

**MENORKENUT SLOUGH
WBID 2771**

Recreational Use Attainability Analysis

May 2007

PREPARED FOR:
RFP No: B3Z07134
Water Quality Monitoring & Assessment Section
Water Protection Program
Division of Environmental Quality
MISSOURI DEPARTMENT OF NATURAL RESOURCES
301 West High Street
Jefferson City, MO 65102

PREPARED BY:
MEC WATER RESOURCES, INC.
1123 Wilkes Blvd., Ste. 400
Columbia, MO 65201

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): <u>Menorkenut Slough</u>	
Missouri Water Body Identification (WBID) Number: <u>2771</u>	
8-digit HUC: <u>11010007</u>	County: <u>Butler</u>
Upstream Legal Description (from Table H): <u>7,25N,8E</u>	
Downstream Legal Description (from Table H): <u>Mouth</u>	
Number of sites evaluated <u>15</u>	
List all sites numbers, listed consequently upstream to downstream: <u>1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15</u>	

II. Subsegmentation (fill this section out only in cases where subsegmentation is being proposed)

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Upstream Coordinates:		Downstream Coordinates:	
UTM X	Y	UTM X	Y
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± _____ Feet or ± _____ Meters		
PDOP		± _____ Feet or ± _____ Meters	

III. Discharger Facility Information (list all permitted dischargers on the stream)

Discharger Facility Name(s): <u>FISK WWTF</u>
Discharger Permit Number(s): <u>MO 0092827</u>

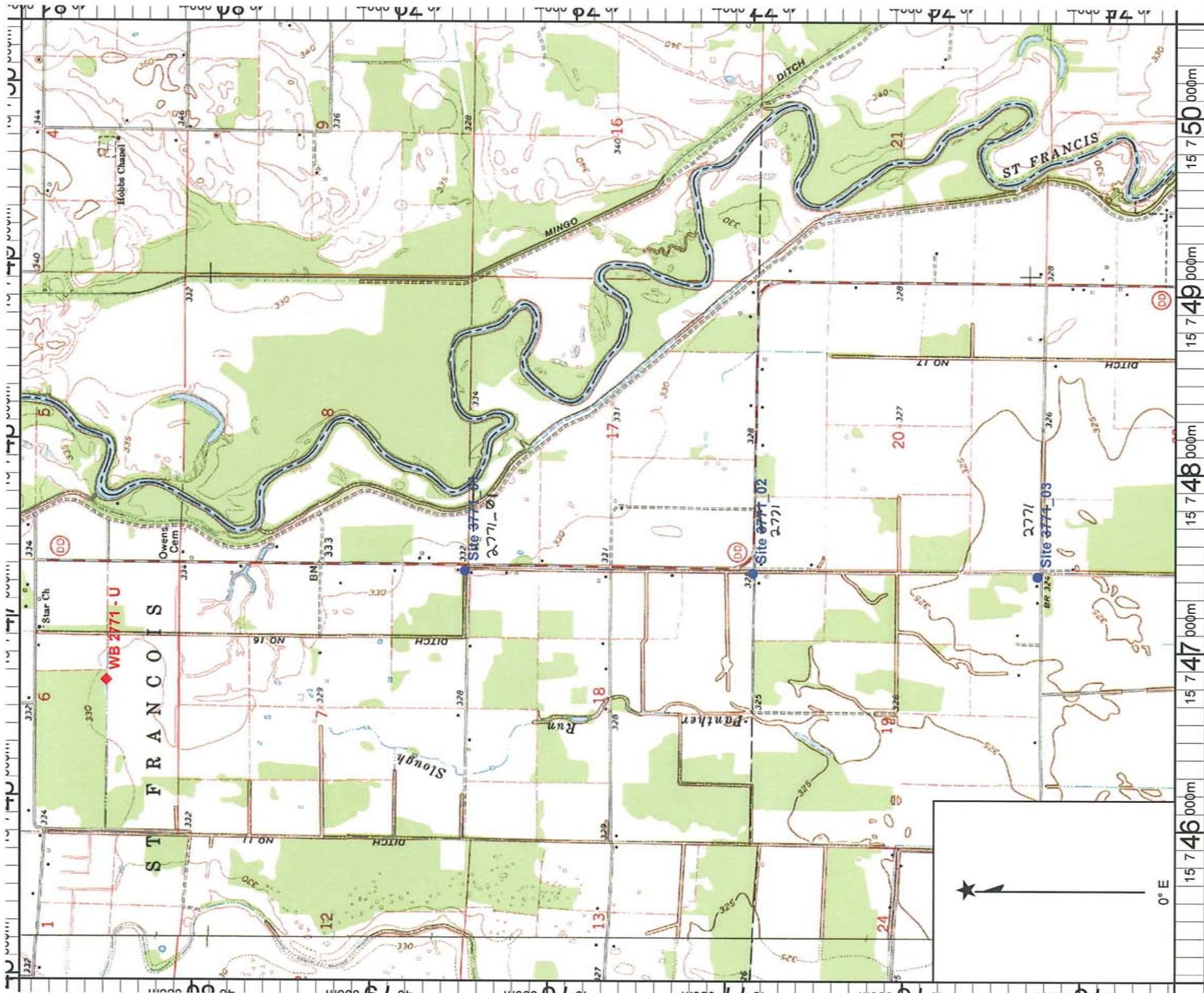
IV. UAA Surveyor (please print legibly)

Name of Surveyor <u>Robert Bacon</u>	Telephone Number: <u>(573) 634-7078</u>
Organization/Employer: <u>PRC</u>	
Position: <u>Field Manager</u>	

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

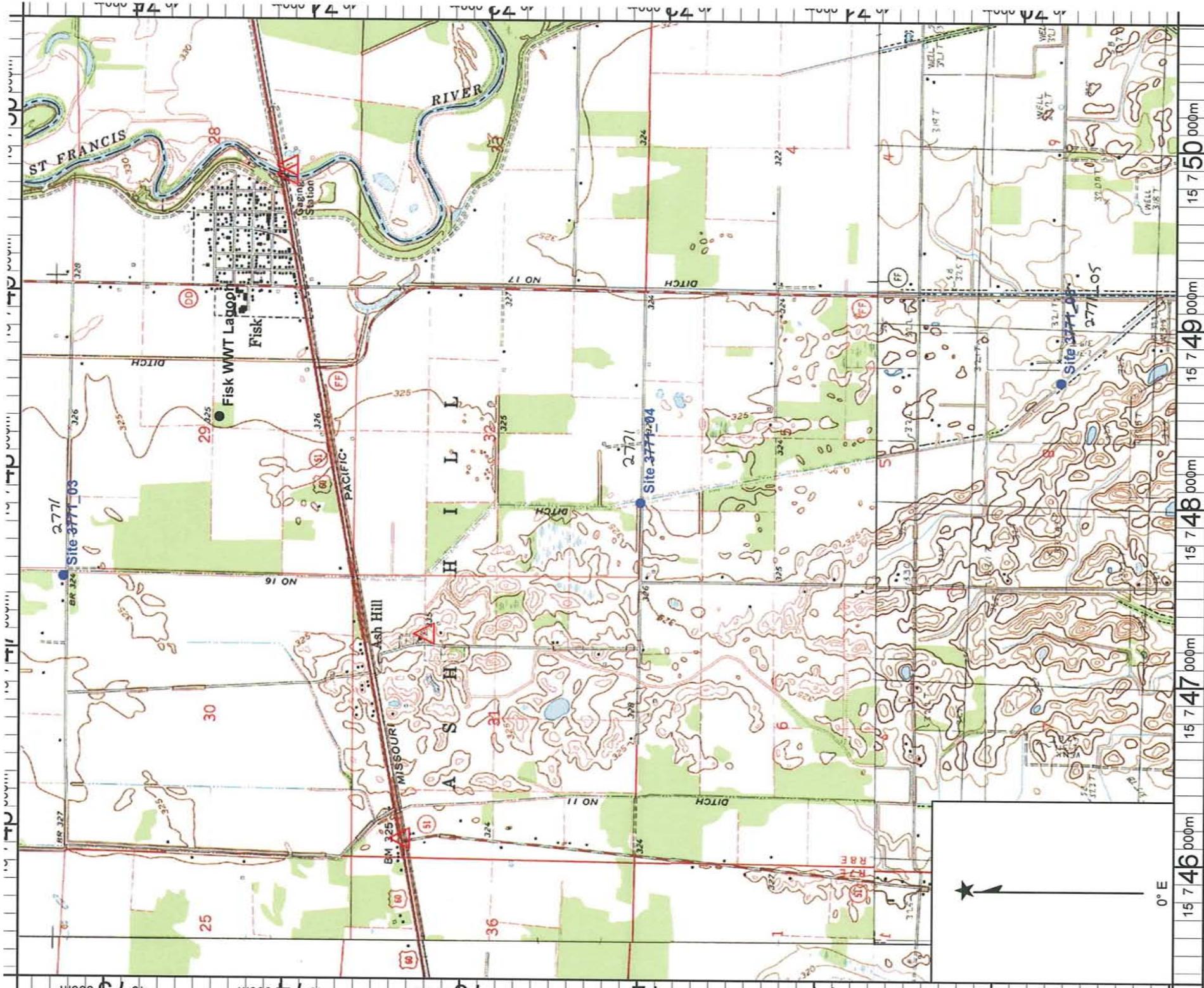
Signed: Robert A. Bacon Date: 5-25-2007

AWC 5-29-07



Name: FISK
 Date: 5/28/2007
 Scale: 1 inch equals 2222 feet

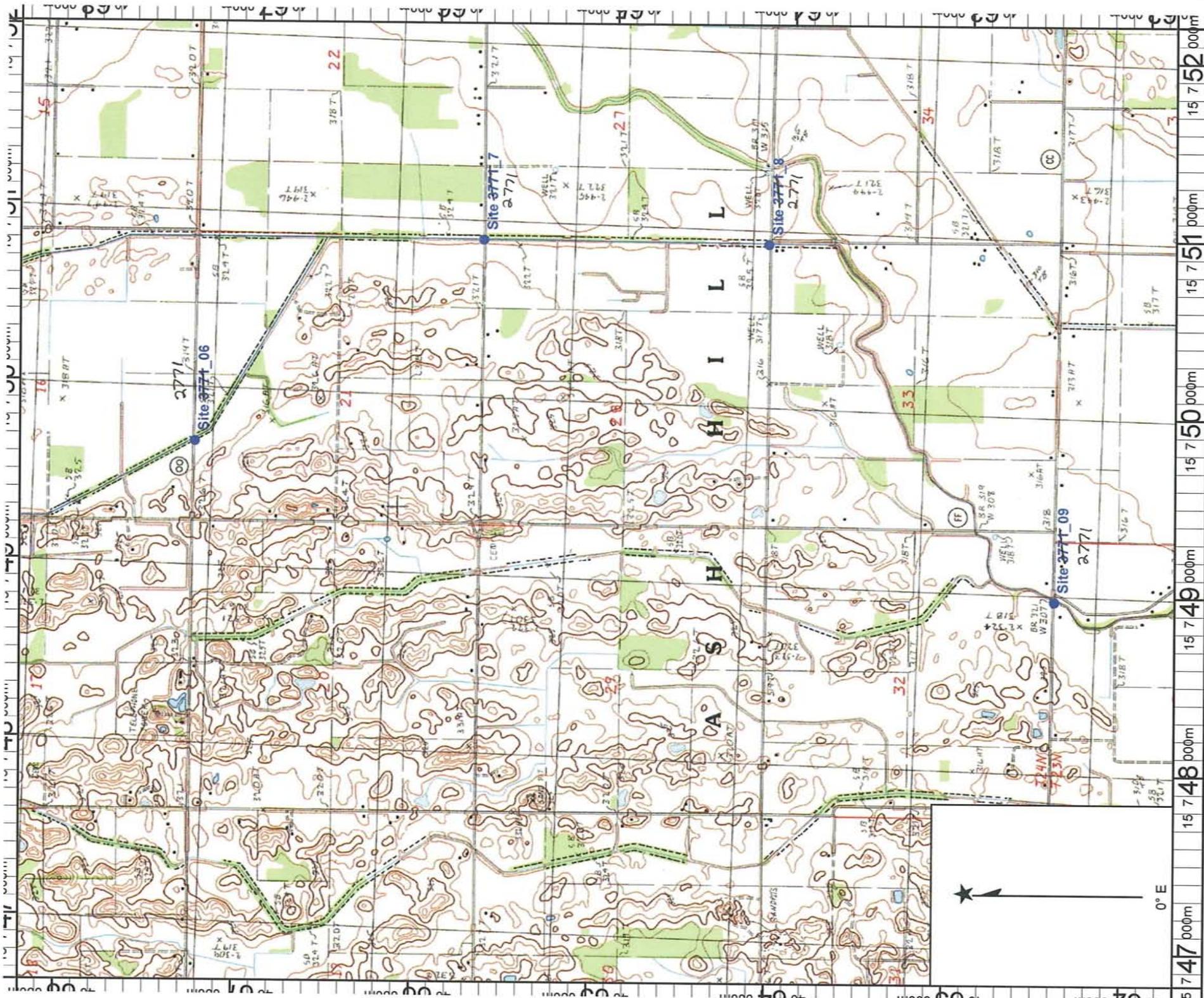
Location: 15 0747749 E 4077793 N



15 7 46 000m 15 7 47 000m 15 7 48 000m 15 7 49 000m 15 7 50 000m

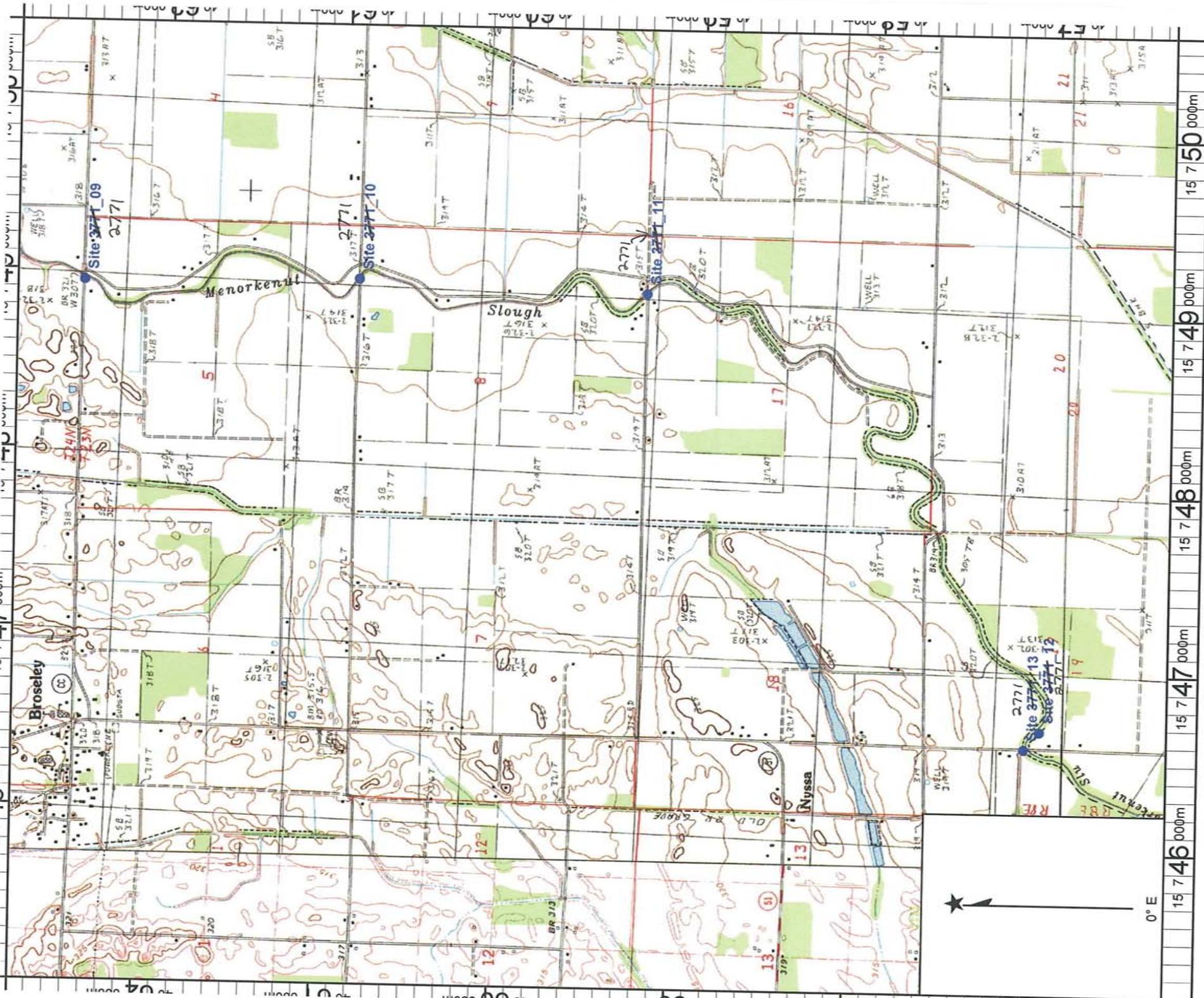
Name: FISK
 Date: 5/28/2007
 Scale: 1 inch equals 2222 feet

Location: 15 0747935 E 4072308 N



Name: BROSELEY
 Date: 5/28/2007
 Scale: 1 inch equals 2222 feet

Location: 15 074919 E 4065024 N



Name: BROSELEY
 Date: 5/28/2007
 Scale: 1 inch equals 2222 feet

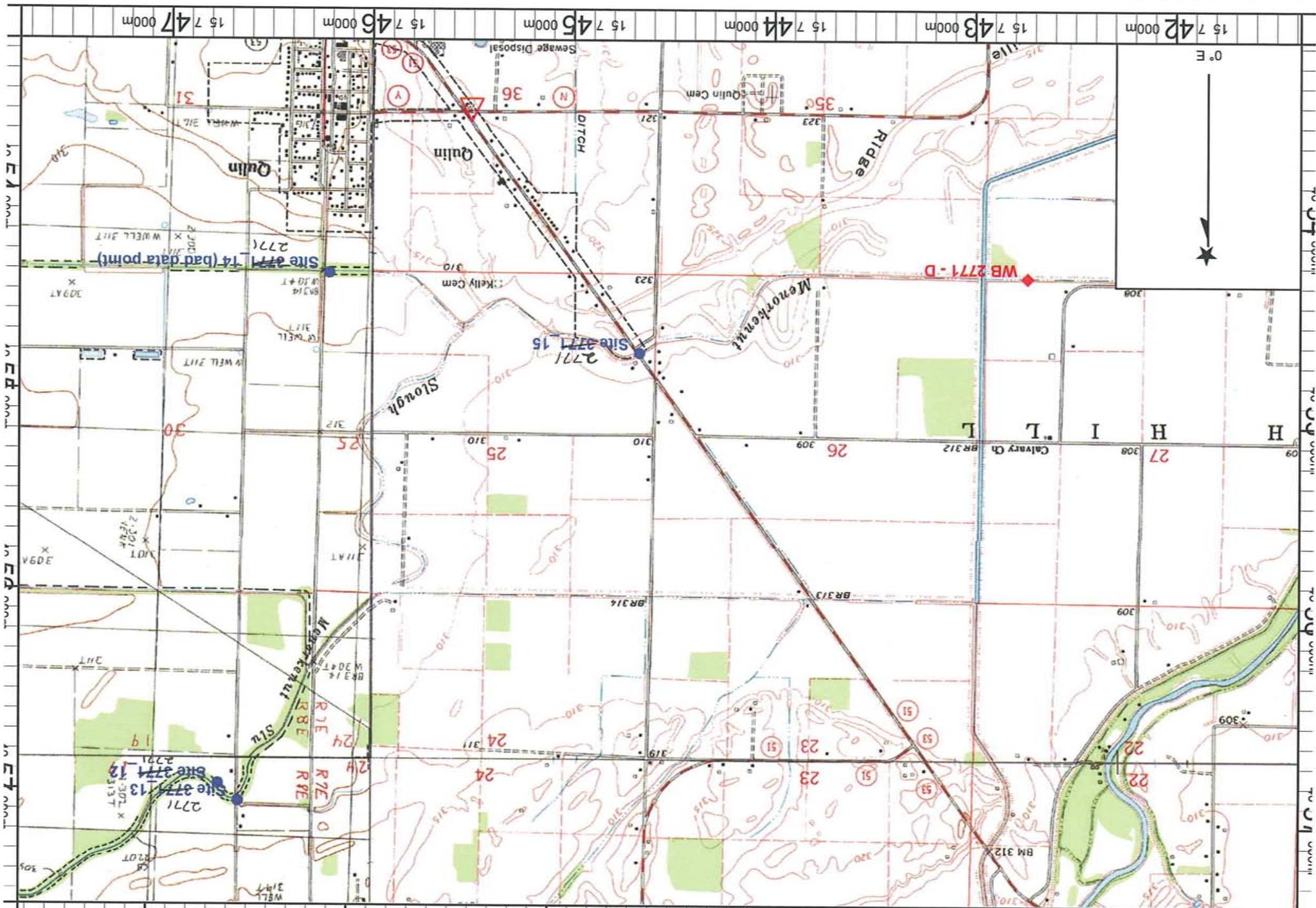
Location: 15 0747799 E 4059521 N

Name: GLENNONVILLE

Date: 5/28/2007

Scale: 1 inch equals 2000 feet

Location: 15 0744506 E 4055323 N



WBID# 2771
 Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>05/25/07 07:50</u>	Site Location Description (e.g., road crossing): <u>Co Rd 580 + DD where</u>
Personnel (Data Collectors): <u>Ahki, + Anna</u>	
Current Weather Conditions: <u>Sunny; hazy; 65°</u>	Facility Name: <u>FTSK WWTF</u>
	Permit Number: <u>MO 0099279</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15S 0747342</u>		Y: <u>4078533</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>18</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
<u>F1</u>	<u>Upstream</u>	<u>F2</u>	<u>Downstream</u>

Uses Observed*: (Uses actually observed at 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.)

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments: farm fields

WBID# 2771
 Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Indications of Human Use*: (attach photos)

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

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	% Sand	<u>60</u>	% Silt	<u>40</u>	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

No water - Emergent plants in stream

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input checked="" 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:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other:

NO WATER

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: Anna E. Wilcoxon Date of Survey: 5-25-07

Organization: ERC Position: Field Crew

ERC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

CDF PIC1
PICB

Waterbody ID: 2711 Site #: 1 (WBID_Site#) W4PTE93

Estimated Channel Incision: (m) (height between low bank width and water)

GPS Location (taken at transect 1):
 UTM X: 1550747342 UTM Y: 4078553
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 24 (feet)

Average Stream Width: (meters) Length of Survey Segment: (meters)
 (20x average stream width)

Field Staff: Abby & Anna

Dissolved Oxygen

Dissolved Oxygen: DRY (mg/L)

Dissolved Oxygen: DRY (% sat)

Specific Cond: DRY (µS/cm)

Water Temperature: DRY (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
1																						
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

DRY

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.
 Mark dry depth measurements as 0, measurement less than 0.1m as <0.1, and greater than 1m as >1
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Anna Wasschunz Date: 5-25-07

Anna 5-29-07

WBID# 2771
 Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>05-25-07 08:42</u>	Site Location Description (e.g., road crossing): <u>@CR 588 downstream</u>
Personnel (Data Collectors): <u>Abby & Anna</u>	Facility Name: <u>FSK WWTP</u>
Current Weather Conditions: <u>Sunny/hazy; 75'</u>	Permit Number: <u>40 009 2827</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15 S 0747377</u>		Y: <u>4076909</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>16</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>F3</u>	<u>Upstream</u> <u>TII</u>	<u>F4</u>	<u>Downstream</u> <u>TI</u>

Uses Observed*: (Uses actually observed at 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.)				

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>Farm fields</u>				

WBID# 2771
 Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

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

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	% Sand	10 % Silt	90 % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Thick mats of filamentous algae

Water Characteristics*: (Mark all that apply.)

ODOR:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input 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>Turbid</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:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other: <u>algae</u>

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: Angela Wilschmeyer Date of Survey: 5-25-07

Organization: ERC Position: Field Crew

ERC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

COF: Pic 3 - Upstream (02-01)
Pic 4 - Downstream

Waterbody ID: 2771

Site #: 2

(WBID_Site#)

WYPT 96

Estimated Channel Incision: .5 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 153074734 UTM Y: 4076909

Horizontal Accuracy Estimate (GPS Data Quality): +/- 16 (feet)

Average Stream Width: 1.5

(meters)

Length of Survey Segment: 150

(meters)

(20x average stream width)

Field Staff: Robert Arma

Dissolved Oxygen

Dissolved Oxygen: 2.37 (mg/L)

Dissolved Oxygen: 28.4 (% sat)

Specific Cond: 161 (µS/cm)

Water Temperature: 24.27 (°C)

Time: 08:20

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11			
	Distance (m)	Depth (m)																						
1	0.01	0	0.02	0	0.02	0	0.02	0	0.02	0	0.03	0	0.03	0	0.03	0	0.01	0	0.01	0	0.02	0	0.02	0
2	0.19	0.02	0.187	0.04	0.156	0.02	0.143	0.03	0.10	0.04	0.149	0.04	0.146	0.05	0.121	0.06	0.125	0.06	0.16	0.04	0.14	0.04	0.14	0.06
3	0.38	0.10	0.374	0.06	0.312	0.04	0.288	0.08	0.20	0.07	0.298	0.03	0.292	0.04	0.242	0.04	0.242	0.04	0.25	0.07	0.38	0.06	0.38	0.06
4	0.57	0.18	0.561	0.10	0.468	0.05	0.429	0.10	0.30	0.09	0.417	0.04	0.438	0.08	0.363	0.07	0.375	0.10	0.49	0.10	0.49	0.10	0.42	0.12
5	0.76	0.16	0.748	0.14	0.624	0.08	0.512	0.10	0.40	0.10	0.596	0.07	0.584	0.09	0.484	0.09	0.50	0.10	0.44	0.07	0.54	0.07	0.54	0.12
6	0.95	0.17	0.935	0.16	0.78	0.09	0.715	0.07	0.50	0.10	0.715	0.09	0.73	0.09	0.605	0.09	0.625	0.11	0.80	0.10	0.70	0.07	0.70	0.10
7	1.14	0.13	1.122	0.14	0.936	0.10	0.858	0.07	0.60	0.09	0.894	0.07	0.876	0.07	0.726	0.05	0.75	0.11	0.96	0.04	0.84	0.04	0.84	0.06
8	1.33	0.10	1.309	0.11	1.092	0.09	1.001	0.06	0.70	0.08	1.043	0.04	1.022	0.07	0.847	0.06	0.875	0.07	1.12	0.06	0.92	0.04	0.92	0.04
9	1.52	0.07	1.496	0.05	1.248	0.02	1.149	0.05	0.80	0.06	1.192	0.05	1.162	0.06	0.968	0.04	1.0	0.08	1.28	0.03	1.12	0.03	1.12	0.03
10	1.71	0.06	1.683	0.03	1.464	0.02	1.287	0.03	0.90	0.02	1.341	0.03	1.314	0.04	1.089	0.05	1.125	0.03	0.94	0.02	1.20	0.03	1.20	0.03
11	1.9	0.01	1.87	0.03	1.56	0.02	1.43	0.01	1.0	0.06	1.49	0.01	1.46	0.01	1.21	0.01	1.25	0.01	1.6	0.02	1.4	0.01	1.4	0.01
12	2.03	0	1.9	0	1.67	0	1.5	0	1.5	0	1.24	0	1.19	0	1.14	0	1.53	0	1.65	0	1.12	0	1.12	0

Feature Type (mud run, or pool)

01: mud run
02: mud run
03: mud run
04: mud run
05: mud run
06: mud run
07: mud run
08: mud run
09: mud run
10: mud run
11: mud run
12: mud run

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed:

Diana E. Woodruff

Date: 5-25-07

ORC 5-29-07

WBID# 2711
 Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>05-25-07 09:12</u>	Site Location Description (e.g., road crossing): <u>@ CR 586 - upstream</u>
Personnel (Data Collectors): <u>A & B + Anna</u>	
Current Weather Conditions: <u>Sunny; hazy; 75°</u>	Facility Name: <u>LSK WWTF</u>
	Permit Number: <u>MO 009 2027</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15 S 0747409</u> Y: <u>4075300</u>			
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>17</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>F5</u>	<u>Upstream</u>	<u>F6</u>	<u>Downstream</u>

Uses Observed*: (Uses actually observed at 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.)

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments: Farm fields; residence

WBID# 2771
 Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Indications of Human Use*: (attach photos)

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

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	% Sand	<u>10</u>	% Silt	<u>90</u>	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

some mats of algae

Water Characteristics*: (Mark all that apply.)

ODOR:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input 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 checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: Anna Wilschmeier Date of Survey: 05-25-07

Organization: ERC Position: Field Crew

ERC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

CDP VIC - upstream (1111)
 P16-Downstream (T1)

Waterbody ID: 2771 Site #: 3
 (WBIID_Site#)

Estimated Channel Incision: 1.30 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
 UTM X: 1550747467 UTM Y: 4075300
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 17 (feet)

Average Stream Width: 5.5 (meters) Length of Survey Segment: 150 (meters)
 (20x average stream width)

Field Staff: Albany + Anna

Dissolved Oxygen

Dissolved Oxygen: 8.82 (mg/L)

Dissolved Oxygen: 105.9 (% sat)

Specific Cond: 601 (µS/cm)

Water Temperature: 23.60 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
1	0	.01	0	.03	0	.08	0	.02	0	.01	0	.01	0	.02	0	.03	0	.02	0	.03	0	.03
2	143	.03	149	.02	144	.08	143	.04	148	.02	1495	.04	135	.06	148	.04	152	.09	159	.08	153	.04
3	184	.07	190	.07	198	.09	186	.07	196	.14	199	.10	187	.12	196	.19	194	.10	118	.14	106	.13
4	129	.06	135	.08	132	.13	129	.09	144	.00	1485	.15	1305	.10	144	.21	156	.18	177	.20	159	.21
5	172	.09	180	.09	176	.13	172	.14	190	.23	198	.17	174	.22	192	.07	208	.17	236	.33	212	.30
6	215	.07	235	.08	22	.13	215	.11	224	.27	2475	.22	2175	.20	224	.26	260	.32	299	.34	265	.31
7	258	.06	270	.10	264	.18	258	.10	288	.27	297	.24	261	.20	288	.21	312	.18	354	.26	318	.26
8	301	.10	317	.08	308	.11	301	.11	336	.26	345	.27	3045	.19	336	.17	364	.20	413	.20	371	.18
9	344	.09	368	.05	352	.11	344	.12	384	.21	396	.20	348	.14	384	.16	416	.15	472	.14	424	.17
10	387	.05	405	.04	396	.10	387	.10	432	.08	445	.14	3915	.18	432	.12	468	.12	531	.10	477	.10
11	423	.01	451	.02	44	.02	43	.04	48	.04	495	.04	435	.01	418	.08	52	.02	59	.08	53	.04
12	445	0	462	0	460	0	437	0	517	0	502	0	457	0	496	0	557	0	607	0	544	0

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Anna Sullivan Date: 5-25-07

Anna Sullivan

WBID# 2771
 Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>05-25-07 10:20</u>	Site Location Description (e.g., road crossing): <u>@CR 627</u>
Personnel (Data Collectors): <u>Abby & Anna</u>	
Current Weather Conditions: <u>sunny, hazy, 75°</u>	Facility Name: <u>FISK WWTF</u> Permit Number: <u>MO 0092827</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)	
Site GPS Coordinates: UTM X: <u>158 0747935</u>	Y: <u>4072067</u>
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)	
Global Positioning System (GPS)	
Static Mode	Interpolation
Dynamic Mode (Kinematic)	Topographic Map or DRG
Precise Positioning Service	Aerial Photograph or DOQQ
Signal Averaging	Satellite Imagery
Real Time Differential Processing	Interpolation Other
HORIZONTAL ACCURACY ESTIMATE	
GPS Data Quality	
FOM	± _____ Meters
EPE	± <u>18</u> Feet or ± _____ Meters
PDOP	
Interpolation Data Quality	
Source Map Scale: 1:24,000 1:100,000 Other _____	
± _____ Feet or ± _____ Meters	

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>F7</u>	<u>Upstream</u>	<u>F8</u>	<u>Downstream</u>

Uses Observed*: (Uses actually observed at 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.)				

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>Farm fields; some trees</u>				

WBID# 2771
 Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Indications of Human Use*: (attach photos)

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

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	% Sand	<u>10</u> % Silt	<u>90</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

Water Characteristics*: (Mark all that apply.)

ODOR:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input checked="" 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:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: Anna Schmelzer Date of Survey: 05-25-07
 Organization: ERC Position: Field Crew

ERC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

CDP
Pic 8 - Downstream
Pic 1 - Upstream

Waterbody ID: 2771

Site #: 4

(WBID_Site#)

Wyppt 98

Estimated Channel Incision: 16 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 15S 0747985 UTM Y: 4078567

Horizontal Accuracy Estimate (GPS Data Quality): +/- 19 (feet)

Average Stream Width: 4.5 (meters) Length of Survey Segment: 150 (meters)

(20x average stream width)

Field Staff: Abby Anna

Dissolved Oxygen

Dissolved Oxygen: 4.00 (mg/L)

Dissolved Oxygen: 49.5 (% sat)

Specific Cond: 128 ($\mu\text{S/cm}$)

Water Temperature: 26.30 ($^{\circ}\text{C}$)

Time: 10:20

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0	.02	0	.07	0	.06	0	.01	0	.02	0	.01	0	.02	0	.03	0	.04	0	.04	0	.04	0
2	.53	.16	.528	.11	.50	.08	.48	.03	.49	.11	.45	.03	.43	.09	.444	.11	.475	.03	.505	.05	.525	.04	
3	1.06	.17	1.056	.17	1.0	.07	.96	.04	.98	.14	.90	.09	.86	.12	.858	.14	.95	.04	1.01	.09	1.05	.03	
4	1.59	.21	1.584	.21	1.5	.07	1.44	.05	1.47	.17	1.35	.15	1.29	.14	1.332	.16	1.425	.15	1.515	.17	1.575	.11	
5	2.12	.30	2.112	.25	2.0	.14	1.92	.14	1.96	.21	1.80	.17	1.72	.22	1.776	.27	1.90	.10	2.02	.22	2.1	.19	
6	2.65	.30	2.64	.23	2.5	.21	2.4	.17	2.45	.24	2.25	.22	2.15	.24	2.22	.24	2.32	.24	2.315	.17	2.525	.23	
7	3.18	.25	3.168	.22	3.0	.17	2.88	.21	2.94	.23	2.70	.27	2.58	.24	2.664	.23	2.85	.20	3.03	.21	3.15	.24	
8	3.71	.21	3.696	.19	3.5	.11	3.36	.21	3.43	.17	3.15	.26	3.01	.15	3.108	.16	3.325	.10	3.535	.17	3.675	.20	
9	4.24	.20	4.224	.17	4.0	.12	3.84	.13	3.92	.15	3.60	.15	3.44	.13	3.552	.07	3.8	.10	4.04	.16	4.2	.10	
10	4.77	.11	4.758	.13	4.5	.10	4.32	.06	4.41	.04	4.15	.08	3.87	.07	3.946	.04	4.275	.03	4.545	.07	4.725	.04	
11	5.3	.03	5.28	.02	5.0	.02	4.8	.04	4.9	.01	4.5	.04	4.3	.04	4.44	.02	4.75	.06	5.05	.04	5.25	.02	
12	5.7	0	5.74	0	5.25	0	4.95	0	5.15	0	4.75	0	4.5	0	4.65	0	4.90	0	5.25	0	5.3	0	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Abby Anna

Date: 05-25-07

Abby Anna

WBID# 2771
 Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>05-25-07</u> <u>11:25</u>	Site Location Description (e.g., road crossing): <u>across from CR 624 private drive - down st</u>
Personnel (Data Collectors): <u>Abby + Anna</u>	Facility Name: <u>ASK WWTF</u>
Current Weather Conditions: <u>Sunny; 78°</u>	Permit Number: <u>MO 0092827</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>16 5 0748691</u>		Y: <u>4069718</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>13</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>F9</u>	<u>Downstream</u>	<u>F10</u>	<u>Upstream</u>

Uses Observed*: (Uses actually observed at 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.)				

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>Farm fields</u>				

WBID# 2711
 Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

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

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	% Sand	% Silt	<u>100</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

no water - emergent plants

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other: <u>NO</u>
COLOR:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>WATER</u>
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: [Signature] Date of Survey: 05-25-07

Organization: ERC Position: Field crew

ERC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

CDF
 PIC 10 - Upstream

Waterbody ID: 2711 Site #: 5 (WBID_Site#)

Wp 699

Estimated Channel Incision: (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 15 S 0748 691 UTM Y: 4 069718

Horizontal Accuracy Estimate (GPS Data Quality): +/- 13 (feet)

Average Stream Width: (meters) Length of Survey Segment: (meters)
 (20x average stream width)

Field Staff: Abel & Anne

Dissolved Oxygen

Dissolved Oxygen: DRY (mg/L)

Dissolved Oxygen: DRY (% sat)

Specific Cond: DRY (µS/cm)

Water Temperature: DRY (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1																							
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Anna M. [Signature]

Date: 5-25-07

AWC 5-29-07

WBID# 2771
 Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>05-25-07</u>	Site Location Description (e.g., road crossing): <u>bridge @ Hwy 00</u>
Personnel (Data Collectors): <u>Abby & Anna</u>	Facility Name: <u>FSK WWTF</u>
Current Weather Conditions: <u>sunny/hazy 80°</u>	Permit Number: <u>MO 0092227</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15 S 0749696</u> Y: <u>4067304</u>			
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>18</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>F11</u>	<u>Downstream</u> <u>T1</u>	<u>F12</u>	<u>Upstream</u> <u>T11</u>

Uses Observed*: (Uses actually observed at 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.)				

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>farm fields; cleared banks</u>				

WBID# 2771
 Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

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

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	% Sand	<u>10</u>	% Silt	<u>90</u>	% Mud/Clay	% Bedrock
----------	----------	--------	-----------	--------	-----------	------------	-----------

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

no aquatic vegetation

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 checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: [Signature] Date of Survey: 05-25-07

Organization: ERC Position: Field crew

ERC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

CTF

Fig 11 - Downstream
Pic 12 - Upstream (06-11)

Waterbody ID: 2771

Site #: 6

W-12100

(W/BID_Site#)

Estimated Channel Incision: 18 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
UTM X: 550749696 UTM Y: 4067304

Average Stream Width: 3

(meters)

Length of Survey Segment: 150

(meters)

(20x average stream width)

Field Staff: Abby Anne

Dissolved Oxygen

Dissolved Oxygen: 15.12 (mg/L)

Dissolved Oxygen: 190.7 (% sat)

Specific Cond: 198 (µS/cm)

Water Temperature: 27.22 (°C)

Time: 11:41

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0	.81	0	.02	0	.01	0	.01	0	.02	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	.03
2	.208	.04	.14	.05	.418	.06	.345	.09	.485	.09	.50	.01	.410	.01	.286	.00	.31	.04	.34	.05	.435	.09	
3	.416	.12	.8	.09	.836	.07	.69	.11	.97	.07	1.0	.01	.80	.02	.572	.09	.62	.15	.68	.08	.87	.10	
4	.624	.13	1.2	.16	1.254	.16	1.035	.13	1.455	.04	1.5	.01	1.2	.01	.858	.18	.93	.10	.92	.12	1.305	.11	
5	.832	.15	1.6	.15	1.672	.07	1.38	.13	1.94	.02	2.0	.02	1.1	.1	1.144	.18	1.24	.14	1.26	.12	1.74	.11	
6	1.04	.15	2.0	1.0	2.09	.08	1.725	.11	2.425	0	2.5	.02	2.0	.02	1.43	.13	1.55	.14	1.60	.12	2.175	.10	
7	1.248	.16	2.4	1.0	2.508	.10	2.07	.10	2.91	0	3.0	.02	2.4	.01	1.714	.12	1.86	.15	1.94	.13	2.41	.14	
8	1.456	.15	2.8	1.10	2.926	.09	2.415	.07	3.395	.02	3.5	.01	2.8	.01	2.002	.10	2.17	.10	2.28	.12	3.045	.14	
9	1.664	.14	3.2	.09	3.344	.10	2.76	.04	3.88	.03	4.0	.01	3.2	.01	2.288	.10	2.48	.08	2.62	.10	3.42	.13	
10	1.872	.07	3.6	.03	3.762	.10	3.12	.03	4.305	.01	4.5	.01	3.6	.01	2.574	.07	2.79	.04	2.96	.06	3.915	.13	
11	2.08	.01	4.0	.02	4.18	.01	3.45	.01	4.85	.01	5.0	.01	4.0	.01	2.96	.02	3.1	.01	3.4	.02	4.39	.03	
12	2.3	0	4.21	0	4.3	0	3.55	0	4.95	0	5.0	0	5.0	0	2.95	0	3.25	0	3.5	0	4.4	0	

Feature Type (rime run, or pool)

Notes:

- Transects will be measured beginning on left descending bank and finishing on right descending bank.
- GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
- Transects in order of up to downstream.
- Mark dry depth measurements as 0. Measurements less than 0.1m as <0.1; and greater than 1m as >1
- Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Anna E. Johnson

Date: 5-25-07

AWC 5-29-07

WBID# 2711
 Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>5-25-07</u>	Site Location Description (e.g., road crossing): <u>@ CR 444</u>
Personnel (Data Collectors): <u>Abby & Anna</u>	
Current Weather Conditions: <u>Cloudy; 78°</u>	Facility Name: <u>Fisk WWTF</u>
	Permit Number: <u>MO 0092827</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15 S 070883</u>		Y: <u>4065716</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>17</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# #)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# #)	Photo Purpose and Direction (upstream, downstream, other)
<u>F14</u>	<u>Downstream</u>	<u>F15</u>	<u>Upstream</u>

Uses Observed*: (Uses actually observed at 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.)				

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>farm fields, county road</u>				

WBID# 2771
 Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Indications of Human Use*: (attach photos)

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

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	% Sand	<u>10</u> % Silt	<u>90</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

few floating mats of algae

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input 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 checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: Anna E. Hilsch Date of Survey: 05-25-07

Organization: ERC Position: Field Crew

ARC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

OK PIC 13 - Downstream
PIC 11A - Upstream

Waterbody ID: 8711

Site #: 7
(WBID_Site#)

Wpct 101

Dissolved Oxygen

Estimated Channel Incision: .85 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 15 9 870883 UTM Y: 4065716

Horizontal Accuracy Estimate (GPS Data Quality): +/- 17 (feet)

Dissolved Oxygen: 7.83 (mg/L)

Dissolved Oxygen: 97.4 (% sat)

Specific Cond: 152 (µS/cm)

Water Temperature: 26.28 (°C)

Average Stream Width: 4.5 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: Abby & Anna

12:30

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0	.04	0	.02	0	.01	0	.02	0	.03	0	.02	0	.02	0	.02	0	.04	0	.01	0	.01	.01
2	.52	.13	.515	.14	.51	.04	.501	.03	.43	.05	.427	.01	.42	.04	.451	.06	.478	.08	.41	.08	.38	.02	
3	1.04	.27	1.03	.18	1.02	.07	1.002	.021	.86	.11	.854	.03	.84	.07	.902	.07	.976	.13	.82	.09	.76	.04	
4	1.56	.38	1.545	.23	1.53	.08	1.503	.08	1.29	.13	1.281	.13	1.26	.10	1.353	.14	1.44	.14	1.23	.13	1.14	.07	
5	2.08	.39	2.06	.23	2.04	.07	2.001	.11	1.72	.17	1.708	.17	1.68	.15	1.804	.15	1.92	.15	1.64	.11	1.52	.10	
6	2.6	.27	2.575	.27	2.55	.09	2.505	.10	2.15	.20	2.135	.20	2.1	.20	2.255	.10	2.4	.20	2.05	.10	1.9	.08	
7	3.12	.26	3.09	.20	3.06	.10	3.006	.13	2.58	.18	2.562	.17	2.52	.21	2.706	.06	2.88	.19	2.46	.06	2.28	.07	
8	3.64	.17	3.605	.18	3.57	.10	3.507	.09	3.01	.15	2.989	.13	2.94	.18	3.157	.07	3.36	.13	2.87	.06	2.66	.05	
9	4.16	.11	4.12	.18	4.08	.05	4.002	.05	3.44	.14	3.416	.11	3.36	.17	3.608	.06	3.84	.10	3.28	.05	3.04	.02	
10	4.68	.04	4.635	.10	4.59	.04	4.509	.04	3.87	.13	3.843	.10	3.78	.11	4.059	.03	4.32	.05	3.69	.03	3.42	.02	
11	5.2	.02	5.15	.01	5.10	.02	5.01	.02	4.30	.02	4.27	.02	4.20	.03	4.51	.01	4.80	.02	4.10	.01	3.8	.01	
12	5.55	0	5.40	0	5.19	0	5.11	0	4.39	0	4.35	0	4.27	0	4.60	0	4.85	0	4.18	0	3.91	0	
Feature Type (mte num, or pool)	slide pool	slide pool	slide pool																				

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Anna M. Schwegel

Date: 5-27-07

Q4C 5-29-07

WBID# 2771
 Site# 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>05-25-07 13:41</u>	Site Location Description (e.g., road crossing): <u>@ CR 645</u>
Personnel (Data Collectors): <u>Abby + Anna</u>	Facility Name: <u>FSK WWTF</u>
Current Weather Conditions: <u>Cloudy, 80</u>	Permit Number: <u>MO 0092827</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15 S 0750914</u>		Y: <u>4064107</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>50</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# #)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# #)	Photo Purpose and Direction (upstream, downstream, other)
<u>F15</u>	<u>Upstream</u>	<u>F16</u>	<u>Downstream</u>

Uses Observed*: (Uses actually observed at 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.)				

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>Farm fields; county road; few trees</u>				

WBID# 2771
 Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

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

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	% Sand	<u>10</u>	% Silt	<u>90</u>	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Some algae

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input 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 checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other: <u>Anoxic gases</u>
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: [Signature] Date of Survey: 05-25-07

Organization: ERC Position: Field crew

ERC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

CDF Pic 15 - Upstream
Pic 16 - Downstream

Waterbody ID: 2771

Site #: 8

(WBD_Site#)

Wypet 102

Estimated Channel Incision: 0-3 0-20 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
UTM X: 5 075994 UTM Y: 4064107
Horizontal Accuracy Estimate (GPS Data Quality): +/- 20 (feet)

Average Stream Width: 1.5 (meters)

Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: Abby Anna

Dissolved Oxygen
Dissolved Oxygen: 11.39 (mg/L)
Dissolved Oxygen: 150.4 (% sat)
Specific Cond: 143 (µS/cm)
Water Temperature: 29.84 (°C)
Time: 13:41

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
1							0	.01	0	.01					0	.03	0	.01			0	.01
2							.05	.01	.24	.01			.248	.03	.35	.02					.10	.01
3							.10	.01	.48	.03			.496	.07	.70	.03					.20	.01
4							.15	.01	.72	.04			.744	.09	1.05	.07					.30	.01
5							.20	.01	.96	.04			.992	.10	1.40	.08					.40	.01
6							.25	.02	1.20	.06			1.24	.10	1.75	.11					.50	.02
7							.30	.03	1.44	.07			1.488	.12	2.10	.09					.60	.02
8							.35	.03	1.68	.06			1.736	.12	2.45	.08					.70	.03
9							.40	.02	1.92	.05			1.984	.11	2.80	.07					.80	.04
10							.45	.01	2.16	.03			2.232	.10	3.15	.11					.90	.04
11							1.5	.01	2.4	.02			2.48	.07	3.5	.08					1.0	.02
12							.74	0	2.53	0			2.54	.02	3.07	.04					1.3	.02

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Amber W. Schmidt

Date: 5-25-07

Blue 5-29-07

WBID# 2771
 Site# 09

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>5-26-07</u> <u>7:12</u>	Site Location Description (e.g., road crossing): <u>down stream of Hwy CC</u>
Personnel (Data Collectors): <u>Bob and Travis</u>	
Current Weather Conditions: <u>Sunny</u> <u>75°F</u>	Facility Name: <u>Fick WWTF</u>
	Permit Number: <u>MD 0092827</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15 S 0748960</u>		Y: <u>4062433</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>16</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>D 058</u>	<u>downstream view</u> <u>09-01</u>		
<u>D 059</u>	<u>upstream</u> <u>09-11</u>		

Uses Observed*: (Uses actually observed at 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.)

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments: low fields

WBID# 2771
 Site# 09

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Indications of Human Use*: (attach photos)

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

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

<input type="checkbox"/> Cobble	<input type="checkbox"/> Gravel	<input type="checkbox"/> Sand	<u>20</u> % Silt	<u>80</u> % Mud/Clay	<input type="checkbox"/> Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None w/ stream some wetland species on banks

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input checked="" type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input 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:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: Robert R. Deen Date of Survey: 5-26-2007

Organization: ERC Position: Field Manager

MEC Recreational Use Attainability Analysis Field Survey Sheet

DN 2058 04-01
UP 2054 04-11

Waterbody ID: 2221 Site #: 09 (WBID_ Site#)

Estimated Channel Incision: .30 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 155034968 UTM Y: 4062433

Horizontal Accuracy Estimate (GPS Data Quality): +/- 16 (feet)

Average Stream Width: 1.5 (meters) Length of Survey Segment: 150 (meters)

Field Staff: Rob and Travis (20x average stream width)

Dissolved Oxygen

Dissolved Oxygen: 3.08 (mg/L)

Dissolved Oxygen: 34.6 (% sat)

Specific Cond: 176 (µS/cm)

Water Temperature: 21.0 (°C)

7:12

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
1	0	.01							0	.01	0	.01	0	.01	0	.01	0	.01			0	.01
2	.17	.07							.16	.02	.18	.06	.12	.02	.12	.02	.12	.03				.04
3	.34	.07							.32	.03	.37	.08	.24	.03	.14	.03	.24	.03				.12
4	.51	.07							.49	.04	.55	.05	.36	.03	.66	.08	.36	.06				.14
5	.68	.12							.65	.06	.74	.10	.48	.03	.82	.10	.48	.04				.27
6	.85	.14							.81	.04	.92	.08	.60	.03	1.10	.10	.60	.04				.36
7	1.02	.13							.97	.05	1.11	.01	.72	.02	1.32	.10	.72	.01				.48
8	1.19	.14							1.13	.03	1.30	.06	.94	.02	1.54	.10	.84	.02				.54
9	1.26	.09							1.30	.02	1.44	.06	.96	.02	1.76	.07	.96	.02				.63
10	1.53	.04							1.46	.01	1.66	.01	1.08	.01	1.98	.04	1.08	.02				.72
11	1.70	.01							1.62	.01	1.85	.01	1.20	.01	2.20	.01	1.25	.01				.81
12	2.46	0							1.14	0	2.02	0	1.81	0	0.83	0	1.25	0				.90
									Pool					0.11								

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01, Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [Signature] Date: 5-26-2007

0740 5-29-07

WBID# 2771
 Site# 10

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>5-26-2007</u> <u>8:24</u>	Site Location Description (e.g., road crossing): <u>downstream of county road 654</u>
Personnel (Data Collectors): <u>Bob & Travis</u>	Facility Name: <u>Fisk WWTF</u>
Current Weather Conditions: <u>Sunny, Hazy 76°F</u>	Permit Number: <u>MO 0092827</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15 20749022</u>		Y: <u>4060891</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>17</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>D060</u>	<u>downstream view 10-01</u>		
<u>D061</u>	<u>upstream view 10-11</u>		

Uses Observed*: (Uses actually observed at 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.)				

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 2771
 Site# 10

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Indications of Human Use*: (attach photos)

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

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

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

None by stream some wetland species on bank

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input checked="" type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input 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>turbid</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:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: [Signature] Date of Survey: 5-26-2007

Organization: ERC Position: Field Manager

AWC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

DN D060 10-01
 VP D061 10-11

Waterbody ID: 2371 Site #: 10 (WBD_Site#)

Estimated Channel Incision: .94 (m) (height between low bank width and water)
 GPS Location (taken at transect 1):
 UTM X: 1550749032 UTM Y: 4060851
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 17 (feet)

Wynon 2 241

Average Stream Width: 41.0 (meters) Length of Survey Segment: 150 (meters)
 (20x average stream width)

Field Staff: KAVIS + B&B

Dissolved Oxygen: 3.62 (mg/L)
 Dissolved Oxygen: 25.5 (% sat)
 Specific Cond: 156 (µS/cm)
 Water Temperature: 21.8 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0
2	.32	.08	.34	.06	.36	.07	.40	.05	.28	.30	.39	.05	.38	.04	.41	.12	.38	.07	.35	.07	.34	.05	.05
3	.64	.12	.68	.10	.72	.10	.80	.08	.56	.72	.78	.10	.76	.09	.82	.16	.76	.15	.71	.12	.69	.08	.08
4	.96	.10	1.02	.13	1.09	.11	1.20	.07	.84	.15	1.17	.24	1.13	.14	1.23	.23	1.14	.17	1.06	.15	1.03	.10	.10
5	1.28	.05	1.36	.15	1.45	.09	1.60	.08	1.12	.17	1.56	.26	1.51	.26	1.64	.29	1.52	.17	1.42	.14	1.37	.14	.14
6	1.60	.07	1.70	.16	1.81	.10	2.00	.09	1.40	.34	1.95	.22	1.84	.24	2.06	.25	1.90	.15	1.78	.14	1.72	.15	.15
7	1.92	.07	2.04	.18	2.17	.07	2.40	.05	1.68	.43	2.34	.18	2.27	.22	2.47	.27	2.28	.16	2.17	.12	2.06	.12	.12
8	2.24	.10	2.38	.20	2.53	.09	2.80	.06	1.96	.60	2.73	.16	2.65	.22	2.88	.28	2.66	.17	2.48	.08	2.40	.14	.14
9	2.56	.09	2.72	.20	2.90	.10	3.20	.09	2.24	.85	3.12	.13	3.02	.16	3.29	.23	3.04	.10	2.84	.04	2.74	.14	.14
10	2.88	.09	3.06	.12	3.26	.07	3.60	.05	2.52	1.05	3.51	.07	3.40	.10	3.70	.10	3.42	.08	3.20	.03	3.09	.10	.10
11	3.20	.01	3.40	.01	3.62	.01	4.00	.01	2.80	1.21	3.92	.01	3.78	.01	4.11	.01	3.72	.01	3.55	.01	3.43	.01	.01
12	.42	0	.28	0	.43	0	1.08	0	1.21	1.08	0	.58	0	.42	0	.29	0	.98	0	.81	0	0	0

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
 Transects in order of up to downstream.
 Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [Signature] Date: 5-26-2007

0726 5-29-07

WBID# 2771
 Site# 11

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>5-26-2007</u> <u>8:52</u>	Site Location Description (e.g., road crossing): <u>downstream of county road 662 road crossing</u>
Personnel (Data Collectors): <u>Bob & Travis</u>	
Current Weather Conditions: <u>Sunny, Hazy 78°F</u>	Facility Name: <u>Fisk WWTF</u>
Weather Conditions for Past 10 days:	Permit Number: <u>MO 0092827</u>
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>155 0749029</u>		Y: <u>4059263</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>17</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>D063</u>	<u>upstream view 11-11</u>		
<u>D062</u>	<u>downstream view 11-1</u>		

Uses Observed*: (Uses actually observed at 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.)				

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>Fern hedges and a couple of mobile homes</u>				

WBID# 2771
 Site# 11

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites		<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:
Comments: <u>drainage</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	% Sand	<u>30</u> % Silt	<u>70</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none in stream
some wetland species on stream bank

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input checked="" type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input 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>Turbid</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:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: Robert D. Brown Date of Survey: 5-26-2007
 Organization: ERC Position: Field Manager

ERC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

DU 2062 - 11-01
 U8 2062 11-11

Waterbody ID: 2771 Site #: 11

Estimated Channel Incision: 0.1m (WBID_Site#) (m) (height between low bank width and water)

Dissolved Oxygen: 3.64 (mg/L)

GPS Location (taken at transect 1):
 UTM X: 15 S 0749025 UTM Y: 4059753
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 17 (feet)

Dissolved Oxygen: 43.1 (% sat)

Average Stream Width: 80 (meters) Length of Survey Segment: 160 (meters)

Specific Cond: 115 (µS/cm)

Field Staff: Bob and Travis

Water Temperature: 24.4 (°C)

8:52

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0
2	.61	.23	.84	.24	.82	.23	.80	.24	.74	.27	.61	.19	.54	.13	.42	.12	.65	.13	.66	.14	.67	.11	.01
3	1.22	.48	1.68	.47	1.66	.44	1.60	.43	1.44	.45	1.22	.32	1.09	.25	.84	.26	1.30	.45	1.32	.46	1.34	.22	.01
4	1.93	.60	2.53	.59	2.50	.42	2.39	.47	2.22	.55	1.83	.51	1.63	.40	1.26	.38	1.85	.48	1.88	.55	2.01	.49	.01
5	2.44	.58	3.37	.58	3.33	.33	3.19	.30	2.96	.48	2.44	.49	2.17	.49	1.68	.42	2.60	.50	2.64	.52	2.68	.39	.01
6	3.06	.44	4.21	.41	4.16	.05	3.99	.09	3.70	.44	3.06	.41	2.72	.40	2.10	.45	3.25	.44	3.30	.42	3.35	.38	.01
7	3.67	.47	5.05	.20	4.99	0	4.79	.05	4.44	.40	3.67	.39	3.26	.39	2.10	.44	3.90	.41	3.96	.20	4.02	.32	.01
8	4.28	.38	5.89	.18	5.92	0	5.59	.09	5.18	.27	4.28	.31	3.80	.32	2.94	.39	4.55	.32	4.62	.18	4.69	.29	.01
9	4.89	.25	6.74	.22	6.66	.16	6.38	.15	5.92	.14	4.89	.15	4.34	.15	3.26	.20	5.20	.18	5.28	.08	5.36	.27	.01
10	5.50	.16	7.58	.16	7.49	.16	7.18	.11	6.66	.07	5.50	.10	4.89	.17	3.76	.18	5.85	.11	5.94	.08	6.03	.17	.01
11	6.11	.01	8.42	.01	8.32	.01	7.98	.01	7.44	.01	6.11	.01	5.43	.01	4.2	.01	6.5	.01	6.6	.01	6.7	.01	.01
12	5.16	0	1.64	0	1.34	0	1.28	0	3.24	0	3.38	0	4.59	0	2.80	0	1.52	0	1.42	0	1.42	0	.01

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
 Transects in order of up to downstream.
 Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Henry's law is way to make determination

Signed: [Signature] Date: 5-26-2007

Bob 5-29-07

WBID# 2771
 Site# 12

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5-26-2007</u> <u>10:43</u>	Site Location Description (e.g., road crossing): <u>downstream of county road 670</u>
Personnel (Data Collectors): <u>Bob and Travis</u>	
Current Weather Conditions: <u>Sunny, hazy 80°F</u>	Facility Name: <u>Fisk WWTF</u>
	Permit Number: <u>MO 0092877</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15S 0746667</u>		Y: <u>4056963</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>17</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>D066</u>	<u>upstream view 12-11</u>		
<u>D067</u>	<u>downstream view 12-01</u>		

Uses Observed*: (Uses actually observed at 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.)

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments: Farm field

WBID# 2771
 Site# 12

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites		<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:
Comments: <u>drainage</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	% Sand	<u>30</u> % Silt	<u>70</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

no aquatic vegetation w/ stream
some wetland species on bank above water level

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input checked="" type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input 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>Turbid</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:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: Robert R. Beaman Date of Survey: 5-26-2007

Organization: ERC Position: Field Manager

ARC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

UP 2066 12-11
DN 2067 12-01

Waterbody ID: 2771 Site #: 12 (WBID_Site#)

Estimated Channel Incision: 0.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1): Way Pt 200

UTM X: 153074667 UTM Y: 405696317 (feet)

Average Stream Width: 4.0 (meters) Length of Survey Segment: 150 (meters)

Field Staff: Rob We Trevi (20x average stream width)

Dissolved Oxygen

Dissolved Oxygen: 2.58 (mg/L)

Dissolved Oxygen: 31.3 (% sat)

Specific Cond: 198 (µS/cm)

Water Temperature: 24.2 (°C)

10.43

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11			
	Distance (m)	Depth (m)																						
1	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01
2	.45	.06	.49	.05	.49	.04	.31	.03	.46	.03	.46	.01	.41	.04	.56	.03	.55	.02	.49	.07	.59	.10	.45	.06
3	.91	.09	.98	.10	.98	.09	.62	.02	.92	.05	.93	.02	.82	.08	1.08	.04	1.12	.03	.82	.04	.56	.03	.55	.02
4	1.36	.10	1.46	.10	1.48	.09	.93	.01	1.38	.06	1.40	.01	1.23	.09	1.68	.13	1.10	.05	.97	.16	1.08	.19	1.36	.10
5	1.81	.13	1.95	.07	1.97	.07	1.24	.01	1.84	.06	1.86	.01	1.64	.12	2.24	.14	1.64	.15	1.46	.24	1.63	.22	1.81	.13
6	2.26	.10	2.44	.06	2.46	.07	1.56	.05	2.30	.05	2.32	.07	2.01	.13	2.80	.16	2.24	.14	2.19	.14	1.95	.24	2.26	.10
7	2.72	.09	2.93	.08	2.95	.06	1.87	.04	2.76	.06	2.74	.03	2.47	.10	3.27	.16	2.74	.20	2.44	.26	2.71	.32	2.72	.09
8	3.17	.06	3.42	.06	3.44	.04	2.18	.04	3.22	.04	3.21	.02	2.88	.10	3.37	.12	3.24	.20	2.92	.23	3.25	.30	3.17	.06
9	3.62	.06	3.90	.04	3.94	.02	2.49	.02	3.68	.04	3.71	.03	3.29	.02	3.93	.11	3.84	.20	3.41	.20	3.29	.30	3.62	.06
10	4.08	.04	4.39	.02	4.43	.02	2.80	.01	4.14	.02	4.18	.02	3.70	.01	4.49	.11	4.24	.16	3.90	.14	4.34	.19	4.08	.04
11	4.53	.01	4.82	.01	4.82	.01	3.11	.01	4.60	.01	4.64	.01	4.11	.01	5.61	.01	5.05	.07	4.93	.10	4.71	.07	4.53	.01
12	5.56	0	6.11	0	6.32	0	4.88	0	6.16	0	6.44	0	5.87	0	8.24	0	7.58	0	7.99	0	8.17	0	5.56	0

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Rob We Date: 5-26-2007

Rob We B-29-07

WBID# 2771
 Site# 13

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5-26-2007 9:55</u>	Site Location Description (e.g., road crossing): <u>Upstream of county road 663</u>
Personnel (Data Collectors): <u>Bob & Travis</u>	
Current Weather Conditions: <u>Sunny and breezy 83°F</u>	Facility Name: <u>Fish WWTF</u>
	Permit Number: <u>MO 0092827</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15 S 0746553</u>		Y: <u>4057011</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>17</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>D 064</u>	<u>downstream view 13-01</u>		
<u>D 065</u>	<u>upstream view 13-11</u>		

Uses Observed*: (Uses actually observed at 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.)

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments: farm fields

WBID# 2771
 Site# 12

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

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

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature:	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	% Sand	<u>30</u> % Silt	<u>70</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

-no aquatic vegetation at stream

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input checked="" type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input checked="" type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>Turbid (lightly)</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:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: [Signature] Date of Survey: 5-26-2017

Organization: ERC Position: Field Manager

ARC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

DN D064 13-01
 VP D065 13-11

Waterbody ID: 2771 Site #: 13 (WBID_Site#)

Estimated Channel Incision: 6m (m) (height between low bank width and water)

Wapnet 243

Dissolved Oxygen

Dissolved Oxygen: 0.58 (mg/L)

Dissolved Oxygen: 6.6 (% sat)

Specific Cond: 205 (µS/cm)

Water Temperature: 72.3 (°C)

9:55

Average Stream Width: 4.0 (meters) Length of Survey Segment: 150 (meters)
 (20x average stream width)

Field Staff: Bob and Tracy

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0
2	.37	.06	.42	.07	.22	.02	.31	.03	.43	.10	.45	.06	.49	.09	.47	.05	.26	.07	.43	.02	.40	.02	.01
3	.74	.11	.84	.05	.46	.03	.62	.02	.86	.28	.90	.10	.97	.12	.94	.07	.52	.11	.86	.05	.80	.10	.01
4	1.11	.15	1.24	.09	.69	.03	.93	.03	1.30	.38	1.36	.13	1.46	.22	1.26	.13	.78	.19	1.29	.19	1.20	.17	.01
5	1.48	.12	1.68	.04	.92	.03	1.24	.04	1.73	.39	1.81	.23	1.94	.19	1.68	.12	1.04	.14	1.72	.21	1.60	.20	.01
6	1.85	.11	2.10	.12	1.15	.09	1.55	.07	2.11	.35	2.24	.25	2.43	.18	2.10	.14	1.30	.20	2.15	.29	2.00	.22	.01
7	2.22	.10	2.52	.14	1.38	.04	1.86	.10	2.59	.23	2.71	.25	2.92	.17	2.52	.14	1.56	.19	2.58	.32	2.40	.21	.01
8	2.59	.07	2.94	.17	1.61	.03	2.17	.10	3.02	.24	3.16	.24	3.40	.14	2.94	.12	1.82	.19	3.01	.30	2.40	.18	.01
9	2.96	.06	3.26	.15	1.84	.02	2.48	.07	3.46	.23	3.62	.22	3.89	.11	3.36	.09	1.82	.12	3.01	.30	2.40	.18	.01
10	3.33	.04	3.78	.05	2.07	.01	2.79	.04	3.89	.19	4.07	.14	4.37	.09	3.78	.05	2.34	.08	3.87	.14	3.60	.21	.01
11	3.7	.01	4.2	0.01	2.3	.01	3.11	.01	4.22	.01	4.52	.01	4.86	.01	4.2	.01	2.6	.01	4.26	.01	4.00	.01	.01
12	4.73	0	4.8	0	.65	0	.41	0	.58	0	.31	0	.53	0	.87	0	.62	0	.44	0	.54	0	.01

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
 Transects in order of up to downstream.
 Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [Signature] Date: 5-26-07

QWC 5-29-07

WBID# 2771
 Site# 14

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5-24-07</u>	Site Location Description (e.g., road crossing): <u>downstream of county 659</u>
Personnel (Data Collectors): <u>Bob & Travis</u>	
Current Weather Conditions: <u>Clear</u>	Facility Name: <u>Fish LWTF</u>
	Permit Number: <u>MD 0092827</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15S 0746194</u>		Y: <u>4054371</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>25</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>D031</u>	<u>Down Stream</u>		
<u>D032</u>	<u>upstream</u>		

Uses Observed*: (Uses actually observed at 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.)

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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments: Fields

WBID# 2771
 Site# 14

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites		<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input checked="" type="checkbox"/> Other:
Comments: <u>drainage</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	<u>10</u> % Sand	<u>90</u> % Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

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 checked="" 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:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input checked="" type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: Robert A Bacon Date of Survey: 5-24-07

Organization: ARC Position: Field Manager

ARC 5-29-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Form D031 (014-01)
 up D032 (014-11)

Waterbody ID: 2771 Site #: 14 (WBID_Site#)

Estimated Channel Incision: 6m (m) (height between low bank width and water)

GPS Location (taken at transect 1):
 UTM X: 1550746194 UTM Y: 4054371
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 25 (feet)

Waypoint # 226

Average Stream Width: 7.5 (meters) Length of Survey Segment: 150 (meters)
 (20x average stream width)

Field Staff: Travis & Bob

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01
2	1.8	0.79	1.82	0.28	1.93	0.30	1.95	0.46	1.50	0.50	1.57	0.43	1.55	0.28	1.49	0.25	1.475	0.22	1.45	0.27	1.51	0.25	1.25
3	1.6	0.39	1.64	0.40	1.86	0.37	1.90	0.45	1.00	0.50	1.14	0.45	1.10	0.36	0.98	0.37	0.95	0.28	0.90	0.38	0.88	0.28	0.39
4	3.4	0.35	2.46	0.37	2.79	0.32	2.85	0.40	1.50	0.42	1.71	0.41	1.65	0.40	1.47	0.40	1.42	0.43	1.35	0.40	1.10	0.46	1.53
5	3.2	0.45	3.28	0.43	3.72	0.29	3.80	0.32	2.00	0.40	2.24	0.41	2.20	0.42	1.96	0.43	1.90	0.40	1.80	0.42	1.80	0.46	2.04
6	4.0	0.45	4.10	0.37	4.65	0.27	4.75	0.29	2.50	0.41	2.85	0.41	2.75	0.41	2.45	0.41	2.38	0.43	2.25	0.42	2.25	0.42	2.55
7	4.8	0.41	4.92	0.36	5.58	0.30	5.70	0.36	3.00	0.40	3.42	0.41	3.30	0.38	2.94	0.40	2.85	0.43	2.70	0.42	2.70	0.42	2.06
8	5.6	0.41	5.74	0.37	6.51	0.30	6.65	0.36	3.50	0.40	3.94	0.40	3.85	0.38	3.43	0.40	3.32	0.39	3.15	0.39	3.15	0.39	3.57
9	6.4	0.46	6.56	0.32	7.44	0.16	7.10	0.36	4.00	0.37	4.51	0.35	4.40	0.35	3.92	0.31	3.80	0.29	3.60	0.32	3.60	0.32	4.08
10	7.2	0.32	7.38	0.19	8.37	0.11	8.55	0.12	4.50	0.18	5.13	0.20	4.55	0.21	4.41	0.25	4.28	0.19	4.05	0.15	4.05	0.15	4.59
11	8	0.01	8.2	0.01	9.3	0.01	9.5	0.01	5.0	0.01	5.7	0.01	5.5	0.01	4.9	0.01	4.75	0.01	4.5	0.01	4.41	0	5.1
12	5.8	0	1.21	0	1.38	0	1.42	0	1.62	0	1.41	0	1.02	0	1.48	0	1.12	0	1.41	0	1.41	0	1.10

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
 Transects in order of up to downstream.
 Mark dry depth measurements as 0, measurements less than 0.1m as <0.1, and greater than 1m as >1
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [Signature] Date: 5-24-2007

Bob C 5-29-07

Dissolved Oxygen
 Dissolved Oxygen: 3.88 (mg/L)
 Dissolved Oxygen: 52.7 (% sat)
 Specific Cond: 166 (µS/cm)
 Water Temperature: 27.7 (°C)
19:06

WBID# 2771
 Site# 15

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>5-24-07</u>	Site Location Description (e.g., road crossing): <u>downstream Hwy 53 crossing near Quinn</u>
Personnel (Data Collectors): <u>Bob & Travis</u>	
Current Weather Conditions: <u>Sunny Clear</u>	Facility Name: <u>Fish WATF</u>
	Permit Number: <u>MD0092827</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: 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 Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>15S0744636</u>		Y: <u>4054723</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>2</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# #)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# #)	Photo Purpose and Direction (upstream, downstream, other)
<u>D029</u>	<u>downstream view 15-01</u>		
<u>D030</u>	<u>upstream view 15-11</u>		

Uses Observed*: (Uses actually observed at 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.)				

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 checked="" type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>Farm fields</u>				

WBID# 2771
 Site# 15

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization
 (must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites		<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:
Comments: <i>Drainage</i>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	% Gravel	<i>10</i> % Sand	<i>90</i> % Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

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 checked="" 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:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input checked="" type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*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.

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

Surveyor's Signature: *[Signature]* Date of Survey: *5-24-07*

Organization: *ERC* Position: *Field Manager*

MEC Recreational Use Attainability Analysis Field Survey Sheet

UP 2024 (15-01)
 DN 2030 (15-11)

Waterbody ID: 2771 Site #: 15 (WBID_Site#)

Estimated Channel Incision: 9m (m) (height between low bank width and water)

GPS Location (taken at transect 1): UTM X: 1550244636 UTM Y: 4054723
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 21 (feet)

Average Stream Width: 9.5 (meters) Length of Survey Segment: 190 (meters)

Field Staff: Bob & Travis (20x average stream width)

Dissolved Oxygen

Dissolved Oxygen: 8.04 (mg/L)

Dissolved Oxygen: 105.2 (% sat)

Specific Cond: 1579 (µS/cm)

Water Temperature: 27.3 (°C)

18.52

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0
2	.8	.10	.18	.18	.86	.16	.83	.22	.47	.14	.45	.20	.92	.22	.95	.23	.94	.23	1.02	.31	1.10	.30	
3	1.6	.18	1.78	.25	1.72	.34	1.66	.37	1.74	.36	1.90	.32	1.94	.37	1.90	.40	1.88	.41	2.04	.47	2.20	.46	
4	2.4	.48	2.67	.53	2.58	.43	2.49	.54	2.61	.61	2.85	.63	2.76	.64	2.85	.63	2.82	.65	3.06	.66	3.20	.55	
5	3.2	.70	3.54	.92	3.44	.67	3.32	.71	3.44	.72	3.80	.75	3.68	.71	3.80	.66	3.76	.64	4.08	.61	4.40	.70	
6	4.0	.74	4.45	.82	4.3	.70	4.15	.72	4.35	.73	4.75	.77	4.16	.74	4.75	.64	4.17	.64	5.1	.65	5.50	.70	
7	4.8	.75	5.24	.77	5.16	.65	4.98	.72	5.22	.71	5.70	.76	5.52	.74	5.70	.64	5.64	.63	6.12	.66	6.60	.70	
8	5.6	.62	6.23	.67	6.02	.61	5.81	.68	6.09	.64	6.65	.68	6.44	.71	6.65	.65	6.58	.67	7.14	.65	7.70	.65	
9	6.4	.28	7.12	.60	6.88	.60	6.64	.65	6.96	.64	7.60	.64	7.36	.62	7.60	.61	7.52	.59	8.16	.61	8.80	.65	
10	7.2	.15	8.01	.33	7.74	.37	7.47	.34	7.83	.36	8.55	.37	8.28	.34	8.55	.32	8.46	.33	9.18	.36	9.90	.40	
11	8.0	.01	8.9	.01	8.6	.01	8.3	.01	8.7	.01	9.5	.01	9.2	.01	9.5	.01	9.4	.01	10.2	.01	11.0	.01	
12	8.23	0	8.48	0	8.54	0	8.42	0	8.58	0	8.62	0	8.77	0	8.82	0	8.62	0	8.54	0	8.54	0	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Robert R Date: 5-24-07

Bob 5-24-07

WBID# 2771 Menorkenut Slough



Site# 1 Photo ID# F2, Downstream



Site# 1 Photo ID# F1, Upstream



Site# 2 Photo ID# F4, Downstream, T1



Site# 2 Photo ID# F3, Upstream, T 11

WBID# 2771 Menorkenut Slough



Site# 3 Photo ID# F5, Upstream



Site# 3 Photo ID# F6, Downstream



Site# 4 Photo ID# F7, Upstream



Site# 4 Photo ID# F8, Downstream

WBID# 2771 Menorkenut Slough



Site# 5 Photo ID# F9, Downstream



Site# 5 Photo ID# F11, Upstream



Site# 6 Photo ID# F11, Downstream, T1



Site# 6 Photo ID# F12, Upstream, T 11

WBID# 2771 Menorkenut Slough



Site# 7 Photo ID# F13, Downstream



Site# 7 Photo ID# F14, Upstream



Site# 8 Photo ID# F15, Upstream



Site# 8 Photo ID# F16, Downstream

WBID# 2771 Menorkenut Slough



Site# 9 Photo ID# 58, Downstream, T1



Site# 9 Photo ID# 59, Upstream, T11



Site# 10 Photo ID# 60, Downstream, T1



Site# 10 Photo ID# 61, Upstream, T 11

WBID# 2771 Menorkenut Slough



Site# 11 Photo ID# 62, Downstream



Site# 11 Photo ID# 63, Upstream



Site# 12 Photo ID# 67, Downstream, T1



Site# 12 Photo ID# 66, Upstream, T 11

WBID# 2771 Menorkenut Slough



Site# 13 Photo ID# 64, Downstream, T1



Site# 13 Photo ID# 65, Upstream, T 11



Site# 14 Photo ID# 31, Downstream



Site# 14 Photo ID# 32, Upstream

WBID# 2771 Menorkenut Slough



Site# 15 Photo ID# 29, Downstream, T1



Site# 15 Photo ID# 30, Upstream, T 11