



Use Attainability Analysis

for

WBID 0685 Sweet Springs Creek

Submitted by
MEC Water Resources

To
Missouri Department of Natural Resources
Water Protection Program

On
October 17, 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): | Sweet Spring Cr. |
| Missouri Water Body Identification (WBID) Number: | 685 |
| 8-digit HUC: | 10280203 |
| County(ies), Listed Upstream to Downstream: | Randolph |
| Upstream Legal Description (from Table H): | 18, 53 N, 14 W |
| Downstream Legal Description (from Table H): | Mouth |
| Number of sites evaluated: | 7 |
| List all site numbers, consecutively upstream to downstream: | Site 1: CRD 2210 crossing Site 2: Rt D crossing Site 3: 50m downstream of Site 2 Site 4: CRD 2130 crossing Site 5: CRD 2130 crossing Site 6: MO 3 crossing Site 7: 50m downstream of site 6. |
| 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): |
| Thunderbird Trailer Court - MO 0035599 |
| Moberly Country Club - MO 0095605 |
| Moberly Mobile Home Park - MO 0045021 |
| Orton Lane Lagoon - MO 0121622 |
| Moberly East WWTP - MO 0117960 |

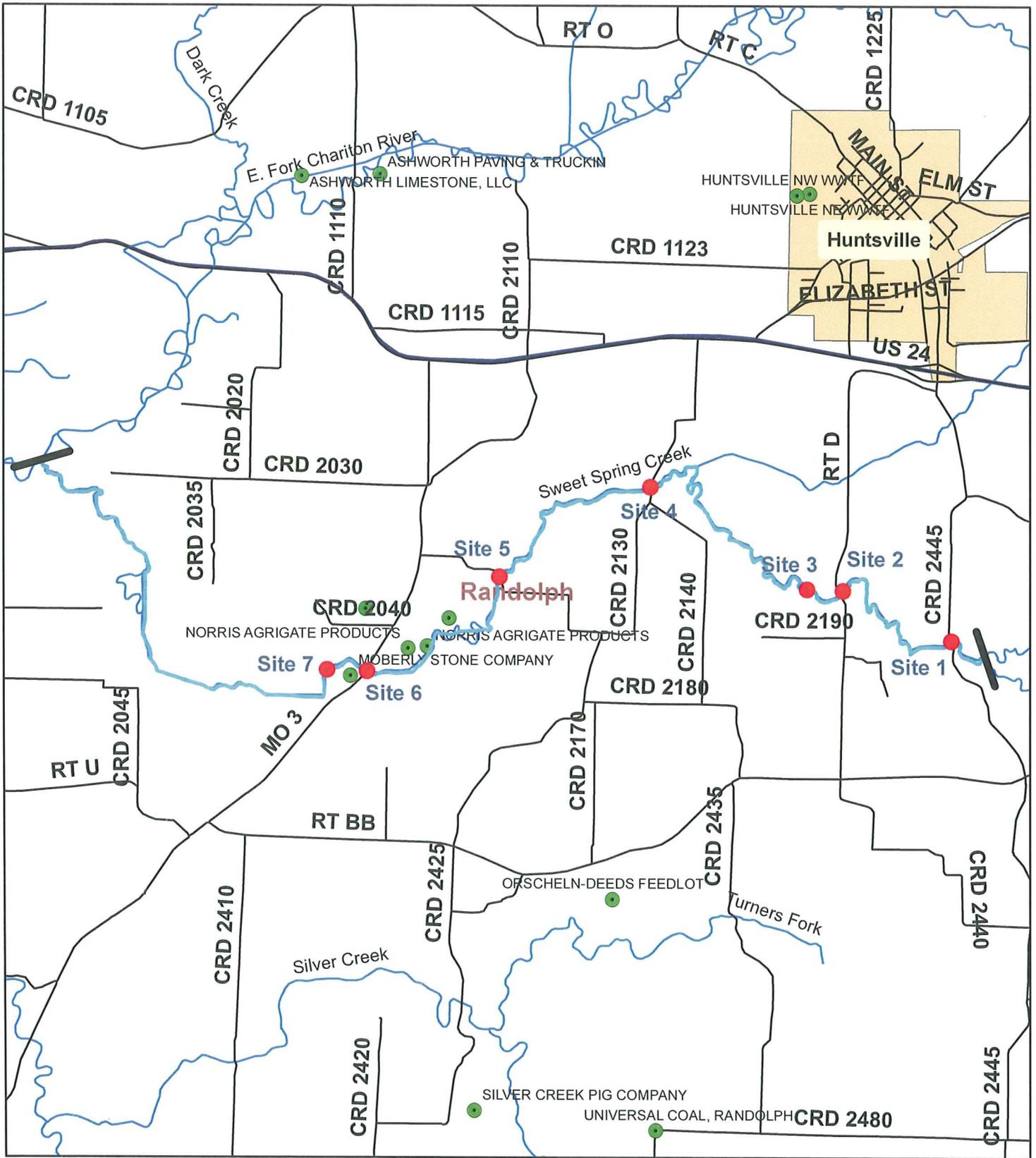
III. UAA Surveyor (please PRINT legibly)

| | |
|---|--------------------------------|
| Name of Surveyor: Renee Martin | Telephone Number: 573-443-4100 |
| Organization/Employer: MEL Water Resources / AE Solutions | |

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: Renee Martin Date: 10/14/08

SKW 10-14-08



**Sweet Spring Creek
WBID 0685
Randolph County**



WBID # 0685

Site # 01

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: <u>8/25/08</u> <u>1345</u> | Location Description (e.g., road crossing): |
| Stream Name: <u>Moniteau Creek</u> | <u>County Rd 2210 Crossing</u> |
| Current Weather Conditions: <u>Sunny + clear</u> | Facility Name(s): <u>Thunderbird Trailer Court</u> |
| Weather Conditions for Past 10 days: <u>0.59" rain</u> | Permit Number(s): <u>MO 0035599</u> |
| 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): <u>05399930</u> | Northing (UTM Y): <u>4360765</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>23</u> ²⁴ Meters <u>FT</u> |
| Site 11 | Easting (UTM X): <u>0539762</u> | Northing (UTM Y): <u>4360706</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>21</u> ²⁴ Meters <u>FT</u> |

Photos:

| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
|------------|-----------------|------------|-------------------|-----------|---------------|
| <u>150</u> | <u>upstream</u> | <u>151</u> | <u>downstream</u> | | |
| | | | | | |
| | | | | | |
| | | | | | |

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.) <p style="text-align: center;"><u>N/A</u> <u>SRW</u></p> | | | | |

Stream Name & WBID # Sweet Spring C #0681

Date of Survey 8/25/08

Site # 01

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 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: <u>private property</u> | | | | |

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

| | | | | |
|--|--|--|---|---|
| <input checked="" 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 type="checkbox"/> None of the above | Comments / Other: <u>N/A SRW</u> | | | |

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

| | | | | | |
|-------------------|--------------------|------------------|-----------------|----------------------|--------------------|
| <u>—</u> % Cobble | <u>20</u> % Gravel | <u>40</u> % Sand | <u>—</u> % Silt | <u>40</u> % Mud/Clay | <u>—</u> % Bedrock |
|-------------------|--------------------|------------------|-----------------|----------------------|--------------------|

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

Benthic Algae
Filamentous Algae } abundant

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 checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input type="checkbox"/> Other: |
| 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 checked="" type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input 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.

Stream Name & WBID # Sweet Spring Cr #0681

Date of Survey 8/25/08

Site # 01

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) |
|-----------------|-----------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | SRW | | |
| | | N/A | | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

log jam @ Transects 4 + 5 causing pools
 large woody debris throughout site from recent rains

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Jennifer Hrabik

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 8/25/08

Organization: AE Solutions Position: Field Technician

SRW 10-14-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| | |
|---|---|
| Stream Name: <u>Sweet Spring Creek</u> Waterbody ID: <u>0685</u> Site #: <u>0685_01</u> Estimated Channel Incision: <u>0.20</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>539930</u> UTM Y: <u>4360765</u> +/- <u>23</u> (feet) 11 UTM X: <u>539762</u> UTM Y: <u>4360706</u> +/- <u>21</u> (feet) Average Stream Width: <u>6.6</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JRH, TAH</u> | <h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>8/25/2008</u> Time: <u>13:45</u> Dissolved Oxygen: <u>5.47</u> (mg/L) Dissolved Oxygen: <u>55.1</u> (% sat) Specific Cond: <u>503</u> (µS/cm) Water Temperature: <u>22.7</u> (°C) |
|---|---|

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 | |
| | 1 | 0.43 | 0.05 | 0.85 | 0.51 | 0.68 | 0.45 | 0.81 | 0.45 | 0.78 | 0.14 | 0.79 | 0.43 | 0.70 | 0.26 | 0.81 | 0.25 | 0.73 | 0.16 | 0.33 | 0.01 | 0.35 | 0.02 |
| | 2 | 0.86 | 0.03 | 1.70 | 0.84 | 1.36 | 0.50 | 1.62 | 0.52 | 1.56 | 0.17 | 1.58 | 0.45 | 1.40 | 0.46 | 1.62 | 0.46 | 1.46 | 0.22 | 0.66 | 0.00 | 0.70 | 0.01 |
| | 3 | 1.29 | 0.08 | 2.55 | >1.00 | 2.04 | 0.58 | 2.43 | 0.69 | 2.34 | 0.24 | 2.37 | 0.45 | 2.10 | 0.67 | 2.43 | 0.67 | 2.19 | 0.27 | 0.99 | 0.04 | 1.05 | 0.02 |
| | 4 | 1.72 | 0.09 | 3.40 | >1.00 | 2.72 | 0.71 | 3.24 | 0.70 | 3.12 | 0.39 | 3.16 | 0.52 | 2.80 | 0.53 | 3.24 | 0.53 | 2.92 | 0.28 | 1.32 | 0.12 | 1.40 | 0.02 |
| | 5 | 2.15 | 0.04 | 4.25 | >1.00 | 3.40 | 0.74 | 4.05 | 0.71 | 3.90 | 0.51 | 3.95 | 0.74 | 3.50 | 0.55 | 4.05 | 0.55 | 3.65 | 0.29 | 1.65 | 0.15 | 1.75 | 0.10 |
| | 6 | 2.58 | 0.03 | 5.10 | >1.00 | 4.08 | 0.71 | 4.86 | 0.80 | 4.68 | 0.55 | 4.74 | 0.41 | 4.20 | 0.58 | 4.86 | 0.58 | 4.38 | 0.29 | 1.98 | 0.30 | 2.10 | 0.01 |
| | 7 | 3.01 | 0.02 | 5.95 | >1.00 | 4.76 | 0.72 | 5.67 | 0.71 | 5.46 | 0.60 | 5.53 | 0.18 | 4.90 | 0.52 | 5.67 | 0.52 | 5.11 | 0.41 | 2.31 | 0.31 | 2.45 | 0.01 |
| | 8 | 3.44 | 0.08 | 6.80 | >1.00 | 5.44 | 0.51 | 6.48 | 0.26 | 6.24 | 0.43 | 6.32 | 0.17 | 5.60 | 0.47 | 6.48 | 0.47 | 5.84 | 0.44 | 2.64 | 0.22 | 2.80 | 0.01 |
| | 9 | 3.87 | 0.01 | 7.65 | 0.72 | 6.12 | 0.44 | 7.29 | 0.05 | 7.02 | 0.51 | 7.11 | 0.15 | 6.30 | 0.30 | 7.29 | 0.30 | 6.57 | 0.14 | 2.97 | 0.11 | 3.15 | 0.01 |
| Right Bank | | 4.30 | 0.00 | 8.50 | 0.00 | 6.80 | 0.00 | 8.10 | 0.00 | 7.80 | 0.00 | 7.95 | 0.00 | 7.00 | 0.00 | 8.10 | 0.00 | 7.30 | 0.00 | 3.30 | 0.00 | 3.55 | 0.00 |
| Feature Type <small>(riffle, run, or pool)</small> | | Riffle | | Pool | | Run | | 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: _____ Date: 8/25/2008

WBID # 0685

Site # 02

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: <u>8/25/08</u> <u>1440</u> | Location Description (e.g., road crossing): |
| Stream Name: <u>Sweet Spring Cr</u> | <u>RT D CROSSING</u> |
| Current Weather Conditions: <u>sunny + clear</u> | Facility Name(s): <u>Thunderbird Trailer Court</u> |
| Weather Conditions for Past 10 days: <u>0.59" rain</u> | Permit Number(s): <u>MO 0035599</u> |
| 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): <u>0538642</u> | Northing (UTM Y): <u>4361289</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>16</u> ²⁴ Meters <u>FT</u> |
| Site 11 | Easting (UTM X): <u>0538501</u> | Northing (UTM Y): <u>4361210</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>22</u> ²⁴ Meters <u>FT</u> |

Photos:

| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
|----------------------------|-----------------|----------------------------|-----------------|-----------|---------------|
| <u>1532</u> <u>2008</u> | <u>upstream</u> | <u>1543</u> <u>2008</u> | <u>dnstream</u> | | |
| 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 Data Sheet D- Recreational Use Interview when conducting interviews.) <u>N/A SRW</u> | | | | |

Stream Name & WBID # Sweet Spring Cr #0685 Date of Survey 8/25/08
 Site # 02

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 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: <u>private property</u> | | | | |

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

| | | | | |
|--|--|--|---|---|
| <input checked="" 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 type="checkbox"/> None of the above | Comments / Other: <u>N/A SRW</u> | | | |

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

| | | | | | |
|--------------------|-------------------|-----------------------------------|-----------------|----------------------|--------------------|
| <u>25</u> % Cobble | <u>5</u> % Gravel | <u>60</u> 30 % Sand | <u>-</u> % Silt | <u>10</u> % Mud/Clay | <u>-</u> % Bedrock |
|--------------------|-------------------|-----------------------------------|-----------------|----------------------|--------------------|

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

Benthic Algae - abundant

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 checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input type="checkbox"/> Other: |
| 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.

Stream Name & WBID # Sweet Spring Cr #0685 Date of Survey 8/25/08
 Site # 02

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) |
|-----------------|-----------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | SRW | | |
| | | N/A | | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

Heavy erosion on both banks
 trash + debris throughout site
 woody debris throughout site

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Jennifer Hrabik

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 8/25/08

Organization: AE Solutions Position: Field Technician

SRW 10-15-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| | |
|---|---|
| Stream Name: <u>Sweet Spring Creek</u> Waterbody ID: <u>0685</u> Site #: <u>0685_02</u> Estimated Channel Incision: <u>0.20</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>538642</u> UTM Y: <u>4361289</u> +/- <u>16</u> (feet) 11 UTM X: <u>538501</u> UTM Y: <u>4361210</u> +/- <u>22</u> (feet) Average Stream Width: <u>5.8</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JRH, TAH</u> | Dissolved Oxygen Date: <u>8/25/2008</u> Time: <u>14:40</u> Dissolved Oxygen: <u>4.88</u> (mg/L) Dissolved Oxygen: <u>55.8</u> (% sat) Specific Cond: <u>508</u> (µS/cm) Water Temperature: <u>22.8</u> (°C) |
|---|---|

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 | 0.37 | 0.06 | 0.40 | 0.22 | 0.61 | 0.12 | 0.48 | 0.20 | 0.49 | 0.10 | 0.58 | 0.05 | 0.70 | 0.12 | 0.78 | 0.02 | 0.70 | 0.18 | 0.71 | 0.13 | 0.53 | 0.16 |
| | 2 | 0.74 | 0.02 | 0.80 | 0.24 | 1.22 | 0.01 | 0.96 | 0.35 | 0.98 | 0.09 | 1.16 | 0.09 | 1.40 | 0.15 | 1.56 | 0.09 | 1.40 | 0.21 | 1.42 | 0.24 | 1.06 | 0.11 |
| | 3 | 1.11 | 0.12 | 1.20 | 0.24 | 1.83 | 0.04 | 1.44 | 0.21 | 1.47 | 0.10 | 1.74 | 0.10 | 2.10 | 0.20 | 2.34 | 0.16 | 2.10 | 0.24 | 2.13 | 0.19 | 1.59 | 0.01 |
| | 4 | 1.48 | 0.14 | 1.60 | 0.25 | 2.44 | 0.00 | 1.92 | 0.20 | 1.96 | 0.14 | 2.32 | 0.09 | 2.80 | 0.21 | 3.12 | 0.15 | 2.80 | 0.22 | 2.84 | 0.18 | 2.12 | 0.02 |
| | 5 | 1.85 | 0.19 | 2.00 | 0.28 | 3.05 | 0.19 | 2.40 | 0.16 | 2.45 | 0.14 | 2.90 | 0.05 | 3.50 | 0.18 | 3.90 | 0.15 | 3.50 | 0.20 | 3.55 | 0.16 | 2.65 | 0.05 |
| | 6 | 2.22 | 0.22 | 2.40 | 0.42 | 3.66 | 0.33 | 2.88 | 0.09 | 2.94 | 0.20 | 3.48 | 0.02 | 4.20 | 0.15 | 4.68 | 0.12 | 4.20 | 0.21 | 4.26 | 0.18 | 3.18 | 0.01 |
| | 7 | 2.59 | 0.24 | 2.80 | 0.49 | 4.27 | 0.39 | 3.36 | 0.02 | 3.43 | 0.21 | 4.06 | 0.01 | 4.90 | 0.20 | 5.46 | 0.12 | 4.90 | 0.32 | 4.97 | 0.18 | 3.71 | 0.01 |
| | 8 | 2.96 | 0.16 | 3.20 | 0.50 | 4.88 | 0.33 | 3.84 | 0.01 | 3.92 | 0.28 | 4.64 | 0.00 | 5.60 | 0.31 | 6.24 | 0.11 | 5.60 | 0.49 | 5.68 | 0.18 | 4.24 | 0.01 |
| | 9 | 3.33 | 0.02 | 3.60 | 0.39 | 5.49 | 0.33 | 4.32 | 0.01 | 4.41 | 0.32 | 5.22 | 0.30 | 6.30 | 0.20 | 7.02 | 0.15 | 6.30 | 0.19 | 6.39 | 0.02 | 4.77 | 0.01 |
| Right Bank | | 3.70 | 0.00 | 4.00 | 0.00 | 6.10 | 0.34 | 4.80 | 0.00 | 4.90 | 0.00 | 5.80 | 0.00 | 7.00 | 0.00 | 7.85 | 0.00 | 7.00 | 0.00 | 7.10 | 0.00 | 5.30 | 0.00 |
| Feature Type | | Pool | | Pool | | Pool | | Run | | Run | | Run | | Pool | | Pool | | Pool | | Pool | | 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 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: 8/25/2008

WBID # 0685

Site # 03

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: <u>8/25/08</u> <u>1500</u> | Location Description (e.g., road crossing): <u>50m dnstream site 02</u> |
| Stream Name: <u>Sweet Spring Cr</u> | |
| Current Weather Conditions: <u>Sunny + clear</u> | Facility Name(s): <u>Thunderbird Trailer Court</u> |
| Weather Conditions for Past 10 days: <u>0.59" rain</u> | Permit Number(s): <u>MO 0035599</u> |
| 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): <u>0538404</u> | Northing (UTM Y): <u>4361229</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>21</u> ²⁴ Meters FF |
| Site 11 | Easting (UTM X): <u>0538320</u> | Northing (UTM Y): <u>4361379</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>21</u> ²⁴ Meters FF |

Photos:

| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
|------------|-----------------|------------|-----------------|-----------|---------------|
| <u>154</u> | <u>upstream</u> | <u>155</u> | <u>dnstream</u> | | |
| 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 Data Sheet D- Recreational Use Interview when conducting interviews.) <u>N/A SRW</u> | | | | |

Stream Name & WBID # Sweet Spring Cr #0685

Date of Survey 8/25/08

Site # 03

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 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 checked="" type="checkbox"/> Fence ^① | <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Steep slopes | <input type="checkbox"/> Other: |
| Comments: <u>private property</u> <u>① along left descending bank</u> | | | | |

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: <u>N/A SRW</u> | | | |

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

| | | | | | |
|-------------------|-------------------|------------------|-----------------|----------------------|--------------------|
| <u>5</u> % Cobble | <u>5</u> % Gravel | <u>60</u> % Sand | <u>-</u> % Silt | <u>25</u> % Mud/Clay | <u>5</u> % Bedrock |
|-------------------|-------------------|------------------|-----------------|----------------------|--------------------|

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

| |
|---|
| <u>Benthic & filamentous algae - abundant</u> |
|---|

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 checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input type="checkbox"/> Other: |
| 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.

Stream Name & WBID # Sweet Spring C #0685

Date of Survey 8/25/08

Site # 03

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) |
|-----------------|-----------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | SRW | | |
| | | N/A | | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

large woody debris throughout site
log jam at Transect 3 + 4

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Jennifer Hrabik

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 8/25/08

Organization: AE Solutions Position: Field Technician

SRW 10-15-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| | |
|---|---|
| Stream Name: <u>Sweet Spring Creek</u> Waterbody ID: <u>0685</u> Site #: <u>0685_03</u> Estimated Channel Incision: <u>0.30</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>538404</u> UTM Y: <u>4361229</u> +/- <u>21</u> (feet) 11 UTM X: <u>538320</u> UTM Y: <u>4361379</u> +/- <u>21</u> (feet) Average Stream Width: <u>5.1</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JRH, TAH</u> | Dissolved Oxygen Date: <u>8/25/2008</u> Time: <u>15:00</u> Dissolved Oxygen: <u>6.19</u> (mg/L) Dissolved Oxygen: <u>70.9</u> (% sat) Specific Cond: <u>512</u> (µS/cm) Water Temperature: <u>21.7</u> (°C) |
|---|---|

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 | 0.49 | 0.20 | 0.33 | 0.03 | 0.71 | 0.10 | 0.39 | 0.02 | 0.27 | 0.05 | 0.41 | 0.12 | 0.56 | 0.29 | 0.72 | 0.04 | 0.64 | 0.34 | 0.42 | 0.06 | 0.63 | 0.36 |
| | 2 | 0.98 | 0.17 | 0.66 | 0.05 | 1.42 | 0.10 | 0.78 | 0.02 | 0.54 | 0.11 | 0.82 | 0.15 | 1.12 | 0.72 | 1.44 | 0.28 | 1.28 | 0.37 | 0.84 | 0.12 | 1.26 | 0.58 |
| | 3 | 1.47 | 0.04 | 0.99 | 0.12 | 2.13 | 0.10 | 1.17 | 0.01 | 0.81 | 0.14 | 1.23 | 0.19 | 1.68 | 0.67 | 2.16 | 0.29 | 1.92 | 0.35 | 1.26 | 0.29 | 1.89 | 0.77 |
| | 4 | 1.96 | 0.01 | 1.32 | 0.21 | 2.84 | 0.13 | 1.56 | 0.05 | 1.08 | 0.15 | 1.64 | 0.27 | 2.24 | 0.75 | 2.88 | 0.00 | 2.56 | 0.26 | 1.68 | 0.43 | 2.52 | 0.85 |
| | 5 | 2.45 | 0.02 | 1.65 | 0.25 | 3.55 | 0.17 | 1.95 | 0.04 | 1.35 | 0.13 | 2.05 | 0.36 | 2.80 | 0.81 | 3.60 | 0.00 | 3.20 | 0.14 | 2.10 | 0.61 | 3.15 | 0.83 |
| | 6 | 2.94 | 0.01 | 1.98 | 0.24 | 4.26 | 0.21 | 2.34 | 0.05 | 1.62 | 0.10 | 2.46 | 0.42 | 3.36 | 0.80 | 4.32 | 0.56 | 3.84 | 0.04 | 2.52 | 0.75 | 3.78 | 0.82 |
| | 7 | 3.43 | 0.05 | 2.31 | 0.19 | 4.97 | 0.28 | 2.73 | 0.10 | 1.89 | 0.05 | 2.87 | 0.27 | 3.92 | 0.56 | 5.04 | 0.96 | 4.48 | 0.01 | 2.94 | 0.62 | 4.41 | 0.75 |
| | 8 | 3.92 | 0.05 | 2.64 | 0.10 | 5.68 | 0.36 | 3.12 | 0.11 | 2.16 | 0.01 | 3.28 | 0.20 | 4.48 | 0.52 | 5.76 | 0.99 | 5.12 | 0.16 | 3.36 | 0.62 | 5.04 | 0.72 |
| | 9 | 4.41 | 0.02 | 2.97 | 0.09 | 6.39 | 0.20 | 3.51 | 0.10 | 2.43 | 0.01 | 3.69 | 0.15 | 5.04 | 0.11 | 6.48 | >1.00 | 5.76 | 0.20 | 3.78 | 0.41 | 5.67 | 0.65 |
| Right Bank | | 4.90 | 0.00 | 3.30 | 0.00 | 7.10 | 0.00 | 3.90 | 0.00 | 2.70 | 0.00 | 4.10 | 0.00 | 5.60 | 0.00 | 7.85 | 0.00 | 6.40 | 0.00 | 4.20 | 0.00 | 6.30 | 0.00 |
| Feature Type | | Riffle | | Run | | Pool | | Run | | Run | | Pool | | Pool | | Pool | | Run | | 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: 8/25/2008

WBID # 0685
 Site # 04

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: <u>8/25/08</u> <u>1550</u> | Location Description (e.g., road crossing): |
| Stream Name: <u>Sweet Spring Cr</u> | <u>County Rd 2130 Crossing</u> |
| Current Weather Conditions: <u>Sunny + clear</u> | Facility Name(s): <u>Thundubird Trailer Court</u> |
| Weather Conditions for Past 10 days: <u>0.59" rain</u> | Permit Number(s): <u>MO 0035599</u> |
| 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): <u>0536494</u> | Northing (UTM Y): <u>4362496</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>43</u> ²⁴ Meters F7 |
| Site 11 | Easting (UTM X): <u>0536339</u> | Northing (UTM Y): <u>4362448</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>39</u> ²⁴ Meters F7 |

Photos:

| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
|------------|-----------------|------------|-----------------|------------|-----------------------|
| <u>156</u> | <u>upstream</u> | <u>157</u> | <u>instream</u> | <u>158</u> | <u>trash @ Bridge</u> |
| 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 Data Sheet D- Recreational Use Interview when conducting interviews.) <u>N/A SRW</u> | | | | |

Stream Name & WBID # Sweet Spring Cr #0685

Date of Survey 8/25/08

Site # 04

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 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: |
| Comments: <u>private property</u> | | | | |

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

| | | | | |
|--|--|--|---|---|
| <input checked="" 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 type="checkbox"/> None of the above | Comments / Other: <u>N/A saw</u> | | | |

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

| | | | | | |
|-------------------|-------------------|------------------|-----------------|----------------------|--------------------|
| <u>5</u> % Cobble | <u>5</u> % Gravel | <u>60</u> % Sand | <u>—</u> % Silt | <u>30</u> % Mud/Clay | <u>—</u> % Bedrock |
|-------------------|-------------------|------------------|-----------------|----------------------|--------------------|

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

Benthic + filamentous algae - abundant

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 checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input type="checkbox"/> Other: |
| 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.

Stream Name & WBID # Sweet Spring Cr #0685

Date of Survey 8/25/08

Site # 04

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) |
|-----------------|-----------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | SRW | | |
| | | N/A | | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

5 Bags of trash at Transect 1 (Bridge)
 woody debris throughout site
 log jam @ Transect 05 creating pool

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Jennifer Hrabik

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 8/25/08

Organization: AE Solutions Position: Field Technician

SRW 10-15-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| | |
|---|---|
| Stream Name: <u>Sweet Spring Creek</u> Waterbody ID: <u>0685</u> Site #: <u>0685_04</u> Estimated Channel Incision: <u>0.10</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>536494</u> UTM Y: <u>4362496</u> +/- <u>43</u> (feet) 11 UTM X: <u>536339</u> UTM Y: <u>4362448</u> +/- <u>39</u> (feet) Average Stream Width: <u>6.2</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JRH, TAH</u> | Dissolved Oxygen |
| | Date: <u>8/25/2008</u> Time: <u>15:50</u> |
| | Dissolved Oxygen: <u>8.34</u> (mg/L) |
| | Dissolved Oxygen: <u>99.0</u> (% sat) |
| | Specific Cond: <u>504</u> (µS/cm) |
| | Water Temperature: <u>23.8</u> (°C) |

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 | 0.28 | 0.02 | 1.11 | 0.42 | 0.59 | 0.29 | 0.60 | 0.36 | 0.24 | 0.12 | 0.72 | 0.15 | 0.54 | 0.10 | 0.31 | 0.10 | 0.63 | 0.26 | 0.58 | 0.17 | 0.72 | 0.30 | |
| 2 | 0.56 | 0.02 | 2.22 | 0.66 | 1.18 | 0.51 | 1.20 | 0.51 | 0.48 | 0.19 | 1.44 | 0.19 | 1.08 | 0.04 | 0.62 | 0.12 | 1.26 | 0.25 | 1.16 | 0.46 | 1.44 | 0.30 | |
| 3 | 0.84 | 0.01 | 3.33 | 0.87 | 1.77 | 0.50 | 1.80 | 0.45 | 0.72 | 0.20 | 2.16 | 0.14 | 1.62 | 0.05 | 0.93 | 0.10 | 1.89 | 0.27 | 1.74 | 0.52 | 2.16 | 0.33 | |
| 4 | 1.12 | 0.11 | 4.44 | >1.00 | 2.36 | >1.00 | 2.40 | 0.38 | 0.96 | 0.20 | 2.88 | 0.15 | 2.16 | 0.04 | 1.24 | 0.12 | 2.52 | 0.22 | 2.32 | 0.57 | 2.88 | 0.41 | |
| 5 | 1.40 | 0.05 | 5.55 | >1.00 | 2.95 | >1.00 | 3.00 | 0.34 | 1.20 | 0.23 | 3.60 | 0.10 | 2.70 | 0.02 | 1.55 | 0.13 | 3.15 | 0.23 | 2.90 | 0.67 | 3.60 | 0.44 | |
| 6 | 1.68 | 0.06 | 6.66 | >1.00 | 3.54 | >1.00 | 3.60 | 0.22 | 1.44 | 0.24 | 4.32 | 0.10 | 3.24 | 0.00 | 1.86 | 0.16 | 3.78 | 0.20 | 3.48 | 0.71 | 4.32 | 0.60 | |
| 7 | 1.96 | 0.16 | 7.77 | 0.92 | 4.13 | 0.95 | 4.20 | 0.22 | 1.68 | 0.15 | 5.04 | 0.14 | 3.78 | 0.00 | 2.17 | 0.20 | 4.41 | 0.12 | 4.06 | 0.79 | 5.04 | 0.65 | |
| 8 | 2.24 | 0.15 | 8.88 | 0.71 | 4.72 | 0.70 | 4.80 | 0.24 | 1.92 | 0.10 | 5.76 | 0.34 | 4.32 | 0.01 | 2.48 | 0.17 | 5.04 | 0.05 | 4.64 | 0.85 | 5.76 | 0.72 | |
| 9 | 2.52 | 0.12 | 9.99 | 0.40 | 5.31 | 0.26 | 5.40 | 0.20 | 2.16 | 0.10 | 6.48 | 0.45 | 4.86 | 0.09 | 2.79 | 0.11 | 5.67 | 0.02 | 5.22 | 0.27 | 6.48 | 0.43 | |
| Right Bank | 2.80 | 0.00 | 11.10 | 0.00 | 5.90 | 0.00 | 6.00 | 0.00 | 2.40 | 0.00 | 7.20 | 0.00 | 5.40 | 0.00 | 7.85 | 0.00 | 6.30 | 0.00 | 5.80 | 0.00 | 7.20 | 0.00 | |
| Feature Type | | | | | | | | | | | | | | | | | | | | | | | |
| (riffle, run, or pool) | Riffle | | Pool | | Pool | | Pool | | Run | | Pool | | Riffle | | Run | | Run | | 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: 8/25/2008

WBID # 0685

Site # 05

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: <u>8/25/08</u> <u>1630</u> | Location Description (e.g., road crossing): |
| Stream Name: <u>Sweet Spring Cr</u> | <u>County Rd 2130 crossing</u> |
| Current Weather Conditions: <u>Sunny + clear</u> | Facility Name(s): <u>Thundubrd Trailer Court</u> |
| Weather Conditions for Past 10 days: <u>0.59"</u> | Permit Number(s): <u>MO0035599</u> |
| 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): <u>0534763</u> | Northing (UTM Y): <u>4361448</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>30</u> | Meters | <u>24 FT</u> |
| Site 11 | Easting (UTM X): <u>0534753</u> | Northing (UTM Y): <u>4361302</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>21</u> | Meters | <u>24 FT</u> |

Photos:

| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
|------------|-----------------|------------|-------------------|-----------|---------------|
| <u>159</u> | <u>upstream</u> | <u>160</u> | <u>downstream</u> | | |
| 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 Data Sheet D- Recreational Use Interview when conducting interviews.) <u>N/A SRW</u> | | | | |

Stream Name & WBID # Sweet Spring Cr #0685

Date of Survey 8/25/08

Site # 05

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 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: |
| Comments: <u>private property</u> | | | | |

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

| | | | | |
|--|--|--|---|---|
| <input checked="" 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 type="checkbox"/> None of the above | Comments / Other: <u>N/A SRW</u> | | | |

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

| | | | | | |
|--------------------|-------------------|------------------|-----------------|----------------------|--------------------|
| <u>10</u> % Cobble | <u>5</u> % Gravel | <u>50</u> % Sand | <u>—</u> % Silt | <u>35</u> % Mud/Clay | <u>—</u> % Bedrock |
|--------------------|-------------------|------------------|-----------------|----------------------|--------------------|

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

Benthic Algae - abundant

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 checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input type="checkbox"/> Other: |
| 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.

Stream Name & WBID # Sweet Spring Cr #0685

Date of Survey 8/25/08

Site # 05

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) |
|-----------------|-----------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | N/A | SRW | |
| | | | | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

woody debris throughout site

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Jennifer Arabik

Surveyor's Signature: Tiffanie A Hamilton Date of Survey: 8/25/08

Organization: AE Solutions Position: Field Technician

SRW 10-15-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| | |
|---|--|
| Stream Name: <u>Sweet Spring Creek</u> Waterbody ID: <u>0685</u> Site #: <u>0685_05</u> Estimated Channel Incision: <u>0.20</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>534763</u> UTM Y: <u>4361448</u> +/- <u>30</u> (feet) 11 UTM X: <u>534753</u> UTM Y: <u>4361302</u> +/- <u>21</u> (feet) Average Stream Width: <u>5.5</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JRH, TAH</u> | Dissolved Oxygen Date: <u>8/25/2008</u> Time: <u>16:30</u> Dissolved Oxygen: <u>8.36</u> (mg/L) Dissolved Oxygen: <u>100.4</u> (% sat) Specific Cond: <u>482</u> (µS/cm) Water Temperature: <u>24.2</u> (°C) |
|---|--|

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 | 0.29 | 0.13 | 0.70 | 0.68 | 0.71 | 0.25 | 0.49 | 0.31 | 0.87 | 0.25 | 0.47 | 0.59 | 0.67 | 0.20 | 0.40 | 0.12 | 0.21 | 0.12 | 0.86 | 0.14 | 0.35 | 0.15 |
| 2 | 0.58 | 0.14 | 1.40 | >1.00 | 1.42 | 0.42 | 0.98 | 0.37 | 1.74 | 0.25 | 0.94 | 0.58 | 1.34 | 0.46 | 0.80 | 0.16 | 0.42 | 0.21 | 1.72 | 0.21 | 0.70 | 0.21 |
| 3 | 0.87 | 0.16 | 2.10 | >1.00 | 2.13 | 0.55 | 1.47 | 0.32 | 2.61 | 0.30 | 1.41 | 0.47 | 2.01 | 0.65 | 1.20 | 0.22 | 0.63 | 0.18 | 2.58 | 0.24 | 1.05 | 0.32 |
| 4 | 1.16 | 0.12 | 2.80 | 0.94 | 2.84 | 0.54 | 1.96 | 0.35 | 3.48 | 0.34 | 1.88 | 0.45 | 2.68 | 0.64 | 1.60 | 0.29 | 0.84 | 0.15 | 3.44 | 0.34 | 1.40 | 0.30 |
| 5 | 1.45 | 0.10 | 3.50 | 0.84 | 3.55 | 0.58 | 2.45 | 0.29 | 4.35 | 0.26 | 2.35 | 0.46 | 3.35 | 0.46 | 2.00 | 0.39 | 1.05 | 0.14 | 4.30 | 0.35 | 1.75 | 0.21 |
| 6 | 1.74 | 0.04 | 4.20 | 0.74 | 4.26 | 0.55 | 2.94 | 0.19 | 5.22 | 0.33 | 2.82 | 0.40 | 4.02 | 0.40 | 2.40 | 0.38 | 1.26 | 0.12 | 5.16 | 0.39 | 2.10 | 0.20 |
| 7 | 2.03 | 0.05 | 4.90 | 0.66 | 4.97 | 0.42 | 3.43 | 0.18 | 6.09 | 0.32 | 3.29 | 0.13 | 4.69 | 0.42 | 2.80 | 0.28 | 1.47 | 0.12 | 6.02 | 0.37 | 2.45 | 0.15 |
| 8 | 2.32 | 0.05 | 5.60 | 0.44 | 5.68 | 0.49 | 3.92 | 0.11 | 6.96 | 0.20 | 3.76 | 0.10 | 5.36 | 0.45 | 3.20 | 0.19 | 1.68 | 0.11 | 6.88 | 0.45 | 2.80 | 0.10 |
| 9 | 2.61 | 0.02 | 6.30 | 0.21 | 6.39 | 0.41 | 4.41 | 0.04 | 7.83 | 0.17 | 4.23 | 0.08 | 6.03 | 0.53 | 3.60 | 0.10 | 1.89 | 0.05 | 7.74 | 0.34 | 3.15 | 0.01 |
| Right Bank | 2.90 | 0.00 | 7.00 | 0.00 | 7.10 | 0.00 | 4.90 | 0.00 | 8.70 | 0.00 | 4.70 | 0.00 | 6.70 | 0.00 | 4.00 | 0.00 | 2.10 | 0.00 | 8.60 | 0.00 | 3.50 | 0.00 |
| Feature Type <small>(riffle, run, or pool)</small> | Riffle | | Pool | | Run | | Run | | Pool | | 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 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: 8/25/2008

WBID # 0685

Site # 06

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: <u>8/25/08</u> <u>1705</u> | Location Description (e.g., road crossing): |
| Stream Name: <u>Sweet Spring Cr</u> | <u>MO 3 crossing</u> |
| Current Weather Conditions: <u>Sunny + clear</u> | Facility Name(s): <u>Thunderbird Trailer Court</u> |
| Weather Conditions for Past 10 days: <u>0.59" rain</u> | Permit Number(s): <u>MO 0035599</u> |
| 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): <u>0533251</u> | Northing (UTM Y): <u>4360423</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>21</u> Meters ⁷⁴ Ft |
| Site 11 | Easting (UTM X): <u>0533127</u> | Northing (UTM Y): <u>4360478</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>21</u> Meters ⁷⁴ Ft |

Photos:

| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
|------------|-----------------|------------|-------------------|------------|----------------------|
| <u>161</u> | <u>Upstream</u> | <u>162</u> | <u>downstream</u> | <u>163</u> | <u>drainage pipe</u> |
| | | | | | |
| | | | | | |
| | | | | | |

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 Data Sheet D- Recreational Use Interview when conducting interviews.) | | | | |
| <u>N/A SRW</u> | | | | |

Stream Name & WBID # Sweet Spring Cr #0685

Date of Survey 8/25/08

Site # 06

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: <u>private property</u> | | | | |

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

| | | | | |
|--|--|--|---|---|
| <input checked="" 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 type="checkbox"/> None of the above | Comments / Other: <u>N/A SRW</u> | | | |

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

| | | | | | |
|--------------------|--------------------|------------------|-----------------|----------------------|--------------------|
| <u>10</u> % Cobble | <u>20</u> % Gravel | <u>40</u> % Sand | <u>—</u> % Silt | <u>30</u> % Mud/Clay | <u>—</u> % Bedrock |
|--------------------|--------------------|------------------|-----------------|----------------------|--------------------|

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

Benthic Algae - abundant

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 checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input type="checkbox"/> Other: |
| 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.

Stream Name & WBID # Sweet Spring Cr #0685
 Site # 06

Date of Survey 8/25/08

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) |
|-----------------|-----------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | N/A | SRW | |
| | | | | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

Drainage pipe @ Transect 03
 woody debris throughout site

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Jennifer Hrabik

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 8/25/08

Organization: AE Solutions Position: Field Technician

SRW 10-15-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| | |
|---|--|
| Stream Name: <u>Sweet Spring Creek</u> Waterbody ID: <u>0685</u> Site #: <u>0685_06</u> Estimated Channel Incision: <u>0.20</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>533251</u> UTM Y: <u>4360423</u> +/- <u>21</u> (feet) 11 UTM X: <u>533127</u> UTM Y: <u>4360478</u> +/- <u>21</u> (feet) Average Stream Width: <u>6.2</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JRH, TAH</u> | Dissolved Oxygen Date: <u>8/25/2008</u> Time: <u>17:05</u> Dissolved Oxygen: <u>9.00</u> (mg/L) Dissolved Oxygen: <u>107.1</u> (% sat) Specific Cond: <u>528</u> (µS/cm) Water Temperature: <u>23.9</u> (°C) |
|---|--|

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 | 0.66 | 0.19 | 0.77 | 0.40 | 0.84 | 0.10 | 0.93 | 0.25 | 0.65 | 0.39 | 0.56 | 0.52 | 0.52 | 0.33 | 0.54 | 0.30 | 0.41 | 0.15 | 0.84 | 0.01 | 0.10 | 0.01 |
| | 2 | 1.32 | 0.24 | 1.54 | 0.50 | 1.68 | 0.16 | 1.86 | 0.22 | 1.30 | 0.43 | 1.12 | 0.71 | 1.04 | 0.61 | 1.08 | 0.50 | 0.82 | 0.19 | 1.68 | 0.00 | 0.20 | 0.05 |
| | 3 | 1.98 | 0.20 | 2.31 | 0.51 | 2.52 | 0.24 | 2.79 | 0.18 | 1.95 | 0.44 | 1.68 | 0.69 | 1.56 | 0.64 | 1.62 | 0.46 | 1.23 | 0.20 | 2.52 | 0.00 | 0.30 | 0.07 |
| | 4 | 2.64 | 0.14 | 3.08 | 0.45 | 3.36 | 0.23 | 3.72 | 0.21 | 2.60 | 0.43 | 2.24 | 0.65 | 2.08 | 0.66 | 2.16 | 0.47 | 1.64 | 0.23 | 3.36 | 0.00 | 0.40 | 0.08 |
| | 5 | 3.30 | 0.15 | 3.85 | 0.33 | 4.20 | 0.21 | 4.65 | 0.40 | 3.25 | 0.42 | 2.80 | 0.61 | 2.60 | 0.55 | 2.70 | 0.46 | 2.05 | 0.21 | 4.20 | 0.05 | 0.50 | 0.05 |
| | 6 | 3.96 | 0.14 | 4.62 | 0.35 | 5.04 | 0.22 | 5.58 | 0.57 | 3.90 | 0.46 | 3.36 | 0.56 | 3.12 | 0.68 | 3.24 | 0.33 | 2.46 | 0.20 | 5.04 | 0.08 | 0.60 | 0.07 |
| | 7 | 4.62 | 0.23 | 5.39 | 0.38 | 5.88 | 0.26 | 6.51 | 0.54 | 4.55 | 0.44 | 3.92 | 0.49 | 3.64 | 0.54 | 3.78 | 0.27 | 2.87 | 0.11 | 5.88 | 0.12 | 0.70 | 0.03 |
| | 8 | 5.28 | 0.21 | 6.16 | 0.33 | 6.72 | 0.35 | 7.44 | 0.52 | 5.20 | 0.38 | 4.48 | 0.40 | 4.16 | 0.27 | 4.32 | 0.20 | 3.28 | 0.05 | 6.72 | 0.06 | 0.80 | 0.02 |
| | 9 | 5.94 | 0.23 | 6.93 | 0.52 | 7.56 | 0.15 | 8.37 | 0.58 | 5.85 | 0.12 | 5.04 | 0.32 | 4.68 | 0.22 | 4.86 | 0.10 | 3.69 | 0.04 | 7.56 | 0.15 | 0.90 | 0.01 |
| Right Bank | | 6.60 | 0.00 | 7.70 | 0.00 | 8.40 | 0.00 | 9.30 | 0.00 | 6.50 | 0.00 | 5.60 | 0.00 | 5.20 | 0.00 | 5.40 | 0.00 | 4.10 | 0.00 | 8.40 | 0.00 | 1.00 | 0.00 |
| Feature Type | | Run | | Pool | | Run | | Run | | Riffle | | 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 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: 8/25/2008

WBID # 0685

Site # 07

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: <u>8/25/08</u> <u>1725</u> | Location Description (e.g., road crossing): |
| Stream Name: <u>Sweet Spring Cr</u> | <u>500m downstream of site 06</u> |
| Current Weather Conditions: <u>Sunny & Clear</u> | Facility Name(s): <u>Thunderbird Trailer Court</u> |
| Weather Conditions for Past 10 days: <u>0.59" rain</u> | Permit Number(s): <u>MO 0035599</u> |
| 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): <u>0533074</u> | Northing (UTM Y): <u>4360491</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>21</u> | <u>21</u> Meters | <u>FT</u> |
| Site 11 | Easting (UTM X): <u>0532891</u> | Northing (UTM Y): <u>4360476</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>21</u> | <u>21</u> Meters | <u>FT</u> |

Photos:

| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
|------------|-----------------|------------|-------------------|-----------|---------------|
| <u>164</u> | <u>upstream</u> | <u>165</u> | <u>downstream</u> | | |
| | | | | | |
| | | | | | |
| | | | | | |

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 Data Sheet D- Recreational Use Interview when conducting interviews.) | | | | |
| <u>N/A SRW</u> | | | | |

Stream Name & WBID # Sweet Spring Cr #0685

Date of Survey 8/25/08

Site # 07

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 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: |
| Comments: <u>private property - Rock Quarry on right descending side of creek</u> | | | | |

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: <u>N/A SRW</u> | | | |

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

| | | | | | |
|--------------------|--------------------|------------------|-----------------|----------------------|--------------------|
| <u>10</u> % Cobble | <u>10</u> % Gravel | <u>20</u> % Sand | <u>—</u> % Silt | <u>60</u> % Mud/Clay | <u>—</u> % Bedrock |
|--------------------|--------------------|------------------|-----------------|----------------------|--------------------|

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

Benthic Algae - abundant

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 checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input type="checkbox"/> Other: |
| 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.

Stream Name & WBID # Sweet Spring A # 0685

Date of Survey 8/25/08

Site # 07

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) |
|-----------------|-----------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | | | |
| | | N/A | SRW | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

N/A SRW

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Jennifer Hrabik

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 8/25/08

Organization: AE Solutions Position: Field Technician

SRW 10-15-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| | |
|---|---|
| Stream Name: <u>Sweet Spring Creek</u> Waterbody ID: <u>0685</u> Site #: <u>0685_07</u> Estimated Channel Incision: <u>0.20</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>533074</u> UTM Y: <u>4360491</u> +/- <u>21</u> (feet) 11 UTM X: <u>532891</u> UTM Y: <u>4360476</u> +/- <u>21</u> (feet) Average Stream Width: <u>6.8</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JRH, TAH</u> | Dissolved Oxygen Date: <u>8/25/2008</u> Time: <u>17:25</u> Dissolved Oxygen: <u>6.65</u> (mg/L) Dissolved Oxygen: <u>77.2</u> (% sat) Specific Cond: <u>530</u> (µS/cm) Water Temperature: <u>23.2</u> (°C) |
|---|---|

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 | |
| | 1 | 0.65 | 0.35 | 0.76 | 0.34 | 0.28 | 0.25 | 0.71 | 0.24 | 0.73 | 0.10 | 0.73 | 0.38 | 0.85 | 0.39 | 0.68 | 0.08 | 0.70 | 0.24 | 0.48 | 0.10 | 0.86 | 0.42 |
| | 2 | 1.30 | 0.36 | 1.52 | 0.35 | 0.56 | 0.44 | 1.42 | 0.39 | 1.46 | 0.26 | 1.46 | 0.54 | 1.70 | 0.41 | 1.36 | 0.10 | 1.40 | 0.56 | 0.96 | 0.09 | 1.72 | 0.57 |
| | 3 | 1.95 | 0.42 | 2.28 | 0.36 | 0.84 | 0.52 | 2.13 | 0.44 | 2.19 | 0.28 | 2.19 | 0.50 | 2.55 | 0.46 | 2.04 | 0.19 | 2.10 | 0.64 | 1.44 | 0.07 | 2.58 | 0.51 |
| | 4 | 2.60 | 0.44 | 3.04 | 0.21 | 1.12 | 0.49 | 2.84 | 0.46 | 2.92 | 0.38 | 2.92 | 0.39 | 3.40 | 0.56 | 2.72 | 0.22 | 2.80 | 0.76 | 1.92 | 0.05 | 3.44 | 0.41 |
| | 5 | 3.25 | 0.46 | 3.80 | 0.11 | 1.40 | 0.45 | 3.55 | 0.43 | 3.65 | 0.41 | 3.65 | 0.38 | 4.25 | 0.69 | 3.40 | 0.26 | 3.50 | 0.76 | 2.40 | 0.10 | 4.30 | 0.56 |
| | 6 | 3.90 | 0.60 | 4.56 | 0.10 | 1.68 | 0.31 | 4.26 | 0.21 | 4.38 | 0.49 | 4.38 | 0.28 | 5.10 | 0.60 | 4.08 | 0.32 | 4.20 | 0.62 | 2.88 | 0.10 | 5.16 | 0.82 |
| | 7 | 4.55 | 0.45 | 5.32 | 0.24 | 1.96 | 0.20 | 4.97 | 0.25 | 5.11 | 0.45 | 5.11 | 0.32 | 5.95 | 0.51 | 4.76 | 0.40 | 4.90 | 0.24 | 3.36 | 0.12 | 6.02 | 0.81 |
| | 8 | 5.20 | 0.37 | 6.08 | 0.25 | 2.24 | 0.11 | 5.68 | 0.39 | 5.84 | 0.54 | 5.84 | 0.48 | 6.80 | 0.45 | 5.44 | 0.39 | 5.60 | 0.16 | 3.84 | 0.10 | 6.88 | 0.87 |
| | 9 | 5.85 | 0.25 | 6.84 | 0.20 | 2.52 | 0.03 | 6.39 | 0.12 | 6.57 | 0.50 | 6.57 | 0.31 | 7.65 | 0.41 | 6.12 | 0.34 | 6.30 | 0.10 | 4.32 | 0.01 | 7.74 | 0.66 |
| Right Bank | | 6.50 | 0.00 | 7.60 | 0.00 | 2.80 | 0.00 | 7.10 | 0.00 | 7.30 | 0.00 | 7.35 | 0.00 | 8.50 | 0.00 | 6.80 | 0.00 | 7.00 | 0.00 | 4.85 | 0.00 | 8.60 | 0.00 |
| Feature Type <small>(riffle, run, or pool)</small> | | Run | | Pool | | Run | | Pool | | Riffle | | 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: 8/25/2008

SITE #01
DOWNSTREAM



SITE #02
DOWNSTREAM



SITE #01
UPSTREAM



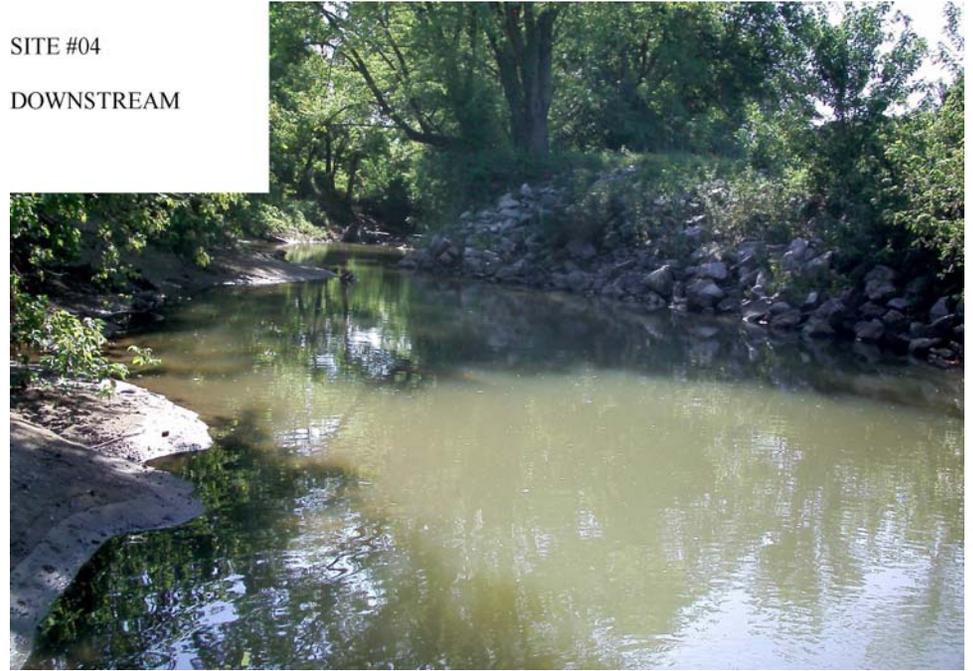
SITE #02
UPSTREAM



SITE #03
DOWNSTREAM



SITE #04
DOWNSTREAM



SITE #03
UPSTREAM



SITE #04
UPSTREAM



SITE #05
UPSTREAM



SITE #06
UPSTREAM



SITE #04
Trash at bridge



SITE #05
DOWNSTREAM



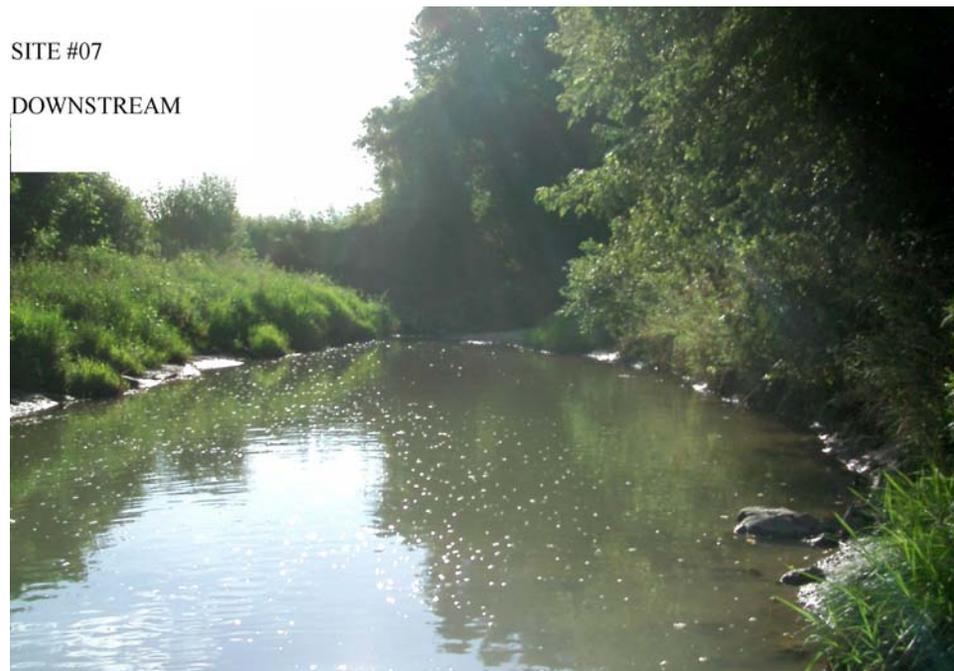
SITE #06

Drainage pipe



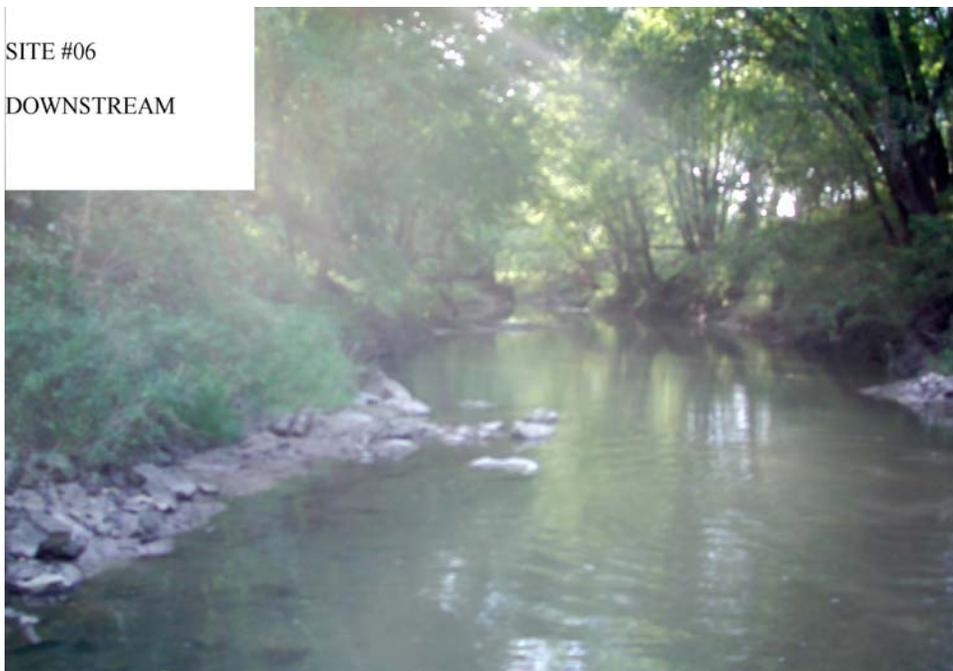
SITE #07

DOWNSTREAM



SITE #06

DOWNSTREAM



SITE #07

UPSTREAM

