Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 0860 Sewer Branch

Submitted by
BWR

to
Missouri Department of Natural Resources
Water Protection Program

Date received: June 1, 2007

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):	SEWER BRANCH
Missouri Water Body Identification (WBID) Number:	860
8-digit HUC: 10 300103	County: PETTIS
Upstream Legal Description (from Table H):	MOUTH
Downstream Legal Description(from Table H):	16,46 N, 21W
Number of sites evaluated	3
List all sites numbers, listed consequently upstream to downstream: 3,2,1	

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest.

II. Subegmentation (fill this section out only in cases where subesgmentation 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)

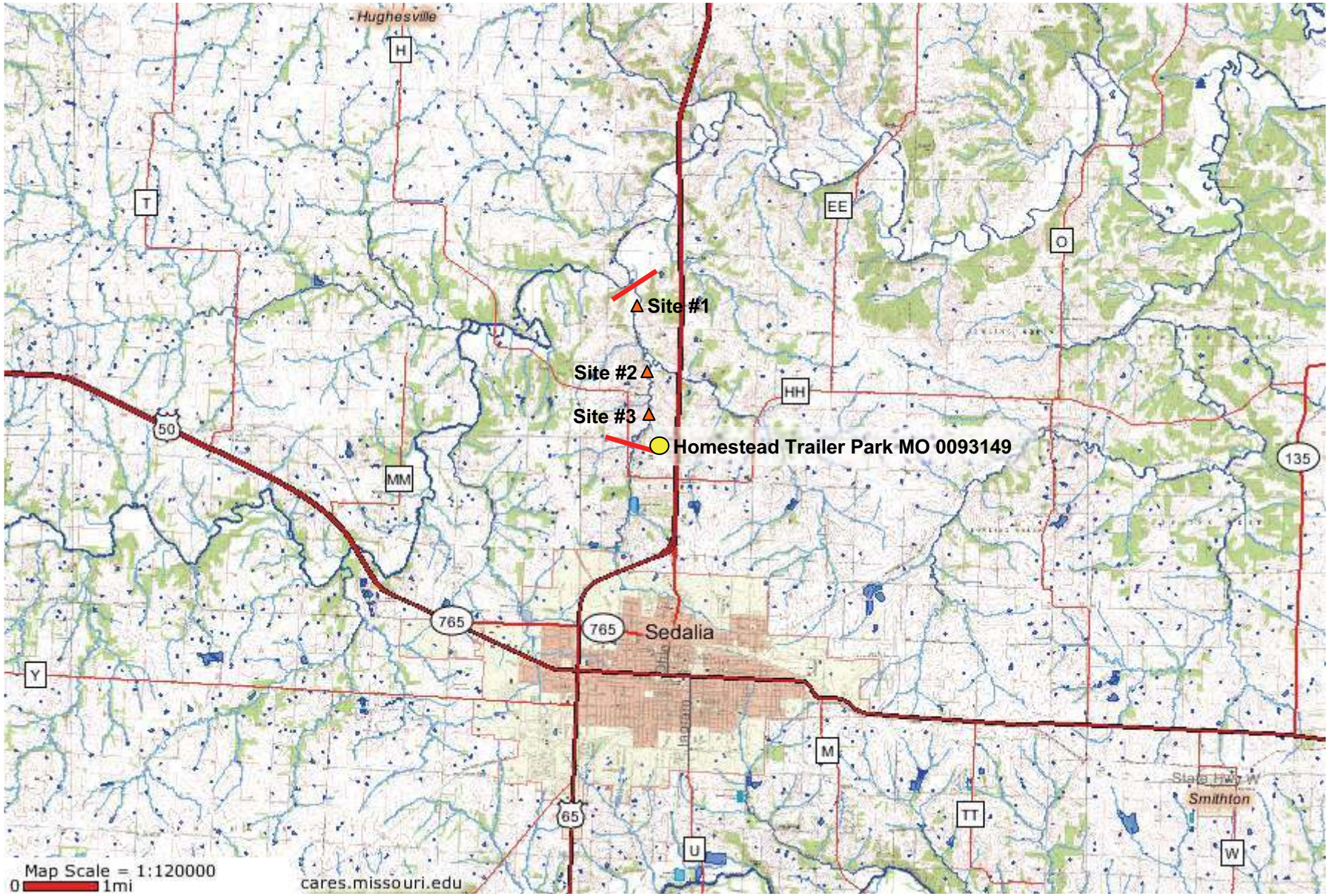
Discharger Facility Name(s):	Homestead Trailer Park
Discharger Permit Number(s):	MO0093149

IV. UAA Surveyor (please print legibly)

Name of Surveyor Alan Mitchell	Telephone Number: [redacted]
Organization/Employer: ~~EAE~~ EAE	(913) 583-3883
Position: Environmental Engineer	

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

Signed: [signature] **Date:** May 19, 2007



BWR

Sewer Branch

WBID #860

N

WBID# 860
Site# #1

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

Date & Time: 3:00pm 5/10/2007	Site Location Description (e.g., road crossing): East of McCurdy Road Road Crossing
Personnel (Data Collectors): John Stuthman Alan Mitchell	
Current Weather Conditions: Clear	Facility Name: Homestead Trailer Park
Weather Conditions for Past 10 days: Rain 36 hours ago	Permit Number: MO 0093149
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: 93.285566° W Y: 38.774960° N

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	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
27		26			

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:

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: No evidence of human use

CWM EAE, Inc. 5/19/07

% CHANNEL FEATURE
Run = [illegible]
Riffle = [illegible]
Pool = [illegible]

*** Page Two – Data Sheet B for WBID #** 860 : SITE # 1

Stream Morphology:

Upstream View's Physical Dimensions: 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	280	8	100+	0.3	0.5
POOL					

Downstream View's Physical Dimensions: 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	280	6	25	0.2	0.4
POOL					

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

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

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

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:
Surface Deposit:	☐ 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 effect another use.

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

Surveyor's Signature: [illegible] Date of Survey: May 19, 2007

Organization: EAE, Inc. Position: Env. Engr

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 1

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect A 1	wetted width	0.1	@ 0.3		1 Channel Feature:	
2	2.5 m	0.1			2 RUN	
3		0.2			3	
4	measurements	0.2			4 Dissolved Oxygen	
5	0.2 m	0.2	DO READING		5	
6	apart	0.2			6 10.76	ppm
7		0.2			7 119.4	%
8		0.1			8 20.4°C	
9		0.1			9	
10		<0.1			10	
					11	
Transect B 1	wetted width	0.1	@ 0.1		12 Channel Feature:	
2	7.0 m	0.6			13 POOL	
3		0.6			14	
4	measurements	0.4			15 Dissolved Oxygen:	
5	0.7 m	0.6			16	
6	apart	0.6	DO READING		17 10.80	ppm
7		0.6			18 119.5	%
8		0.6			19 20.4°C	
9		0.3			20	
10		<0.1			21	
					22	
Transect C 1	wetted width	0.1	@ 0.3		23 Channel Feature:	
2	4.5 m	0.2			24 POOL	
3		0.2			25	
4	measurements	0.3			26 Dissolved Oxygen	
5	0.4 m	0.4			.	
6	apart	0.4			. 10.75	ppm
7		0.4	DO READING		. 118.7	%
8		0.4			n 20.3°C	
9		0.4				
10		0.3				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [illegible] **Date:** May 19, 2007

Organization: EAE, Inc. Position: Env. Engr.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 1

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect D 1	wetted width	0.1	@ 0.2		1 Channel Feature:	
2	8.5 m	0.1			2 RIFFLE	
3		0.1			3	
4	measurements	<0.1			4 Dissolved Oxygen	
5	0.7 m	0.1			5	
6	apart	0.1	D		6 10.55	ppm
7		0.2			7 116.4	%
8		0.3	DO READING		8 20.2°C	
9		0.3			9	
10		<0.1			10	
					11	
Transect E 1	wetted width	<0.1			12 Channel Feature:	
2	6.0 m	<0.1			13	
3		<0.1			14	
4	measurements	<0.1			15 Dissolved Oxygen:	
5	0.6 m	0.1			16	
6	apart	0.1			17 10.53	ppm
7		0.1	DO READING		18 116.5	%
8		0.1			19 20.2°C	
9		0.1			20	
10		0.1			21	
					22	
Transect F 1	wetted width	0.1	@ 0.4		23 Channel Feature:	
2	7.5 m	0.1			24 RIFFLE	
3		0.2			25	
4	measurements	0.1			26 Dissolved Oxygen	
5	0.7 m	0.1			.	
6	apart	0.1	READING		. 10.58	ppm
7		0.1			. 117.0	%
8		0.1			n 20.2°C	
9		<0.1				
10		<0.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [illegible] **Date:** May 19, 2007

Organization: EAE, Inc. Position: Environmental

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 1

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect G 1	wetted width	0.2	@ 0.1		1 Channel Feature:	
2	5.0 m	0.2			2 RUN	
3		~~0.3~~			3	
4	measurements	0.3	DO READING		4 Dissolved Oxygen	
5	0.5 m	0.3			5	
6	apart	0.2			6 10.52	ppm
7		0.2			7 116.4	%
8		0.1			8 20.2°C	
9		0.1			9	
10		<0.1			10	
					11	
Transect H 1	wetted width	0.1	@ 0.1		12 Channel Feature:	
2	5.0 m	0.1			13 RIFFLE	
3		0.1			14	
4	measurements	0.2	DO READING		15 Dissolved Oxygen:	
5	0. m	0.1			16	
6	apart	0.1			17 10.82	ppm
7		0.1			18 119.1	%
8		<0.1			19 20.2°C	
9		<0.1			20	
10		<0.1			21	
					22	
Transect I 1	wetted width	0.1	@ 0.1		23 Channel Feature:	
2	6.0 m	<0.1			24	
3		0.1			25	
4	measurements	0.2			26 Dissolved Oxygen	
5	0.6 m	0.2	DO READING		.	
6	apart	0.2			. 10.92	ppm
7		<0.1			. 121.0	%
8		0.1			n 20.2°C	
9		0.1				
10		<0.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [signature] **Date:** May 17, 2007

Organization: EAE, Inc. Position: Env. Engr.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 1

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect J 1	wetted width	0.1	@ 0.4		1 Channel Feature:	
2	5.0 m	0.2			2 RUN	
3		0.2			3	
4	measurements	0.2	DO READING		4 Dissolved Oxygen	
5	0.5 m	0.2			5	
6	apart	0.1			6 11.02	ppm
7		0.2			7 121.6	%
8		0.1			8 20.1°C	
9		0.1			9	
10		<0.1			10	
					11	
Transect K 1	wetted width	0.1	@ 0.3		12 Channel Feature:	
2	5.0 m	0.1			13 RUN	
3		0.1			14	
4	measurements	0.2			15 Dissolved Oxygen:	
5	m	0.2	DO READING		16	
6	apart	0.1			17 10.95	ppm
7		0.2			18 120.7	%
8		0.1			19 20.2	°F
9		0.1			20	
10		<0.1			21	
					22	
Transect 1	wetted width				23 Channel Feature:	
2	m				24	
3					25	
4	measurements				26 Dissolved Oxygen	
5	m				.	
6	apart				.	ppm
7					.	%
8					n	
9						
10						

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [illegible] **Date:** May 19, 2007

Organization: EAE, Inc. Position: Env. Engr

WBID# 860
Site# 2

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

Date & Time: 4:00 pm 5/19/2007	Site Location Description (e.g., road crossing): East of Georgetown Road Crossing
Personnel (Data Collectors): Alan Mitchell Don [illegible]	
Current Weather Conditions: Clear	Facility Name: Homestown [illegible]
Weather Conditions for Past 10 days:	Permit Number: MO0093149

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: 93.234600°W Y: 38.751400°N

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	±_____Feet or ±_____Meters
PDOP		

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
28		29			

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:

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: No evidence of human use

AMEAE, Inc. 5/19/2007

90 CHANNEL FEATURES
Run =
Riffle =
Pool =

*** Page Two – Data Sheet B for WBID #** 860 : SITE #2

Stream Morphology:

Upstream View's Physical Dimensions: 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	580	4.0	20	~~50~~ 0.2	0.3
POOL					

Downstream View's Physical Dimensions: 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	530	5.0	50	0.3	0.4
POOL					

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

10 % Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	90 % Bedrock

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

Bottom coated w/ algae

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:
Surface Deposit:	☐ 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 effect another use.

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

Surveyor's Signature: [signature] Date of Survey: May 19, 2007

Organization: EHE, Inc. Position: Environmental Engineer

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 2

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect A 1	wetted width	0.1	@ 0.1		1 Channel Feature:	
2	8.0 m	0.1			2 RUN	
3		0.1			3	
4	measurements	0.1			4 Dissolved Oxygen	
5	0.8 m	0.1			5	
6	apart	0.2			6 11.10	ppm
7		0.2			7 123.9	%
8		0.2	DO READING		8 20.8°C	
9		0.2			9	
10		0.1			10	
					11	
Transect B 1	wetted width	0.1	@ 0.1		12 Channel Feature:	
2	6.5 m	0.2			13 RUN	
3		0.2			14	
4	measurements	0.2			15 Dissolved Oxygen:	
5	0.6 m	0.2			16	
6	apart	0.2	DO READING		17 10.96	ppm
7		0.2			18 121.4	%
8		0.2			19 20.8	°C
9		0.1			20	
10		<0.1			21	
					22	
Transect C 1	wetted width	0.1	@ 0.1		23 Channel Feature:	
2	5.5 m	0.3			24 RUN	
3		0.3			25	
4	measurements	0.2			26 Dissolved Oxygen	
5	0.5 m	0.2			.	
6	apart	0.2			. 11.03	ppm
7		0.2	DO READING		. 123.2	%
8		0.1			n 20.8°C	
9		0.1				
10		<0.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [illegible] **Date:** Nov. 19, 2007

Organization: EAE Inc. Position: Env. Engr.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 2

		Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect D	1	wetted width	0.1	@ 0.4		1 Channel Feature:	
	2	5.0 m	<0.1			2 RUN	
	3		<0.1			3	
	4	measurements	0.1			4 Dissolved Oxygen	
	5	m	(0.1)			5	
	6	apart	0.2	DO READING		6 11.22	ppm
	7		0.2			7 125.3	%
	8		0.1			8 20.8°C	
	9		0.1			9	
	10		<0.1			10	
						11	
Transect E	1	wetted width	0.1	@ 0.3		12 Channel Feature:	
	2	7.0 m	0.2			13 RUN	
	3		0.1			14	
	4	measurements	0.1			15 Dissolved Oxygen:	
	5	0.7 m	0.2			16	
	6	apart	0.2	DO READING		17 11.70	ppm
	7		0.2			18 126.5	%
	8		0.2			19 20.8°C	
	9		0.1			20	
	10		<0.1			21	
						22	
Transect F	1	wetted width	0.1	@ 0.1		23 Channel Feature:	
	2	7.0 m	0.1			24 RUN	
	3		0.1			25	
	4	measurements	0.1			26 Dissolved Oxygen	
	5	0.7 m	0.2			.	
	6	apart	0.2	DO READING		. 11.34	ppm
	7		0.2			. 127.0	%
	8		0.2			n 20.8°C	
	9		0.2				
	10		0.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [illegible] **Date:** May 19, 2007

Organization: EAE, Inc. Position: Field Engr.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 2

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect G 1	wetted width	0.1	@ 10 0.2		1 Channel Feature:	
2	4.0 m	0.2			2 RUN –	
3		0.2			3	
4	measurements	0.2	DO READING		4 Dissolved Oxygen	
5	0.4 m	0.2			5	
6	apart	0.1			6 11.40	ppm
7		0.1			7 127.6	%
8		<0.1			8 20.9°C	
9		0.1			9	
10		<0.1			10	
					11	
Transect H 1	wetted width	0.1	@ 0.2		12 Channel Feature:	
2	3.7 m	0.1			13 RIFFLE	
3		0.1			14	
4	measurements	0.1			15 Dissolved Oxygen:	
5	0.3 m	0.1	DO READING		16	
6	apart	<0.1			17 11.16	ppm
7		<0.1			18 123.7	%
8		<0.1			19 20.7°C	
9		<0.1			20	
10		<0.1			21	
					22	
Transect I 1	wetted width	0.1	@ 0.3		23 Channel Feature:	
2	7.0 m	0.2			24 POOL	
3		0.3			25	
4	measurements	0.3			26 Dissolved Oxygen	
5	0.7 m	0.3	DO READING		.	
6	apart	0.3			. 11.38	ppm
7		0.2			. 126.6	%
8		0.2			n 20.8°C	
9		0.1				
10		<0.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [signature] **Date:** May 19, 2007

Organization: EAE, Inc. Position: Env. Engineer

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 2

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect J 1	wetted width	0.3	@ 0.1		1 Channel Feature:	
2	4.0 m	0.4			2 RUN	
3		0.3			3	
4	measurements	0.3			4 Dissolved Oxygen	
5	0.4 m	0.3	DO READING		5	
6	apart	0.4			6 11.23	ppm
7		0.3			7 124.7	%
8		0.3			8 20.8°C	
9		0.1			9	
10		<0.1			10	
					11	
Transect K 1	wetted width	0.1	@ 0.1		12 Channel Feature:	
2	5.0 m	0.2			13 RUN	
3		0.2			14	
4	measurements	0.2			15 Dissolved Oxygen:	
5	0.5 m	0.2			16	
6	apart	0.2	DO READING		17 11.22	ppm
7		0.2			18 125.2	%
8		0.1			19 20.8°C	
9		0.2			20	
10		0.1			21	
					22	
Transect 1	wetted width				23 Channel Feature:	
2	m				24	
3					25	
4	measurements				26 Dissolved Oxygen	
5	m				.	
6	apart				.	ppm
7					.	%
8					n	
9						
10						

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Signed: [signature] **Date:** May 19, 2007

Organization: EAE, Inc. Position: Eng. Geo.

WBID# 860
Site# 3

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

Date & Time: 1:45 pm 5/19/2007	Site Location Description (e.g., road crossing): West of 65 Hwy and HH Road Crossing
Personnel (Data Collectors): Alan Mitchell Jon Studtmann	
Current Weather Conditions: Clear	Facility Name: Homestead Trailer Park
Weather Conditions for Past 10 days: 36 hrs ago rain	Permit Number: MO 0093149

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: 93.23788°W Y: 38.74878°N

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	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
23		24			

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:

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: No evidence of human use
AWM EAE Inc. 5/19/07

% CHANNEL FEATURE
Run = 50%
Riffle =
Pool =

*** Page Two – Data Sheet B for WBID #** 860 : SITE #3

Stream Morphology:

Upstream View's Physical Dimensions: 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	30	8	30	0.8	0.8

Downstream View's Physical Dimensions: 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	30	6	50	0.1	0.2
POOL					

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

90 % Cobble	10 % Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock

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

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:
Surface Deposit:	☐ 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 effect another use.

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

Surveyor's Signature: [illegible] Date of Survey: May 12, 2007

Organization: EAE, Inc. Position: Env. Engr

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 3

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect A 1	wetted width	<0.1	@ 0.4		1 Channel Feature:	
2	7.0 m	0.1			2 RIFFLE	
3		0.1	DO READING		3	
4	measurements	<0.1			4 Dissolved Oxygen	
5	0.7 m	<0.1			5	
6	apart	<0.1			6 11.01	ppm
7		<0.1			7 120.7	%
8		<0.1			8 19.7°C	
9		0.1			9	
10		<0.1			10	
					11	
Transect B 1	wetted width	0.1	@ 0.1		12 Channel Feature:	
2	8.5 m	0.7			13 POOL	
3		0.6			14	
4	measurements	0.4			15 Dissolved Oxygen:	
5	0.8 m	0.1			16	
6	apart	0.3			17 10.90	ppm
7		0.2			18 118.6	%
8		0.1			19 19.6°C	
9		<0.1			20	
10		<0.1			21	
					22	
Transect C 1	wetted width	0.1	@ 0.3		23 Channel Feature:	
2	3.0 m	0.1			24 RUN	
3		0.1			25	
4	measurements	0.1			26 Dissolved Oxygen	
5	0.3 m	0.2	DO READING		.	
6	apart	0.2			. 10.83	ppm
7		0.2			. 118.1	%
8		0.1			n 19.7°C	
9		<0.1				
10		<0.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [illegible] **Date:** May 19, 2007

Organization: EAE Inc. Position: Env. Engr.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 3

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect D 1	wetted width	0.1	@ 0.3		1 Channel Feature:	
2	9.5 m	0.1			2 RIFFLE	
3		<0.1			3	
4	measurements	<0.1			4 Dissolved Oxygen	
5	0.8 m	0.1			5	
6	apart	0.1			6 10.8	ppm
7		0.1	DO READING		7 117.6	%
8		0.1			8 19.5°C	
9		0.1			9	
10		<0.1			10	
					11	
Transect E 1	wetted width	0.1	@ 0.1		12 Channel Feature:	
2	9.0 m	0.6			13 POOL	
3		1.0			14	
4	measurements	1.0	DO READING		15 Dissolved Oxygen:	
5	0.9 m	0.7			16	
6	apart	0.5			17 10.75	ppm
7		0.4			18 116.1	%
8		0.2			19 13.2°C	
9		0.1			20	
10		<0.1			21	
					22	
Transect F 1	wetted width	0.1	@ 0.2		23 Channel Feature:	
2	9.5 m	0.4			24 RUN	
3		0.4	DO READING		25	
4	measurements	0.3			26 Dissolved Oxygen	
5	0.9 m	0.3			.	
6	apart	0.1			. 11.07	ppm
7		<0.1			. 120.5	%
8		<0.1			n 19.5	
9		0.2				
10		<0.1				

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I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [signature] **Date:** May 19, 2007

Organization: EAE, Inc. Position: Eng. Fellow

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 3

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth (These Forward Reverse Transsee #s)
Transect G 1	wetted width	0.1	@ 0.3		1 Channel Feature:	
2	3.0 m	0.3			2 RUN	
3		0.3			3	
4	measurements	0.3			4 Dissolved Oxygen	
5	0.3-0 m	0.4			5	
6	apart	0.4			6 10.43	ppm
7		0.4			7 107.1	%
8		0.3			8 17.5°C	
9		0.3			9	
10		0.3			10	
					11	
Transect H 1	wetted width	0.1	@ 0.1		12 Channel Feature:	
2	4.0 m	0.2			13 POOL	
3		0.2			14	
4	measurements	0.3			15 Dissolved Oxygen:	
5	0.1 m	0.4			16	
6	apart	0.6	DO READING		17 10.65	ppm
7		0.5			18 114.5	%
8		0.4			19 18.1°C	
9		0.2			20	
10		0.1			21	
					22	
Transect I 1	wetted width	0.1	@ 0.2		23 Channel Feature:	
2	3.5 m	0.2			24 POOL	
3		0.3			25	
4	measurements	0.4			26 Dissolved Oxygen	
5	0.3 m	0.5			.	
6	apart	0.6	DO READING		. 11.03	ppm
7		0.5			. 119.7	%
8		0.4			n 18.0 °C	
9		0.2				
10		0.2				

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I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [signature] **Date:** May 19, 2007

Organization: EWE, Inc. Position: Ecol. Engr

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 860 Site # 3

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect J 1	wetted width	<0.1	@ 0.1		1 Channel Feature:	
2	0.9 m	<0.1			2 RUM	
3		<0.1			3	
4	measurements	<0.1			4 Dissolved Oxygen	
5	0.09 m	<0.1			5	
6	apart	<0.1			6 10.55	ppm
7		<0.1			7 112.6	%
8		<0.1			8 18.3°C	
9		<0.1			9	
10		<0.1			10	
					11	
Transect L 1	wetted width	0.1			12 Channel Feature:	
2	1.0 m	0.1			13 RUM	
3		0.1			14	
4	measurements	0.1			15 Dissolved Oxygen:	
5	0.1 m	0.1			16	
6	apart	<0.1			17 11.65	ppm
7		0.1			18 122.8	%
8		0.1			19 18.1°C	
9		0.1			20	
10		<0.1			21	
					22	
Transect 1	wetted width				23 Channel Feature:	
2	m				24	
3					25	
4	measurements				26 Dissolved Oxygen	
5	m				.	
6	apart				.	ppm
7					.	%
8					n	
9						
10						

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Signed: [signature] **Date:** May 19, 2007

Organization: EAE Inc Position: Env. Engr.

Downstream (Site 1) of Sewer Branch.

Upstream (Site 1) of Sewer Branch.

Upstream (Site 2) of Sewer Branch.

Downstream (Site 2) of Sewer Branch.

Upstream (Site 3) of Sewer Branch.

Downstream (Site 3) of Sewer Branch.