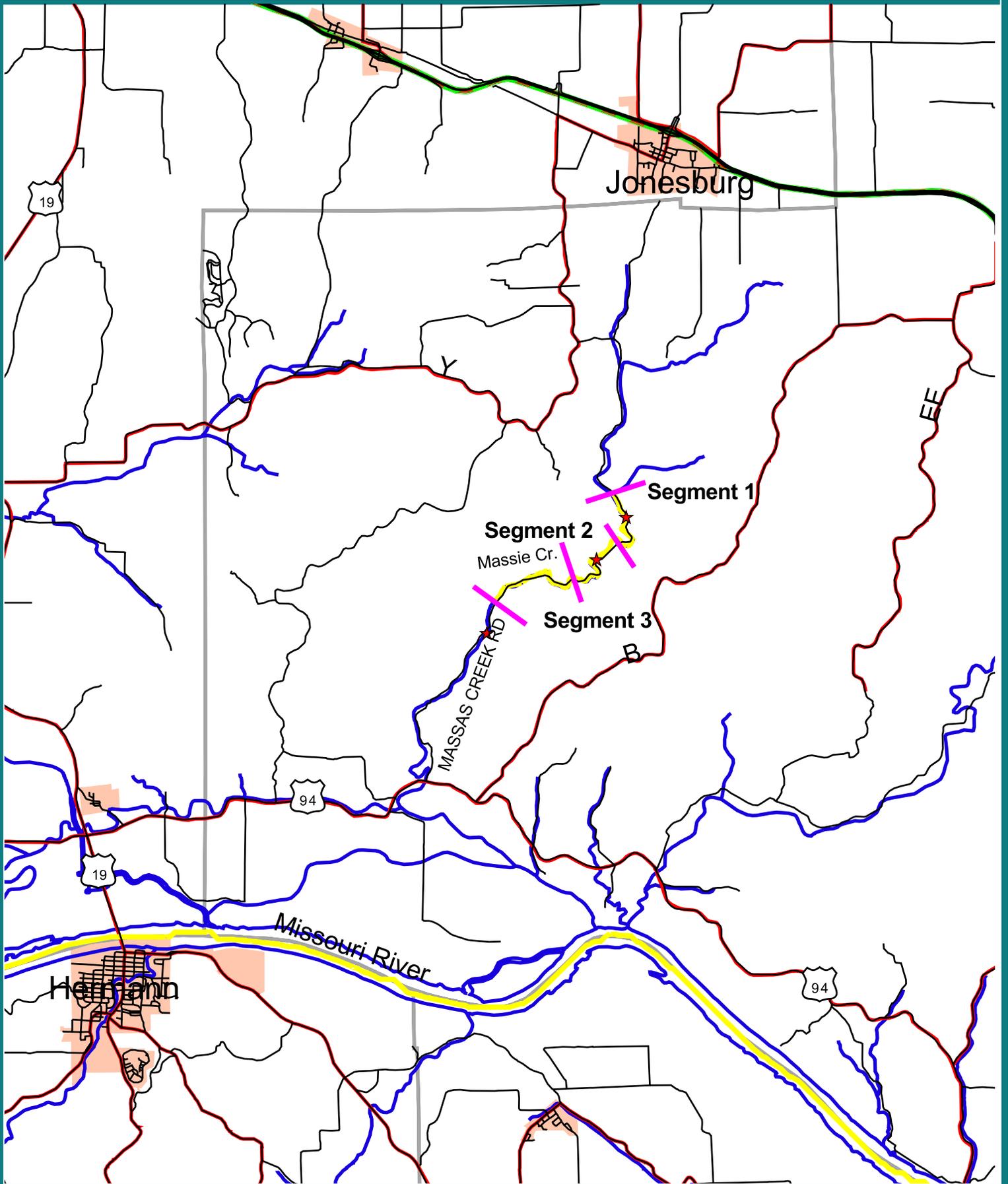
Massie Creek WBID: 1622 4 mi.



Survey Reach



Survey Points



WBID # 1622

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: <u>4/29/08 8:50</u>	Location Description (e.g., road crossing): <u>Off of Massas Creek Rd.</u>
Stream Name: <u>Massas Creek</u>	
Current Weather Conditions: <u>Clear, 52°F, Calm</u>	Facility Name(s): <u>Massas Creek MAP</u>
Weather Conditions for Past 10 days: <u>~0.50 in rain, Clear, Ph. Sky</u>	Permit Number(s): <u>MO-0115177</u>
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: 646225 4294447

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>4294447</u>	Northing (UTM Y): <u>0646225</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>6.4</u> Meters
Site 11	Easting (UTM X): <u>4294255</u>	Northing (UTM Y): <u>0646172</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>14.3</u> Meters

646172 4294255

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>1622-1-240</u>	<u>UPS</u>	<u>1622-234</u> <u>1622-1-242</u>	<u>DNS</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

Stream Name & WBID # Massie Creek, 1622

Date of Survey 4/29/08

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 checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: <u>Parted Forest</u>
Comments: <u>N/A</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>40</u> % Cobble	<u>50</u> % Gravel	<u>10</u> % Sand	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Periphyton Common, grasses and willow

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input 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.

Stream Name & WBID # Massie Creek, 1622

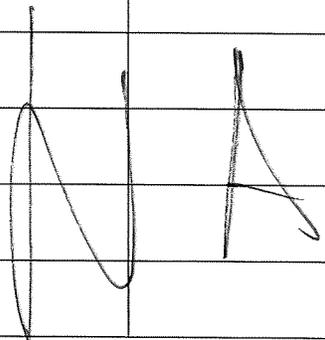
Date of Survey 4/29/08

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)
					

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: James Valerka, Tim Albrecht

Surveyor's Signature: [Signature] Date of Survey: 4/29/08

Organization: MFC Water Position: Water Quality Scientist

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Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Massie Creek</u> Waterbody ID: <u>1622</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>646225</u> UTM Y: <u>4294447</u> +/- <u>6.4</u> (meters) 11 UTM X: <u>646172</u> UTM Y: <u>4294255</u> +/- <u>14.3</u> (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>TA, JV</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>4/29/2008</u> Time: <u>8:50</u> Dissolved Oxygen: <u>11.73</u> (mg/L) Dissolved Oxygen: <u>99.9</u> (% sat) Specific Cond: <u>344</u> (µS/cm) Water Temperature: <u>8.3</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	0.62	0.1	0.98	0.06	0.57	0.18	0.59	0.15	0.58	0.54	0.69	0.07	0.77	0.11	0.89	0.21	0.81	0	0.6	0.28	0.73	0.13
	2	1.24	0.09	1.96	0	1.14	0.19	1.18	0.14	1.16	0.58	1.38	0.09	1.54	0.32	1.78	0.32	1.62	0.01	1.2	0.32	1.46	0.07
	3	1.86	0.09	2.94	0	1.71	0.23	1.77	0.12	1.74	0.51	2.07	0.27	2.31	0.44	2.67	0.21	2.43	0.06	1.8	0.29	2.19	0.13
	4	2.48	0.08	3.92	0	2.28	0.24	2.36	0.19	2.34	0.61	2.76	0.4	3.08	0.39	3.56	0.23	3.24	0.09	2.4	0.05	2.92	0.08
	5	3.1	0.11	4.9	0	2.85	0.28	2.95	0.14	2.9	0.56	3.45	0.41	3.85	0.52	4.45	0.22	4.05	0.11	3	0.19	3.65	0.08
	6	3.72	0.06	5.88	0.15	3.42	0.21	3.54	0.1	3.48	0.54	4.14	0.41	4.62	0.46	5.34	0.18	4.86	0.15	3.6	0.2	4.38	0.06
	7	4.34	0.07	6.86	0.17	3.99	0.15	4.13	0.1	4.06	0.41	4.83	0.25	5.39	0.47	6.23	0.14	5.67	0.1	4.2	0.15	5.11	0.07
	8	4.96	0.09	7.84	0.16	4.56	0.11	4.72	0.11	4.64	0.27	5.52	0.23	6.16	0.42	7.12	0.09	6.48	0.11	4.8	0.17	5.84	0.09
	9	5.58	0.06	8.82	0.08	5.13	0.04	5.31	0.08	5.22	0.11	6.21	0.13	6.93	0.33	8.01	0.04	7.29	0.06	5.4	0.06	6.57	0.04
Right Bank		6.2	0	9.4	0	5.7	0	5.9	0	5.8	0	6.9	0	7.7	0	8.9	0	8.1	0	6	0	7.3	0
Feature Type <small>(riffle, run, or pool)</small>		Riffle		Riffle		Run		Run		Pool		Run		Run		Run		Riffle		Riffle		Riffle	

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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: _____

WBID # 1622

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: <u>4/29/08 9:27</u>	Location Description (e.g., road crossing): <u>Off of Massas Creek Road</u>
Stream Name: <u>Massie Creek</u>	
Current Weather Conditions: <u>Clear, 52°F, Calm</u>	Facility Name(s): <u>Massas Cr. MHP</u>
Weather Conditions for Past 10 days: <u>no sun, rain, Clear, H.C.</u>	Permit Number(s): <u>MO-0115177</u>
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>4293570</u>	Northing (UTM X): <u>0645612</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>8.5</u> Meters
Site 11	Easting (UTM X): <u>4293428</u>	Northing (UTM X): <u>0645587</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>9.8</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>1622-2-244</u>	<u>UPS</u>	<u>1622-2-246</u>	<u>DNS</u>	<u>1622-2-248</u>	<u>"Road"</u>
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>1622-2-250</u>	<u>Road/tire tracks/gravel Bar</u>				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Stream Name & WBID # Massie Creek, 1622

Date of Survey 4/29/08

Site # 2

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

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

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input checked="" type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other: <u>Road probably for ATVs, tire tracks on gravel bar and evidence of gravel extraction</u>			

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

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

periphyton common, grasses & willows

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input 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.

Stream Name & WBID # Massie Creek, 1622

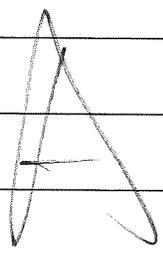
Date of Survey 4/29/08

Site # 2

Field Data Sheets for Recreational Use Stream Surveys

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

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

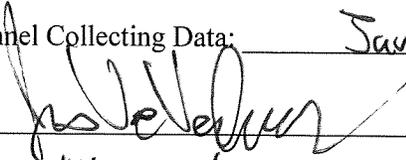
Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
					

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: James McVerkey, Tim Altmeyer

Surveyor's Signature:  Date of Survey: 4/29/08

Organization: MFC Water Position: Water Quality Specialist

and 5-27-08

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

Stream Name: <u>Massie Creek</u> Waterbody ID: <u>1622</u> Site #: <u>2</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>645612</u> UTM Y: <u>4293570</u> +/- <u>8.3</u> (meters) 11 UTM X: <u>645587</u> UTM Y: <u>4293428</u> +/- <u>9.8</u> (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>TA, JV</u>	<p align="center">Dissolved Oxygen</p> Date: <u>4/29/2008</u> Time: <u>9:27</u> Dissolved Oxygen: <u>11.93</u> (mg/L) Dissolved Oxygen: <u>105.4</u> (% sat) Specific Cond: <u>340.3</u> (µS/cm) Water Temperature: <u>9.9</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
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		0.97	0.08	0.83	0.24	0.67	0.54	1.1	0.3	1.04	>1.0	0.84	0.14	0.85	0.14	0.91	0.15	1.12	0.07	1.16	0.05	0.69	0.03
2		1.94	0.16	1.66	0.14	1.34	0.54	2.2	0.4	2.08	>1.0	1.68	0.36	1.7	0.25	1.82	0.17	2.24	0.07	2.32	0.09	1.38	0.08
3		2.91	0.11	2.49	0.1	2.01	0.58	3.3	0.4	3.12	>1.0	2.52	0.5	2.55	0.46	2.73	0.22	3.36	0.09	3.48	0.09	2.07	0.13
4		3.88	0.04	3.32	0.08	2.68	0.58	4.4	0.39	4.16	0.93	3.36	0.58	3.4	0.69	3.64	0.24	4.48	0.15	4.64	0.08	2.76	0.17
5		4.85	0	4.15	0.09	3.35	0.41	5.5	0.31	5.2	0.78	4.2	0.62	4.25	0.91	4.55	0.22	5.6	0.14	5.8	0.03	3.45	0.2
6		5.82	0	4.98	0.03	4.02	0.3	6.6	0.3	6.24	0.56	5.04	0.72	5.1	>1.0	5.46	0.21	6.72	0.18	6.96	0.04	4.14	0.2
7		6.79	0.01	5.81	0.06	4.69	0.22	7.7	0.15	7.28	0.32	5.88	0.73	5.95	>1.0	6.37	0.25	7.84	0.23	8.12	0.06	4.83	0.19
8		7.76	0.1	6.64	0.03	5.36	0.13	8.8	0.15	8.32	0.21	6.72	0.76	6.8	>1.0	7.28	0.39	8.96	0.25	9.28	0.07	5.52	0.17
		8.73	0.04	7.47	0.03	6.03	0.04	9.9	0.08	9.36	0.25	7.56	0.85	7.65	0.78	8.19	0.37	10.08	0.26	10.44	0.08	6.21	0.05
Right Bank		9.7	0	8.3	0	6.7	0	11	0	10.4	0	8.4	0	8.5	0	9.1	0	11.2	0	11.6	0	6.9	0
Feature Type <small>(riffle, run, or pool)</small>		Riffle	Riffle	Run	Run	Run	Run	Pool	Run	Pool	Run	Run	Run	Run	Run	Run	Riffle	Riffle	Riffle	Riffle	Riffle	Riffle	Riffle

rwc

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: _____

WBID # 1622

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>4/29/08 10:25</u>	Location Description (e.g., road crossing): <u>off of Massas Creek Road</u>
Stream Name: <u>Massas Creek</u>	
Current Weather Conditions: <u>Clear, 53°F, Calm</u>	Facility Name(s): <u>Massas Cr. MHP</u>
Weather Conditions for Past 10 days: <u>~0.50 in rain, Pt. Cl. by Clear</u>	Permit Number(s): <u>MO-0115177</u>
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>4292041</u>	Northing (UTM Y): <u>064358</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>6.0</u> Meters
Site 11	Easting (UTM X): <u>4291881</u>	Northing (UTM Y): <u>064367</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>13.6</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>1622-3-255</u>	<u>UPS</u>	<u>1622-3-257</u>	<u>DNS</u>	<u>1622-3-259</u>	<u>Road</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>				

Stream Name & WBID # Mussie Creek, 1622

Date of Survey 4/29/08

Site # 3

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

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

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other: <u>N/A</u>			

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

<u>30</u> % Cobble	<u>30</u> % Gravel	<u>15</u> 10 % Sand	<u>5</u> % Silt	<u>20</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

periphyton Abundant, gurglers and willows

Water Characteristics*: (Mark all that apply.)

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

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

Stream Name & WBID # Massie Creek, 1622
 Site # 3

Date of Survey 4/29/08

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.)

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: James Ververka, Tim Altmether
 Surveyor's Signature: Date of Survey: 4/29/08
 Organization: MEC Water Position: Water Quality Scientist
RUC 5 27-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Massie Creek</u> Waterbody ID: <u>1622</u> Site #: <u>3</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>643338</u> UTM Y: <u>4292041</u> +/- <u>6</u> (meters) 11 UTM X: <u>643187</u> UTM Y: <u>4291881</u> +/- <u>13.6</u> (meters) Average Stream Width: <u>10</u> (meters) Length of Survey Segment: <u>200</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>TA, JV</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>4/29/2008</u> Time: <u>10:23</u> Dissolved Oxygen: <u>12.95</u> (mg/L) Dissolved Oxygen: <u>117.8</u> (% sat) Specific Cond: <u>331.3</u> (µS/cm) Water Temperature: <u>11.1</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	0.93	0.09	0.72	0.44	1.06	0.71	1.55	0.43	1.32	0.05	1.16	0.07	1.2	0.11	1.35	0.03	1.39	0	1.3	0.04	1.39	0.09
	2	1.86	0.04	1.44	0.42	2.12	0.89	3.1	0.36	2.64	0.12	2.32	0.18	2.4	0.25	2.7	0.09	2.78	0.02	2.6	0.07	2.78	0.23
	3	2.79	0.08	2.16	0.41	3.18	>1.0	4.65	0.41	3.96	0.19	3.48	0.2	3.6	0.31	4.05	0.1	4.17	0.08	3.9	0.1	4.17	0.24
	4	3.72	0.23	2.88	0.42	4.24	>1.0	6.2	0.48	5.28	0.21	4.64	0.26	4.8	0.62	5.4	0.12	5.56	0.1	5.2	0.09	5.56	0.17
	5	4.65	0.34	3.6	0.38	5.3	>1.0	7.75	0.41	6.6	0.4	5.8	0.34	6	0.72	6.75	0.21	6.95	0.09	6.5	0.12	6.95	0.13
	6	5.58	0.27	4.32	0.29	6.36	0.8	9.3	0.26	7.92	0.59	6.96	0.29	7.2	0.77	8.1	0.19	8.34	0.22	7.8	0.25	8.34	0.09
	7	6.51	0.28	5.04	0.27	7.42	0.54	10.85	0.25	9.24	0.74	8.12	0.31	8.4	0.76	9.45	0.23	9.73	0.34	9.1	0.31	9.73	0.07
	8	7.44	0.05	5.76	0.14	8.48	0.13	12.4	0.27	10.56	0.67	9.28	0.26	9.6	0.65	10.8	0.15	11.12	0.27	10.4	0.3	11.12	0.13
	9	8.37	0.07	6.48	0.06	9.54	0.03	13.95	0.32	11.88	0.41	10.44	0.2	10.8	0.46	12.15	0.11	12.51	0.13	11.7	0.19	12.51	0.06
Right Bank		9.3	0	7.2	0	10.6	0	15.5	0	13.2	0	11.6	0	12	0	13.5	0	13.9	0	13	0	13.9	0
Feature Type		Riffle		Run		Pool		Run		Run		Run		Pool		Riffle		Riffle		Run		Riffle	

rwc

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: _____

WBID 1622

Site 1

Upstream



WBID 1622
Site 1
Down stream



WBID 1622

Site 2

Upstream



WBID 1622

Site 2

Downstream



WBIS 1622

Site 2

Road

City Erase Marker



WBID 1622

Site 2

Gravel Bar



WBID 1622

Site 3

Upstream



WBID 1622

Site 3

Down stream



WBIS 1622

Site 3

Road

