TWELVE MILE CREEK
WBID 2846

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):	Twelve Mile Creek
Missouri Water Body Identification (WBID) Number:	2846
8-digit HUC: 08020202	County: Madison
Upstream Legal Description (from Table H):	17, 32N, 7E
Downstream Legal Description(from Table H):	12, 31N, 6E
Number of sites evaluated 4	
List all sites numbers, listed consequently upstream to downstream: Sites- 1, 2, 3, 4	

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): Corral Motel, Cherokee Pass	Longhorn Motel/Restaurant	Deguire Subdivision
Discharger Permit Number(s): MO 0059956	MO 0056065	MO 0055034

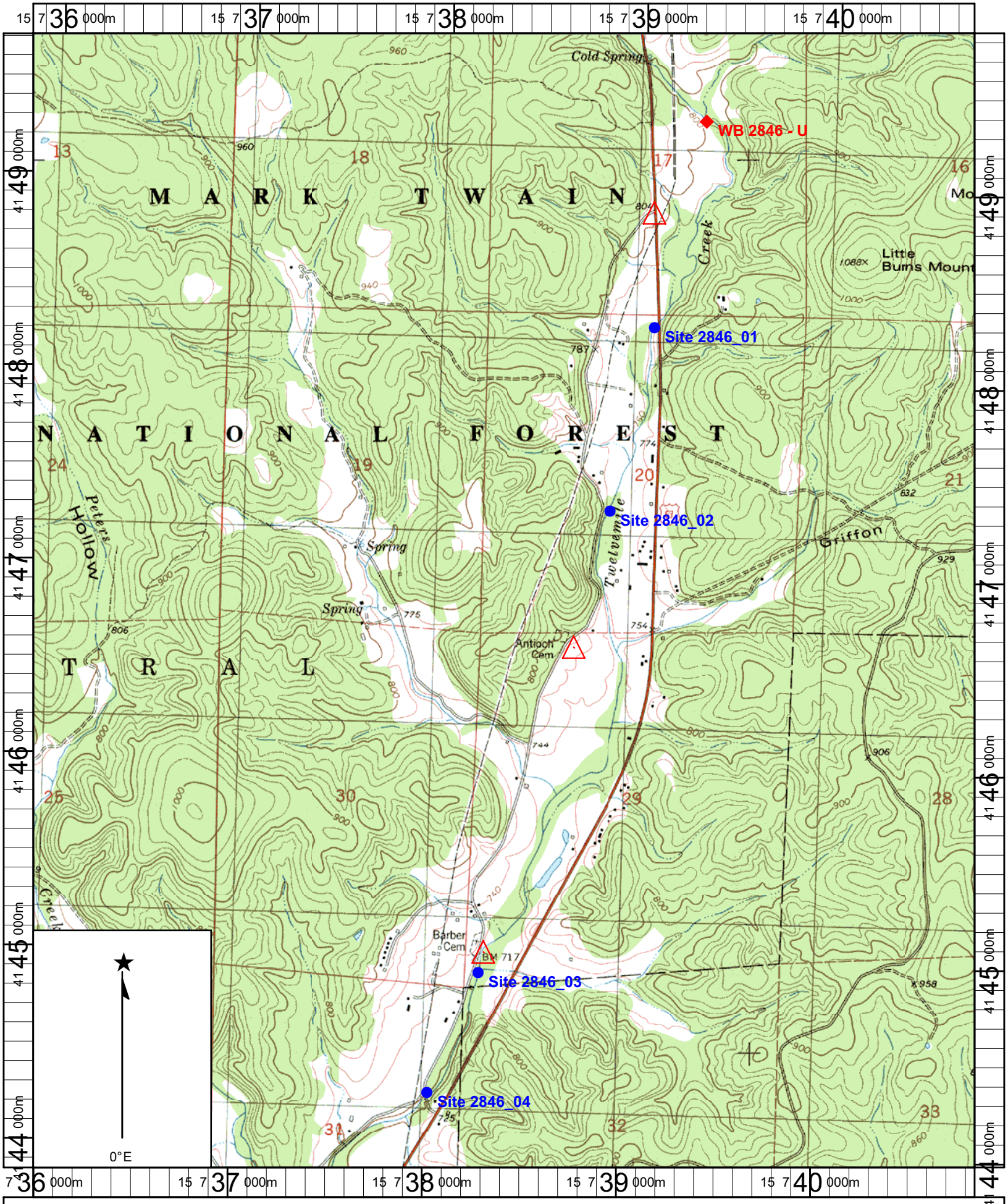
IV. UAA Surveyor (please print legibly)

Name of Surveyor Abby Welschmeyer	Telephone Number: (573) 634-7078
Organization/Employer: ERC	
Position: Field Manager	

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

Signed: [signature] **Date:** 5-24-2007

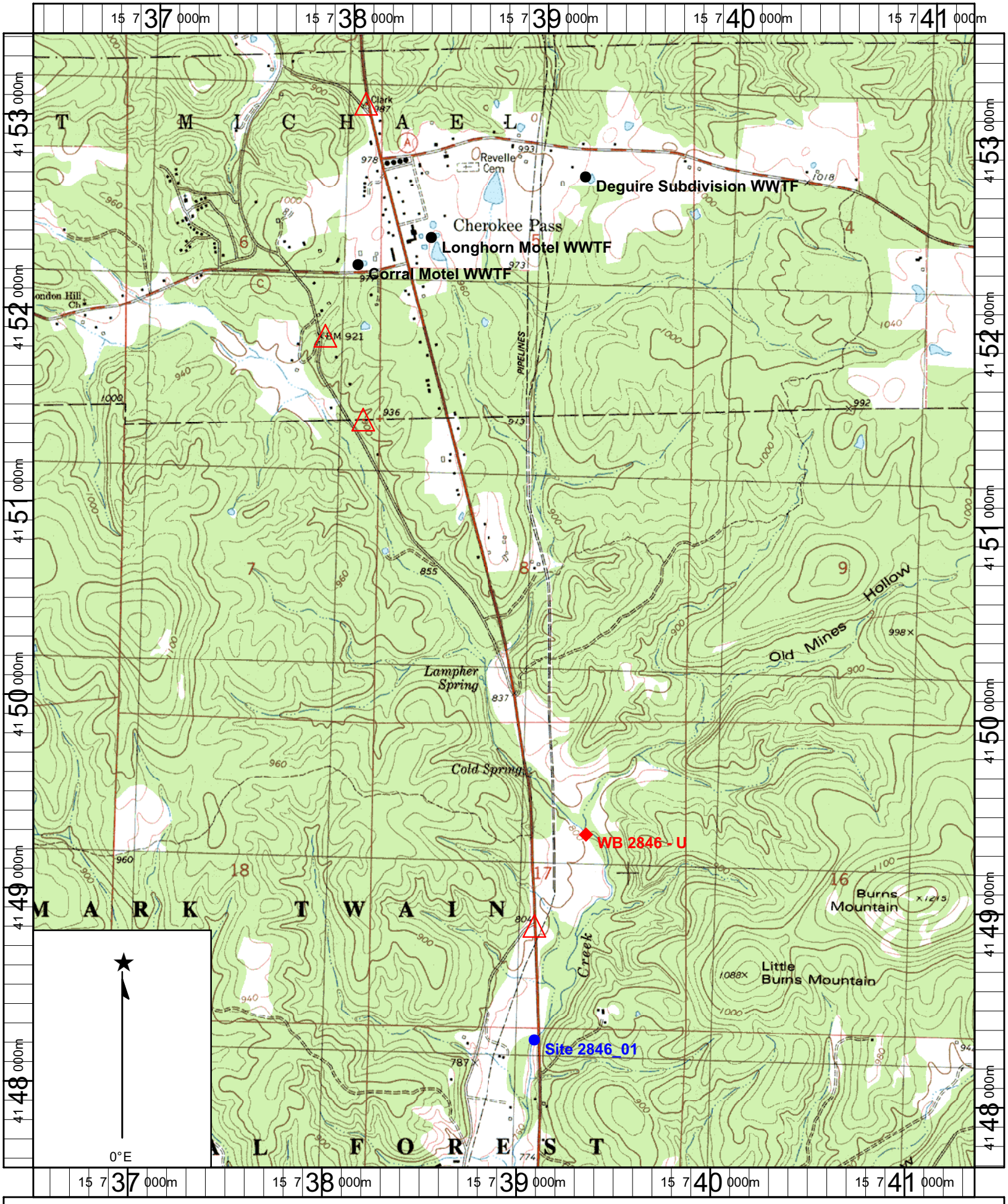
AUC 5-30-07



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

Location: 15 0738339 E 4146848 N

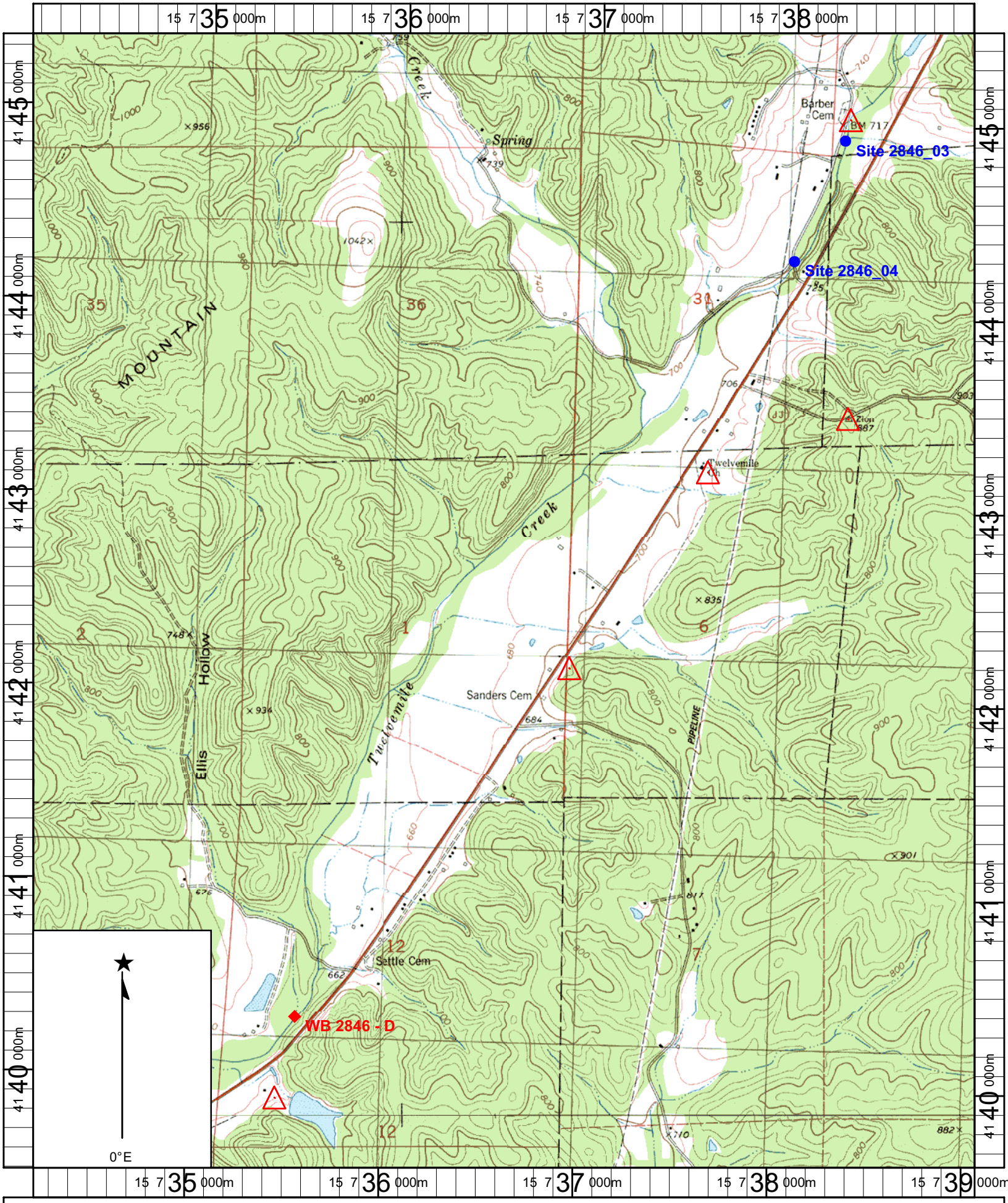
Copyright (C) 2000, Maptech, Inc.



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

Location: 15 0738853 E 4150554 N

Copyright (C) 2000, Maptech, Inc.



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

Location: 15 0736564 E 4142493 N

Copyright (C) 2000, Maptech, Inc.

WBID# 2846
Site# 1

Field Data Sheets for Recreational Use Stream Surveys

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

Require Subdivision

Date & Time: 5-22-07 16:18	Site Location Description (e.g., road crossing): Hwy 47 bridge
Personnel (Data Collectors): Abby & Anna	
Current Weather Conditions: Sunny; 80°	Facility Name: Corral Motel Cherokee Pass / Longhorn Motel Restaurant Permit Number: MO0055956 MO0056016 MO0055034
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: 1550739083 Y: 4140280

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	± 22 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)
C34	Abby - depth @ pool	C35	large pool @ site 1

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: Hwy 47 bridge; grafitti under bridge

WBID# 2846
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)

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

Comments: fishing poles @ site

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	90 % Gravel	10 % 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.

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

Surveyor's Signature: Anna E Ulitschmeyer Date of Survey: 5-22-07

Organization: ERC Position: Field crew

ANC 5-30-07

WBID# 2846
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 05/22/07 16:48	Site Location Description (e.g., road crossing): small CR 417 - across from campground down steep bank - downstream
Personnel (Data Collectors): Abby & Anna	
Current Weather Conditions: Sunny 80°F	Facility Name: Corral Motel Cherokee Pass / Longhorn Motel/Restaurant/Dequine Subdivis
	Permit Number: MO 0055956 / MO 0056065 / MO 0055034
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 073888 Y: 4147322

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	± 29 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)
C36	Downstream T1	C37	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 off creek on gravel road
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☒ Other:

Comments: Wooded

WBID# 2846
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)

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

Comments: ATV tracks in water - evidence of prior access to stream - did not take a picture because it would not have shown up

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	70 % Gravel	% Sand	% Silt	% Mud/Clay	30 % Bedrock

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

some algae rock on bedrock - very slick

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear very	☐ 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.

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

Surveyor's Signature: [signature] Date of Survey: 05/22/07

Organization: ERC Position: Field Manager

RWC 5-30-07

WBID# 2846
Site# 3

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 05/22/07 17:25	Site Location Description (e.g., road crossing): Co Rd 417 across from Barber-Whitener Cemetary - downstream
Personnel (Data Collectors): Haley + Anna	Facility Name: Corral Motel/Cherokee Pass/Longhorn Motel-Restaurant/Deguire Subdiv
Current Weather Conditions: partly cloudy n 79°F	Permit Number: MO 0055956/MO 0056065/MO 0055034
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: 19 S 0738668 Y: 4144914

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	± 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)
C38	Downstream T1		
C39	upstream T11		
C40	vehicle path to stream T1		

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: Cemetery, Pipeline Co., vehicle path - pic C40, + Wooded

WBID# 2846
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)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: pic C40 vehicle path to stream					

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%.)

5 % Cobble	70 % Gravel	% Sand	% Silt	% Mud/Clay	25 % 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 very	☐ 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.

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

Surveyor's Signature: [signature] Date of Survey: 05/22/07

Organization: ERC Position: Field Manager

RWC 5-30-07

WBID# 2846
Site# 4

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 09/22/07 18:17	Site Location Description (e.g., road crossing): Co Rd 412 - downstream
Personnel (Data Collectors): Abby + Anna	
Current Weather Conditions: cloudy ~ 79°F	Facility Name: Corral Motel Cherokee Pass / Longhorn Motel / Restaurant / Deguire Subdivision Permit Number: MO0055956 / MO 0056065 / MO 0055034
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 0738021 Y: 4144287

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	± 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)
C41	Downstream T1	C43	ERC track @ vehicle access to stream
C42	Evidence of "party" area T4	C44	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: Pasture, wooded, County Rd + stream access

WBID# 2846
Site# 4

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: beer box + bottle left on gravel bar, vehicle access road to stream pics C42, C43

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%.)

5 % Cobble	90 % Gravel	% Sand	% Silt	% Mud/Clay	5 % 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 Very	☐ 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.

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

Surveyor's Signature: [signature] Date of Survey: 05/20/07

Organization: ERC Position: Field Manager

RHC 5-30-07

Pic 34 - Ab depth @ pool ~30 m wide

Pic 35 - large pool @ site 1

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waypt 75

Waterbody ID: 2846 Site #: 1 (WBID_Site#)

Estimated Channel Incision: 0.2 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 15 S 0739083 UTM Y: 4140280

Horizontal Accuracy Estimate (GPS Data Quality): +/- 22 (feet)

Average Stream Width: 18 (meters) Length of Survey Segment: 300 (meters) (20x average stream width)

Field Staff: Abby & Anna

Dissolved Oxygen

Dissolved Oxygen: 8.92 (mg/L)

Dissolved Oxygen: 105.1 (% sat)

Specific Cond: 168 (µS/cm)

Water Temperature: 23.57 (°C)

16:18

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																						
2																						
3						Most pool depths exceed >1.2 meters																
4																						
5								Unable to access east of site														
6										due to pool												
7																						
8																						
9																						
10																						
11	18.0																					
12																						
Feature Type (riffle, 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 Wilschmeyer Date: 5-22-07

RUC 5-30-07

Pic 36 - [illegible]

CDC Pic 37 - up (02-11)

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 2846 Site #: 2 (WBID_Site#)

Wypt 76

Estimated Channel Incision: 0.2 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 15 S 073338 UTM Y: 4147322

Horizontal Accuracy Estimate (GPS Data Quality): +/- 29 (feet)

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

Field Staff: Abby & Anna

Dissolved Oxygen

Dissolved Oxygen: 8.46 (mg/L)

Dissolved Oxygen: 97.4 (% sat)

Specific Cond: 141 (µS/cm)

Water Temperature: 22.30 (°C)

Time: 16:48

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	0.03	0	0.01	0	0.01	0	0.03	0	0.05	0	0.01	0	0.02	0	0.02	0	0.03	0	0.03	0	0.01
2	0.52	0.08	0.41	0.11	0.23	0.03	0.375	0.10	0.41	0.09	0.472	0.09	0.53	0.13	0.65	0.22	1.065	0.27	0.54	0.14	0.46	0.02
3	1.04	0.11	0.82	0.21	0.46	0.07	0.75	0.11	0.82	0.10	0.944	0.13	1.06	0.22	1.3	0.37	2.13	0.29	1.08	0.38	0.92	0.07
4	1.56	0.07	1.23	0.15	0.69	0.10	1.125	0.15	1.23	0.15	1.416	0.19	1.59	0.33	1.95	0.50	3.195	0.35	1.62	0.37	1.38	0.10
5	2.08	0.08	1.64	0.19	0.92	0.13	1.5	0.29	1.64	0.11	1.888	0.21	2.12	0.39	2.6	0.62	4.26	0.36	2.16	0.21	1.84	0.10
6	2.60	0.03	2.05	0.17	1.15	0.27	1.875	0.27	2.05	0.16	2.36	0.25	2.65	0.37	3.25	0.33	5.325	0.30	2.7	0.19	2.3	0.17
7	3.12	0.03	2.46	0.14	1.38	0.23	2.25	0.24	2.46	0.12	2.832	0.28	3.18	0.46	3.9	0.22	6.39	0.26	3.24	0.15	2.76	0.14
8	3.64	0.29	2.87	0.17	1.61	0.20	2.625	0.22	2.87	0.14	3.304	0.27	3.71	0.50	4.55	0.20	7.455	0.26	3.78	0.07	3.22	0.10
9	4.16	0.31	3.28	0.12	1.84	0.13	3.0	0.25	3.28	0.15	3.776	0.22	4.24	0.32	5.2	0.15	8.52	0.25	4.32	0.10	3.68	0.10
10	4.68	0.08	3.69	0.10	2.07	0.05	3.375	0.13	3.69	0.12	4.248	0.17	4.77	0.20	5.85	0.09	9.585	0.16	4.86	0.07	4.14	0.10
11	5.2	0.01	4.1	0.02	2.3	0.02	3.75	0.02	4.1	0.01	4.72	0.02	5.3	0.01	6.5	0.01	10.65	0.02	5.4	0.02	4.6	0.03
12	5.22	0	4.18	0	2.4	0	3.8	0	4.23	0	4.79	0	—	0	—	0	10.7	0	5.46	0	4.67	0
Feature Type (riffle, run, or pool)	riffle		run		riffle		run		run		run		run		run		run		run		riffle	

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 Eldenschmenn Date: 5-22-07

MuC 5-30-07

C Barber - Whitcher Cumberland Thick trail OOC Pic 38 - Downstream (0341) Pic 39 - Upstream (0341) Pic 40 - Vehic path T1

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waypt 77

Waterbody ID: 2846 Site #: 3 (WBID_Site#)

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

GPS Location (taken at transect 1):

UTM X: 15 S 073868 UTM Y: 4144914

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

Average Stream Width: 10.0 (meters) Length of Survey Segment: 200 (meters) (20x average stream width)

Field Staff: Abby + Anne

Dissolved Oxygen

Dissolved Oxygen: 8.86 (mg/L)

Dissolved Oxygen: 103.1 (% sat)

Specific Cond: 143 (µS/cm)

Water Temperature: 22.94 (°C)

17:25

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	0.04	0	0.01	0	0.2	0	0.01	0	0.02	0	0.01	0	0.02	0	0.04	0	0.02	0	0.12	0	0.06
2	0.92	0.10	1.08	0.15	1.45	0.13	0.81	0.07	0.48	0.12	0.65	0.07	0.69	0.11	0.665	0.21	0.385	0.16	1.15	0.13	1.31	0.11
3	1.84	0.30	2.16	0.25	2.9	0.25	1.62	0.05	0.96	0.20	1.3	0.15	1.38	0.07	1.33	0.19	1.77	0.31	2.3	0.13	2.62	0.15
4	2.76	0.35	3.24	0.49	4.35	0.22	2.43	0.06	1.44	0.17	1.95	0.17	2.07	0.15	1.995	0.22	2.655	0.64	3.45	0.17	3.93	0.21
5	3.68	0.51	4.23	0.45	5.8	0.17	3.24	0.06	1.92	0.18	2.6	0.19	2.76	0.17	2.66	0.19	3.54	0.59	4.6	0.25	5.24	0.27
6	4.6	0.48	5.31	0.25	7.25	0.12	4.05	0.11	2.4	0.17	3.25	0.22	3.45	0.11	3.325	0.18	4.425	0.52	5.75	0.30	6.55	0.27
7	5.52	0.38	6.39	0.20	8.7	0.13	4.86	0.08	2.88	0.11	3.9	0.23	4.14	0.19	3.99	0.19	5.31	0.49	6.9	0.34	7.86	0.28
8	6.44	0.29	7.47	0.12	10.15	0.09	5.67	0.15	3.36	0.22	4.55	0.22	4.83	0.09	4.655	0.12	6.195	0.34	8.05	0.25	9.17	0.31
9	7.36	0.27	8.55	0.11	11.6	0.08	6.48	0.14	3.84	0.10	5.2	0.23	5.52	0.03	5.32	0.10	7.08	0.27	9.2	0.26	10.48	0.30
10	8.28	0.13	9.63	0.04	13.05	0.09	7.29	0.13	4.32	0.10	5.85	0.15	6.21	0.02	5.985	0.06	7.965	0.29	10.35	0.14	11.79	0.18
11	9.2	0.01	10.8	0.02	14.5	0.01	8.1	0.05	4.8	0.02	6.5	0.02	6.9	0.01	6.65	0.02	8.85	0.02	11.5	0.03	13.1	0.05
12	9.25	0	11.0	0	14.6	0	—	0	4.9	0	6.55	0	7.1	0	6.8	0	8.95	0	11.6	0	13.15	0
Feature Type (riffle, run, or pool)	run		run		run		run		riffle		run		riffle		riffle		run		run		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: Anna E. Uhlenhuth Date: 5-22-07

AUC 5-30-07

CDC Pic 41 - Downstream (04-01)

Pic 42 - Evidence of party (81 04

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 2846 Site #: 4 (WBID_Site#) Wypt 78

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

GPS Location (taken at transect 1):

UTM X: 15 S 0738021 UTM Y: 4144287

Horizontal Accuracy Estimate (GPS Data Quality): +/- 60 (feet)

Average Stream Width: 17 (meters) Length of Survey Segment: 300 (meters) (20x average stream width)

Field Staff: Abby & Anna

Dissolved Oxygen

Dissolved Oxygen: 8.60 (mg/L)

Dissolved Oxygen: 99.6 (% sat)

Specific Cond: 143 (µS/cm)

Water Temperature: 22.58 (°C)

Time 18:17

Pic 43 - Ex truck @ vehicle access + stream

Pic 44 - Upstre (04-11)

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	0.02	0	0.10	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.05	0	0.01	0	0.01
2	1.4	0.24	1.81	0.15	1.57	0.03	1.47	0.05	1.42	0.09	1.34	0.02	1.78	0.17	1.68	0.31	1.77	0.11	1.97	0.01	2.05	0.01
3	2.8	0.32	3.62	0.15	3.14	0.05	2.94	0.23	2.84	0.09	2.68	0.09	3.56	0.18	3.36	0.22	3.54	0.06	3.94	0.03	4.1	0.1
4	4.2	0.30	5.43	0.31	4.71	0.12	4.41	0.30	4.26	0.11	4.02	0.12	5.34	0.19	5.04	0.18	5.31	0.09	5.91	0.07	6.15	0.08
5	5.6	0.44	7.24	0.41	6.28	0.20	5.88	0.18	5.68	0.14	5.36	0.18	7.12	0.22	6.72	0.18	7.08	0.15	7.88	0.10	8.2	0.06
6	7	0.76	9.05	0.46	7.85	0.09	7.35	0.12	7.1	0.11	6.7	0.21	8.9	0.19	8.4	0.22	8.85	0.21	9.85	0.11	10.25	0.07
7	8.4	0.94	10.86	0.51	9.42	0	8.82	0.10	8.52	0.11	8.04	0.21	10.68	0.16	10.08	0.29	10.62	0.20	11.82	0.19	12.3	0.06
8	9.8	0.75	12.67	0.56	10.99	0	10.29	0.09	9.94	0.10	9.38	0.21	12.46	0.19	11.76	0.25	12.39	0.07	13.79	0.07	14.35	0.06
9	11.2	0.48	13.48	0.66	12.56	0	11.76	0.07	11.36	0.11	10.72	0.22	14.24	0.11	13.44	0.18	14.16	0.01	15.76	0.06	16.4	0.18
10	12.6	0.33	15.29	0.53	14.13	0.03	13.23	0.06	12.78	0.10	12.06	0.16	16.02	0.06	15.12	0.11	15.93	0.01	17.73	0.06	18.45	0.15
11	14.0	0.25	18.1	0.03	15.7	0.02	14.7	0.02	14.2	0.02	13.4	0.04	17.8	0.01	16.8	0.01	17.7	0.01	19.7	0.03	20.5	0.02
12	—	0	18.3	0	15.9	0	15	0	14.25	0	13.5	0	18.3	0	17.0	0	17.8	0	20.0	0	20.6	0
Feature Type (riffle, run, or pool)	run		run		run		run		run		run		run		run		run		run		riffle	

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.
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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 Weissenberger Date: 5-22-07

RHC 5-30-07

WBID# 2846 Twelve Mile Creek

Site# 1 Photo ID# C34, Depth at pool

Site# 1 Photo ID# C35, Large pool

Site# 2 Photo ID# C36, Downstream, T1

Site# 2 Photo ID# C37, Upstream, T 11

WBID# 2846 Twelve Mile Creek

Site# 3 Photo ID# C38, Downstream, T1

Site# 3 Photo ID# C39, Upstream, T 11

Site# 3 Photo ID# C40, Vehicle path to stream, T1

Site# 4 Photo ID# C44, Upstream, T 11

WBID# 2846 Twelve Mile Creek

Site# 4 Photo ID# C41, Downstream, T1

Site# 4 Photo # C42, Evidence of "party" area, T4

Site# 4 Photo ID# C43, ERC truck at creek access