



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 1267 Massey Creek

Submitted by
SES, Inc.

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): Massey Creek
Missouri Water Body Identification (WBID) Number: 1267
8-digit HUC: 10290108
County(ies), Listed Upstream to Downstream: Cass
Upstream Legal Description (from Table H): T45N R33W Sec 28
Downstream Legal Description (from Table H): T45N R33W Sec 35
Number of sites evaluated: 4
List all site numbers, <u>consecutively upstream to downstream</u> : 1, 2, 3, 4
Include a Site Location Map(s). The map must include all requirements detailed in the <i>Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol</i> (Section IV.D.8.a).

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

Facility Name(s) and Permit Number(s): RK Collision Repair Ctr. MO0124150
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III. UAA Surveyor (please **PRINT** legibly)

Name of Surveyor: Gilisa Goul	Telephone Number: 913-307-0046
Organization/Employer: SES, Inc.	

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 Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.

Signed: Gilisa Gould **Date:** 9/15/08

1267 Massey Cr.



Site 1

Site 2

Site 3

Site 4

1267 Massey Cr.

Cass County

Cleveland

Cleveland

Cleveland

West Line

WBID # 1267

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: 9/09/08 8:45	Location Description (e.g., road crossing): Hwy D
Stream Name: Massey Cr.	
Current Weather Conditions: Clear	Facility Name(s): RK Collision Repair Ctr.
Weather Conditions for Past 10 days: 4.58 cm	Permit Number(s): MO0124150
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0361783	Northing (UTM Y): 4284385	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters
Site 11	Easting (UTM X): 0361977	Northing (UTM Y): 4284085	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1	Upstream	2	Downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

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.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

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

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other:			

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

20% Cobble	35% Gravel	35% Sand	% Silt	% Mud/Clay	10% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Smartweed on 20% of substrate

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input checked="" type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> 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.

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)

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: Bryan Deimeke and Gilisa Gould

Surveyor's Signature: Gilisa Gould Date of Survey: 9/09/08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Massey Cr.</u> Waterbody ID: <u>1267</u> Site #: <u>1</u> Estimated Channel Incision: <u>2</u> (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: <u>0361783</u> UTM Y: <u>4284385</u> +/- <u>7</u> (meters) 11 UTM X: <u>0361977</u> UTM Y: <u>4284085</u> +/- <u>6</u> (meters) Average Stream Width: <u>9</u> (meters) Length of Survey Segment: <u>180</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/9/2008</u> Time: <u>8:45</u> Dissolved Oxygen: <u>5.7</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>16.5</u> (°C)
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Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		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	0.80	0.05	0.90	0.25	0.90	0.25	0.60	0.05	0.90	0.25	0.90	0.20	0.90	0.55	1.00	0.25	0.70	0.05	1.00	0.70	1.20	0.45
	2	1.60	0.40	1.80	0.45	1.80	0.80	1.20	0.20	1.80	0.25	1.80	0.45	1.80	0.60	2.00	0.40	1.40	0.20	2.00	0.65	2.40	0.50
	3	2.40	0.55	2.70	0.55	2.70	0.75	1.80	0.30	2.70	0.20	2.70	0.40	2.70	0.60	3.00	0.45	2.10	0.35	3.00	0.60	3.60	0.50
	4	3.20	0.60	3.60	0.75	3.60	0.60	2.40	0.35	3.60	0.25	3.60	0.45	3.60	0.50	4.00	0.45	2.80	0.30	4.00	0.60	4.80	0.45
	5	4.00	0.60	4.50	0.75	4.50	0.35	3.00	0.30	4.50	0.25	4.50	0.50	4.50	0.30	5.00	0.45	3.50	0.30	5.00	0.55	6.00	0.50
	6	4.80	0.60	5.40	0.55	5.40	0.30	3.60	0.30	5.40	0.35	5.40	0.55	5.40	0.35	6.00	0.45	4.20	0.30	6.00	0.45	7.20	0.50
	7	5.60	0.55	6.30	0.40	6.30	0.25	4.20	0.25	6.30	0.60	6.30	0.45	6.30	0.30	7.00	0.35	4.90	0.30	7.00	0.45	8.40	0.45
	8	6.40	0.50	7.20	0.20	7.20	0.20	4.80	0.20	7.20	0.55	7.20	0.35	7.20	0.30	8.00	0.35	5.60	0.25	8.00	0.45	9.60	0.35
	9	7.20	0.20	8.10	0.05	8.10	0.10	5.40	0.10	8.10	0.20	8.10	0.15	8.10	0.15	9.00	0.35	6.30	0.15	9.00	0.40	10.80	0.30
Right Bank		8.00	0.00	9.00	0.00	9.00	0.00	6.00	0.00	9.00	0.00	9.00	0.00	9.00	0.00	10.00	0.00	7.00	0.00	10.00	0.00	12.00	0.00
Feature Type		pool		pool		pool		pool		pool		pool		pool		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

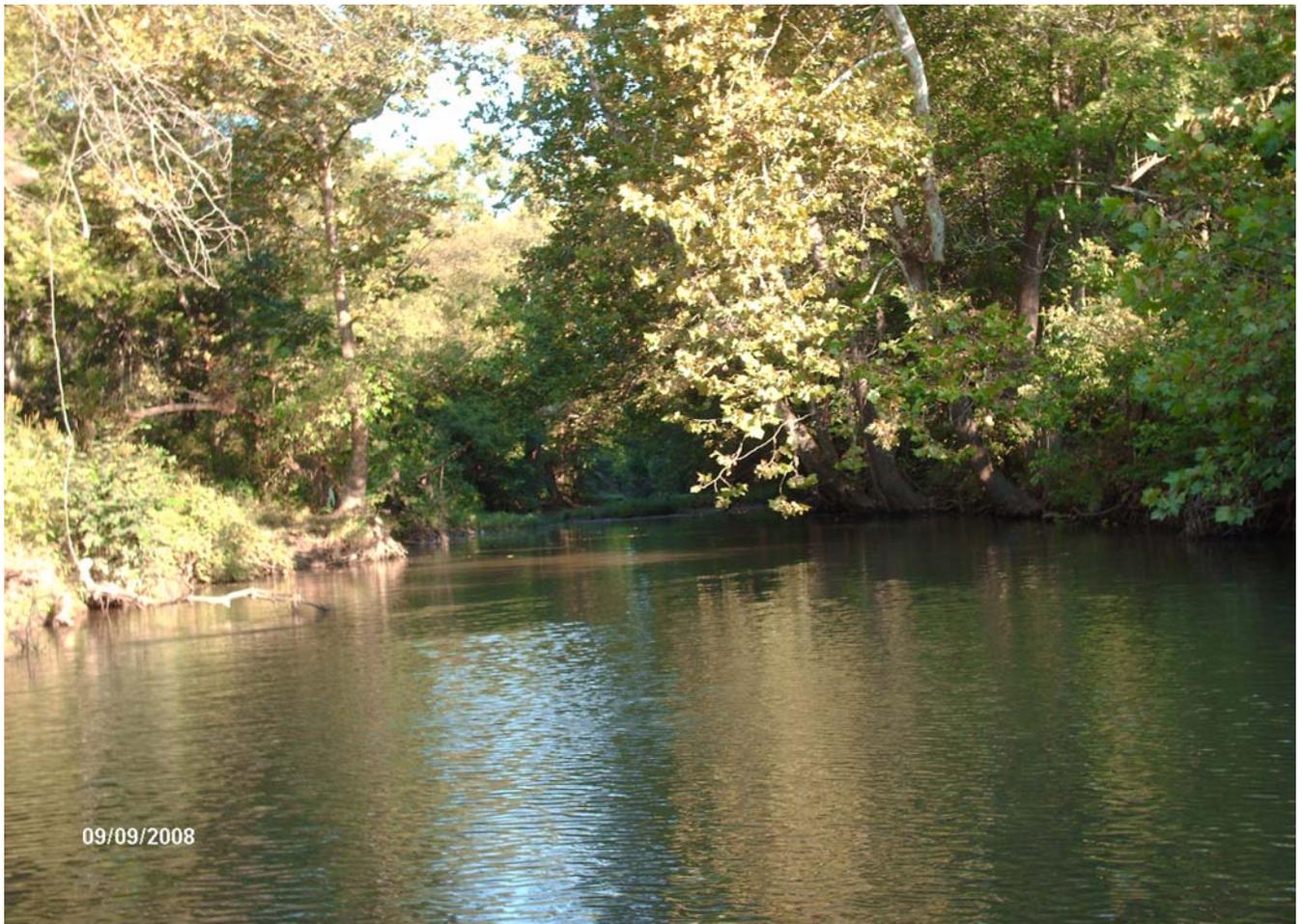
GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by 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.

Surveyor's Signature: Gilisa Gould Date: 9/15/2008



09/09/2008



09/09/2008

WBID # 1267

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: 9/09/08 9:45	Location Description (e.g., road crossing): Prospect Ave.
Stream Name: Massey Cr.	
Current Weather Conditions: Clear	Facility Name(s): RK Collision Repair Ctr.
Weather Conditions for Past 10 days: 4.58 cm	Permit Number(s): MO0124150
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0363225	Northing (UTM Y): 4284103	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters
Site 11	Easting (UTM X): 0363587	Northing (UTM Y): 4284099	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3	Downstream	4	Upstream	5	Fire pit
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
6	Foot path				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

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.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

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

<input type="checkbox"/> Roads	<input checked="" type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input checked="" type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

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

5% Cobble	75% Gravel	20% Sand	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Smartweed on 20% of substrate

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: Brown
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> 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.

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: Bryan Deimeke and Gilisa Gould

Surveyor’s Signature: Gilisa Gould Date of Survey: 9/09/08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Massey Cr.</u> Waterbody ID: <u>1267</u> Site #: <u>2</u> Estimated Channel Incision: <u>3</u> (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: <u>0363225</u> UTM Y: <u>4284103</u> +/- <u>7</u> (meters) 11 UTM X: <u>0363587</u> UTM Y: <u>4284099</u> +/- <u>6</u> (meters) Average Stream Width: <u>9</u> (meters) Length of Survey Segment: <u>180</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/9/2008</u> Time: <u>9:45</u> Dissolved Oxygen: <u>8.1</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>20.6</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	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	1.00	0.05	0.80	0.15	1.00	0.35	1.10	0.20	0.20	0.01	0.30	0.05	0.40	0.05	0.40	0.05	0.40	0.01	0.10	0.01	0.30	0.00
2	2.00	0.20	1.60	0.00	2.00	0.70	2.20	0.80	0.40	0.05	0.60	0.05	0.80	0.05	0.80	0.10	0.80	0.10	0.20	0.10	0.60	0.00
3	3.00	0.25	2.40	0.00	3.00	1.00	3.30	0.85	0.60	0.01	0.90	0.05	1.20	0.10	1.20	0.35	1.20	0.20	0.30	0.30	0.90	0.00
4	4.00	0.30	3.20	0.00	4.00	1.00	4.40	0.80	0.80	0.05	1.20	0.05	1.60	0.10	1.60	0.30	1.60	0.40	0.40	0.45	1.20	0.00
5	5.00	0.35	4.00	0.00	5.00	1.00	5.50	0.70	1.00	0.01	1.50	0.05	2.00	0.10	2.00	0.25	2.00	0.45	0.50	0.40	1.50	0.00
6	6.00	0.35	4.80	0.00	6.00	0.90	6.60	0.80	1.20	0.05	1.80	0.10	2.40	0.05	2.40	0.20	2.40	0.45	0.60	0.30	1.80	0.00
7	7.00	0.35	5.60	0.00	7.00	0.40	7.70	0.90	1.40	0.00	2.10	0.10	2.80	0.01	2.80	0.20	2.80	0.50	0.70	0.20	2.10	0.00
8	8.00	0.30	6.40	0.00	8.00	0.25	8.80	0.75	1.60	0.01	2.40	0.05	3.20	0.01	3.20	0.15	3.20	0.05	0.80	0.05	2.40	0.00
9	9.00	0.05	7.20	0.00	9.00	0.15	9.90	0.30	1.80	0.01	2.70	0.01	3.60	0.05	3.60	0.10	3.60	0.05	0.90	0.01	2.70	0.00
Right Bank	10.00	0.00	8.00	0.00	10.00	0.00	11.00	0.00	2.00	0.00	3.00	0.00	4.00	0.00	4.00	0.00	4.00	0.00	1.00	0.00	3.00	0.00
Feature Type	pool		pool		pool		pool		riffle		pool		riffle		pool		pool		pool		riffle	

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 by 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.

Surveyor's Signature: Gilisa Gould Date: 9/15/2008



WBID # 1267

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: 9/09/08 10:25	Location Description (e.g., road crossing): State Hwy Y
Stream Name: Massey Cr.	
Current Weather Conditions: Clear	Facility Name(s): Rk Collision Repair Ctr.
Weather Conditions for Past 10 days: 4.58 cm	Permit Number(s): MO0124150
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0364972	Northing (UTM Y): 4282913	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters
Site 11	Easting (UTM X): 0365765	Northing (UTM Y): 4282799	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
7	Downstream	8	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

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.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: wooded
Comments:				

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

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other:			

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

% Cobble	90% Gravel	10% Sand	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Smartweed on <1% of substrate

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: Brown
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> 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.

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: Bryan Deimeke and Gilisa Gould

Surveyor’s Signature: Gilisa Gould Date of Survey: 9/09/08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Massey Cr.</u> Waterbody ID: <u>1267</u> Site #: <u>3</u> Estimated Channel Incision: <u>2</u> (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: <u>0364972</u> UTM Y: <u>4282913</u> +/- <u>7</u> (meters) 11 UTM X: <u>0365165</u> UTM Y: <u>1282799</u> +/- <u>7</u> (meters) Average Stream Width: <u>9</u> (meters) Length of Survey Segment: <u>180</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	Dissolved Oxygen Date: <u>9/9/2008</u> Time: <u>10:25</u> Dissolved Oxygen: <u>6.7</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>21.1</u> (°C)
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Transect Cross-Section

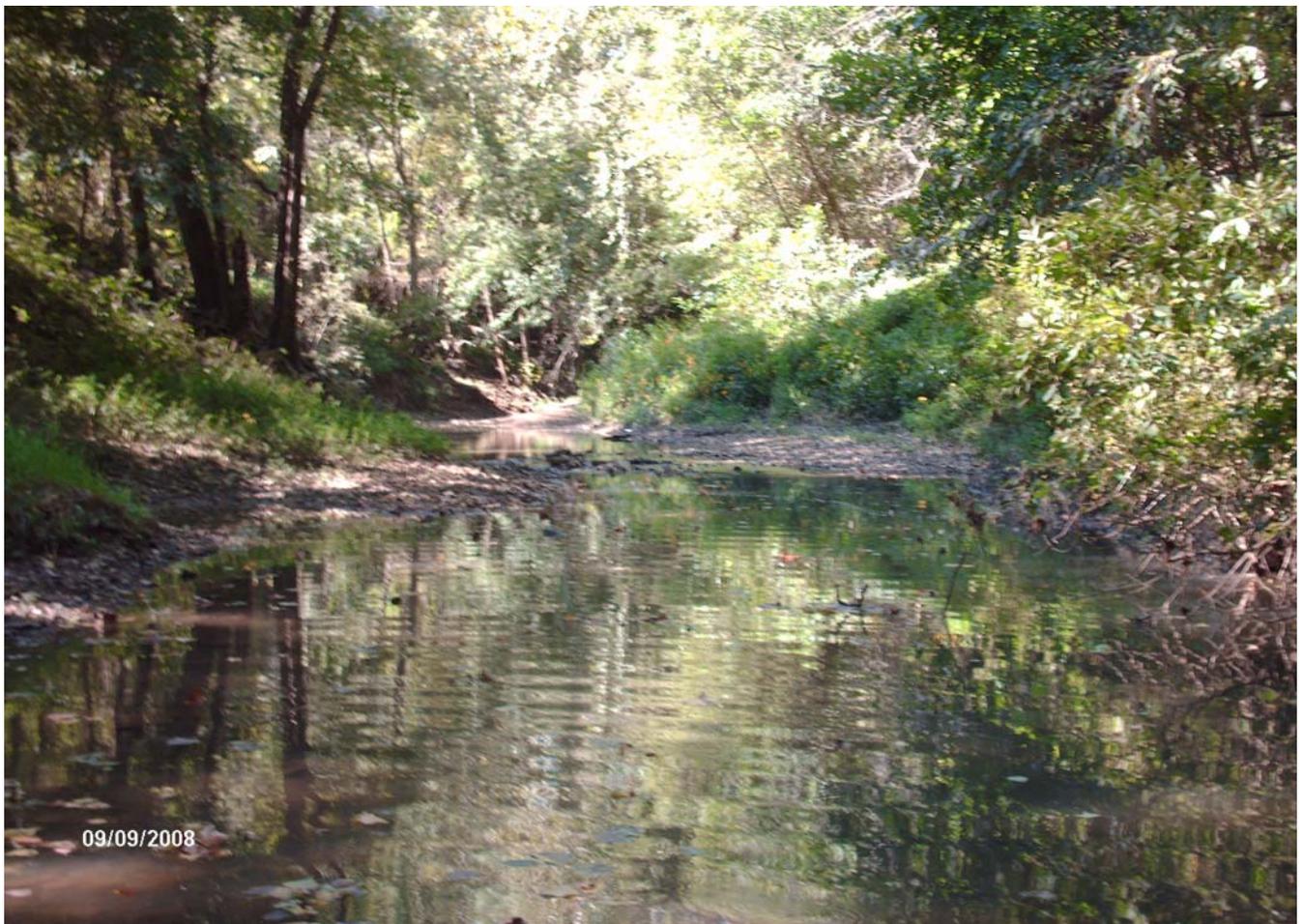
Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.90	0.10	0.90	0.05	0.50	0.35	0.90	0.40	0.80	0.05	0.60	0.05	0.70	0.01	0.30	0.05	0.60	0.05	0.40	0.05	0.70	0.25
2	1.80	0.25	1.80	0.10	1.00	0.65	1.80	0.45	1.60	0.15	1.20	0.15	1.40	0.01	0.60	0.25	1.20	0.35	0.80	0.15	1.40	0.55
3	2.70	0.50	2.70	0.15	1.50	0.85	2.70	0.40	2.40	0.25	1.80	0.35	2.10	0.01	0.90	0.40	1.80	0.55	1.20	0.15	2.10	0.70
4	3.60	0.40	3.60	0.20	2.00	0.60	3.60	0.35	3.20	0.30	2.40	0.40	2.80	0.05	1.20	0.55	2.40	0.60	1.60	0.20	2.80	0.70
5	4.50	0.50	4.50	0.25	2.50	0.40	4.50	0.30	4.00	0.25	3.00	0.40	3.50	0.01	1.50	0.55	3.00	0.70	2.00	0.20	3.50	0.55
6	5.40	0.40	5.40	0.25	3.00	0.35	5.40	0.15	4.80	0.30	3.60	0.30	4.20	0.01	1.80	0.50	3.60	0.55	2.40	0.20	4.20	0.25
7	6.30	0.25	6.30	0.30	3.50	0.25	6.30	0.05	5.60	0.40	4.20	0.20	4.90	0.01	2.10	0.45	4.20	0.35	2.80	0.15	4.90	0.15
8	7.20	0.20	7.20	0.45	4.00	0.20	7.20	0.01	6.40	0.40	4.80	0.10	5.60	0.01	2.40	0.20	4.80	0.20	3.20	0.05	5.60	0.05
9	8.10	0.10	8.10	0.10	4.50	0.05	8.10	0.10	7.20	0.30	5.40	0.01	6.30	0.05	2.70	0.01	5.40	0.05	3.60	0.01	6.30	0.01
Right Bank	9.00	0.00	9.00	0.00	5.00	0.00	9.00	0.00	8.00	0.00	6.00	0.00	7.00	0.00	3.00	0.00	6.00	0.00	4.00	0.00	7.00	0.00
Feature Type <small>(riffle, run, or pool)</small>	pool		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 by 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.

Surveyor's Signature: _____ Date: _____



09/09/2008



09/09/2008

WBID # 1267

Site # 4

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: 9/09/08 11:05	Location Description (e.g., road crossing): Groh Rd.
Stream Name: Massey Cr.	
Current Weather Conditions: Clear	Facility Name(s): RK Collision Repair Ctr.
Weather Conditions for Past 10 days: 4.58 cm	Permit Number(s): MO0124150
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0365933	Northing (UTM Y): 4281345	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters
Site 11	Easting (UTM X): 0366110	Northing (UTM Y): 4281276	Horizontal Accuracy: (EPE / FOM / PDOP) 8 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
9	Downstream	10	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

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.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

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

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other:			

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

% Cobble	10% Gravel	30% Sand	30% Silt	30% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: Brown
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> 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.

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: Bryan Deimeke and Gilisa Gould

Surveyor's Signature: Gilisa Gould Date of Survey: 9/09/08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Massey Cr.</u> Waterbody ID: <u>1267</u> Site #: <u>4</u> Estimated Channel Incision: <u>3</u> (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: <u>0365933</u> UTM Y: <u>4281345</u> +/- <u>7</u> (meters) 11 UTM X: <u>0366110</u> UTM Y: <u>4281276</u> +/- <u>8</u> (meters) Average Stream Width: <u>8</u> (meters) Length of Survey Segment: <u>160</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/9/2008</u> Time: <u>11:05</u> Dissolved Oxygen: <u>8.2</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>21.4</u> (°C)
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Transect Cross-Section

	01		02		03		04		05		06		07		08		09		10		11	
	Station	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	0.80	0.05	0.90	0.30	0.80	0.05	0.80	0.30	0.90	0.05	0.70	0.20	0.90	0.55	0.80	0.15	0.70	0.05	0.70	0.10	0.90	0.35
2	1.60	0.15	1.80	0.60	1.60	0.45	1.60	0.70	1.80	0.30	1.40	0.65	1.80	0.95	1.60	0.45	1.40	0.25	1.40	0.70	1.80	0.45
3	2.40	0.30	2.70	0.55	2.40	0.55	2.40	0.65	2.70	0.55	2.10	0.95	2.70	1.00	2.40	0.65	2.10	0.70	2.10	0.80	2.70	0.80
4	3.20	0.40	3.60	0.50	3.20	0.55	3.20	0.85	3.60	0.75	2.80	0.80	3.60	1.00	3.20	0.70	2.80	0.75	2.80	0.80	3.60	1.00
5	4.00	0.35	4.50	0.75	4.00	0.55	4.00	0.85	4.50	0.85	3.50	0.75	4.50	1.00	4.00	0.80	3.50	0.75	3.50	0.70	4.50	1.00
6	4.80	0.30	5.40	0.65	4.80	0.40	4.80	0.75	5.40	0.70	4.20	0.70	5.40	1.00	4.80	0.70	4.20	0.65	4.20	0.50	5.40	1.00
7	5.60	0.25	6.30	0.40	5.60	0.45	5.60	0.75	6.30	0.65	4.90	0.55	6.30	0.85	5.60	0.45	4.90	0.50	4.90	0.30	6.30	1.00
8	6.40	0.10	7.20	0.35	6.40	0.30	6.40	0.55	7.20	0.30	5.60	0.40	7.20	0.60	6.40	0.25	5.60	0.25	5.60	0.10	7.20	0.70
9	7.20	0.01	8.10	0.05	7.20	0.10	7.20	0.25	8.10	0.05	6.30	0.10	8.10	0.35	7.20	0.05	6.30	0.05	6.30	0.05	8.10	0.20
Right Bank	8.00	0.00	9.00	0.00	8.00	0.00	8.00	0.00	9.00	0.00	7.00	0.00	9.00	0.00	8.00	0.00	7.00	0.00	7.00	0.00	9.00	0.00
Feature Type <small>(riffle, run, or pool)</small>	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	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 by 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.

Surveyor's Signature: Gilisa Gould Date: 9/15/2008

