DITCH TO BLACK RIVER
WBID 2776

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):	Ditch to Black
Missouri Water Body Identification (WBID) Number:	2776
8-digit HUC: 11010007	County: Butler
Upstream Legal Description (from Table H):	9, 25N, 7E
Downstream Legal Description(from Table H):	3, 23N, 7E
Number of sites evaluated	7
List all sites numbers, listed consequently upstream to downstream:	
Sites - 1, 2, 3, 4, 5, 6, 7	

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

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Upstream Coordinates: UTM X Y		Downstream Coordinates: 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):	East Butler Co Common Sewer
Discharger Permit Number(s):	MO 0127159

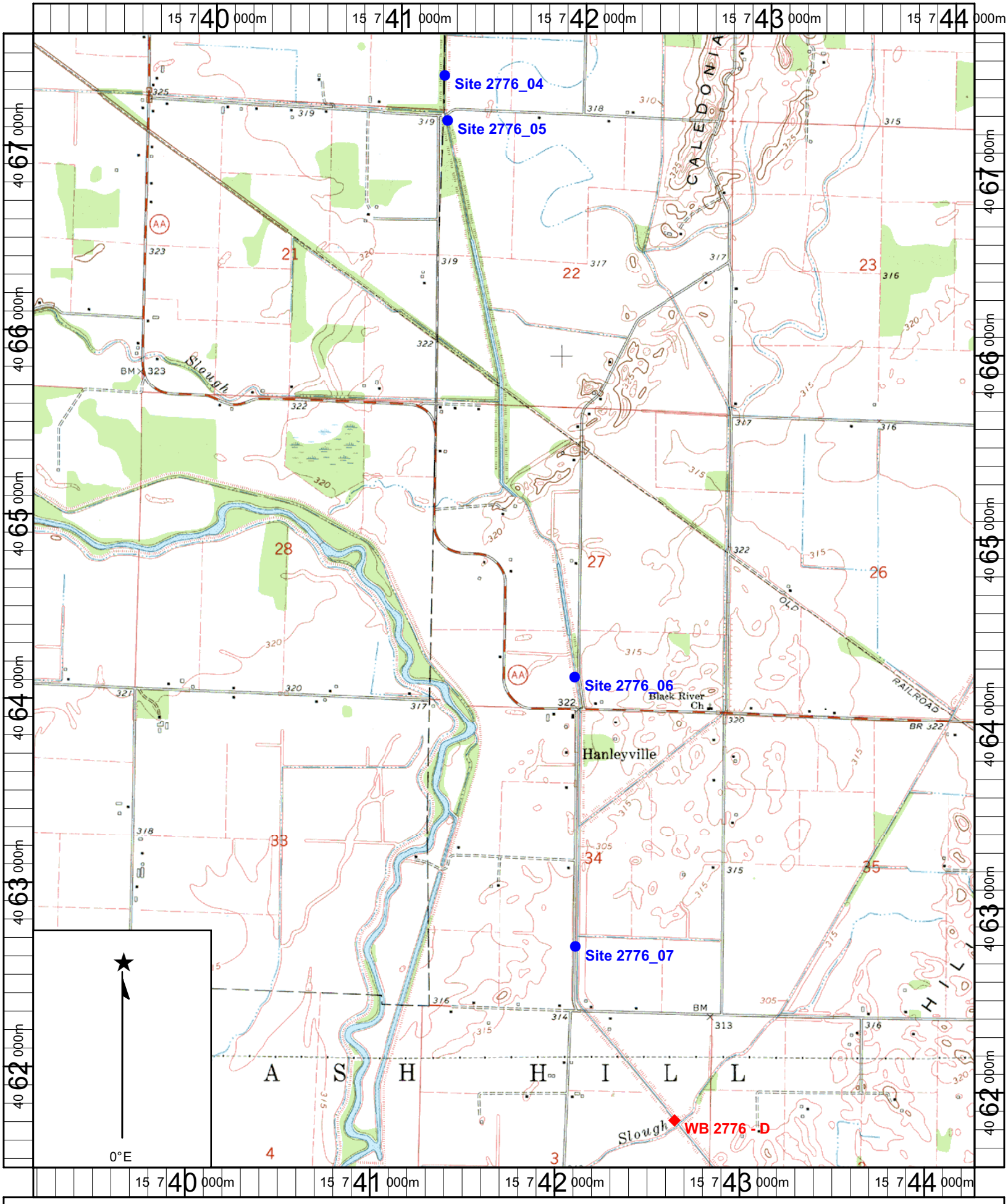
IV. UAA Surveyor (please print legibly)

Name of Surveyor: Robert Bacon	Telephone Number: 573-634-7078
Organization/Employer: EPC	
Position: Field Manager	

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

Signed: [signature] **Date:** 5-24-07

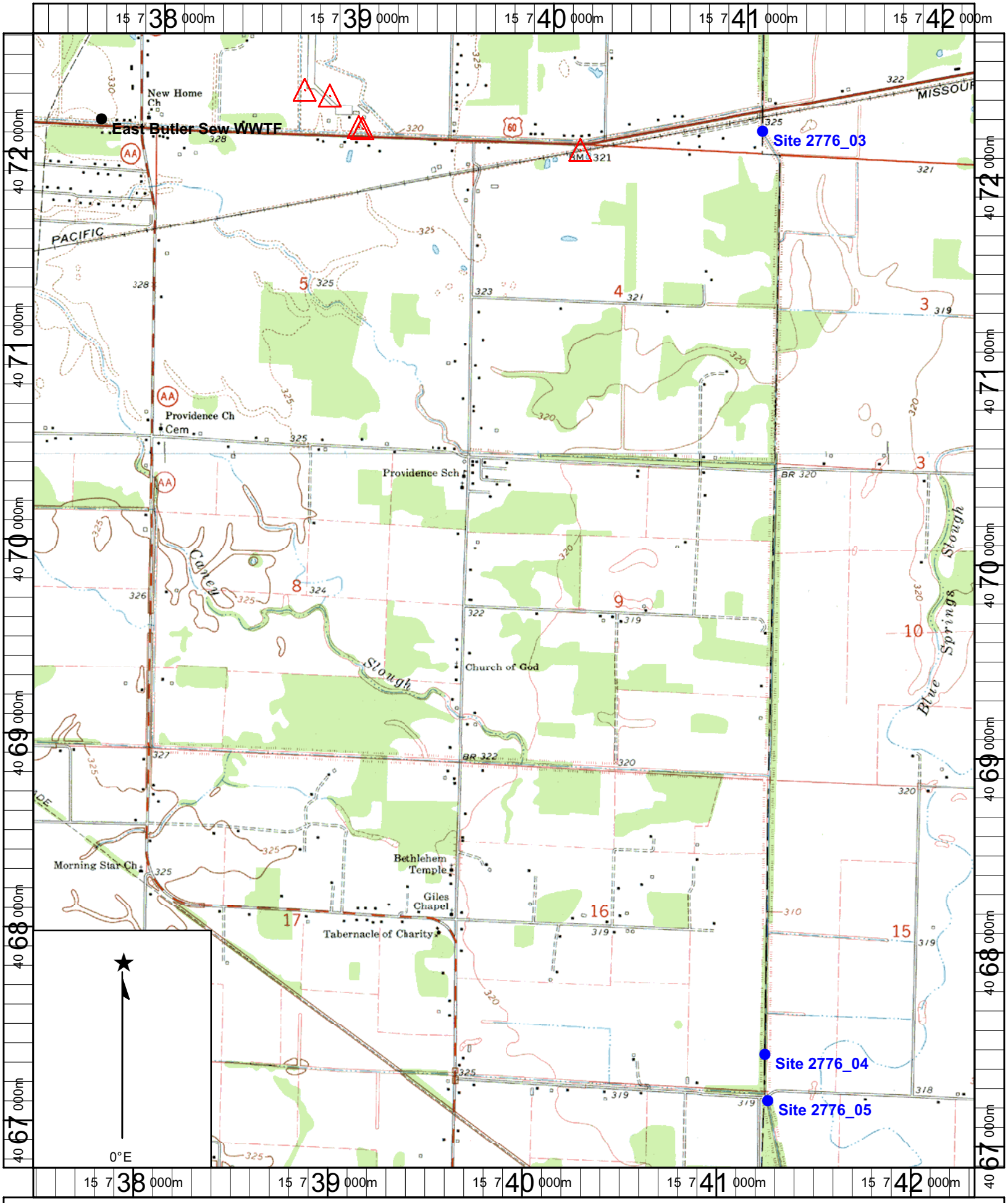
RUC 5-29-07



Name: HANLEYVILLE
Date: 5/28/2007
Scale: 1 inch equals 2105 feet

Location: 15 0741637 E 4064601 N

Copyright (C) 2000, Maptech, Inc.



Name: ROMBAUER
Date: 5/28/2007
Scale: 1 inch equals 2000 feet

Location: 15 0739824 E 4069750 N

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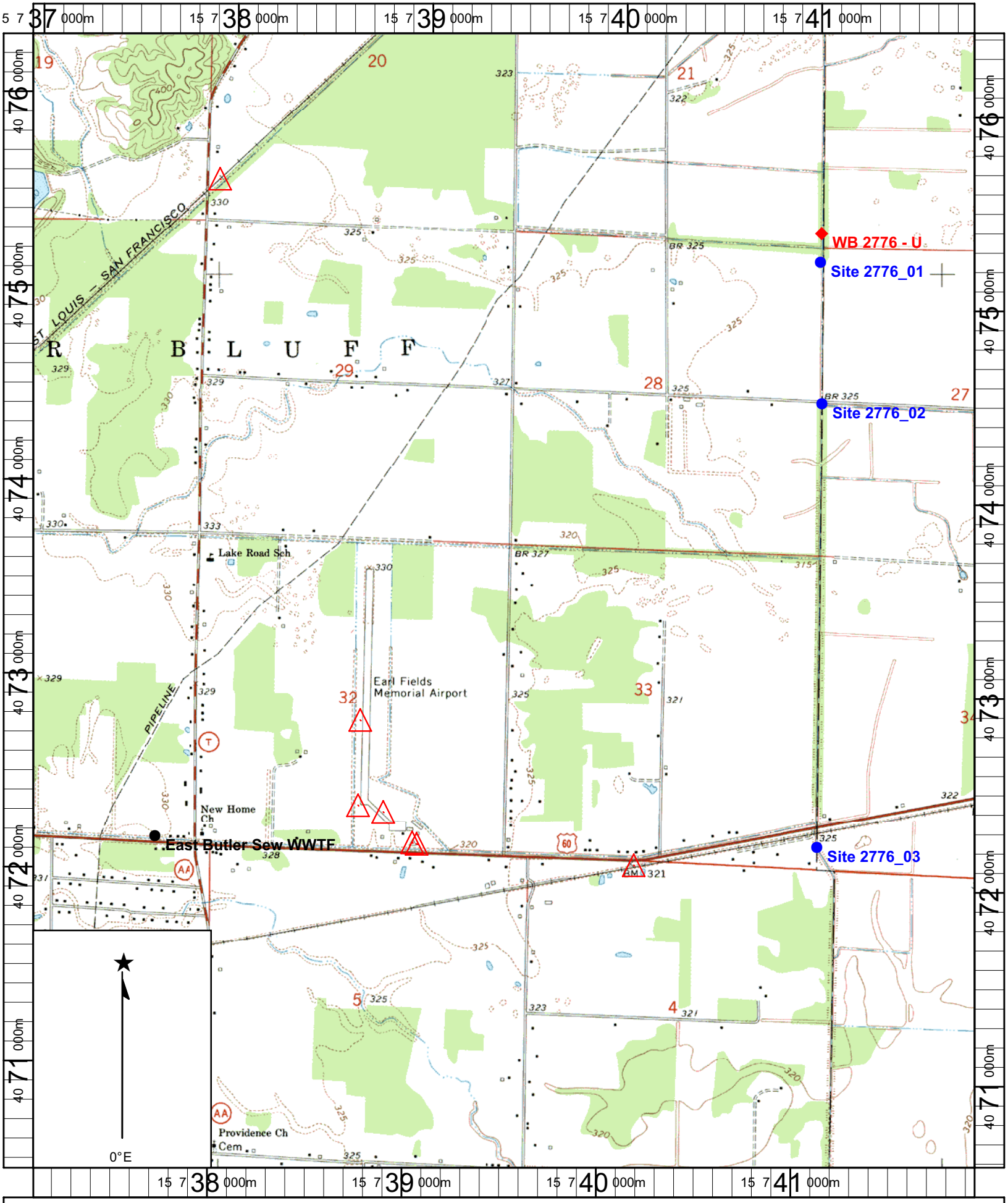

Name: ROMBAUER
Date: 5/28/2007
Scale: 1 inch equals 2000 feet

Location: 15 0739445 E 4073440 N

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WBID# 2776
Site# 01

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5-23-2007 19:10	Site Location Description (e.g., road crossing): downstream of Hwy 60
Personnel (Data Collectors): Bob & Travis	
Current Weather Conditions: Overcast 84°F	Facility Name: East Butler Co. Common Sew.
	Permit Number: MO 0127159
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 15 S 0741033 Y: 0475230

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	± 25 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)
D010	downstream 01-01		
D011	upstream 01-11		
D012	algae mat		

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments: Farm fields

WBID# 2776
Site# 01

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)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: None					

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	20 % Silt	80 % Mud/Clay	% Bedrock

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

thick filamentous algae growth
~ 30% of channel w/i stream segment covered by emergent macrophytes

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☒ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☒ Solids	☐ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☒ Scum	☒ Foam	☐ None	☐ 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: 5-23-2007

Organization: ERC Position: Field Manager

RWC 5-29-07

Dn D010 01-01
UP D011 01-11
D012 algae mat

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 2776 Site #: 01
(WBID_Site#)

Estimated Channel Incision: .35 (m) (height between low bank width and water) Wayport 218

GPS Location (taken at transect 1):

UTM X: 15 S 0741037 UTM Y: 0475230

Horizontal Accuracy Estimate (GPS Data Quality): +/- 25 (feet)

Average Stream Width: 7.0 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: Bob and Travis

Dissolved Oxygen

Dissolved Oxygen: 10.27 (mg/L)

Dissolved Oxygen: 126.2 (% sat)

Specific Cond: 279 (µS/cm) @ 26.1

Water Temperature: 25.7 (°C)

19:10

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 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
2	.37	.12	.72	.10	.71	.10	.63	.11	.65	.22	.67	.20	.69	.21	.65	.18	.92	.14	.84	.12	.71	.10
3	.74	.16	1.44	.14	1.42	.20	1.26	.18	1.30	.26	1.34	.21	1.38	.30	1.30	.33	1.84	.20	1.68	.19	1.42	.18
4	1.11	.20	2.16	.25	2.13	.27	1.89	.25	1.95	.31	2.01	.28	2.07	.30	1.95	.31	2.76	.27	2.52	.18	2.13	.16
5	1.48	.23	2.88	.25	2.84	.27	2.52	.27	2.60	.30	2.68	28	2.76	.28	2.60	.29	3.68	.28	3.36	.19	2.84	.14
6	1.85	.30	3.60	.34	3.55	.37	3.15	.29	3.25	.30	3.35	.28	3.45	.26	3.25	.25	4.60	.26	4.20	.17	3.55	.15
7	2.22	.24	4.32	.28	4.26	.34	3.78	.28	3.90	.27	4.02	.21	4.14	.20	3.90	.19	5.52	.20	5.04	.18	4.26	.15
8	2.59	.25	5.04	.25	4.97	.25	4.41	.27	4.55	.26	4.69	.20	4.83	.11	4.55	.12	6.44	.28	5.88	.25	4.97	.20
9	2.96	.26	5.76	.25	5.68	.25	5.04	.29	5.20	.30	5.36	.29	5.52	.22	5.20	.20	7.36	.31	6.72	.23	5.68	.18
10	3.33	.18	6.48	.11	6.39	.12	5.67	.25	5.85	.26	6.03	.20	6.21	.18	5.85	.18	8.28	.30	7.56	.27	6.39	.12
11	3.70	.01	7.2	.01	7.1	.01	6.3	0.1	6.5	.01	6.7	.01	6.9	.01	6.5	.01	9.2	.01	8.4	.01	7.1	.01
12	0.1	0	.32	0	.45	0	37	0	.50	0	.40	0	.47	0	.60	0	.24	0	.20	0	.12	0
Feature Type (riffle, run, or pool)	slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide 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: Robert R Bungom Date: 5-23-2007

RWC 5-29-07

WBID# 2776
Site# 02

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5-24-2007 1:07	Site Location Description (e.g., road crossing): downstream of county road 564 bridge
Personnel (Data Collectors): Bob & Travis	
Current Weather Conditions: Sunny & Overcast	Facility Name: East Butler Co Common Source Permit Number: MO 0127157
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 15 S 0741060 Y: 4074499

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	± 17 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)
D013	downstream (02-01)		
D014	upstream 02-11		

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments: Farm Fields

WBID# 2776
Site# 02

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)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments: None, drainage

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	80 % Silt	20 % Mud/Clay	% Bedrock

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

90% of channel covered in emergent macrophytes

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☒ Musky	☐ Chemical	☐ None	☐ Other:
COLOR:	☐ Clear	☒ Green	☒ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ 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: 5-24-2007

Organization: ERC Position: Field Manager

RWC 5-29-07

Co R2 564

DN D013 (02-01)
Up D014 (02-11)

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 2776 Site #: 02
(WBID_Site#)

Estimated Channel Incision: .40 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
UTM X: 1551074.1060 UTM Y: 4074499
Horizontal Accuracy Estimate (GPS Data Quality): +/- 17 (feet)

Waypoint 219

Average Stream Width: 6.0 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: Bob and

Dissolved Oxygen

Dissolved Oxygen: 3.23 (mg/L)

Dissolved Oxygen: 35.6 (% sat)

Specific Cond: 257 (µS/cm)

Water Temperature: 20.0 (°C)

8:07

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 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
2	.53	.24	.83	.15	.76	.17	.62	.16	.39	.08	.41	.07	.50	.06	.46	.14	.58	.13	.56	.21	.50	.12
3	1.06	.22	1.66	.25	1.52	.23	1.24	.21	.78	.11	.82	.13	1.0	.14	.92	.25	1.16	.22	1.12	.34	1.0	.26
4	1.59	.22	2.49	.26	2.28	.27	1.86	.27	1.17	.10	1.23	.21	1.5	.20	1.38	.22	1.74	.28	1.68	.36	1.5	.28
5	2.12	.25	3.32	.29	3.04	.33	2.48	.34	1.56	.18	1.64	.26	2.0	.31	1.84	.20	2.32	.30	2.24	.41	2.0	.34
6	2.65	.23	4.15	.30	3.8	.31	3.1	.34	1.95	.23	2.05	.31	2.5	.46	2.30	.24	2.9	.36	2.80	.44	2.5	.39
7	3.18	.28	4.98	.37	4.56	.36	3.72	.41	2.34	.25	2.46	.32	3.0	.37	2.76	.27	3.48	.43	3.36	.47	3.0	.41
8	3.71	.19	5.81	.40	5.32	.41	4.34	.37	2.73	.29	2.87	.41	3.5	.31	3.22	.31	4.06	.41	3.96	.40	3.5	.36
9	4.24	.19	6.64	.47	6.08	.47	4.96	.29	3.12	.28	3.28	.36	4.0	.21	3.68	.21	4.64	.27	4.48	.33	4.0	.28
10	4.77	.14	7.47	.30	6.84	.32	5.58	.28	3.51	.15	3.69	.20	4.5	.18	4.14	.16	5.22	.18	5.04	.27	4.5	.20
11	5.3	.01	8.3	.18	7.6	.10	6.2	.17	3.9	.01	4.1	.15	5.0	.15	4.6	.01	5.8	.01	5.6	.01	5.0	.10
12	.40	0	.25	0	.3	0	.25	0	.74	0	.37	0	.21	0	.82	0	.62	0	.55	0	.48	0
Feature Type (riffle, run, or pool)	glide pool		glide pool		glide pool		glide pool		glide pool		glide pool		glide pool		glide pool		glide pool		glide pool		glide 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: [signature] Date: 5-24-07

RLC 5-29-07

WBID# 2776
Site# 03

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5-24-07 14:15	Site Location Description (e.g., road crossing): Downstream Hwy B
Personnel (Data Collectors): Bob & Travis	
Current Weather Conditions: Sunny/Clouds	Facility Name: East Butler Co Common Sewer
	Permit Number: MO 0127159
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 1555 0741098 Y: 4072208

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	± 21 Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± _____ 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)
0022	Fishing		
0023	Downstream T1		
0024	Upstream T11		

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☒ Fishing	☐ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments: Farm Fields

WBID# 2776
Site# 03

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)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments: None, Drainage

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	20 % Silt	80 % Mud/Clay	% Bedrock

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

<5% Coverage

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☒ Green	☒ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☒ Scum	☐ Foam	☐ None	☐ 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

GWC 5-29-07

D022
DN D023 (03-01)
UP D024 (03-11)

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 7776 Site #: 03 (WBID_Site#)

Estimated Channel Incision: 0.48 BKC (m) (height between low bank width and water) Way pt. 223

GPS Location (taken at transect 1):

UTM X: 155 074/098 UTM Y: 4072208

Horizontal Accuracy Estimate (GPS Data Quality): +/- 21 (feet)

Average Stream Width: 7.0 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: Bob and Travis

Dissolved Oxygen

Dissolved Oxygen: 8.32 (mg/L)

Dissolved Oxygen: 100.7 (% sat)

Specific Cond: 411 (µS/cm)

Water Temperature: 24.7 (°C)

1:14

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 Depth (m)
1	0	.03	0	.02	0	.01	0	.02	0	.01	0	.03	0	.01	0	.02	0	.01	0	.02	0	.03
2	.72	.30	.78	.28	.86	.12	.84	.13	.99	.11	.98	.14	1.00	.15	1.02	.16	1.04	.31	1.03	.33	1.02	.30
3	1.44	.34	1.56	.32	1.70	.28	1.68	.20	1.98	.14	1.96	.27	2.00	.25	2.04	.27	2.08	.45	2.06	.30	2.04	.27
4	2.16	.42	2.34	.41	2.55	.48	2.52	.38	2.97	.13	2.94	.28	3.00	.34	3.06	.37	3.12	.51	3.09	.31	3.06	.26
5	2.88	.47	3.12	.47	3.40	.59	3.36	.41	3.96	.13	3.92	.39	4.00	.50	4.08	.51	4.16	.52	4.12	.52	4.08	.32
6	3.6	.51	3.9	.47	4.25	.64	4.2	.32	4.95	.31	4.9	.49	5.00	.46	5.1	.51	5.20	.52	5.15	.61	5.1	.34
7	4.32	.43	4.68	.61	5.10	.63	5.04	.28	5.94	.33	5.88	.48	6.00	.55	6.12	.49	6.24	.53	6.18	.56	6.12	.39
8	5.04	.34	5.46	.61	5.95	.61	5.88	.32	6.93	.27	6.86	.50	7.00	.46	7.14	.48	7.28	.46	7.21	.41	7.14	.41
9	5.76	.27	6.24	.51	6.80	.51	6.72	.27	7.92	.27	7.84	.41	8.00	.45	8.16	.41	8.32	.40	8.24	.27	8.16	.42
10	6.48	.18	7.02	.29	7.65	.35	7.56	.16	8.91	.21	8.82	.21	9.00	.28	9.18	.32	9.36	.22	9.27	.23	9.18	.31
11	7.2	.01	7.8	.01	8.5	.01	8.4	.01	9.9	.01	9.80	.01	10.0	.01	10.2	.01	10.4	.01	10.3	.02	10.2	.04
12	.18	0	.20	0	.05	0	.55	0	.42	0	.25	0	.60	0	.24	0	.30	0	.18	0	.24	0
Feature Type (riffle, run, or pool)	slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		glide pool		glide 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: [signature] Date: 5-24-2007

RKC 5-29-07

WBID# 2776
Site# 04

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5-24-2007 10:15	Site Location Description (e.g., road crossing): upstream of county road 630
Personnel (Data Collectors): Bob + Travis	
Current Weather Conditions: Sunny Cloudy 84	Facility Name: East Butler Co. Common Sewer Permit Number: MO 0127151
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: 15 S 0741241 Y: 4067442			
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	± 13 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)
D017	downstream (04-01)		
D018	upstream (04-11)		

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments: Farm field

WBID# 2776
Site# 04

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)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments: None, Drainage

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	20 % Silt	80 % Mud/Clay	% Bedrock

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

no vegetation in Channel

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☒ Green	☒ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☒ Scum	☒ Foam	☐ None	☐ 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: 5-24-2007

Organization: ERC Position: Field Manager

RWC 5-29-07

DN D017 (04-01)
UP D018 (04-11)

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 2776 Site #: 04
(WBID_Site#)

Estimated Channel Incision: .58 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 15 S 0741241 UTM Y: 4067442

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

wrapped 221

Average Stream Width: 9.0 (meters) Length of Survey Segment: 180 (meters)
(20x average stream width)

Field Staff: Bob and Travis

Dissolved Oxygen

Dissolved Oxygen: 5.65 (mg/L)

Dissolved Oxygen: 63.3 (% sat)

Specific Cond: 397 (µS/cm)

Water Temperature: 21.9 (°C)

10:15

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 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
2	.92	.42	.72	.24	.65	.14	.64	.14	.87	.14	.89	.24	.98	.30	.77	.30	.77	.29	.64	.27	.94	.29
3	1.84	.27	1.44	.25	1.30	.28	1.28	.21	1.74	.23	1.78	.27	1.96	.29	1.54	.21	1.54	.13	1.28	.21	1.88	.45
4	2.76	.20	2.16	.31	1.95	.32	1.92	.31	2.61	.35	2.67	.33	2.94	.32	2.31	.30	2.31	.28	1.92	.39	2.82	.49
5	3.68	.40	2.88	.35	2.60	.33	2.56	.30	3.48	.29	3.56	.30	3.92	.30	3.08	.32	3.08	.35	2.56	.35	3.76	.36
6	4.60	.12	3.60	.28	3.25	.36	3.20	.31	4.35	.31	4.45	.28	4.90	.29	3.85	.39	3.85	.41	3.20	.39	4.70	.32
7	5.52	.04	4.32	.25	3.90	.37	3.84	.36	5.22	.36	5.34	.38	5.88	.34	4.62	.42	4.62	.46	3.84	.42	5.64	.32
8	6.44	.32	5.04	.38	4.55	.42	4.48	.39	6.09	.44	6.23	.39	6.86	.43	5.39	.47	5.39	.49	4.48	.37	6.58	.36
9	7.36	.46	5.76	.49	5.20	.53	5.12	.46	6.96	.44	7.12	.39	7.84	.37	6.16	.39	6.16	.44	5.12	.47	7.52	.49
10	8.28	.42	6.48	.51	5.85	.67	5.84	.39	7.83	.28	8.01	.27	8.82	.29	6.93	.31	6.93	.35	5.84	.37	8.46	.39
11	9.20	.03	7.2	.01	6.5	.02	6.4	.01	8.7	.01	8.9	.01	9.8	.01	7.7	.01	7.7	.03	6.4	.01	9.4	.01
12	.92	0	1.57	0	2.71	0	2.90	0	3.26	0	1.54	0	.48	0	.44	0	1.22	0	1.48	0	1.41	0
Feature Type (riffle, run, or pool)	riffle		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide 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: [signature] Date: 5-24-2007

ARC 5-29-07

WBID# 2776
Site# 05

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5-24-2007 11:07	Site Location Description (e.g., road crossing): downstream of county road 630
Personnel (Data Collectors): Bob and Travis	
Current Weather Conditions: Sunny and Cloudy 84	Facility Name: East Butler Co. Common Sew Permit Number: MO 0127157
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: 15 S 0741265		Y: 4067199	
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	± 22 Feet or ± _____ Meters		
PDOP		± _____ 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)
D019	downstream 05-01		
D020	upstream 05-11		
D021	fishing from bridge		

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☒ Fishing	☐ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments: Farm fields

WBID# 2776
Site# 05

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)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: Drainage					

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	20 % Silt	80 % Mud/Clay	% Bedrock

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

no vegetation in channel

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☒ Green	☒ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☒ Scum	☒ Foam	☐ None	☐ 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: 5-24-2007

Organization: ERC Position: Field Manager

RWC 5-29-07

February 16, 2007

downstream 630 DN D019 (05-01)
UP D020 (05-11)
D021 Fishing

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 2776 Site #: 05
(WBID_Site#)

Estimated Channel Incision: .48 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
UTM X: 1550741265 UTM Y: 4067199
Horizontal Accuracy Estimate (GPS Data Quality): +/- 22 (feet)

Waypt 222

Average Stream Width: 10 (meters) Length of Survey Segment: 200 (meters)
(20x average stream width)

Field Staff: Bob Travis

Dissolved Oxygen

Dissolved Oxygen: 5.68 (mg/L)

Dissolved Oxygen: 65.6 (% sat)

Specific Cond: 392 (µS/cm)

Water Temperature: 22.3 (°C)

11:02

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 Depth (m)
1	0	.01	0	.1	0	.01	0	.1	0	.01	0	.1	0	.01	0	.1	0	.01	0	.01	0	.01
2	1.15	.38	1.01	.33	.95	.24	.73	.24	.70	.20	.74	.20	.65	.43	.52	.47	.75	.27	.59	.34	.44	.27
3	2.3	.50	2.02	.45	1.90	.34	1.46	.30	1.40	.19	1.48	.25	1.3	.36	1.04	.34	1.50	.35	1.18	.42	.88	.44
4	3.45	.59	3.03	.45	2.85	.26	2.19	.30	2.10	.16	2.22	.27	1.95	.32	1.56	.35	2.25	.34	1.77	.35	1.32	.27
5	4.6	.58	4.04	.47	3.80	.40	2.92	.35	2.80	.22	2.96	.35	2.60	.37	2.08	.33	3.00	.32	2.36	.34	1.76	.33
6	5.75	.70	5.05	.51	4.75	.40	3.65	.32	3.50	.26	3.7	.36	3.25	.40	2.6	.35	3.75	.31	2.95	.34	2.2	.38
7	6.9	.72	6.06	.53	5.70	.36	4.38	.31	4.2	.27	4.44	.35	3.90	.44	3.12	.35	4.50	.35	3.54	.34	2.64	.38
8	8.05	.69	7.07	.42	6.65	.35	5.11	.31	4.9	.29	5.18	.35	4.55	.46	3.64	.40	5.25	.41	4.13	.43	3.08	.39
9	9.2	.67	8.08	.41	7.60	.38	5.84	.33	5.6	.22	5.92	.34	5.20	.51	4.16	.42	6.00	.41	4.72	.46	3.52	.37
10	10.35	.46	9.09	.42	8.55	.38	6.57	.34	6.3	.16	6.66	.21	5.85	.22	4.68	.32	6.75	.35	5.31	.27	3.96	.29
11	11.5	.01	10.1	.01	9.5	.01	7.3	.01	7.0	.01	7.4	.01	6.5	.01	5.2	.1	7.5	.01	5.9	.01	4.4	.01
12	.41	0	.60	0	.63	0	.59	0	3.6	0	.52	0	2.94	0	4.82	0	2.73	0	2.4	0	1.2	0
Feature Type (riffle, run, or pool)	slide pool		slide pool		slide pool		slide pool		slide pool		glide pool		slide pool		glide pool		glide pool		glide pool		glide 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: [signature] Date: 5-24-07

MLC 5-29-07

WBID# 2776
Site# 06

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5-24-2007 3:20	Site Location Description (e.g., road crossing): downstream Co. Rd 623
Personnel (Data Collectors): Bob & Travis	
Current Weather Conditions: Sunny w/ Clouds	Facility Name: East Butler Co. Common Seal.
	Permit Number: MN 0127159
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 15 S 0742041 Y: 4064191

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	± 18 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)
D 0025	Downstream 06-01		
D 0026	Upstream 06-11		

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments: Farm Fields

WBID# 2776
Site# 06

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)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments: None

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	20 % Silt	80 % Mud/Clay	% Bedrock

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

< 5% aquatic vegetation cover

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☒ Green	☒ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☒ Scum	☐ Foam	☐ None	☐ 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: 5-24-2007

Organization: ERC Position: Field Manager

[signature] 5-29-07

DN D025 06-01
UP D026 06-11

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 2776 Site #: 06 (WBID_Site#)

Estimated Channel Incision: .46 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 15S 0742041 UTM Y: 4064191 Way pt 223

Horizontal Accuracy Estimate (GPS Data Quality): +/- 18.0 (feet)

Average Stream Width: 9.0 (meters) Length of Survey Segment: 180 (meters) (20x average stream width)

Field Staff: Bob + Travis

Dissolved Oxygen

Dissolved Oxygen: 6.89 (mg/L)

Dissolved Oxygen: 83.6 (% sat)

Specific Cond: 425 (µS/cm)

Water Temperature: 24.7 (°C)

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 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
2	.84	.16	.86	.27	1.2	.50	1.14	.47	1.07	.24	.97	.25	.9	.50	.95	.58	.81	.68	.8	.56	.82	.31
3	1.68	.34	1.72	.43	2.4	.72	2.28	.53	2.14	.27	1.94	.33	1.8	.67	1.9	.63	1.62	.79	1.6	.63	1.64	.30
4	2.52	.35	2.58	.45	3.6	.88	3.42	.57	3.21	.56	2.91	.39	2.7	.94	2.85	.64	2.43	.73	2.4	.45	2.46	.30
5	3.36	.34	3.44	.46	4.8	.93	4.56	.63	4.28	.57	3.88	.41	3.6	.96	3.8	.72	3.24	.67	3.2	.53	3.28	.30
6	4.2	.36	4.3	.47	6.0	.93	5.7	.61	5.35	.56	4.85	.52	4.5	1.12	4.75	.74	4.05	.57	4.0	.54	4.10	.47
7	5.04	.38	5.16	.43	7.2	.95	6.84	.74	6.42	.52	5.82	.53	5.4	1.15	5.7	.74	4.86	.60	4.8	.54	4.92	.46
8	5.88	.36	6.02	.41	8.4	.87	7.98	.73	7.49	.56	6.79	.54	6.3	1.14	6.65	.62	5.67	.62	5.6	.56	5.74	.44
9	6.72	.36	6.88	.40	9.6	.72	9.12	.75	8.56	.52	7.76	.53	7.2	1.07	7.6	.60	6.48	.57	6.4	.56	6.56	.44
10	7.56	.40	7.74	.41	10.8	.54	10.26	.41	9.63	.43	8.76	.47	8.1	.84	8.55	.43	7.29	.41	7.2	.40	7.38	.42
11	8.4	.04	8.6	.01	12.0	.01	11.4	.01	10.7	.01	9.7	.01	9.0	.01	9.5	.01	8.1	.01	8.0	.01	8.2	.01
12	0	—	.18	0	1.42	0	.84	0	1.27	0	.48	0	.32	0	.84	0	.92	0	1.98	0	2.84	0
Feature Type (riffle, run, or pool)	slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide 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: [signature] for Bob Bacon Date: 5-24-07

[signature] 5-29-07

WBID# 2776
Site# 07

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5-24-2007 17:40	Site Location Description (e.g., road crossing): adjacent to county road 647
Personnel (Data Collectors): Bob + Travis	
Current Weather Conditions: Sunny, Hazy 86°	Facility Name: East Butler Co Common Sewer.
	Permit Number: MO 0127159
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 15 S 507420 86 Y: 4062730

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	± 19 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)
D027	Downstream 07-01		
D028	Upstream 07-11		

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☒ Fishing	☐ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☐ Steep slopes	☐ None of the above	☐ Other:

Comments: Farm fields

WBID# 2776
Site# 07

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)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments: Drainage

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	100 % Sand	% Silt	% Mud/Clay	% Bedrock

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

None

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear	☒ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☐ Fine sediments	☒ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☒ Scum	☐ Foam	☐ None	☐ 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: 5-24-2007

Organization: GRC Position: Field Manager

RWC 5-29-07

DN 07-01 D027
UP D028 07-11

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 2776 Site #: 07
(WBID_Site#)

Estimated Channel Incision: .55 (m) (height between low bank width and water)

Waypoint 224

GPS Location (taken at transect 1):

UTM X: 1550742086 UTM Y: 4062730

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

Average Stream Width: 13.0 (meters) Length of Survey Segment: 260 (meters)
(20x average stream width)

Field Staff: Bob + Travis

Dissolved Oxygen

Dissolved Oxygen: 7.18 (mg/L)

Dissolved Oxygen: 86.4 (% sat)

Specific Cond: 395 (µS/cm)

Water Temperature: 24.6 (°C)

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 Depth (m)
1	0	.01	0	.02	0	.01	0	.01	0	.01	0	.02	0	.01	0	.02	0	.01	0	.03	0	.02
2	1.4	.37	1.37	.20	1.4	.23	1.33	.25	1.27	.28	1.32	.24	1.23	.34	1.21	.37	1.16	.42	1.18	.44	1.23	.21
3	2.8	.27	2.74	.31	2.8	.18	2.66	.22	2.54	.29	2.64	.26	2.46	.35	2.42	.43	2.32	.28	2.36	.45	2.40	.36
4	4.2	.26	4.11	.37	4.2	.16	3.99	.24	3.81	.20	3.96	.32	3.69	.24	3.63	.34	3.48	.25	3.54	.38	3.69	.38
5	5.6	.25	5.48	.22	5.6	.31	5.32	.27	5.08	.22	5.28	.37	4.92	.23	4.84	.25	4.64	.28	4.72	.31	4.92	.41
6	7	.20	6.85	.18	7.0	.08	6.65	.31	6.35	.31	6.6	.31	6.15	.23	6.05	.22	5.80	.27	5.9	.35	6.15	.39
7	8.4	.32	8.22	.18	8.4	.21	7.98	.18	7.62	.31	7.92	.28	7.38	.20	7.26	.17	6.96	.31	7.08	.42	7.38	.34
8	9.8	.34	9.59	.21	9.8	.25	9.31	.14	8.89	.32	9.24	.28	8.61	.22	8.47	.20	8.12	.30	8.26	.38	8.61	.31
9	11.2	.34	10.96	.15	11.2	.27	10.64	.09	10.16	.36	10.56	.22	9.84	.33	9.68	.14	9.28	.33	9.44	.34	9.84	.26
10	12.6	.11	12.33	.14	12.6	.22	11.97	.08	11.43	.32	11.88	.11	11.07	.29	10.89	.11	10.44	.34	10.62	.30	11.07	.18
11	14.0	.01	13.7	.01	14.0	.01	13.3	.01	12.7	.01	13.2	.01	12.3	.01	12.1	.01	11.6	.01	11.8	.01	12.3	.01
12	.62	0	.76	0	.85	0	1.24	0	.63	0	1.58	0	1.23	0	1.43	0	2.31	0	1.15	0	.93	0
Feature Type (riffle, run, or pool)	slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide 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: [signature] Date: 5-24-2007

BMC 5-29-07

WBID# 2776 Ditch to Black River

Site# 1 Photo ID# 10, Downstream, T1

Site# 1 Photo ID# 11, Upstream, T 11

Site# 1 Photo ID# 12, Algae mat

Site# 2 Photo ID# 14, Upstream, T 11

WBID# 2776 Ditch to Black River

Site# 2 Photo ID# 13, Downstream, T1

Site# 3 Photo ID# 22, Fishing

Site# 3 Photo ID# 23, Downstream, T1

Site# 3 Photo ID# 24, Upstream, T 11

WBID# 2776 Ditch to Black River

Site# 4 Photo ID# 17, Downstream, T1

Site# 4 Photo ID# 18, Upstream, T 11

Site# 5 Photo ID# 19, Downstream, T1

Site# 5 Photo ID# 20, Upstream, T 11

WBID# 2776 Ditch to Black River

Site# 5 Photo ID# 21, Fishing from bridge

Site# 6 Photo ID# 26, Upstream, T 11

Site# 6 Photo ID# 25, Downstream, T1

Site# 7 Photo ID# 28, Upstream, T 11

WBID# 2776 Ditch to Black River

Site# 7 Photo ID# 27, Downstream, T1