

Missouri  
Department of  
Natural Resources

Use Attainability Analysis

for

WBID 3591 Little Fox Creek

Submitted by

Pickett Ray and Silver

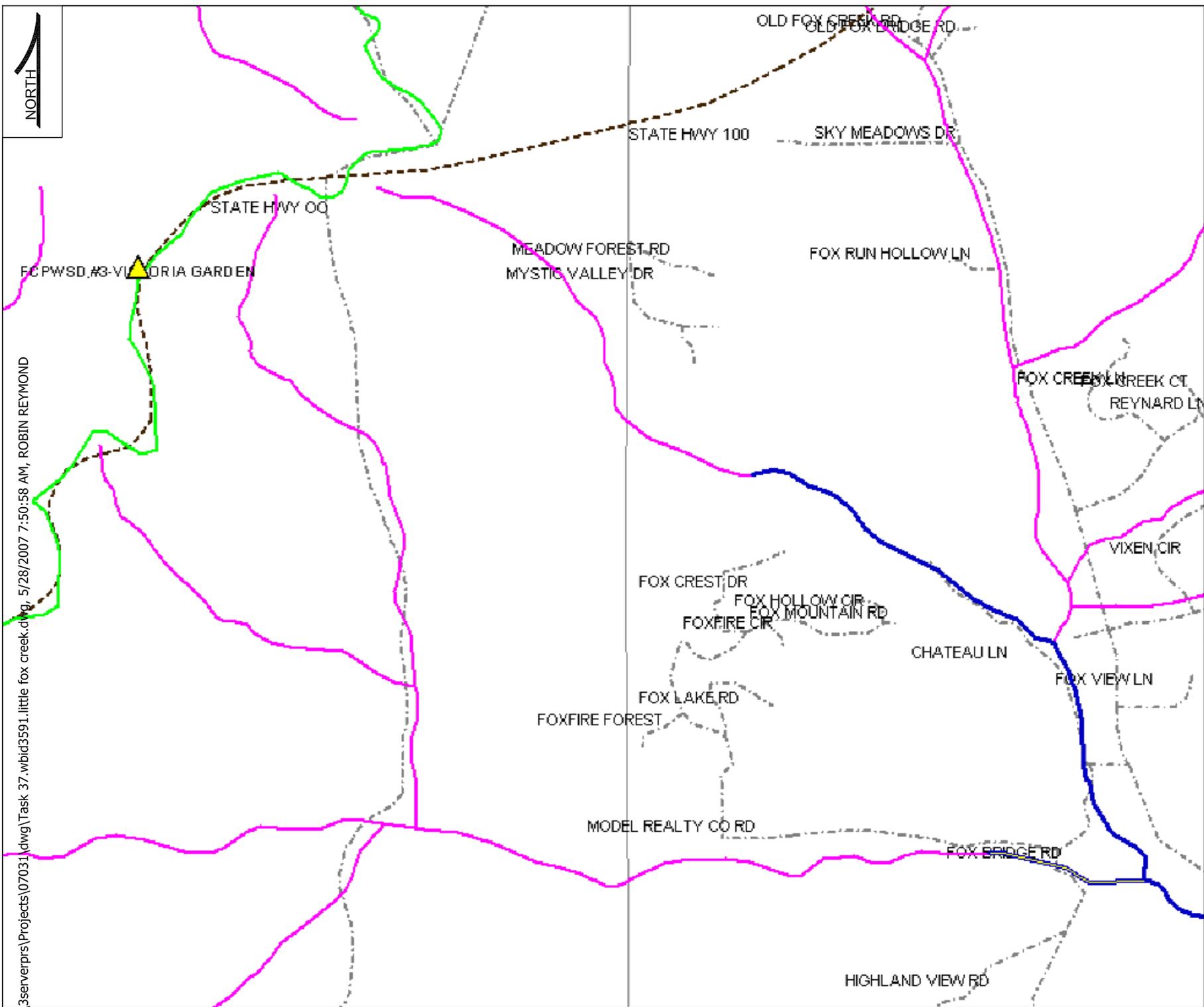
To

Missouri Department of Natural Resources  
Water Protection Program

Date Received: June 5, 2007



\\3server\prts\Projects\07031\Task 37.wbid\3591.little fox creek.dwg, 5/28/2007 7:50:58 AM, ROBIN REYMOND



GRAPHIC SCALE  
Not to Scale

PRJ Job Number: 07031.MODN.00E  
Drawn By: RLR Date: 05-24-07  
Checked By: JCV Date: 05-24-07

WBID #: 3591  
Name: Little Fox Creek  
County: Franklin  
GIS Map

**PICKETT RAY & SILVER**  
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WBID #: 3591  
 Name: Little Fox Creek  
 County: Franklin  
 USGS Location Map

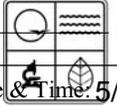
**GRAPHIC SCALE**  
 Not to Scale

PRJ Job Number: 07031.MODN.00E  
 Drawn By: RLR Date: 05-24-07  
 Checked By: JCV Date: 05-24-07

WBID# 3591

Field Data Sheets for Recreational Use Stream Surveys

Site# 1



Missouri Department of Natural Resources

Data Sheet B - Site Characterization

(must be completed for each site)

|  |  |
|--|--|
| Date & Time: 5/14/14   | Site Location Description (e.g., road crossing): |
| Personnel (Data Collectors): PRS - RR/MC   | Near foot bridge                                 |
| Current Weather Conditions: p. cloudy 85F  | Facility Name: FCPWSD #3 - Victoria Garden       |
| Weather Conditions for Past 10 days: rain/sun  | Permit Number: MO 0089656                        |
| Drought Conditions?: 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 Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)                |                                |  |   |
|---|--------------------------------|--|---|
| Site GPS Coordinates: UTM X: 698986.799   |                                | Y: 4264762.045   |   |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) |                                |  |   |
| Global Positioning System (GPS)   |                                | Interpolation  |   |
| Static Mode   |                                | Topographic Map or DRG   |   |
| Dynamic Mode (Kinematic)  |                                | Aerial Photograph or DOQQ  |   |
| Precise Positioning Service   |                                | Satellite Imagery  |   |
| Signal Averaging  |                                | Interpolation Other Real Time Differential Correction with                         | X |
| Real Time Differential Processing   |                                | Post Processing  |   |
| HORIZONTAL ACCURACY ESTIMATE  |                                |  |   |
| GPS Data Quality  |                                | Interpolation Data Quality   |   |
| FOM   | ± _____ Meters                 | Source Map Scale: 1:24,000 1:100,000 Other _____<br>± _____ Feet or ± _____ Meters |   |
| EPE   | ± _____ Feet or ± _____ Meters |  |   |
| PDOP  | 3.4                            |  |   |

Photos:

| Upstream Photos            |               | Downstream Photos |               | Other Photos |               |
|----------------------------|---------------|-------------------|---------------|--------------|---------------|
| Photo ID#                  | Photo Purpose | Photo ID#         | Photo Purpose | Photo ID#    | Photo Purpose |
| <b>See Attached Photos</b> |               |                   |               |              |               |

Uses Observed\*: (Uses actually observed at 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.) |                                      |                                       |   |                                       |

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"/> Campgrounds                         |
| <input type="checkbox"/> Boating accesses  | <input checked="" type="checkbox"/> State parks | <input type="checkbox"/> National forests       | <input type="checkbox"/> Nature trails     | <input type="checkbox"/> Stairs/walkway                      |
| <input type="checkbox"/> No trespass sign  | <input type="checkbox"/> Fence                  | <input type="checkbox"/> Steep slopes           | <input type="checkbox"/> None of the above | <input checked="" type="checkbox"/> Other: Equestrian Center |
| Comments:                                  |   |   |  |  |

Indications of Human Use\*: (attach photos)

|  |  |   |   |   |  |
|--|--|---|---|---|--|
| <input type="checkbox"/> Roads         | <input type="checkbox"/> Rope swings   | <input checked="" type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Dock/platform  | <input type="checkbox"/> Livestock Watering | <input type="checkbox"/> RV / ATV Tracks |
| <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge              | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Other:             |  |
| Comments:                              |  |   |   |   |  |

\* Page Two – Data Sheet B for WBID # 3591 - 1 :

**Stream Morphology:**



Upstream View Department of Natural Resources: Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

Select one of the following channel features:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE          |                          |           |            |                  |                |
| RUN             |                          |           |            |                  |                |
| POOL            |                          |           |            |                  |                |

Downstream View's Physical Dimensions: Is there any water present at this view?  Yes  No

Approximate percentage of channel features for entire segment site

If so, is there an obvious current?  Yes  No

Select one of the following channel features:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE 55%      |                          |           |            |                  |                |
| RUN 45%         |                          |           |            |                  |                |
| POOL            |                          |           |            |                  |                |

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

|             |             |        |        |            |              |
|-------------|-------------|--------|--------|------------|--------------|
| 33 % Cobble | 34 % Gravel | % Sand | % Silt | % Mud/Clay | 33 % Bedrock |
|-------------|-------------|--------|--------|------------|--------------|

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

Moderate to light moss and algae growth on substrate 10% vegetation (willows) on gravel bar.

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 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: |

Comments: Please attach any additional comments () to this form.

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

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

Surveyor's Signature: Robin Reymond Date of Survey: 5/10/07

Organization: Pickett, Ray & Silver, Inc. Position: \_\_\_\_\_

### Recreational Use Attainability Analysis Field Survey Sheet

|   |  |
|---|--|
| Waterbody ID: <u>3591</u> Site #: <u>1</u><br>Weather Conditions: <u>p. cloudy 85° F</u><br>GPS Location: UTM X: <u>698986.799m</u> UTM Y: <u>4264762.045m</u><br>Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- N/A</u> (feet)      PDOP: <u>3.4</u><br>Average Stream Width: <u>4.8</u> (meters)      Length of Survey Segment: <u>150</u> (meters)<br>Field Staff: <u>PRS - RR/MC</u> | <b style="text-align: center;">Dissolved Oxygen</b><br>Dissolved Oxygen: <u>11.04</u> (mg/L)<br>Dissolved Oxygen: _____ (% sat)<br>Specific Cond: _____ (µS/cm)<br>Water Temperature: <u>22.0</u> (°C) |
|---|--|

| Transect Cross-Section              |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |
|-------------------------------------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
|                                     | 01           |           | 02           |           | 03           |           | 04           |           | 05           |           | 06           |           | 07           |           | 08           |           | 09           |           | 10           |           | 11           |           |
|                                     | Distance (m) | Depth (m) |
| 1                                   | 0            | .20       | 0.7          | .03       | .85          | .10       | 0.3          | .01       | 0            | .10       | 0.5          | .10       | 0            | .11       | 0            | .14       | 0            | .10       | 1.0          | .15       | 1.5          | .11       |
| 2                                   | .5           | .20       | 1.4          | .03       | 1.7          | .14       | 0.5          | .05       | .45          | .10       | 0.8          | .10       | .5           | .20       | .3           | .15       | .35          | .22       | 1.3          | .18       | 1.7          | .10       |
| 3                                   | 1.0          | .32       | 2.1          | .05       | 2.55         | .14       | 0.7          | .03       | 0.9          | .14       | 1.1          | .10       | 1.0          | .21       | .6           | .14       | .7           | .37       | 1.6          | .20       | 1.9          | .10       |
| 4                                   | 1.5          | .24       | 2.8          | .01       | 3.4          | .15       | 0.9          | .06       | 1.35         | .15       | 1.4          | .12       | 1.5          | .19       | .9           | .10       | 1.05         | .34       | 1.9          | .19       | 2.1          | .10       |
| 5                                   | 2.0          | .20       | 3.5          | .06       | 4.25         | .06       | 1.1          | .05       | 1.8          | .14       | 1.7          | .10       | 2.0          | .14       | 1.2          | .15       | 1.4          | .30       | 2.2          | .20       | 2.3          | .10       |
| 6                                   | 2.5          | .18       | 4.2          | .02       | 5.1          | .00       | 1.3          | .05       | 2.25         | .06       | 2.0          | .12       | 2.5          | .12       | 1.5          | .15       | 1.75         | .24       | 2.5          | .14       | 2.5          | .11       |
| 7                                   | 3.0          | .20       | 4.9          | .05       | 5.95         | .00       | 1.5          | .07       | 2.7          | .04       | 2.3          | .15       | 3.0          | .12       | 1.8          | .11       | 2.1          | .14       | 2.8          | .13       | 2.7          | .11       |
| 8                                   | 3.5          | .17       | 5.6          | .02       | 6.8          | .00       | 1.7          | .10       | 3.15         | .15       | 2.6          | .18       | 3.5          | .10       | 2.1          | .14       | 2.45         | .11       | 3.1          | .14       | 2.9          | .11       |
| 9                                   | 4.0          | .15       | 6.3          | .05       | 7.65         | .06       | 1.9          | .10       | 3.6          | .18       | 2.9          | .20       | 4.0          | .10       | 2.4          | .15       | 2.8          | .14       | 3.4          | .14       | 3.1          | .10       |
| 10                                  | 4.5          | .12       | 7            | .01       | 8.5          | .25       | 2.1          | .04       | 4.05         | .23       | 3.2          | .15       | 4.5          | .10       | 2.7          | .15       | 2.15         | .15       | 3.8          | .16       | 3.3          | .10       |
| 11                                  | 5.0          | .10       |              |           | 8.5          | .27       |              |           | 4.5          | .13       | 3.5          | .16       | 5            | .10       | 3.0          | .11       | 3.5          | .10       | 4.25         | .15       | 3.5          | .10       |
| Width/Median Depth                  | 5.5          | 0.20      | 7            | 0.03      | 8.5          | 0.10      | 2.1          | 0.06      | 4.5          | 0.14      | 3.7          | 0.12      | 5.0          | 0.12      | 3.7          | 0.14      | 4            | 0.22      | 4.5          | 0.15      | 4            | 0.10      |
| Feature Type (riffle, run, or pool) | Run          |           | Riffle       |           | Riffle       |           | Riffle       |           | Run          |           | Run          |           | Riffle       |           | Riffle       |           | Run          |           | Run          |           | Run          |           |

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.  
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

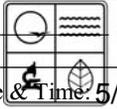
Signed: Robin Reymond      Date: 5/10/07

**Site Maximum    0.37**

**Site Median      0.12**

WBID# 3951

Site# 2



Missouri  
Department of  
Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

|  |  |
|--|--|
| Date & Time: 5/11/11   | Site Location Description (e.g., road crossing): |
| Personnel (Data Collectors): PRS - RR/MC   | Near Fox Bridge Road Bridge                      |
| Current Weather Conditions: p. cloudy 85F  | Facility Name: FCPWSD #3 - Victoria Garden       |
| Weather Conditions for Past 10 days: rain/sun  | Permit Number: MO 0089656                        |
| Drought Conditions?: 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 Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)                |                                |  |   |
|---|--------------------------------|--|---|
| Site GPS Coordinates: UTM X: 699154.898m  |                                | Y: 4264724.905m  |   |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) |                                |  |   |
| Global Positioning System (GPS)   |                                | Interpolation  |   |
| Static Mode   |                                | Topographic Map or DRG   |   |
| Dynamic Mode (Kinematic)  |                                | Aerial Photograph or DOQQ  |   |
| Precise Positioning Service   |                                | Satellite Imagery  |   |
| Signal Averaging  |                                | Interpolation Other Real Time Differential Correction with                         | X |
| Real Time Differential Processing   |                                | Post Processing  |   |
| HORIZONTAL ACCURACY ESTIMATE  |                                |  |   |
| GPS Data Quality  |                                | Interpolation Data Quality   |   |
| FOM   | ± _____ Meters                 | Source Map Scale: 1:24,000 1:100,000 Other _____<br>± _____ Feet or ± _____ Meters |   |
| EPE   | ± _____ Feet or ± _____ Meters |  |   |
| PDOP  | 2.7                            |  |   |

Photos:

| Upstream Photos            |               | Downstream Photos |               | Other Photos |               |
|----------------------------|---------------|-------------------|---------------|--------------|---------------|
| Photo ID#                  | Photo Purpose | Photo ID#         | Photo Purpose | Photo ID#    | Photo Purpose |
| <b>See Attached Photos</b> |               |                   |               |              |               |

Uses Observed\*: (Uses actually observed at 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.) |                                      |                                       |   |                                       |

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"/> Campgrounds                         |
| <input type="checkbox"/> Boating accesses  | <input checked="" type="checkbox"/> State parks | <input type="checkbox"/> National forests       | <input type="checkbox"/> Nature trails     | <input type="checkbox"/> Stairs/walkway                      |
| <input type="checkbox"/> No trespass sign  | <input type="checkbox"/> Fence                  | <input type="checkbox"/> Steep slopes           | <input type="checkbox"/> None of the above | <input checked="" type="checkbox"/> Other: Equestrian Center |
| Comments:                                  |   |   |  |  |

Indications of Human Use\*: (attach photos)

|  |  |  |   |   |  |
|--|--|--|---|---|--|
| <input type="checkbox"/> Roads         | <input type="checkbox"/> Rope swings   | <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Dock/platform  | <input type="checkbox"/> Livestock Watering | <input type="checkbox"/> RV / ATV Tracks |
| <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge   | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Other:             |  |
| Comments:                              |  |  |   |   |  |

\* Page Two – Data Sheet B for WBID # 3591-2 :

**Stream Morphology:**



Upstream View Department of Natural Resources: Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

Select one of the following **channel features**:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE          |                          |           |            |                  |                |
| RUN             |                          |           |            |                  |                |
| POOL            |                          |           |            |                  |                |

**Downstream View's Physical Dimensions:** Is there any water present at this view?  Yes  No

Approximate percentage of channel features for entire segment site

If so, is there an obvious current?  Yes  No

Select one of the following **channel features**:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE 20%      |                          |           |            |                  |                |
| RUN 80%         |                          |           |            |                  |                |
| POOL            |                          |           |            |                  |                |

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

|             |             |        |        |            |              |
|-------------|-------------|--------|--------|------------|--------------|
| 34 % Cobble | 33 % Gravel | % Sand | % Silt | % Mud/Clay | 33 % Bedrock |
|-------------|-------------|--------|--------|------------|--------------|

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

Gravel bars - 10% vegetated

**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 <sup>slightly</sup> 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: |

**Comments:** Please attach any additional comments () to this form.

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

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

Surveyor's Signature: Robin Reymond Date of Survey: 5/10/07

Organization: \_\_\_\_\_ Position: \_\_\_\_\_

### Recreational Use Attainability Analysis Field Survey Sheet

|  |  |
|--|--|
| Waterbody ID: <u>3591</u> Site #: <u>2</u><br>Weather Conditions: <u>p. sunny 85°F</u><br>GPS Location:<br>UTM X: <u>699154.898m</u> UTM Y: <u>4264724.905m</u><br>Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- N/A</u> (feet)      PDOP: <u>2.7</u><br>Average Stream Width: <u>4.8</u> (meters)      Length of Survey Segment: <u>150</u> (meters)<br>Field Staff: <u>PRS - RR/MC</u> | <b style="text-align: center;">Dissolved Oxygen</b><br>Dissolved Oxygen: <u>12.03</u> (mg/L)<br>Dissolved Oxygen: _____ (% sat)<br>Specific Cond: _____ (µS/cm)<br>Water Temperature: <u>22.8</u> (°C) |
|--|--|

#### Transect Cross-Section

|                                     | 01           |           | 02           |           | 03           |           | 04           |           | 05           |           | 06           |           | 07           |           | 08           |           | 09           |           | 10           |           | 11           |           |
|-------------------------------------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
|                                     | Distance (m) | Depth (m) |
| 1                                   | 0            | .01       | 0.5          | .02       | 0.5          | .05       | 0            | .11       | 0            | .14       | .75          | .03       | .05          | .02       | 0.5          | .01       | .35          | .02       | 0            | .10       | 0            | .10       |
| 2                                   | .75          | .02       | 1.0          | .05       | 1.0          | .07       | .3           | .20       | 0.2          | .14       | 1.5          | .10       | 1.0          | .05       | 1.5          | .04       | .70          | .02       | .6           | .15       | .35          | .15       |
| 3                                   | 1.5          | .05       | 1.5          | .06       | 1.5          | .02       | .6           | .18       | 0.4          | .15       | 2.0          | .10       | 1.5          | .04       | 2.0          | .04       | 1.05         | .02       | 1.2          | .21       | .7           | .23       |
| 4                                   | 2.0          | .06       | 2.0          | .06       | 2.0          | .10       | .9           | .15       | 0.6          | .12       | 2.5          | .09       | 2.0          | .07       | 2.5          | .03       | 1.4          | .02       | 1.8          | .26       | 1.05         | .26       |
| 5                                   | 2.75         | .02       | 2.5          | .05       | 2.5          | .05       | 1.2          | .23       | 0.8          | .14       | 3.0          | .10       | 2.5          | .05       | 3.0          | .06       | 1.75         | .03       | 2.4          | .32       | 1.4          | .25       |
| 6                                   | 3.25         | .00       | 3.0          | .03       | 3.0          | .06       | 1.5          | .10       | 1.0          | .15       | 3.5          | .07       | 3.0          | .05       | 3.5          | .11       | 2.1          | .05       | 3.0          | .30       | 1.75         | .20       |
| 7                                   | 3.75         | .02       | 3.5          | .05       | 3.5          | .05       | 1.8          | .20       | 1.2          | .15       | 4.0          | .05       | 3.5          | .08       | 4.0          | .10       | 2.45         | .09       | 3.6          | .33       | 2.1          | .10       |
| 8                                   | 4.5          | .05       | 4.0          | .05       | 4.0          | .03       | 2.1          | .23       | 1.4          | .10       | 4.5          | .04       | 4.0          | .04       | 4.5          | .10       | 2.8          | .10       | 4.2          | .10       | 2.45         | .10       |
| 9                                   | 5.0          | .06       | 4.5          | .06       | 4.5          | .02       | 2.4          | .15       | 1.6          | .10       | 5.0          | .06       | 4.5          | .11       | 5.0          | .05       | 3.1          | .05       | 4.8          | .11       | 2.8          | .05       |
| 10                                  | 5.5          | .10       | 5.0          | .10       | 5.0          | .02       | 2.7          | .10       | 1.8          | .10       | 5.5          | .04       | 5.0          | .10       | 5.5          | .02       | 3.5          | .03       | 5.6          | .11       | 3.15         | .10       |
| 11                                  |              |           |              |           |              |           | 3.0          | .10       | 2.0          | .10       |              |           |              |           |              |           |              |           | 6.0          | .10       | 3.5          | .10       |
| Width/Median Depth                  | 5.5          | 0.05      | 5.0          | 0.05      | 5.0          | 0.05      | 3.5          | 0.15      | 5.0          | 0.14      | 5.5          | 0.07      | 5.0          | 0.05      | 5.5          | 0.06      | 3.5          | 0.03      | 6.0          | 0.15      | 3.5          | 0.10      |
| Feature Type (riffle, run, or pool) | Run          |           | Riffle       |           | Riffle       |           | Run          |           | Riffle       |           | Run          |           | Run          |           |

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.  
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

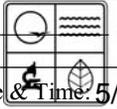
Signed: Robin Reymond      Date: 5/10/07

**Site Maximum    0.33**

**Site Median      0.09**

WBID# 3951

Site# 3



Missouri  
Department of  
Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

|  |  |
|--|--|
| Date & Time: 5/14/2014   | Site Location Description (e.g., road crossing): |
| Personnel (Data Collectors): PRS - RR/MC   | Upstream of confluence with Fox Creek            |
| Current Weather Conditions: p. cloudy 85F  | Facility Name: FCPWSD #3 - Victoria Garden       |
| Weather Conditions for Past 10 days: rain/sun  | Permit Number: MO 0089656                        |
| Drought Conditions?: 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 Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)                |  |
|---|--|
| Site GPS Coordinates: UTM X: 699314.487m  | Y: 4264602.783m  |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) |  |
| Global Positioning System (GPS)   | Interpolation  |
| Static Mode   | Topographic Map or DRG   |
| Dynamic Mode (Kinematic)  | Aerial Photograph or DOQQ  |
| Precise Positioning Service   | Satellite Imagery  |
| Signal Averaging  | Interpolation Other Real Time Differential Correction with <input checked="" type="checkbox"/> |
| Real Time Differential Processing   | Post Processing  |
| HORIZONTAL ACCURACY ESTIMATE  |  |
| GPS Data Quality  | Interpolation Data Quality   |
| FOM ± _____ Meters  | Source Map Scale: 1:24,000 1:100,000 Other _____<br>± _____ Feet or ± _____ Meters             |
| EPE ± _____ Feet or ± _____ Meters  |  |
| PDOP 3.6  |  |

Photos:

| Upstream Photos            |               | Downstream Photos |               | Other Photos |               |
|----------------------------|---------------|-------------------|---------------|--------------|---------------|
| Photo ID#                  | Photo Purpose | Photo ID#         | Photo Purpose | Photo ID#    | Photo Purpose |
| <b>See Attached Photos</b> |               |                   |               |              |               |

Uses Observed\*: (Uses actually observed at 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.) |                                      |                                       |   |                                       |

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"/> Campgrounds                         |
| <input type="checkbox"/> Boating accesses  | <input checked="" type="checkbox"/> State parks | <input type="checkbox"/> National forests       | <input type="checkbox"/> Nature trails                | <input type="checkbox"/> Stairs/walkway                      |
| <input type="checkbox"/> No trespass sign  | <input type="checkbox"/> Fence                  | <input type="checkbox"/> Steep slopes           | <input checked="" type="checkbox"/> None of the above | <input checked="" type="checkbox"/> Other: Equestrian Center |
| Comments:                                  |   |   |   |  |

Indications of Human Use\*: (attach photos)

|   |  |   |   |   |  |
|---|--|---|---|---|--|
| <input checked="" type="checkbox"/> Roads | <input type="checkbox"/> Rope swings   | <input checked="" type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Dock/platform  | <input type="checkbox"/> Livestock Watering | <input type="checkbox"/> RV / ATV Tracks |
| <input type="checkbox"/> Camping Sites    | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge              | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Other:             |  |
| Comments:                                 |  |   |   |   |  |

\* Page Two – Data Sheet B for WBID # 3591-3 :

**Stream Morphology:**



Upstream View Department of Natural Resources: Is there any water present at this view?  Yes  No  
 If so, is there an obvious current?  Yes  No

Select one of the following **channel features**:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE          |                          |           |            |                  |                |
| RUN             |                          |           |            |                  |                |
| POOL            |                          |           |            |                  |                |

**Downstream View's Physical Dimensions:** Is there any water present at this view?  Yes  No

Approximate percentage of channel features for entire segment site  
 If so, is there an obvious current?  Yes  No

Select one of the following **channel features**:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE 25%      |                          |           |            |                  |                |
| RUN 60%         |                          |           |            |                  |                |
| POOL 15%        |                          |           |            |                  |                |

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

|             |             |          |        |              |              |
|-------------|-------------|----------|--------|--------------|--------------|
| 30 % Cobble | 30 % Gravel | 5 % Sand | % Silt | 5 % Mud/Clay | 30 % Bedrock |
|-------------|-------------|----------|--------|--------------|--------------|

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

Moderate algae and moss growth on rock substrate - 5% woody vegetation on gravel bars.

**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 <sup>slight</sup> sediments | <input type="checkbox"/> None            | <input type="checkbox"/> Other: |
| Surface Deposit: | <input type="checkbox"/> Oil              | <input type="checkbox"/> Scum   | <input checked="" type="checkbox"/> Foam                             | <input type="checkbox"/> None            | <input type="checkbox"/> Other: |

**Comments:** Please attach any additional comments () to this form.

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

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

Surveyor's Signature: Robin Reymond Date of Survey: 5/10/07

Organization: Pickett, Ray & Silver, Inc. Position: \_\_\_\_\_

### Recreational Use Attainability Analysis Field Survey Sheet

|   |  |
|---|--|
| Waterbody ID: <u>3591</u> Site #: <u>3</u><br>Weather Conditions: <u>p. cloudy 85°F</u><br>GPS Location:<br>UTM X: <u>699314.487m</u> UTM Y: <u>4264602.783m</u><br>Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- N/A</u> (feet)      PDOP: <u>3.6</u><br>Average Stream Width: <u>5.8</u> (meters)      Length of Survey Segment: <u>150</u> (meters)<br>Field Staff: <u>PRS - RR/MC</u> | <b>Dissolved Oxygen</b><br>Dissolved Oxygen: <u>11.73</u> (mg/L)<br>Dissolved Oxygen: _____ (% sat)<br>Specific Cond: _____ (µS/cm)<br>Water Temperature: <u>23.4</u> (°C) |
|---|--|

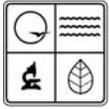
| Transect Cross-Section              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |                    |              |           |      |
|-------------------------------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|--------------------|--------------|-----------|------|
| 01                                  |           | 02           |           | 03           |           | 04           |           | 05           |           | 06           |           | 07           |           | 08           |           | 09           |           | 10           |                    | 11           |           |      |
| Distance (m)                        | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m)          | Distance (m) | Depth (m) |      |
| 1                                   | 0         | .02          | 2.0       | .12          | 1.0       | .10          | 4.0       | .21          | .88       | .06          | .88       | .03          | 0.5       | .04          | .36       | .03          | >1        | 0            | .01                | 0            | .30       |      |
| 2                                   | 0.5       | .03          | 2.2       | .13          | 1.4       | .10          | 4.35      | .20          | 1.73      | .13          | 1.73      | .02          | 1.0       | .05          | .72       | .04          | >1        | 1            | .09                | .3           | .40       |      |
| 3                                   | 1.0       | .06          | 2.4       | .13          | 1.8       | .10          | 4.7       | .17          | 2.58      | .12          | 2.58      | .03          | 1.5       | .03          | 1.08      | .04          | >1        | 2            | .03                | .6           | .40       |      |
| 4                                   | 1.5       | .09          | 2.6       | .10          | 2.2       | .10          | 5.05      | .18          | 3.43      | .06          | 3.43      | .04          | 2.0       | .09          | 1.44      | .06          | >1        | 3            | .00                | .9           | .40       |      |
| 5                                   | 2.0       | .10          | 2.8       | .10          | 2.6       | .10          | 5.40      | .18          | 4.28      | .01          | 4.28      | .02          | 2.5       | .09          | 1.8       | .06          | >1        | 4            | .00                | 1.2          | .38       |      |
| 6                                   | 2.5       | .08          | 3.0       | .12          | 3.0       | .10          | 5.75      | .21          | 5.13      | .03          | 5.13      | .01          | 3.0       | .10          | 2.16      | .05          | >1        | 5            | .03                | 1.5          | .32       |      |
| 7                                   | 3.0       | .03          | 3.2       | .11          | 3.4       | .03          | 6.1       | .15          | 6.0       | .00          | 6.0       | .01          | 3.5       | .05          | 2.52      | .04          | >1        | 6            | .10                | 1.8          | .25       |      |
| 8                                   | 3.5       | .05          | 3.4       | .10          | 3.8       | .05          | 6.45      | .13          | 6.8       | .00          | 6.8       | .04          | 4.0       | .04          | 2.88      | .03          | >1        | 7            | .06                | 2.1          | .20       |      |
| 9                                   | 4.0       | .05          | 3.6       | .10          | 4.2       | .10          | 6.8       | .10          | 7.68      | .00          | 7.68      | .05          | 4.25      | .00          | 3.24      | .05          | >1        | 8            | .00                | 2.4          | .13       |      |
| 10                                  | 4.5       | .05          | 3.8       | .12          | 4.6       | .10          | 7.5       | .10          | 8.5       | .04          | 8.5       | .02          | 4.5       | .10          | 3.6       | .01          | >1        | 9            | .00                | 2.7          | .10       |      |
| 11                                  |           |              | 4.0       | .10          | 5         | .10          | 8.5       | .10          |           |              |           |              |           |              |           |              |           |              | 9.75               | .00          | 3         | .10  |
| Width/Median Depth                  | 4.5       | 0.05         | 4.5       | 0.11         | 5         | 0.10         | 8.5       | 0.17         | 8.5       | 0.04         | 8.5       | 0.04         | 4.5       | 0.05         | 3.6       | 0.05         | 3         | -            | 9.75               | .01          | 3         | 0.30 |
| Feature Type (riffle, run, or pool) | Run       |              | Run       |              | Riffle    |              | Pool      |              | Run       |              | Run       |              | Run       |              | Riffle    |              | Pool      |              | 3 braided channels |              | Pool      |      |

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.  
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

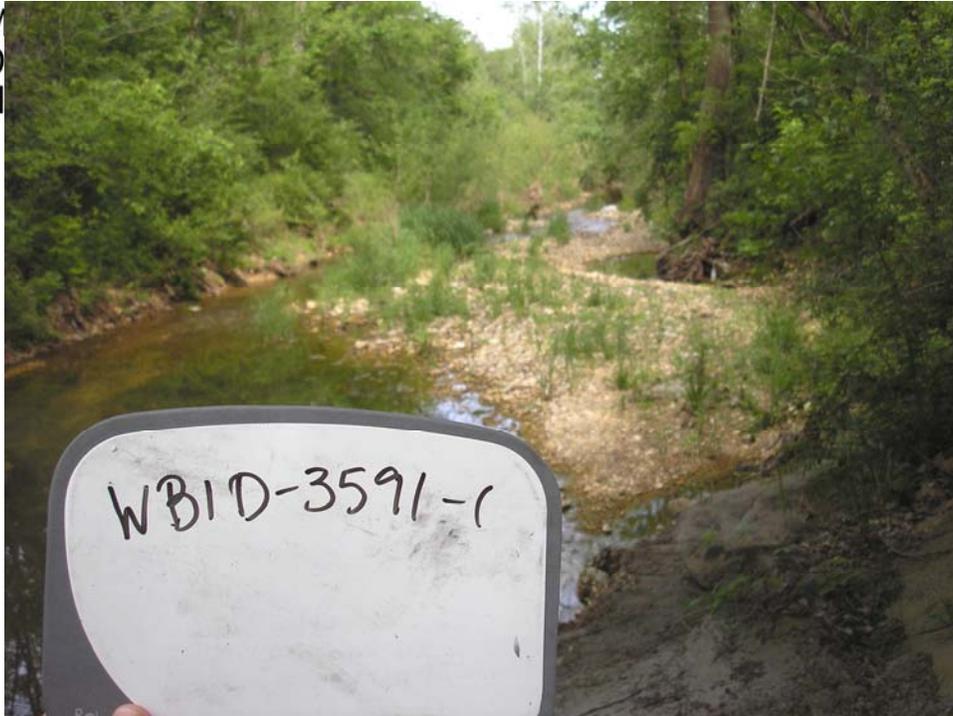
Signed: Robin Reymond      Date: 5/10/07

**Site Maximum    1.00**

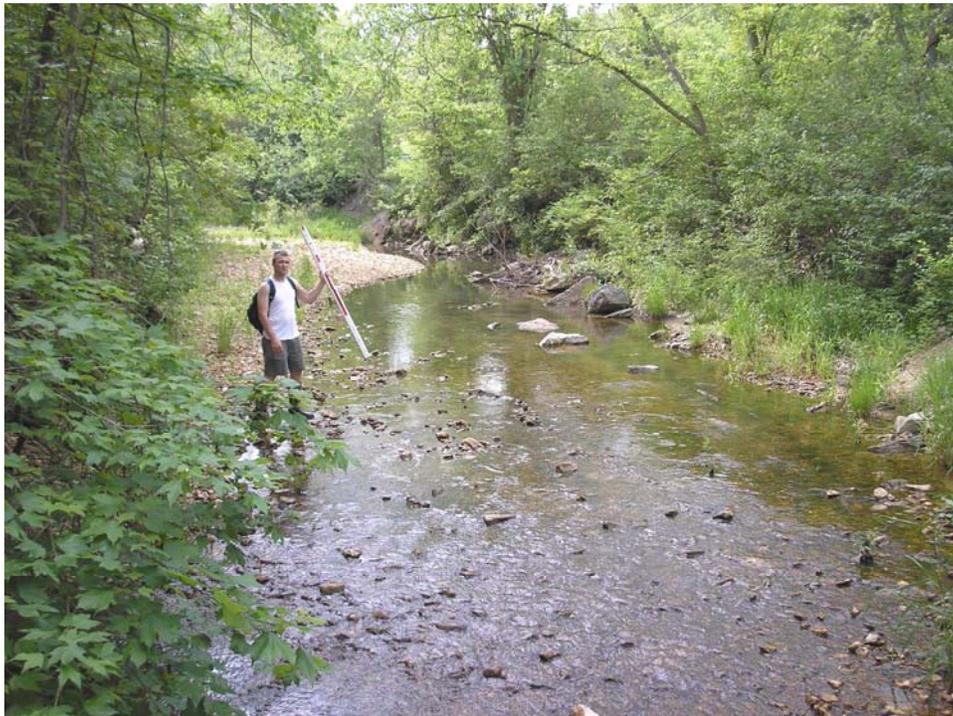
**Site Median      0.10**



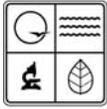
N  
D  
M



1. WBID 3591 – Site 1 – Transect 1 – Facing Upstream



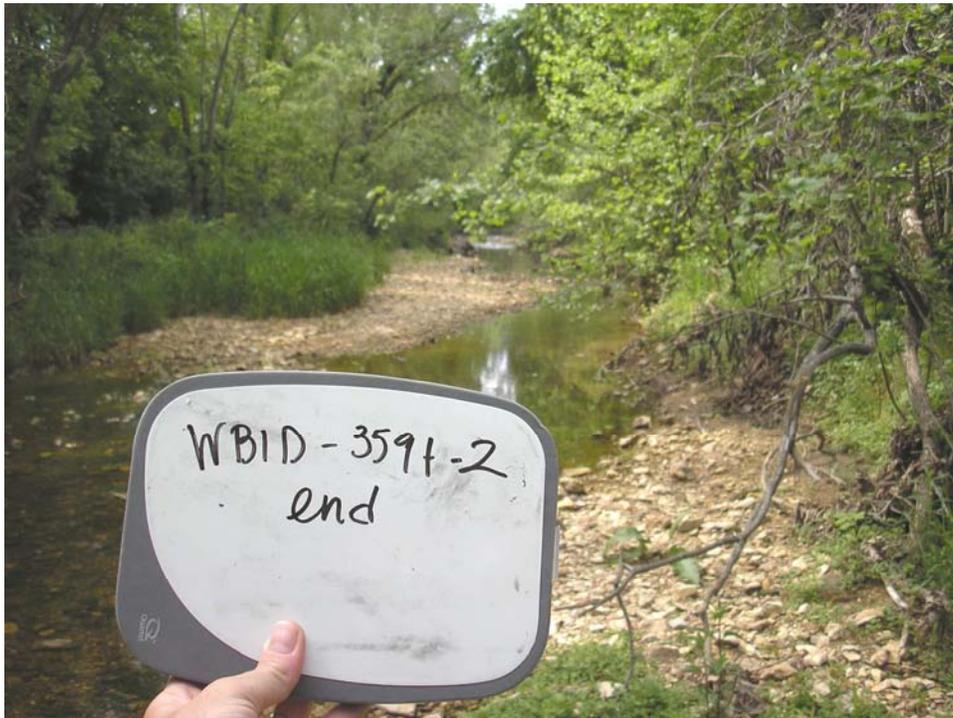
2. WBID 3591 – Site 1 – Transect 1 – Facing Downstream



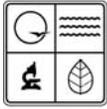
N  
M  
D



3. WBID 3591 – Site 2 – Transect 11 – Facing Upstream



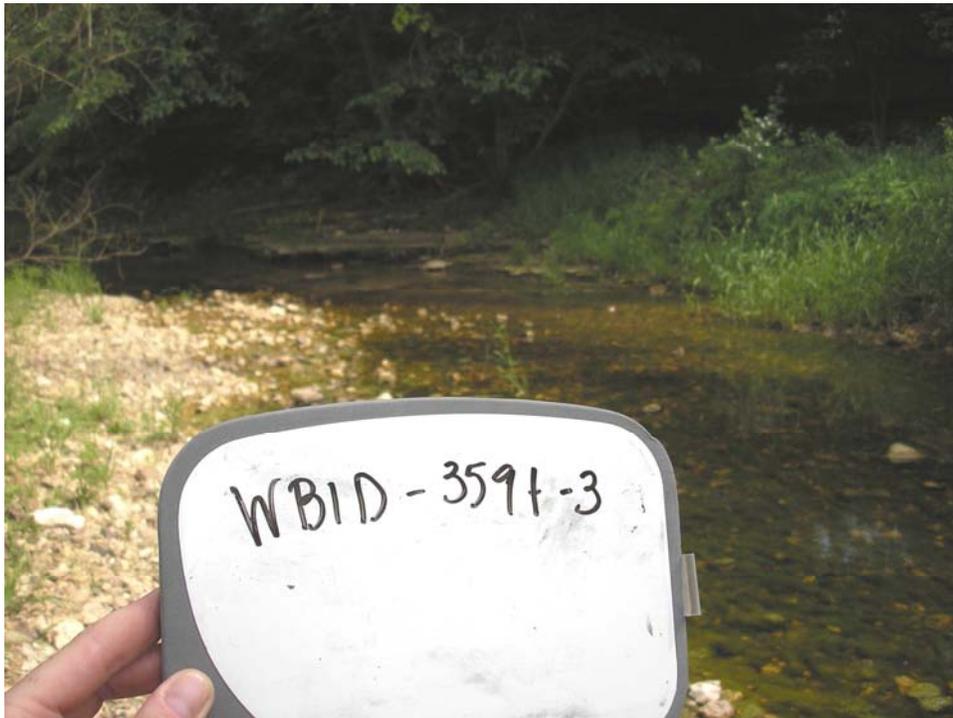
4. WBID 3591 – Site 2 – Transect 11 – Facing Downstream



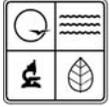
N  
D  
M



5. WBID 3591 – Site 3 – Transect 1 – Facing Upstream



6. WBID 3591 – Site 3 – Transect 1 – Facing Downstream



N  
D  
M



7. WBID 3891 – Site 3 – Transect 11 – Confluence With Fox Creek, Facing Upstream



8. WBID 3891 – Site 3 – Transect 11 – Little Fox Creek, Facing Upstream From Confluence With Fox Creek