Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 3794 Brush Creek

Submitted by
Olsson Associates

To
Missouri Department of Natural Resources
Water Protection Program

On

October 14, 2008

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): Brush Cr.
Missouri Water Body Identification (WBID) Number: 3794
8-digit HUC: 10290106
County(ies), Listed Upstream to Downstream: Polk
Upstream Legal Description (from Table H): 22, 35N, 24W
Downstream Legal Description (from Table H): 16, 35N, 24W
Number of sites evaluated: 3
List all site numbers, consecutively upstream to downstream: 1, 2, 3
Include a Site Location Map(s). The map must include all requirements detailed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol* (Section IV.D.8.a).

II. Facility Information (list all permitted discharges to this water body segment)

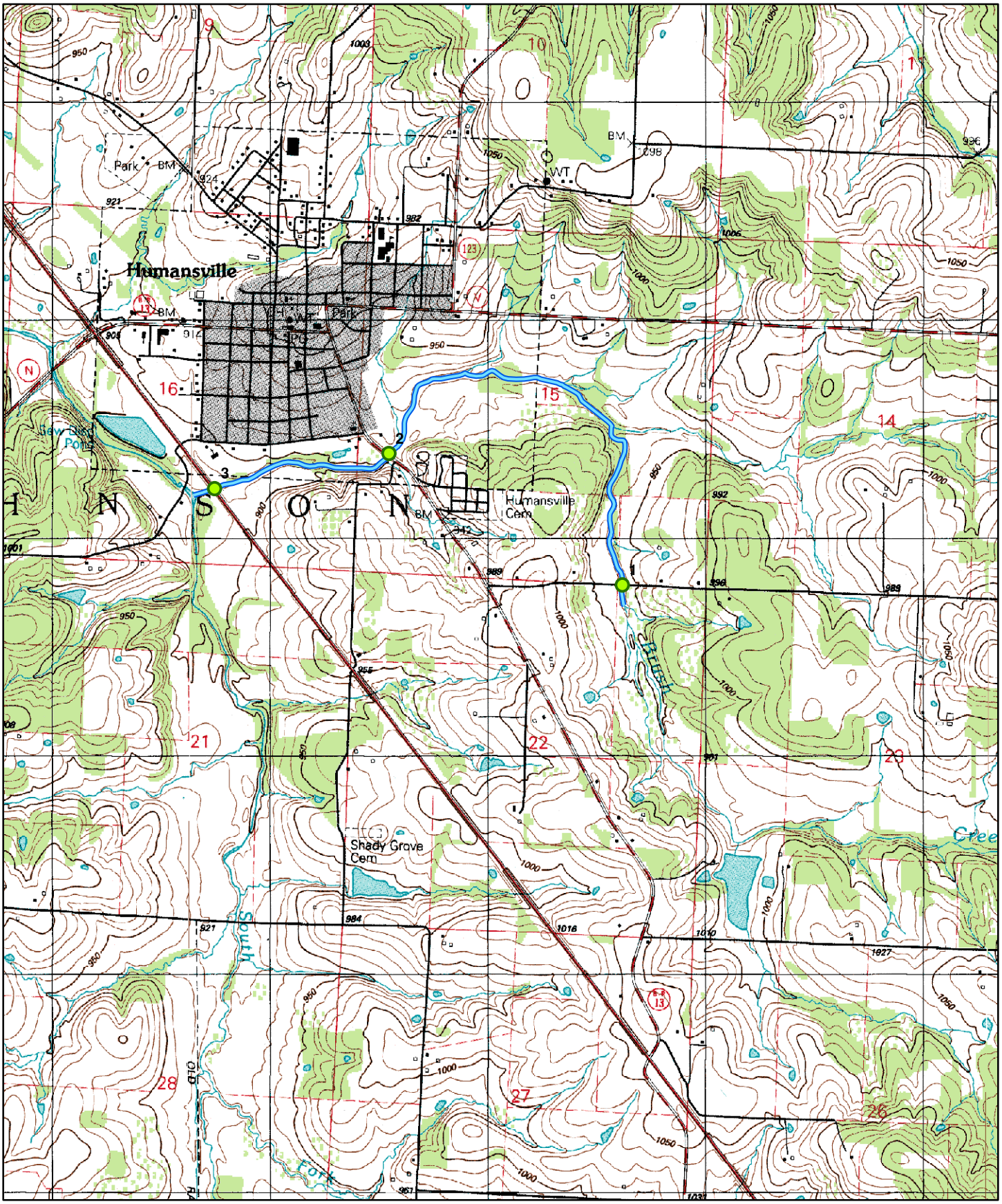
Facility Name(s) and Permit Number(s): N/A

III. UAA Surveyor (please **PRINT** legibly)

Name of Surveyor: Austin Lohkamp	Telephone Number:
Organization/Employer: Olsson Associates	

Please verify that you have completed all sections of all data sheets, checked all applicable boxes, provided a map (that includes all requirements listed in the *Missouri Recreational Use Attainability Analysies: Water Body Survey and Assessment Protocol*) and that this form is complete.

Signed: _____ **Date:** 8-08-08



MISSOURI RECREATIONAL USE ATTAINABILITY ANALYSIS

NORTH

Feet

0 1,000 2,000

1 in. equals 2,000 ft.

Stream: Brush Cr.

WBID: 3794

Map Sheet: 1/1

County: Polk

OLSSON ASSOCIATES

Project No. 008-1298

WBID # 3794

Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)

(must be completed for each site)

Date & Time: 8-08-08 10:30 a.m.	Location Description (e.g., road crossing): E.330-Rd. Bridge crossing
Stream Name: Brush Cr.	
Current Weather Conditions: Sunny	Facility Name(s): N/A
Weather Conditions for Past 10 days: 1.70" @ Bolivar	Permit Number(s): N/A
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought X; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)				
Site 01	Easting (UTM X): 450604	Northing (UTM Y): 4181999	Horizontal Accuracy: (EPE / FOM / PDOP)	120 ft. ~~Meters~~
Site 11	Easting (UTM X): 450581	Northing (UTM Y): 4182076	Horizontal Accuracy: (EPE / FOM / PDOP)	126 ft. ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3794-1-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3794-1-B	Pool under E.330 Rd. Bridge				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3794-1-C	Downstream Looking up				

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X 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.)

Stream Name & WBID # Brush Cr. 3794 Date of Survey 8-08-08

Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	X MDC conservation lands	☐ Urban areas	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	☐ Steep slopes	☐ Other:

Comments:
MDC'S 25 mile Prairie lands nearby

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

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

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

% Cobble	80% Gravel	20% 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	X Musky	☐ Chemical	☐ None	☐ Other:
Color:	X Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine sediments	X None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	X None	☐ Other:

*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.

Stream Name & WBID # Brush Cr. 3794 Date of Survey 8-08-08

Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
Pool	5	11	13	.50	+ 1

Comments: (Please record any additional comments here.)

Pool under E.330 Rd Bridge over 1 meter deep. See photo 3794-1-C

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

Printed Names of Personnel Collecting Data: Eric Hertzler

Surveyor's Signature: _____ Date of Survey: 8-08-08

Organization: Olsson Associates Position: Field Service

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: Brush Cr. Waterbody ID: 3794 Site #: 1

Estimated Channel Incision: 0.25 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 450604 UTM Y: 4181999 +/- 120 ft. ~~(meters)~~

11 UTM X: 450581 UTM Y: 4182076 +/- 126 ft. ~~(meters)~~

Average Stream Width: 5 (meters) Length of Survey Segment: 150 (meters)

(To determne Length of Reach) (20x average stream width)

Field Staff: Eric Hertzler / Austin Lohkamp

Dissolved Oxygen

Date: 8-08-08 Time: 10:24 a.m.

Dissolved Oxygen: 6.05 (mg/L)

Dissolved Oxygen: 71.3 (% sat)

Specific Cond: 236 (µS/cm)

Water Temperature: 23 (°C)

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.82	0.00	0.42	0.00	0.73	0.00	0.34	0.00	0.43	0.00	0.44	0.00	0.69	0.00	0.51	0.00	0.68	0.00	0.51	0.00	0.31	0.06
2	1.64	0.00	0.84	0.00	1.46	0.00	0.68	0.00	0.86	0.00	0.88	0.00	1.38	0.00	1.02	0.00	1.36	0.00	1.02	0.00	0.62	0.11
3	2.46	0.00	1.26	0.00	2.19	0.00	1.02	0.00	1.29	0.00	1.32	0.00	2.07	0.00	1.53	0.00	2.04	0.00	1.53	0.00	0.93	0.15
4	3.28	0.00	1.68	0.00	2.92	0.00	1.36	0.00	1.72	0.00	1.76	0.00	2.76	0.00	2.04	0.00	2.72	0.00	2.04	0.00	1.24	0.16
5	4.10	0.00	2.10	0.00	3.65	0.00	1.70	0.00	2.15	0.00	2.20	0.00	3.45	0.00	2.55	0.00	3.40	0.00	2.55	0.00	1.55	0.14
6	4.92	0.00	2.52	0.00	4.38	0.00	2.04	0.00	2.58	0.00	2.64	0.00	4.14	0.00	3.06	0.00	4.08	0.00	3.06	0.00	2.79	0.11
7	5.74	0.00	2.94	0.00	5.11	0.00	2.38	0.00	3.01	0.00	3.08	0.00	4.83	0.00	3.57	0.00	4.76	0.00	3.57	0.00	4.03	0.05
8	6.56	0.00	3.36	0.00	5.84	0.00	2.72	0.00	3.44	0.00	3.52	0.00	5.52	0.00	4.08	0.00	5.44	0.00	4.08	0.00	5.77	0.05
9	7.38	0.00	3.78	0.00	6.57	0.00	3.06	0.00	3.87	0.00	3.96	0.00	6.21	0.00	4.59	0.00	6.12	0.00	4.59	0.00	6.51	0.05
Right Bank	8.20	0.00	4.20	0.00	7.30	0.00	3.40	0.00	4.30	0.00	4.40	0.00	6.90	0.00	5.10	0.00	6.80	0.00	5.10	0.00	3.10	0.05
Feature Type (riffle, run, or pool)	Dry		Dry		Dry		Dry		Dry		Dry		Dry		Dry		Dry		Dry		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine bv dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

MAXIMUM 0.16

MEDIAN 0.00

Surveyor's Signature: Date: 8-08-08

WBID # 3794

Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)

(must be completed for each site)

Date & Time: 8-08-08 9:12 a.m.	Location Description (e.g., road crossing): Bus. 13 (Hwy 123) Bridge crossing
Stream Name: Brush Cr.	
Current Weather Conditions: sunny	Facility Name(s): N/A
Weather Conditions for Past 10 days: : 1.70" @ Bolivar	Permit Number(s): N/A
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought X; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)				
Site 01	Easting (UTM X): 449625	Northing (UTM Y): 4182657	Horizontal Accuracy: (EPE / FOM / PDOP)	31 ft. ~~Meters~~
Site 11	Easting (UTM X): 449445	Northing (UTM Y): 4182530	Horizontal Accuracy: (EPE / FOM / PDOP)	39 ft. ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3794-2-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3794-2-B	Downstream looking up				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X 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.)

Stream Name & WBID# Brush Cr. 3794 Date of Survey 8-08-08

Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

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	X Urban areas	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	☐ Steep slopes	☐ Other:

Comments:
Near Humansville

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

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

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

% Cobble	10% Gravel	10% Sand	% Silt	% Mud/Clay	80% Bedrock

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

Moss covering bedrock

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	X None	☐ Other:
Color:	X Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine sediments	X None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	X None	☐ Other:

*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.

Stream Name & WBID# Brush Cr. 3794 Date of Survey 8-08-08

Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

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

Printed Names of Personnel Collecting Data: Eric Hertzler / Austin Lohkamp

Surveyor's Signature: _____ Date of Survey: 8-08-08

Organization: Olsson Associates Position: Field Service

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: Brush Cr. Waterbody ID: 3794 Site #: 2

Estimated Channel Incision: 0.3 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 449625 UTM Y: 4182657 +/- 31 ft. ~~(meters)~~

11 UTM X: 449445 UTM Y: 4182530 +/- 39 ft. ~~(meters)~~

Average Stream Width: 6 (meters) Length of Survey Segment: 150 (meters)

(To determne Length of Reach) (20x average stream width)

Field Staff: Eric Hertzler / Austin Lohkamp

Dissolved Oxygen

Date: 8-08-08 Time: 9:20 a.m.

Dissolved Oxygen: 5.08 (mg/L)

Dissolved Oxygen: 56.5 (% sat)

Specific Cond: 423 (µS/cm)

Water Temperature: 21.7 (°C)

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.17	0.05	0.25	0.05	0.26	0.05	0.55	0.05	0.75	0.05	1.19	0.17	1.02	0.20	0.87	0.21	0.68	0.18	0.38	0.05	0.47	0.22
2	0.34	0.05	0.50	0.05	0.52	0.05	1.10	0.08	1.50	0.14	2.38	0.23	2.04	0.23	1.74	0.29	1.36	0.08	0.76	0.19	0.94	0.25
3	0.51	0.05	0.75	0.05	0.78	0.05	1.65	0.07	2.25	0.06	3.57	0.14	3.06	0.14	2.61	0.34	2.04	0.19	1.14	0.15	1.41	0.19
4	0.68	0.05	1.00	0.05	1.04	0.05	2.20	0.05	3.00	0.11	4.76	0.11	4.08	0.40	3.48	0.32	2.72	0.13	1.52	0.06	1.88	0.29
5	0.85	0.07	1.25	0.05	1.30	0.06	2.75	0.06	3.75	0.05	5.95	0.05	5.10	0.13	4.35	0.37	3.40	0.12	1.90	0.05	2.35	0.25
6	1.02	0.06	1.50	0.05	1.56	0.07	3.30	0.14	4.50	0.05	7.14	0.14	6.12	0.15	5.22	0.43	4.08	0.05	2.28	0.05	2.82	0.21
7	1.19	0.06	1.75	0.05	1.82	0.05	3.85	0.19	5.25	0.05	8.33	0.12	7.14	0.20	6.09	0.34	4.76	0.06	2.66	0.05	3.29	0.21
8	1.36	0.05	2.00	0.05	2.08	0.05	4.40	0.13	6.00	0.05	9.52	0.16	8.16	0.24	6.96	0.21	5.44	0.12	3.04	0.05	3.76	0.19
9	1.53	0.05	2.25	0.05	2.34	0.05	4.95	0.16	6.75	0.07	10.71	0.11	9.18	0.23	7.83	0.07	6.12	0.05	3.42	0.05	4.23	0.07
Right Bank	1.70	0.00	2.50	0.00	2.60	0.00	5.50	0.00	7.50	0.00	11.90	0.00	10.20	0.00	8.70	0.00	6.80	0.00	3.80	0.00	4.70	0.00
Feature Type (riffle, run, or pool)	Run		Riffle		Run		Run		Pool		Pool		Pool		Pool		Pool		Riffle		Pool	

<-- was entered as 1.3 and 1.6

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
Depth measurements taken at 10 equally spaced locations along transect (determine bv dividing wetted width by ten)
Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
All measurements to be taken to the nearest 0.01 meter.

MAXIMUM 0.43

MEDIAN 0.06

Surveyor's Signature: Date: 8-08-08

WBID # 3794

Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)

(must be completed for each site)

Date & Time: 8-08-08 10:59 a.m.	Location Description (e.g., road crossing):
Stream Name: Brush Cr.	Highway 13 Bridge over Brush Creek
Current Weather Conditions: Sunny	Facility Name(s): N/A
Weather Conditions for Past 10 days: : 1.70" @ Bolivar	Permit Number(s): N/A
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought X; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)				
Site 01	Easting (UTM X): 448716	Northing (UTM Y): 4182446	Horizontal Accuracy: (EPE / FOM / PDOP)	27 ft. ~~Meters~~
Site 11	Easting (UTM X): 448643	Northing (UTM Y): 4182363	Horizontal Accuracy: (EPE / FOM / PDOP)	229 ft. ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3794-3-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3794-3-B	Downstream looking up				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X 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.)

Stream Name & WBID # Brush Cr. 3794 Date of Survey 8-08-08

Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

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	X Urban areas	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	☐ Steep slopes	☐ Other:

Comments:
Near Humansville

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

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

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

% Cobble	30% Gravel	20% Sand	% Silt	% Mud/Clay	50% Bedrock

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

Moss On Bedrock

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	X None	☐ Other:
Color:	X Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine sediments	X None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	X None	☐ Other:

*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.

Stream Name & WBID # Brush Cr. 3794 Date of Survey 8-08-08

Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

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

Printed Names of Personnel Collecting Data: Eric Hertzler / Austin Lohkamp

Surveyor's Signature: _____ Date of Survey: 8-08-08

Organization: Olsson Associates Position: Field Service

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: Brush Cr. Waterbody ID: 3794 Site #: 3

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

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 448716 UTM Y: 4182446 +/- 27 ft. ~~(meters)~~

11 UTM X: 448643 UTM Y: 4182363 +/- 229 ft. ~~(meters)~~

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

(To determne Length of Reach) (20x average stream width)

Field Staff: Eric Hertzler / Austin Lohkamp

Dissolved Oxygen

Date: 8-08-08 Time: 11:05 a.m.

Dissolved Oxygen: 8.16 (mg/L)

Dissolved Oxygen: 90.6 (% sat)

Specific Cond: 379 (µS/cm)

Water Temperature: 21.5 (°C)

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.55	0.14	0.87	0.21	0.54	0.05	0.63	0.19	0.59	0.19	0.27	0.12	0.37	0.11	0.51	0.26	0.51	0.18	0.61	0.18	0.35	0.05
2	1.10	0.13	1.74	0.23	1.08	0.20	1.26	0.21	1.18	0.15	0.54	0.07	0.74	0.13	1.02	0.29	1.02	0.38	1.22	0.28	0.70	0.07
3	1.65	0.26	2.61	0.39	1.62	0.06	1.89	0.23	1.77	0.16	0.81	0.14	1.11	0.27	1.53	0.27	1.53	0.42	1.83	0.33	1.05	0.13
4	2.20	0.34	3.48	0.38	2.16	0.05	2.52	0.31	2.36	0.13	1.08	0.11	1.48	0.28	2.55	0.13	2.55	0.33	2.44	0.34	1.40	0.09
5	2.75	0.39	4.35	0.37	2.70	0.05	3.15	0.26	2.95	0.17	1.35	0.19	1.85	0.24	3.57	0.11	3.57	0.35	3.05	0.34	1.75	0.05
6	3.30	0.31	5.22	0.25	3.24	0.05	3.78	0.24	3.54	0.21	1.62	0.18	2.22	0.20	4.59	0.05	4.59	0.38	3.66	0.28	2.10	0.12
7	3.85	0.21	6.09	0.18	3.78	0.07	4.41	0.21	4.13	0.19	1.89	0.06	2.59	0.16	5.61	0.05	5.61	0.14	4.27	0.25	2.45	0.13
8	4.40	0.13	6.96	0.07	4.32	0.05	5.04	0.26	4.72	0.21	2.16	0.05	2.96	0.08	6.63	0.05	6.63	0.11	4.88	0.29	2.80	0.07
9	4.95	0.09	7.83	0.05	4.86	0.05	5.67	0.23	5.31	0.11	2.43	0.05	3.33	0.05	7.65	0.05	7.65	0.05	5.49	0.05	3.15	0.06
Right Bank	5.50	0.00	8.70	0.00	5.40	0.00	6.30	0.00	5.90	0.00	7.70	0.00	3.70	0.00	5.10	0.00	5.10	0.00	6.10	0.00	3.50	0.00
Feature Type (riffle, run, or pool)	Run		Run		Riffle		Pool		Pool		Riffle		Riffle		Pool		Pool		Pool		Pool	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine bv dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

MAXIMUM 0.42

MEDIAN 0.13

Surveyor's Signature: Date: 8-08-08

WBID 3794
BRIDGE 1-B
ESSOM RD

WBID 3794
ULD 2-A
8-8-08 9:22 am

WBID 3794
ULD A-2
11:15am

WBID 3794
DLU 1-C

WBID 3794
ULD 3-A

WBID 3794
DLU 2-B
8-8-08 10:00am

WBID 3794
DLU 3-B
08-08-08 11:38am