



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 3667 Middlebrook Creek

Submitted by

Environmental Resource Coalition

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):	Middlebrook Creek
Missouri Water Body Identification (WBID) Number:	3667
8-digit HUC:	08020202
County(ies), Listed Upstream to Downstream:	Iron St. Francois
Upstream Legal Description (from Table H):	Mouth
Downstream Legal Description (from Table H):	08, 34N, 04E
Number of sites evaluated:	3
List all site numbers, <u>consecutively upstream to downstream</u> :	Site 1, Site 2, Site 3
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):
Strickland Lagoon
MO-0122319

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

Name of Surveyor:	T. Altnether, J. VeVerka	Telephone Number:	573-443-4100
Organization/Employer:	MEC Water Resources		

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: 5/15/08

anc 5-20-08

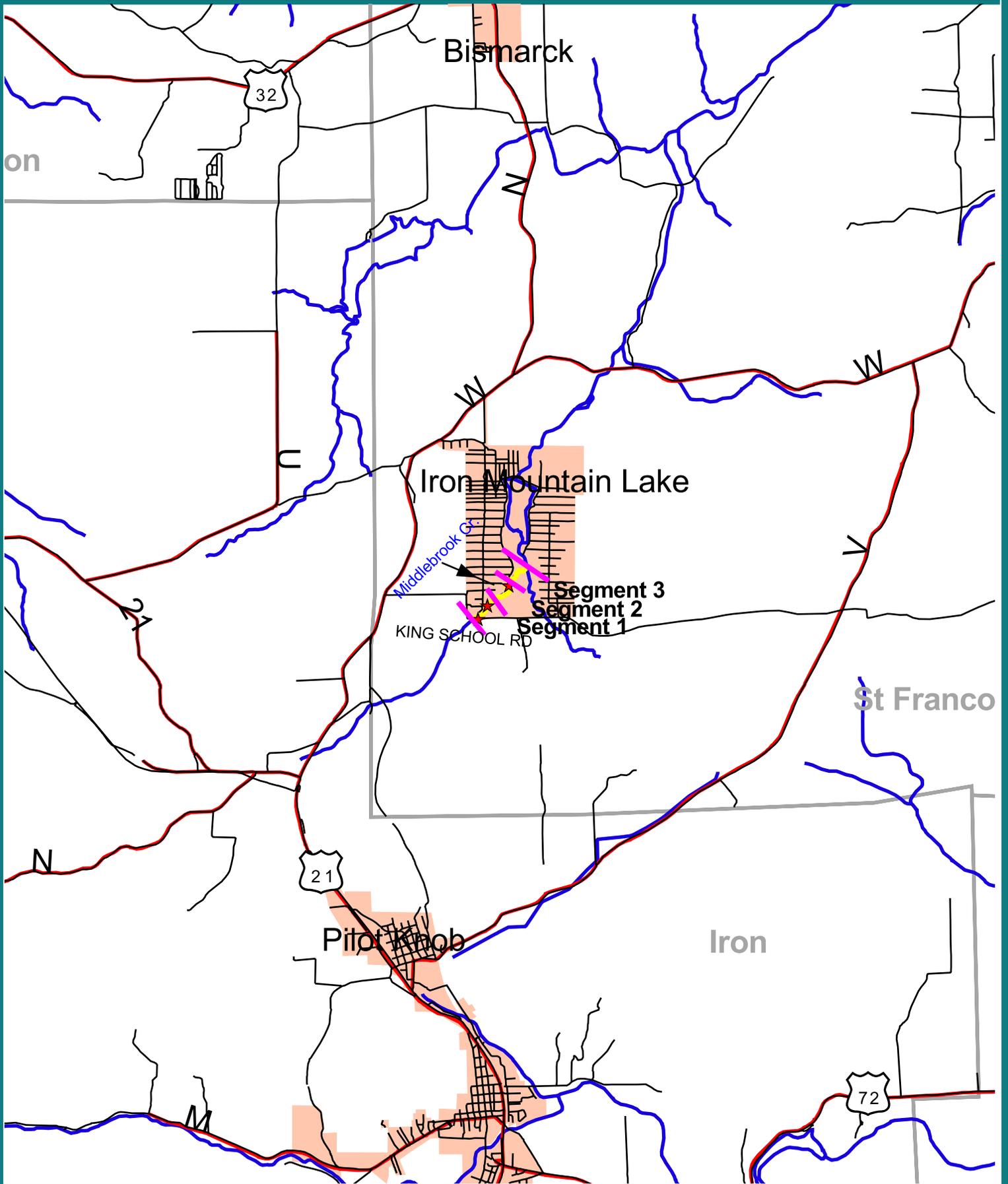
Middlebrook Creek WBID: 3667 0.8 mi.



Survey Reach



Survey Points



WBID # 3667
 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>4/30/08 10:25</u>	Location Description (e.g., road crossing): <u>King School Rd. Crossing</u>
Stream Name: <u>Middlebrook Cr.</u>	
Current Weather Conditions: <u>Pt. Cldy, 65°F, Calm</u>	Facility Name(s): <u>Strickland Lagoon</u>
Weather Conditions for Past 10 days: <u>0.50 rain, Clear Pt. Cldy</u>	Permit Number(s): <u>M00122319</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>0709293</u>	Northing (UTM Y): <u>4172069</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>7.2</u> Meters
Site 11	Easting (UTM X): <u>0709370</u>	Northing (UTM Y): <u>4172158</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>7.3</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>3667-1-001</u>	<u>UPS</u>	<u>3667-1-002</u>	<u>DN5</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

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

N/A

Stream Name & WBID # Middlebrook Co., 5667
 Site # 1

Date of Survey 4/30/08

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>Riparian</u>
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%.)

<u>30</u> ²⁰ _{TA} % Cobble	<u>40</u> ³⁰ _{TA} % Gravel	50 % Sand	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>periphyton common, grasses</u>

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 # Middlebrook Cr. 3067

Date of Survey 4/30/08

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 Ververka, Tim Altmeyer

Surveyor's Signature: [Signature] Date of Survey: 4/30/08

Organization: MEC Water Position: Water Quality Scientist

BNC 5-20-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u> Middlebrook </u> Waterbody ID: <u> 3667 </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> 709293 </u> UTM Y: <u> 4172069 </u> +/- <u> 7.2 </u> (meters) 11 UTM X: <u> 709370 </u> UTM Y: <u> 4172158 </u> +/- <u> 11.3 </u> (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> TA, JV </u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u> 4/30/2008 </u> Time: <u> 10:25 </u> Dissolved Oxygen: <u> 10.32 </u> (mg/L) Dissolved Oxygen: <u> 96.2 </u> (% sat) Specific Cond: <u> 128.6 </u> (µS/cm) Water Temperature: <u> 12.2 </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	0.50	0.04	0.79	0.03	0.81	0.01	0.32	0.19	0.70	0.20	0.74	0.55	0.83	0.08	0.90	0.01	0.71	0.11	0.70	0.78	0.38	0.39
	2	1.00	0.10	1.58	0.16	1.62	0.09	0.64	0.17	1.40	0.40	1.48	0.72	1.66	0.20	1.80	0.07	1.42	0.13	1.40	0.81	0.76	0.40
	3	1.50	0.13	2.37	0.63	2.43	0.21	0.96	0.22	2.10	0.67	2.22	0.67	2.49	0.43	2.70	0.00	2.13	0.20	2.10	0.85	1.14	0.46
	4	2.00	0.20	3.16	0.72	3.24	0.00	1.28	0.28	2.80	0.70	2.96	0.66	3.32	0.75	3.60	0.03	2.84	0.08	2.80	0.71	1.52	0.34
	5	2.50	0.26	3.95	0.66	4.05	0.03	1.60	0.52	3.50	0.67	3.70	0.66	4.15	0.93	4.50	0.26	3.55	0.06	3.50	0.54	1.90	0.30
	6	3.00	0.20	4.74	0.62	4.86	0.06	1.92	0.66	4.20	0.67	4.44	0.60	4.98	0.78	5.40	0.43	4.26	0.00	4.20	0.40	2.28	0.23
	7	3.50	0.30	5.53	0.52	5.67	0.12	2.24	0.65	4.90	0.68	5.18	0.58	5.81	0.73	6.30	0.45	4.97	0.00	4.90	0.22	2.66	0.15
	8	4.00	0.15	6.32	0.49	6.48	0.07	2.56	0.53	5.60	0.57	5.92	0.42	6.64	0.90	7.20	0.10	5.68	0.01	5.60	0.15	3.04	0.10
	9	4.50	0.06	7.11	0.44	7.29	0.04	2.88	0.51	6.30	0.35	6.66	0.27	7.47	0.40	8.10	0.09	6.39	0.01	6.30	0.06	3.42	0.05
Right Bank		5.00	0.00	7.90	0.00	8.10	0.00	3.20	0.00	7.00	0.00	7.40	0.00	8.30	0.00	9.00	0.00	7.10	0.00	7.00	0.00	3.80	0.00
Feature Type		Run		Pool		Riffle		Pool		Pool		Pool		Pool		Run		Riffle		Pool		Run	

TWC

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 # 3667
 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>4/30/08 10:50</u>	Location Description (e.g., road crossing): <u>Downstream of King School Rd. Crossing</u>
Stream Name: <u>Middlebrook Cr.</u>	
Current Weather Conditions: <u>Pl. Cl. 65°F, Calm</u>	Facility Name(s): <u>Strickland Lagoon</u>
Weather Conditions for Past 10 days: <u>0-50 Clear rain, Pl. Cl. 4</u>	Permit Number(s): <u>MO0122319</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>0709450</u>	Northing (UTM Y): <u>4172294</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>17.5</u> Meters
Site 11	Easting (UTM X): <u>0709584</u>	Northing (UTM Y): <u>4172419</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>5.8</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>3667-2-003</u>	<u>UPS</u>	<u>3667-2-004</u>	<u>DNS</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Stream Name & WBID # Middlebrook Cr. 3667
 Site # 2

Date of Survey 4/30/09

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>Riparian</u>
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%.)

<u>10</u> % Cobble	<u>30</u> % Gravel	<u>55</u> % Sand	<u>5</u> % Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

periphyton common, grasses

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 # Middlebrook Cr., 3607

Date of Survey 4/30/08

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)
		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: James McVerky, Tim Altnether

Surveyor's Signature: [Signature] Date of Survey: 4/30/08

Organization: MFC Water Position: Water Quality Scientist

RUC 5-20-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u> Middlebrook Cr </u> Waterbody ID: <u> 3667 </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> 709450 </u> UTM Y: <u> 4172294 </u> +/- <u> 17.5 </u> (meters) 11 UTM X: <u> 709584 </u> UTM Y: <u> 4172419 </u> +/- <u> 5.8 </u> (meters) Average Stream Width: <u> 9 </u> (meters) Length of Survey Segment: <u> 180 </u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u> TA, JV </u>	Dissolved Oxygen Date: <u> 4/30/2008 </u> Time: <u> 12:00 </u> Dissolved Oxygen: <u> 10.76 </u> (mg/L) Dissolved Oxygen: <u> 101.4 </u> (% sat) Specific Cond: <u> 130.3 </u> (µS/cm) Water Temperature: <u> 12.6 </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	1.07	0.27	1.15	0.13	1.04	0.27	0.95	0.20	1.00	0.23	1.12	0.17	1.33	0.20	0.98	0.45	1.07	0.08	0.93	0.49	0.43	0.55
	2	2.14	0.30	2.30	0.16	2.08	0.30	1.90	0.25	2.00	0.26	2.24	0.13	2.66	0.38	1.96	0.67	2.14	0.14	1.86	0.85	0.86	0.50
	3	3.21	0.00	3.45	0.11	3.12	0.38	2.85	0.35	3.00	0.33	3.36	0.18	3.99	0.39	2.94	0.95	3.21	0.20	2.79	0.87	1.29	0.43
	4	4.28	0.00	4.60	0.04	4.16	0.37	3.80	0.41	4.00	0.45	4.48	0.40	5.32	0.25	3.92	>1.0	4.28	0.25	3.72	0.55	1.72	0.42
	5	5.38	0.00	5.75	0.00	5.20	0.34	4.75	0.46	5.00	0.62	5.60	0.53	6.65	0.33	4.90	0.98	5.35	0.24	4.65	0.32	2.15	0.33
	6	6.42	0.00	6.90	0.00	6.24	0.40	5.70	0.54	6.00	0.75	6.72	0.52	7.98	0.27	5.88	0.81	6.42	0.30	5.58	0.11	2.58	0.27
	7	7.49	0.13	8.05	0.08	7.28	0.32	6.65	0.45	7.00	0.71	7.84	0.38	9.31	0.28	6.86	0.48	7.49	0.25	6.51	0.03	3.01	0.23
		8.56	0.07	9.20	0.08	8.32	0.17	7.60	0.31	8.00	0.67	8.96	0.38	10.64	0.20	7.84	0.25	8.56	0.16	7.44	0.04	3.44	0.10
	9	9.63	0.06	10.35	0.06	9.36	0.06	8.55	0.16	9.00	0.57	10.08	0.16	11.97	0.33	8.82	0.14	9.63	0.10	8.37	0.08	3.87	0.05
Right Bank		10.70	0.00	11.50	0.00	10.40	0.00	9.50	0.00	10.00	0.00	11.20	0.00	13.30	0.00	9.80	0.00	10.70	0.00	9.00	0.00	4.30	0.00
Feature Type		Riffle		Riffle		Run		Run		Pool		Run		Run		Pool		Run		Pool		Run	

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 # 3667
 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>4/30/08 N:20</u>	Location Description (e.g., road crossing): <u>Upstream of King School Rd. Crossing Downstream</u>
Stream Name: <u>Middlebrook Cr.</u>	
Current Weather Conditions: <u>Pt. Cldy 65°F, Calm</u>	Facility Name(s): <u>Strickland Lagoon</u>
Weather Conditions for Past 10 days: <u>2:50, Clear Pt. Cldy</u>	Permit Number(s): <u>MO0122319</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>0709804</u>	Northing (UTM Y): <u>4172627</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>8.0</u> Meters
Site 11	Easting (UTM X): <u>0709916</u>	Northing (UTM Y): <u>4172765</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>6.1</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>3667.3.005</u>	<u>UPS</u>	<u>3667.3.006</u>	<u>DNS</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Stream Name & WBID # Middlebrook Cr. 3667
 Site # 3

Date of Survey 4/30/08

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>Riparian</u>
Comments: <p style="text-align: center;">NA</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%.)

10 % Cobble	45 % Gravel	40 50 % Sand	5 % Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Grasses, periphyton common

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 # Middlebrook Cr., 3667
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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: James VeVorka, Tim Altmother

Surveyor's Signature: [Signature] Date of Survey: 4/30/08

Organization: MEC Water Position: Water Quality Scientist

RUC 5-20-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u> Middlebrook Cr. </u> Waterbody ID: <u> 3667 </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> 709804 </u> UTM Y: <u> 4172627 </u> +/- <u> 8 </u> (meters) 11 UTM X: <u> 709916 </u> UTM Y: <u> 4172765 </u> +/- <u> 6.1 </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> 4/30/2008 </u> Time: <u> 11:20 </u> Dissolved Oxygen: <u> 10.05 </u> (mg/L) Dissolved Oxygen: <u> 96.1 </u> (% sat) Specific Cond: <u> 130.3 </u> (µS/cm) Water Temperature: <u> 13.3 </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	0
	1	0.36	0.08	0.92	0.22	0.88	0.61	1.16	0.25	1.00	0.20	0.85	0.15	1.29	0.22	0.68	0.08	1.00	0.20	0.39	0.04	0.61	0.04
	2	0.72	0.14	1.84	0.26	1.76	0.74	2.32	0.67	2.00	0.24	1.70	0.16	2.58	0.14	1.36	0.08	2.00	0.29	0.78	0.07	1.22	0.09
	3	1.08	0.26	2.76	0.30	2.64	0.65	3.48	0.75	3.00	0.44	2.55	0.15	3.87	0.00	2.04	0.05	3.00	0.15	1.17	0.10	1.83	0.13
	4	1.44	0.24	3.68	0.36	3.52	0.74	4.64	0.54	4.00	0.62	3.40	0.17	5.16	0.00	2.72	0.08	4.00	0.02	1.56	0.19	2.44	0.17
	5	1.80	0.15	4.60	0.17	4.40	0.75	5.80	0.03	5.00	0.88	4.25	0.27	6.45	0.13	3.40	0.10	5.00	0.09	1.95	0.24	3.05	0.16
	6	2.16	0.08	5.52	0.54	5.28	0.64	6.96	0.00	6.00	0.91	5.10	0.34	7.74	0.40	4.08	0.07	6.00	0.05	2.34	0.22	3.66	0.13
	7	2.52	0.04	6.44	0.58	6.16	0.41	8.12	0.90	7.00	0.84	5.95	0.32	9.03	0.53	4.76	0.12	7.00	0.07	2.73	0.18	4.27	0.10
	8	2.88	0.03	7.36	0.52	7.04	0.28	9.28	0.49	8.00	0.46	6.80	0.18	11.32	0.24	5.44	0.08	8.00	0.04	3.12	0.16	4.88	0.02
	9	3.24	0.00	8.28	0.38	7.92	0.17	10.44	0.20	9.00	0.25	7.65	0.10	11.61	0.22	6.12	0.03	9.00	0.18	3.51	0.06	5.49	0.00
Right Bank		3.60	0.00	9.20	0.00	8.80	0.00	11.60	0.00	10.00	0.00	8.50	0.00	12.90	0.00	6.80	0.00	10.00	0.00	3.90	0.00	6.10	0.00
Feature Type		Run		Run		Pool		Pool		Pool		Run		Run		Riffle		Run		Run		Run	

TWC

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# 3667

Site # 1

Up stream



WBID# 3667

Site # 1

Down Stream



WBID#3667

Site #2

Tip Stream



WBID#3667

Site #2

Powa Stream



WBLD#3667

Site # 3

Up Stream



WBLD #3667

Site # 3

Down
stream

