PUZZLE CREEK
WBID 666

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
P O Box 176
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):	Puzzle Creek
Missouri Water Body Identification (WBID) Number:	~~672~~ 666
8-digit HUC: 10280202	County: Macon / Chariton
Upstream Legal Description (from Table H):	25, 57N, 17W
Downstream Legal Description(from Table H):	mouth
Number of sites evaluated	8
List all sites numbers, listed cnsequantly upstream to downstream: 1,2,3,4,5,6,7,8	

II. Subsegmentation (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):	New Cambria WWTF
Discharger Permit Number(s):	MO 0094706

IV. UAA Surveyor (please print legibly)

Name of Surveyor Jenny Hrabik	Telephone Number: (573) 443-4100
Organization/Employer: MEC Water Resources / AES	
Position: Field Tech.	

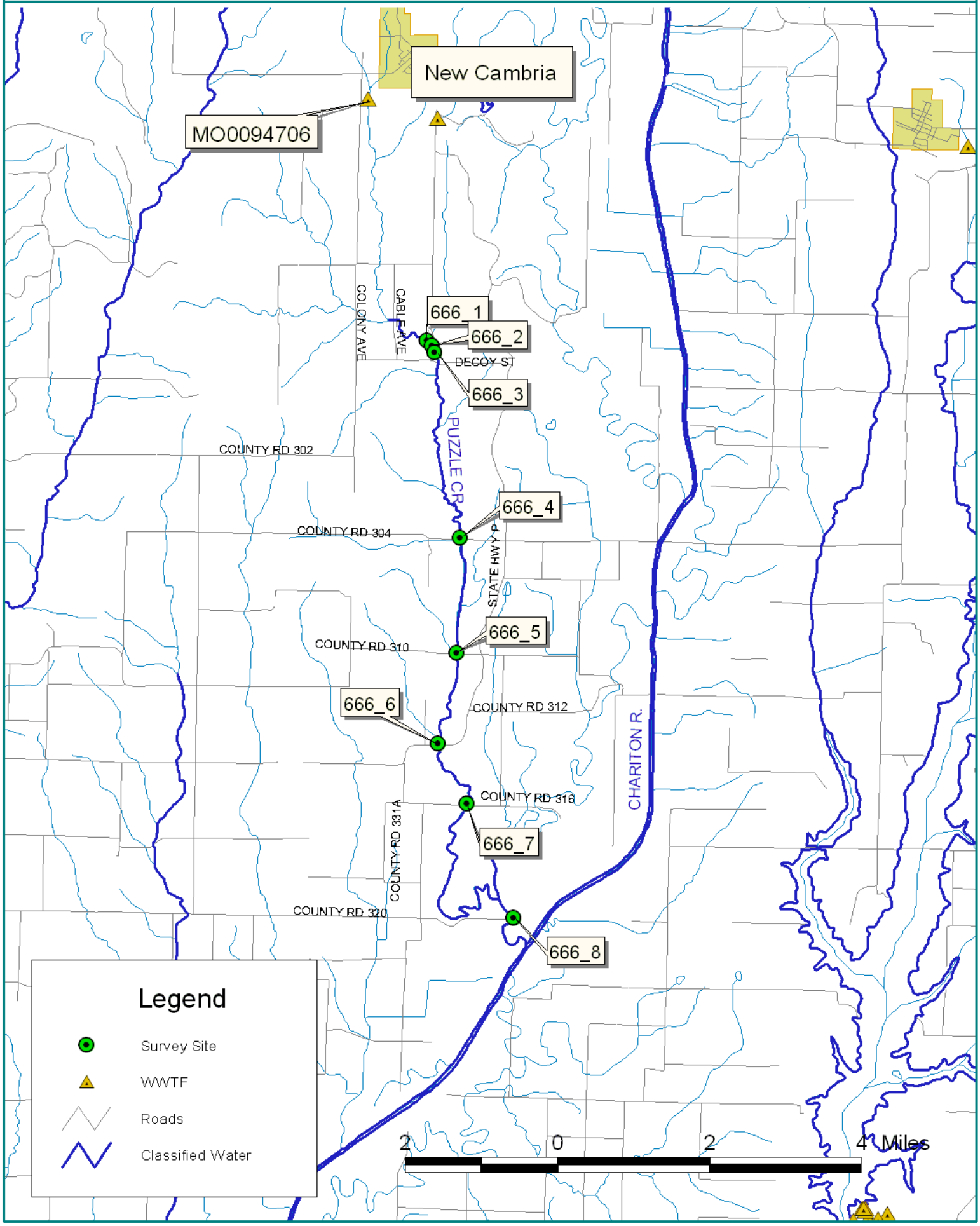
Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Signed: Jenny Hrabik **Date:** 17 MAY 2007

RUC-5-18-07

JK 5/22/07

Puzzle Creek (0666), Length = 13.0 mi., Permit # MO0094706



WBID# 6666
Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 17 MAY 2007 07:20	Site Location Description (e.g., road crossing): 200m upstream of Destiny Ave. road crossing
Personnel (Data Collectors): JRH + TAH	
Current Weather Conditions: sunny + cool 50°F	Facility Name: New Cambria WWTF
	Permit Number: MO 0094706
Weather Conditions for Past 10 days: ~1.8" rain over 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 0521741 Y: 4396859

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)
6666_1_954	Transect #1 downstream		
6666_1_955	Transect #1 upstream		
6666_1_958	Destiny Ave road crossing		

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:

WBID# 666
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: pic # 666-1-958					

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	50 % Sand	~~40~~ 10 % Silt	40 % 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: Brown
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: Jenny Hrabik Date of Survey: 17 MAY 2007

Organization: AES / McCulter Position: Field Tech

February 16, 2007

RWC 5-18-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 666 Site #: 1 (666_1)
(WBID_Site#)

Estimated Channel Incision: 4 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
UTM X: 15S 0521741 UTM Y: 4396859
Horizontal Accuracy Estimate (GPS Data Quality): +/- 17 (feet)

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

Field Staff: JRH & TAH

Dissolved Oxygen

Date: 17MAY2007 Time: 07:20

Dissolved Oxygen: 7.16 (mg/L)

Dissolved Oxygen: 69.6 (% sat)

Specific Cond: 369.3 (µS/cm)

Water Temperature: 14.3 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.8	0.1	0.0	<0.1	0.2	0.1	0.3	0.1	0.2	0.1	0	0.1	0	0.1	0.1	0.1	0	0.1	0	0.1	0	0.1
2	1.2	0.2	0.3	<0.1	0.3	0.1	0.8	0.1	0.7	0.2	0.5	0.2	0.7	0.1	0.7	0.3	0.7	0.3	0.7	0.2	0.6	0.2
3	1.6	0.2	0.6	<0.1	0.4	0.1	1.3	0.1	1.2	0.2	1.0	0.2	1.4	0.2	1.3	0.3	1.4	0.3	1.4	0.2	1.2	0.2
4	2.0	0.2	0.9	<0.1	0.5	0.1	1.8	0.1	1.7	0.2	1.5	0.3	2.1	0.2	1.9	0.2	2.1	0.3	2.1	0.2	1.8	0.4
5	2.4	0.2	1.2	<0.1	0.6	0.1	2.3	0.1	2.2	0.2	2.0	0.3	2.8	0.2	2.5	0.2	2.8	0.3	2.8	0.2	2.4	0.6
6	2.8	0.2	1.5	<0.1	0.7	0.1	2.8	0.1	2.7	0.1	2.5	0.3	3.5	0.2	3.1	0.2	3.5	0.3	3.5	0.2	3.0	0.6
7	3.2	0.2	1.8	<0.1	0.8	0.1	3.3	0.2	3.2	0.1	3.0	0.3	4.2	0.2	3.7	0.2	4.2	0.3	4.2	0.3	3.6	0.4
8	3.6	0.2	2.1	<0.1	0.9	<0.1	3.8	0.1	3.7	0.1	3.5	0.3	4.9	0.2	4.3	0.2	4.9	0.2	4.9	0.2	4.2	0.4
9	4.0	<0.1	2.4	<0.1	1.0	0.1	4.3	0.1	4.2	0.1	4.0	0.3	5.6	0.2	4.9	0.2	5.6	0.2	5.6	0.2	4.8	0.4
10	4.4	0.1	2.7	<0.1	1.1	0.1	4.8	0.2	4.7	0.1	4.5	0.2	6.3	0.2	5.5	0.2	6.3	0.1	6.3	0.2	5.4	0.4
11	4.8	0.1	3.0	<0.1	1.2	0.1	5.3	0.1	5.2	0.1	5.0	0.1	7.0	0.1	6.1	0.1	7.0	0.1	7.0	0.1	6.0	0.1
12	5.3	0	3.5	0	2.6	0	6.5	0	6.4	0	5.5	0	7.6	0	7.0	0	7.4	0	7.2	0	7.0	0
Feature Type (riffle, run, or pool)	run		run		run		run		run		Pool		Pool		Pool		Pool		Pool		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: Jenny Hrabe Date: 17MAY2007
RMC 5-15-07

WBID# 666
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 17MAY2007 08:50	Site Location Description (e.g., road crossing): ~~TRH~~ road downstream of Destiny ~~Road~~ Ave. crossing
Personnel (Data Collectors): TRH + TAH	
Current Weather Conditions: Sunny & cool 50°F	Facility Name: New Cambria WWTF
	Permit Number: MO0094706
Weather Conditions for Past 10 days: ~1.8" rain over 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 0521843 Y: 4396749

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)
666_2_956	downstream		
666_2_957	upstream		
666_2_958	Destiny Ave road crossing		
666_2_959	livestock watering - prints left bank		

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:

WBID# 1666
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: road = pic# 666_2_958 livestock watering = pic# 666_2_959

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	% Mud/Clay	% Bedrock
	5	45	5	45	

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: cattle waste
COLOR:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: Brown
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: Jenny Hrabik Date of Survey: 17MAY 2007

Organization: AES/MEC Water Position: Field Tech.

RMC 5-18-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 1666 Site #: 2 (1666-2)
(WBID_Site#)

Estimated Channel Incision: 4.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 15S 0521843 UTM Y: 4396749

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

Average Stream Width: 5.0 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: TRH + TAH

Dissolved Oxygen

Date: 17MAY2007 Time: 08:50

Dissolved Oxygen: 7.36 (mg/L)

Dissolved Oxygen: 71.8 (% sat)

Specific Cond: 367.7 (µS/cm)

Water Temperature: 14.1 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.3	0.1	0	>1	0	0.5	0	0.4	0.3	0.1	0	<0.1	0	0.2	0.2	0.1	0.2	0.1	0.4	0.1	0.5	0.1
2	1.1	0.3	0.8	>1	0.7	0.6	0.6	0.9	0.6	0.2	0.2	<0.1	0.2	0.3	0.4	0.2	0.3	0.2	0.5	0.1	0.9	0.1
3	1.9	0.5	1.6	>1	1.4	0.6	1.2	0.8	0.9	0.2	0.4	<0.1	0.4	0.3	0.6	<0.1	0.4	0.2	0.6	0.2	1.3	<0.1
4	2.7	0.2	2.4	>1	2.1	0.6	1.8	0.6	1.2	0.2	0.6	<0.1	0.6	0.4	0.8	<0.1	0.5	0.2	0.7	0.2	1.7	0.1
5	3.5	<0.1	3.2	>1	2.8	0.6	2.4	0.6	1.5	0.2	0.8	<0.1	0.8	0.3	1.0	<0.1	0.6	0.1	0.8	0.2	2.1	0.3
6	4.3	<0.1	4.0	0.9	3.5	0.7	3.0	0.5	1.8	0.2	1.0	<0.1	1.0	0.3	1.2	0.1	0.7	0.1	0.9	0.2	2.5	<0.1
7	5.1	<0.1	4.8	0.6	4.2	0.6	3.6	0.4	2.1	0.2	1.2	<0.1	1.2	0.2	1.4	0.1	0.8	0.1	1.0	0.2	2.9	<0.1
8	5.9	0.1	5.6	0.6	4.9	0.6	4.2	0.6	2.4	0.2	1.4	<0.1	1.4	0.2	1.6	0.1	0.9	0.1	1.1	0.1	3.3	0.3
9	6.7	0.2	6.4	0.4	5.6	0.5	4.8	0.6	2.7	0.2	1.6	<0.1	1.6	0.1	1.8	0.2	1.0	0.1	1.2	0.1	3.7	0.3
10	7.5	0.4	7.2	0.3	6.3	0.4	5.4	0.4	3.0	0.2	1.9	<0.1	1.8	0.1	2.0	0.1	1.1	0.1	1.3	0.1	4.1	0.3
11	8.3	0.3	8.0	0.1	7.0	0.4	6.0	0.1	3.3	0.1	2.0	<0.1	2.0	0.1	2.2	0.1	1.2	0.1	1.4	0.1	4.5	0.1
12	8.6	0	8.6	0	7.4	0	6.6	0	4.1	0	2.4	0	2.4	0	3.5	0	2.3	0	2.5	0	4.7	0
Feature Type (riffle, run, or pool)	pool		pool		pool		pool		run		riffle		run		run		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: Jenny Hrabik Date: 17MAY2007

QAC 5-18-07

WBID# 666
Site# 1 3
JRH

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 17 MAY 2007 09:50	Site Location Description (e.g., road crossing): 200m downstream of Destiny Ave. road crossing
Personnel (Data Collectors): JRH + TAH	
Current Weather Conditions: sunny warming up 55°F	Facility Name: New Cambria WWTP
	Permit Number: MO 0094706
Weather Conditions for Past 10 days: ~1.8" rain over 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: 15S 0521903 Y: 4396597

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)
666-3-960	downstream		
666-3-961	upstream		
666-3-963	livestock watering - prints left bank		
666-3-964 JRH	(same as 962)		

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:

WBID# 6666
Site# 2 3
JRH

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~~ JRH no roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☒ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments: ~~bad pic# 6666-3 JRH~~ pic #s 6666_3_9624 JRH, 6666_3_963 > = livestock watering spots

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	% Mud/Clay	% Bedrock
	20	70	5	5	

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

vegetation ~10% of site length

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☐ None	☒ Other: cattle waste
COLOR:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: Brown
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: Jenny Drabik Date of Survey: 17 MAY 2007

Organization: AES / MEC Water Position: Field Tech.

February 16, 2007

RMC 5-16-07
JRK 5/22/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 6666 Site #: 3 (6666_3)
(WBID_Site#)

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

GPS Location (taken at transect 1):

UTM X: 15S 0521903 UTM Y: 4396597

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

Average Stream Width: 4.02 JRH (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: JRH + TAH

Dissolved Oxygen

Date: 17MAY2007 Time: 09:50

Dissolved Oxygen: 7.49 (mg/L)

Dissolved Oxygen: 73.3 (% sat)

Specific Cond: 370.1 (µS/cm)

Water Temperature: 14.7 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	1.1	0.1	0	0.2	1.6	0.1	0.5	0.1	0.5	0.1	0.2	0.1	0.6	0.1	0.5	0.1	0.8	0.1	0	<0.1	0	<0.1
2	1.3	<0.1	0.2	0.3	1.7	0.1	0.7	0.1	1.1	0.1	0.4	0.1	0.7	0.1	0.6	0.1	0.9	0.1	0.6	<0.1	0.5	<0.1
3	1.5	<0.1	0.4	0.5	1.8	0.1	0.9	0.1	1.7	<0.1	0.6	0.2	0.8	0.2	0.7	0.1	1.0	0.1	1.2	<0.1	1.0	<0.1
4	1.7	<0.1	0.6	0.5	1.9	0.1	1.1	0.1	2.3	<0.1	0.8	0.1	0.9	0.2	0.8	0.1	1.1	0.2	1.8	<0.1	1.5	<0.1
5	1.9	0.1	0.8	0.5	2.0	<0.1	1.3	0.1	2.9	0.1	1.0	0.1	1.0	0.2	0.9	0.1	1.2	0.2	2.4	<0.1	2.0	<0.1
6	2.1	0.1	1.0	0.4	2.1	<0.1	1.5	0.1	3.5	0.1	1.2	0.1	1.1	0.2	1.0	0.2	1.3	0.2	3.0	<0.1	2.5	<0.1
7	2.3	0.1	1.2	0.4	2.2	<0.1	1.7	0.2	4.1	0.1	1.4	0.1	1.2	0.3	1.1	0.2	1.4	0.2	3.6	<0.1	3.0	<0.1
8	2.5	0.1	1.4	0.3	2.3	<0.1	1.9	0.2	4.7	0.1	1.6	0.1	1.3	0.3	1.2	0.2	1.5	0.2	4.2	<0.1	3.5	<0.1
9	2.7	0.1	1.6	0.3	2.4	<0.1	2.1	0.3	5.3	0.1	1.8	0.1	1.4	0.2	1.3	0.2	1.6	0.1	4.8	<0.1	4.0	<0.1
10	2.9	0.1	1.8	0.3	2.5	0.1	2.3	0.2	5.9	0.2	2.0	0.1	1.5	0.3	1.4	0.2	1.7	0.1	5.4	<0.1	4.5	<0.1
11	3.1	0.1	2.0	0.1	2.6	0.1	2.5	0.1	6.5	0.1	2.2	0.1	1.6	0.2	1.5	0.1	1.8	0.1	6.0	<0.1	5.0	<0.1
12	4.8	0	3.0	0	6.0	0	3.3	0	6.6	0	3.2	0	2.1	0	2.4	0	3.5	0	6.7	0	5.0	0
Feature Type (riffle, run, or pool)	riffle		run		riffle		run		run		riffle		run		run		run		riffle		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: Jenny Drabik Date: 17MAY 2007
QAQC 5-18-07

WBID# 666
Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 17 MAY 2007 11:00	Site Location Description (e.g., road crossing): downstream of Menefee Rd crossing
Personnel (Data Collectors): JRH + TAH	
Current Weather Conditions: sunny, no wind 60°F	Facility Name: New Cambria WWTF
	Permit Number: MO 0094706
Weather Conditions for Past 10 days: ~1.8" rain over 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: 15S 0522439 Y: 4392668

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	± 14 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)
666_4_965	downstream		
666_4_967	upstream		
666_4_969	Menefee Rd. Crossing		

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:

WBID# 6666
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: pic# 6666_4_969					

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	60 % Sand	% Silt	40 % 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: some parts brown (nonflowing)
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: Jenny Drabek Date of Survey: 17 MAY 2007

Organization: AES / MEC Water Position: Field Tech.

and 5-18-07

February 16, 2007

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 1666 Site #: 4 (1666_4)
(WBID_Site#)

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

GPS Location (taken at transect 1):
UTM X: 15 S 0522439 UTM Y: 4392668
Horizontal Accuracy Estimate (GPS Data Quality): +/- 14 (feet)

Average Stream Width: 3.8 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: JRH & TAH

Dissolved Oxygen

Date: 17MAY2007 Time: 11:00

Dissolved Oxygen: 9.59 (mg/L)

Dissolved Oxygen: 98.9 (% sat)

Specific Cond: 383.8 (µS/cm)

Water Temperature: 17.8 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.7	0.1	0	0.1	0	<0.1	0.9	0.1	2.6	0.1	1.5	0.1	0	<0.1	0	0.1	0	<0.1	0	<0.1	0	<0.1
2	0.9	0.1	0.5	0.2	0.6	<0.1	1.0	0.1	2.7	0.1	1.6	<0.1	0.3	<0.1	0.2	0.1	0.2	<0.1	0.3	<0.1	0.2	<0.1
3	1.1	0.1	1.0	<0.1	1.2	<0.1	1.1	0.1	2.8	<0.1	1.7	<0.1	0.6	<0.1	0.4	0.1	0.4	<0.1	0.6	<0.1	0.4	<0.1
4	1.3	<0.1	1.5	<0.1	1.8	<0.1	1.2	0.1	2.9	<0.1	1.8	<0.1	0.9	<0.1	0.6	0.1	0.6	<0.1	0.9	<0.1	0.6	0.1
5	1.5	<0.1	2.0	<0.1	2.4	<0.1	1.3	0.1	3.0	<0.1	1.9	<0.1	1.2	<0.1	0.8	0.1	0.8	<0.1	1.2	<0.1	0.8	0.1
6	1.7	<0.1	2.5	<0.1	3.0	<0.1	1.4	0.1	3.1	0.1	2.0	<0.1	1.5	<0.1	1.0	<0.1	1.0	<0.1	1.5	<0.1	1.0	0.1
7	1.9	<0.1	3.0	<0.1	3.6	<0.1	1.5	0.1	3.2	0.1	2.1	<0.1	1.8	<0.1	1.2	<0.1	1.2	0.1	1.8	0.1	1.2	<0.1
8	2.1	<0.1	3.5	<0.1	4.2	<0.1	1.6	<0.1	3.3	0.1	2.2	<0.1	2.1	<0.1	1.4	<0.1	1.4	<0.1	2.1	<0.1	1.4	<0.1
9	2.3	<0.1	4.0	<0.1	4.8	<0.1	1.7	<0.1	3.4	0.1	2.3	<0.1	2.4	<0.1	1.6	<0.1	1.6	<0.1	2.4	<0.1	1.6	<0.1
10	2.5	<0.1	4.5	<0.1	5.4	<0.1	1.8	<0.1	3.5	0.1	2.4	<0.1	2.7	0.1	1.8	<0.1	1.8	<0.1	2.7	<0.1	1.8	<0.1
11	2.7	0.1	5.0	<0.1	6.0	<0.1	1.9	0.1	3.6	0.1	2.5	0.1	3.0	0.1	2.0	<0.1	2.0	<0.1	3.0	<0.1	2.0	<0.1
12	3.8	0	5.5	0	6.1	0	3.1	0	4.6	0	4.8	0	3.3	0	2.4	0	2.4	0	3.2	0	2.4	0
Feature Type (riffle, run, or pool)	run		run		riffle		run		run		run		run		run		run		riffle		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: Jenny Drabek Date: 17MAY2007
5-18-07
5/24/07

WBID# 6666
Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 17MAY2007 12:10	Site Location Description (e.g., road crossing): downstream of Lagonda Rd. Crossing
Personnel (Data Collectors): JRH & TAH	
Current Weather Conditions: sunny, light breeze 60°F	Facility Name: New Cambria WWTF
	Permit Number: MO 0094706
Weather Conditions for Past 10 days: ~1.8" rain in 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: 15S 0522364 Y: 4390240			
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)
6666_5_970	upstream		
6666_5_971	downstream		
6666_5_972	Lagonda Rd. Crossing		

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:

WBID# 6666
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)

☒ 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# 6666_5_972					

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	% Mud/Clay	% Bedrock
5	10	90	5		

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: nonflowing is brown
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: Jenny Hinds Date of Survey: 17 MAY 2007

Organization: AES / MEC water Position: Field Tech

February 16, 2007

BWC 5-18-07
Office 5/22/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 1666 Site #: 5 (1666_5)
(WBID_Site#)

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

GPS Location (taken at transect 1):
UTM X: 15S 0522364 UTM Y: 4390240
Horizontal Accuracy Estimate (GPS Data Quality): +/- 17 (feet)

Average Stream Width: 4.4 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: JRH + TAH

Dissolved Oxygen

Date: 17MAY2007 Time: 12:15

Dissolved Oxygen: 8.48 (mg/L)

Dissolved Oxygen: 86.9 (% sat)

Specific Cond: 473.1 (µS/cm)

Water Temperature: 17.0 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.2	0.1	0.3	0.1	4.0	0.1	0	<0.1	0	0.1	0.5	0.1	2.9	0.1	0	<0.1	0	0.2	1.2	0.1	1.2	0.1
2	0.3	0.1	0.6	0.1	4.3	0.1	0.4	<0.1	0.1	0.1	1.0	0.1	3.0	0.1	0.5	<0.1	0.1	0.2	1.5	0.1	1.3	0.1
3	0.4	0.2	0.9	0.1	4.6	<0.1	0.8	0.1	0.2	0.1	1.5	0.1	3.1	0.1	1.0	<0.1	0.2	0.2	1.8	<0.1	1.4	0.1
4	0.5	0.2	1.2	<0.1	4.9	0.1	1.2	0.1	0.3	0.1	2.0	0.1	3.2	0.1	1.5	<0.1	0.3	0.1	2.1	<0.1	1.5	0.1
5	0.6	0.2	1.5	<0.1	5.2	0.1	1.6	<0.1	0.4	0.1	2.5	<0.1	3.3	0.1	2.0	0.1	0.4	0.1	2.4	<0.1	1.6	0.1
6	0.7	0.2	1.8	0.1	5.5	0.1	2.0	<0.1	0.5	0.1	3.0	<0.1	3.4	0.2	2.5	0.1	0.5	0.1	2.7	<0.1	1.7	0.1
7	0.8	0.2	2.1	0.1	5.8	0.1	2.4	<0.1	0.6	0.1	3.5	<0.1	3.5	0.2	3.0	<0.1	0.6	0.1	3.0	<0.1	1.8	0.1
8	0.9	0.1	2.4	0.1	6.1	0.1	2.8	<0.1	0.7	0.1	4.0	<0.1	3.6	0.1	3.5	<0.1	0.7	0.1	3.3	<0.1	1.9	0.1
9	1.0	0.1	2.7	0.1	6.4	0.1	3.2	<0.1	0.8	0.1	4.5	<0.1	3.7	0.1	4.0	<0.1	0.8	0.2	3.6	<0.1	2.0	<0.1
10	1.1	0.1	3.0	0.1	6.7	0.1	3.6	<0.1	0.9	0.1	5.0	0.1	3.8	0.1	4.5	<0.1	0.9	0.1	3.9	0.1	2.1	0.1
11	1.2	0.1	3.3	0.1	7.0	0.1	4.0	<0.1	1.0	0.1	5.5	0.3	3.9	0.1	5.0	<0.1	1.0	0.1	4.2	0.1	2.2	0.1
12	1.5	0	4.2	0	7.6	0	4.0	0	3.4	0	5.7	0	3.9	0	5.9	0	2.4	0	4.3	0	5.8	0
Feature Type (riffle, run, or pool)	run		run		run		run		run		run		run		run		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: [signature] Date: 17MAY2007
JRH 5-18-07
TAH 5/22/07

WBID# 666
Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 17MAY2007 12:55	Site Location Description (e.g., road crossing): Downstream of Hwy P road crossing
Personnel (Data Collectors): JRH & TAH	
Current Weather Conditions: Sunny light breeze 60°F	Facility Name: New Cambria WWTF
	Permit Number: MO 0094706
Weather Conditions for Past 10 days: ~1.8" rain over 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 0521973 Y: 4388306			
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	± 16 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)
666-6-973	downstream		
666-6-974	upstream		
666-6-975	Bridge (Hwy P)		

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:

WBID# 666
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)

☒ 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# 666_6_975					

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	5 % Gravel	95 % 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: Brown
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: Jenny Hrabik Date of Survey: 17 MAY 2007

Organization: AES/MEC Water Position: Field Tech

February 16, 2007

RWC 5-18-07
[illegible] 5/22/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 666 Site #: 6 (666-6)
(WBID_Site#)

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

GPS Location (taken at transect 1):

UTM X: 15S 0521973 UTM Y: 4388306

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

Average Stream Width: ~~7.0 TAH~~ 6.5 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: JRH + TAH

Dissolved Oxygen

Date: 17MAY2007 Time: 12:55

Dissolved Oxygen: 8.28 (mg/L)

Dissolved Oxygen: 87.6 (% sat)

Specific Cond: 425.4 (µS/cm)

Water Temperature: 17.6 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.7	0.1	0.4	0.1	0.3	0.1	0.4	0.1	0.2	0.1	0	0.1	0	0.1	0.2	0.1	0	0.1	1.0	0.1	4.5	0.1
2	1.0	0.1	0.6	0.1	1.2	0.3	0.7	0.1	0.3	0.2	0.3	0.1	0.2	0.2	0.4	0.2	0.4	0.2	1.3	0.1	5.0	0.1
3	1.3	0.2	0.8	0.2	2.1	0.2	1.0	<0.1	0.4	0.1	0.6	<0.1	0.4	0.3	0.6	0.2	0.8	0.2	1.6	<0.1	5.5	<0.1
4	1.6	0.2	1.0	0.2	3.0	0.2	1.3	<0.1	0.5	0.1	0.9	<0.1	0.6	0.3	0.8	0.3	1.2	0.2	1.9	<0.1	6.0	<0.1
5	1.9	0.3	1.2	0.2	3.9	0.1	1.6	<0.1	0.6	0.1	1.2	<0.1	0.8	0.2	1.0	0.3	1.6	0.3	2.2	0.1	6.5	<0.1
6	2.2	0.3	1.4	0.2	4.8	0.1	1.9	0.1	0.7	0.1	1.5	0.2	1.0	0.2	1.2	0.3	2.0	0.3	2.5	<0.1	7.0	0.1
7	2.5	0.3	1.6	0.2	5.7	0.1	2.2	0.1	0.8	0.1	1.8	0.1	1.2	0.2	1.4	0.3	2.4	0.2	2.8	0.1	7.5	0.1
8	2.8	0.3	1.8	0.1	6.6	<0.1	2.5	0.1	0.9	0.1	2.1	<0.1	1.4	0.3	1.6	0.2	2.8	0.2	3.1	0.1	8.0	0.1
9	3.1	0.3	2.0	0.1	7.5	0.1	2.8	0.1	1.0	0.1	2.4	0.1	1.6	0.3	1.8	0.1	3.2	0.1	3.4	0.1	8.5	0.1
10	3.4	0.4	2.2	0.1	8.4	0.5	3.1	0.1	1.1	0.1	2.7	0.1	1.8	0.2	2.0	0.1	3.6	0.1	3.7	0.1	9.0	0.2
11	3.7	0.1	2.4	0.1	9.3	0.7	3.4	0.1	1.2	0.1	3.0	0.1	2.0	0.1	2.2	0.1	4.0	0.1	4.1	0.1	9.5	0.1
12	3.7	0	6.0	0	9.4	0	9.4	0	7.9	0	4.6	0	4.7	0	4.0	0	5.0	0	6.9	0	10.1	0
Feature Type (riffle, run, or pool)	run		run		run		run		run		run		run		run		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: Jenny Hrabik Date: 17 MAY 2007
JRH 5-18-07
TAH 5/22/07

WBID# 6666
Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 17MAY2007 14:15	Site Location Description (e.g., road crossing): Downstream of Kafir Rd. crossing
Personnel (Data Collectors): JRH & TAH	
Current Weather Conditions: sunny light breeze 65°F	Facility Name: New Cambria WWTF
	Permit Number: MO 0094706
Weather Conditions for Past 10 days: ~1.8" rain in 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 0522576 Y: 4387026

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)
6666-7_978	upstream (includes fence)		
6666-7_979	downstream		
6666-7_980	Kafir Rd Crossing		

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: pic# 6666-7_978 = fence

WBID# 6666
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)

☒ 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# 6666_7_980					

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	5 % Gravel	90 % Sand	5 % Silt	% Mud/Clay	% Bedrock

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

~1 meter of vegetation at transect 1, ~1 m of red algae at transect 8

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: nonflowing is brown (backwater)
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: Jenny Drabik Date of Survey: 17 MAY 2007

Organization: AES / MEC Water Position: Field Tech

February 16, 2007

MJC 5-18-07
5/22/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 666 Site #: 7 ARM 666_7 (WBID_Site#)

Estimated Channel Incision: 4 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 15S 0522576 UTM Y: 4387026

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

Average Stream Width: 6.4 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: JRH + TAH

Dissolved Oxygen

Date: 17MAY2007 Time: 14:15

Dissolved Oxygen: 8.01 (mg/L)

Dissolved Oxygen: 87.7 (% sat)

Specific Cond: 433.7 (µS/cm)

Water Temperature: 19.9 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.2	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0	0.1	1.6	0.1	1.2	0.1	0	0.1	0	<0.1	0.2	0.1	0.8	0.1
2	0.5	0.1	0.5	0.2	0.8	<0.1	0.6	0.1	1.0	<0.1	2.2	0.1	1.6	0.1	0.3	0.1	0.5	<0.1	0.8	<0.1	0.9	0.1
3	0.8	0.1	0.8	0.1	1.3	<0.1	1.1	0.2	2.0	0.1	2.8	0.1	2.0	0.1	0.6	0.1	1.0	<0.1	1.4	0.1	1.0	0.1
4	1.1	0.1	1.1	0.1	1.8	<0.1	1.6	0.2	3.0	0.1	3.4	<0.1	2.4	0.1	0.9	<0.1	1.5	<0.1	2.0	0.1	1.1	0.1
5	1.4	0.1	1.4	0.1	2.3	0.1	2.1	0.2	4.0	<0.1	4.0	<0.1	2.8	0.3	1.2	<0.1	2.0	<0.1	2.6	0.1	1.2	0.1
6	1.7	0.1	1.7	<0.1	2.8	0.1	2.6	0.3	5.0	<0.1	4.6	0.1	3.2	0.3	1.5	0.1	2.5	<0.1	3.2	<0.1	1.3	0.1
7	2.0	<0.1	2.0	0.1	3.3	0.1	3.1	0.2	6.0	<0.1	5.2	0.1	3.6	0.2	1.8	0.1	3.0	<0.1	3.8	<0.1	1.4	0.1
8	2.3	<0.1	2.3	0.1	3.8	0.1	3.6	0.1	7.0	<0.1	5.8	<0.1	4.0	0.1	2.1	0.1	3.5	<0.1	4.4	<0.1	1.5	0.1
9	2.6	0.1	2.6	0.1	4.3	0.1	4.1	0.1	8.0	<0.1	6.4	<0.1	4.4	0.1	2.4	0.1	4.0	<0.1	5.0	<0.1	1.6	0.1
10	2.9	0.1	2.9	0.1	4.8	0.1	4.6	0.1	9.0	0.2	7.0	0.2	4.8	0.1	2.7	0.1	4.5	<0.1	5.6	<0.1	1.7	0.1
11	3.2	0.1	3.2	0.1	5.3	0.1	5.1	0.1	10.0	0.1	7.6	0.1	5.2	0.1	3.0	0.1	5.0	<0.1	6.2	0.1	1.8	0.1
12	4.2	0	6.0	0	5.7	0	5.3	0	10.2	0	7.9	0	6.8	0	4.0	0	5.4	0	6.5	0	4.0	0
Feature Type (riffle, run, or pool)	run		run		run		run		run		run		run		run		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: Jenny Drabek Date: 17MAY2007

BLC 5-18-07

5/22/07

WBID# 6066
Site# 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 17 MAY 2007 15:40	Site Location Description (e.g., road crossing): Downstream of Fire station Rd Crossing
Personnel (Data Collectors): JRH & TAH	
Current Weather Conditions: sunny 65° F	Facility Name: New Cambria WWTF
	Permit Number: MO 0094706
Weather Conditions for Past 10 days: ~1.8" rain over 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: 15S 0523558 Y: 4384604

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	± 16 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)
6066_8_981	downstream		
6066_8_982	upstream		
6066_8_983	Bridge (Fire Station Rd Crossing)		

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:

WBID# 6666
Site# 8

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 # 6666_8_983 (Firestation Rd Bridge)					

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	30 % Sand	% Silt	70 % 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: Brown
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: Jenny Drabek Date of Survey: 17 MAY 2007

Organization: AES / MEC Water Resources Position: Field Tech

February 16, 2007

5-18-07
5/22/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 6606 Site #: ~~8~~ 6606_8 (WBID_Site#)

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

GPS Location (taken at transect 1):

UTM X: 15J 0523558 UTM Y: 4384604

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

Average Stream Width: ~~05~~ 6.2 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: JRH & TAH

Dissolved Oxygen

Date: 17MAY2007 Time: 15:40

Dissolved Oxygen: 6.58 (mg/L)

Dissolved Oxygen: 73.2 (% sat)

Specific Cond: 399.3 (µS/cm)

Water Temperature: 20.4 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.3	0.1	0	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
2	0.6	0.3	0.5	0.2	0.8	0.4	0.7	0.3	1.0	0.3	0.7	0.2	0.7	0.4	0.4	0.5	0.7	0.3	0.8	0.3	0.7	0.2
3	1.0	0.4	0.9	0.3	1.4	0.4	1.3	0.4	1.7	0.4	1.1	0.2	1.4	0.4	0.8	0.5	1.3	0.7	1.5	0.5	1.3	0.4
4	1.4	0.3	1.3	0.4	2.0	0.5	1.9	0.5	2.4	0.4	1.5	0.2	2.1	0.3	1.2	0.5	1.9	0.7	2.2	0.6	1.9	0.5
5	1.8	0.4	1.7	0.4	2.6	0.4	2.5	0.5	3.1	0.4	1.9	0.2	2.8	0.2	1.6	0.5	2.5	0.7	2.9	0.7	2.5	0.5
6	2.2	0.2	2.1	0.5	3.2	0.3	3.1	0.4	3.8	0.4	2.3	0.2	3.5	0.3	2.0	0.4	3.1	0.6	3.6	0.7	3.1	0.5
7	2.6	0.3	2.5	0.5	3.8	0.3	3.7	0.4	4.5	0.5	2.7	0.3	4.2	0.3	2.4	0.6	3.7	0.5	4.3	0.6	3.7	0.5
8	3.0	0.2	2.9	0.5	4.4	0.3	4.3	0.5	5.2	0.5	3.1	0.4	4.9	0.3	2.8	0.6	4.3	0.2	5.0	0.5	4.3	0.5
9	3.4	0.2	3.3	0.4	5.0	0.3	4.9	0.3	5.9	0.4	3.5	0.4	5.6	0.5	3.2	0.4	4.9	0.2	5.7	0.3	4.9	0.5
10	3.8	0.4	3.7	0.3	5.6	0.2	5.5	0.1	6.3	0.2	3.9	0.5	6.3	0.2	3.6	0.4	5.5	0.2	6.4	0.1	5.5	0.4
11	4.2	0.3	4.1	0.3	6.2	0.2	6.1	0.1	7.0	0.1	4.3	0.1	7.0	0.1	4.0	0.1	6.1	0.1	7.1	0.1	6.1	0.1
12	4.7	0	4.7	0	6.5	0	6.8	0	7.5	0	4.9	0	7.4	0	4.3	0	7.0	0	7.5	0	6.9	0
Feature Type (riffle, run, or pool)	Pool		Pool		Pool		Pool		Pool		pool		pool		pool		pool		pool		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: Jenny Drake Date: 17MAY2007

5-18-07

5/22/07

WBID# 0666

Site# 1 Photo ID# 666-1-954, Downstream

Site# 1 Photo ID# 666-1-955, Upstream

Site# 1 Photo ID# 666-1-958, Destiny Ave crossing

Site# 2 Photo ID# 666-2-956, Downstream

WBID# 0666

Site# 2 Photo ID# 666-2-957, Upstream

Site# 2 Photo ID# 666-2-958, Destiny Ave crossing

Site# 2 Photo ID# 666-2-959, Livestock watering

Site# 3 Photo ID# 666-3-960, Downstream

WBID# 0666

Site# 3 Photo ID# 666-3-961, Upstream

Site# 3 Photo ID# 666-3-963, Livestock watering

Site# 3 Photo ID# 666-3-964, Left bank

Site# 4 Photo ID# 666-4-965, Downstream

WBID# 0666

Site# 4 Photo ID# 666-4-967, Upstream

Site# 4 Photo ID# 666-4-969, Menefee Rd crossing

Site# 5 Photo ID# 666-5-970, Upstream

Site# 5 Photo ID# 666-5-971, Downstream

WBID# 0666

Site# 5 Photo ID# 666-5-972, Laganda Rd. crossing

Site# 6 Photo ID# 666-6-973, Downstream

Site# 6 Photo ID# 666-6-974, Upstream

Site# 6 Photo ID# 666-6-975, Bridge

WBID# 0666

Site# 7 Photo ID# 666-7-978, Upstream

Site# 7 Photo ID# 666-7-979, Downstream

Site# 7 Photo ID# 666-7-980, Kafir Rd crossing

Site# 8 Photo ID# 666-8-981, Downstream

WBID# 0666

Site# 8 Photo ID# 666-8-982, Upstream

Site# 8 Photo ID# 666-8-983, Bridge