

Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 0159 Mill Creek

Submitted by
Pickett Ray and Silver

To
Missouri Department of Natural Resources
Water Protection Program

Date Received: June 5, 2007

Field Data Sheets for Recreational Use Stream Surveys



Missouri Data Sheet A - Water Body Identification

I. Water Body Information (for water body being surveyed)

| | |
|---|---|
| Water Body Name (from USGS 7.5' quad): | Mill Creek |
| Missouri Waterbody Identification (WBID) Number: | 159 |
| 8-digit HUC: | 7110008 |
| County: | Lincoln |
| Upstream Legal Description (from Table H): | Sur 1710,51N,1W |
| Downstream Legal Description (from Table H): | Mouth |
| Number of sites evaluated | 3 |
| List all sites numbers, listed consequently upstream to downstream: | 1 - Outfall Silex WWTF; 2 - Hwy. E; 3 - South Mill Creek Road |

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

II. Subsegmentation (fill this section out only in cases where subsegmentation is being proposed)

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

III. Discharger Facility Information (list all permitted dischargers on the stream)

| | |
|------------------------------|------------|
| Discharger Facility Name(s): | Silex WWTF |
| Discharger Permit Number(s): | MO 0108243 |

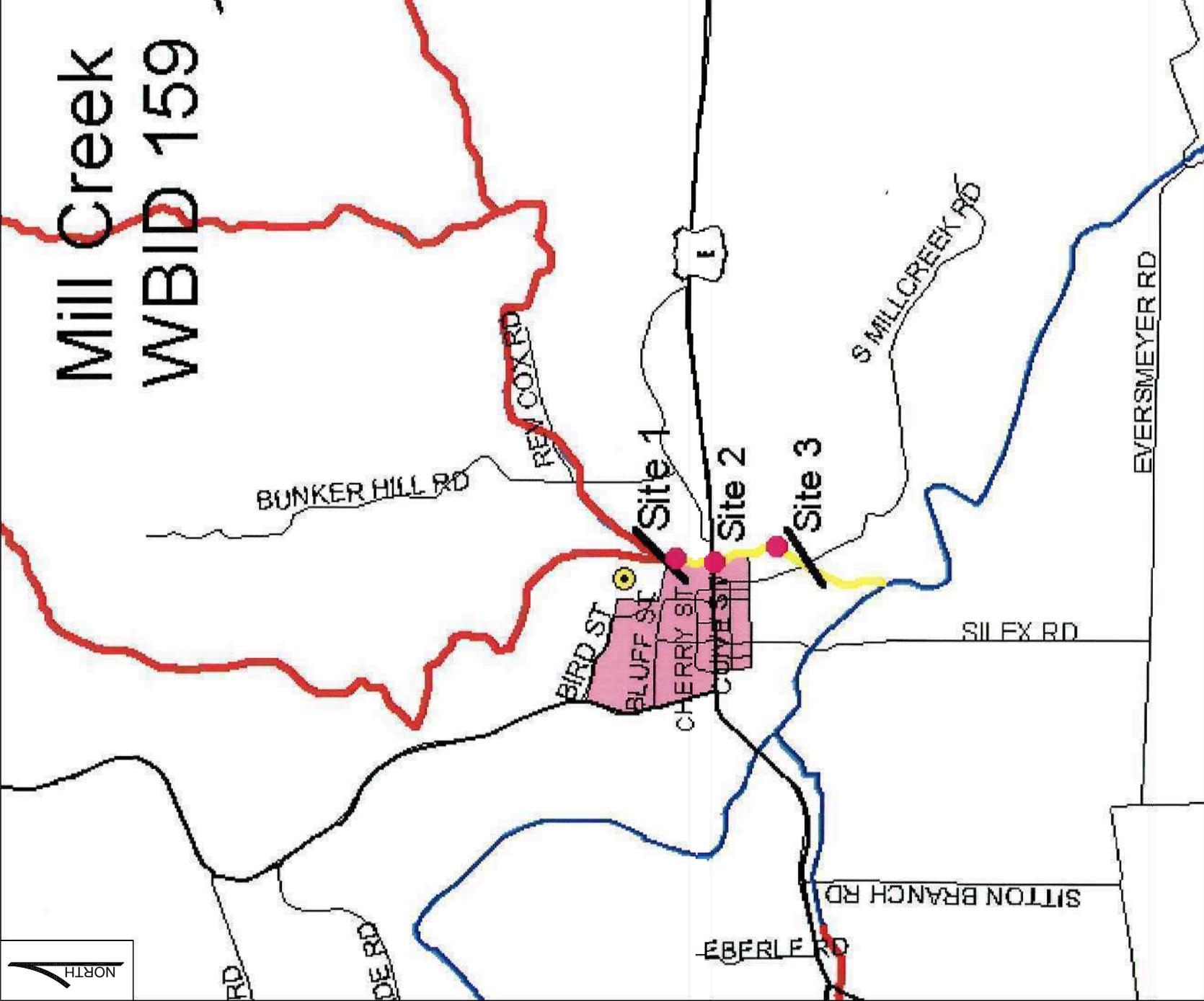
IV. UAA Surveyor (please print legibly)

| | | | |
|------------------------|-----------------|-------------------|--------------|
| Name of Surveyor | R. Martin | Telephone Number: | 573-875-7844 |
| Organization/Employer: | AE Solutions | | |
| Position: | Env. Specialist | | |

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

Signed: Renee Martin

Date: 5/16/07

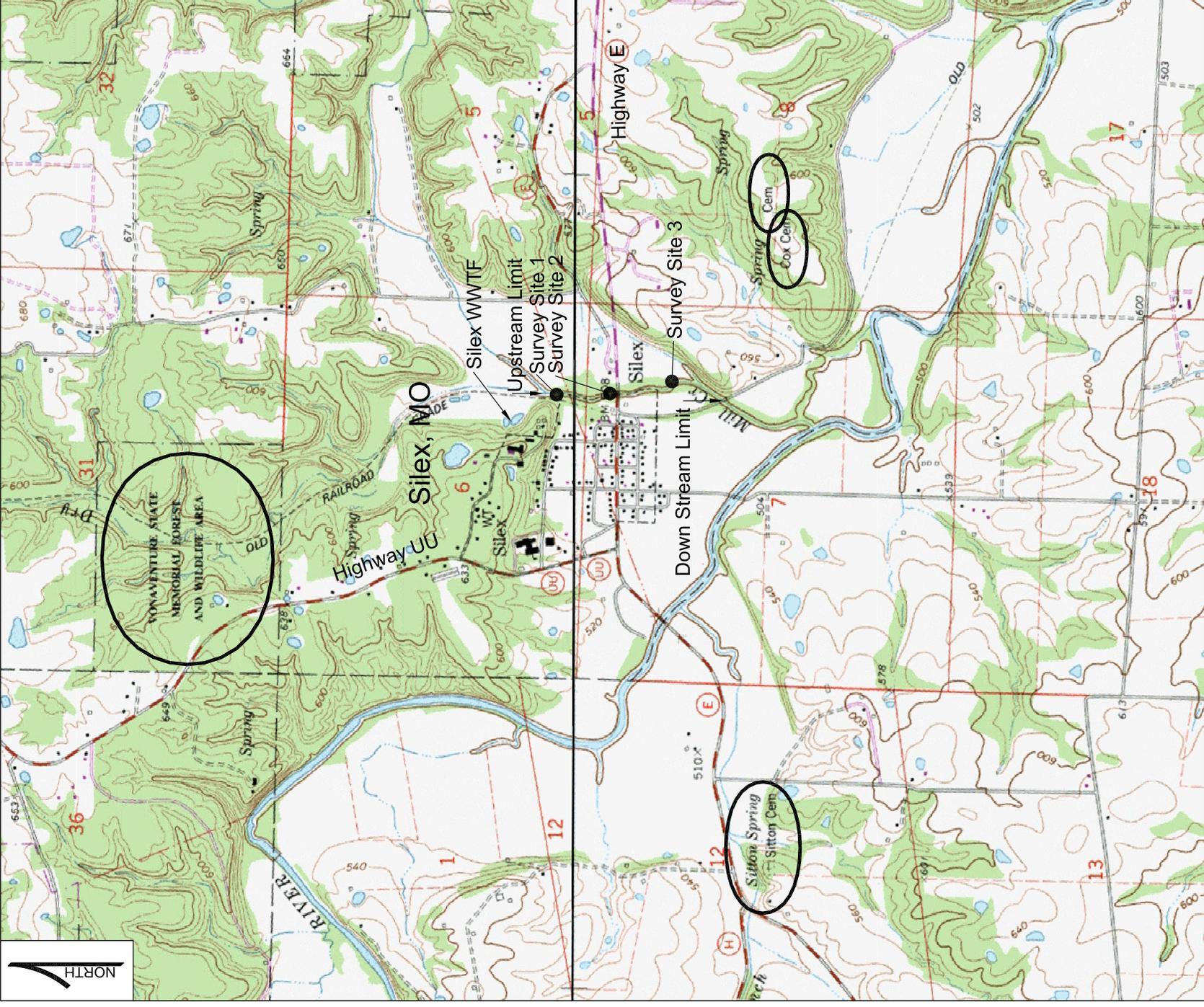


Mill Creek WBID 159

PICKETT RAY & SILVER
Civil Engineers Land Surveyors Natural Resources
Address: Phone: (636) 397-1211
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St. Peters, Missouri 63376 Website: www.prs3.com
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WBID #: 0159
Name: Mill Creek
GIS MAP

NOT TO SCALE
0 0 0 0 0
PRJ Job Number: 07031.MODN.00E
Drawn By: M.C. Date: 05-21-07
Checked By: J.V. Date: 05-21-07



PICKETT RAY & SILVER
 Civil Engineers Land Surveyors Natural Resources

Address: Phone: (636) 397-1211
 333 Mid Rivers Mall Drive Fax: (636) 397-1104
 St. Peters, Missouri 63376 Website: www.prs3.com

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WBID #: 0159
 Name: Mill Creek
 County: Lincoln
 USGS Location Map

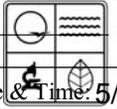
0 1000 2000 4000
 GRAPHIC SCALE
 1 inch = 2000ft.

PRJ Job Number: 07031.MODN.00E
 Drawn By: M.C. Date: 05-21-07
 Checked By: J.V. Date: 05-21-07

WBID# 159

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: 5/20/2014 | Site Location Description (e.g., road crossing): |
| Personnel (Data Collectors): R. Martin | Mill Creek |
| Current Weather Conditions: Clear | Facility Name: Silex WWTF |
| Weather Conditions for Past 10 days: Unknown | Permit Number: MO 0108243 |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/> | |

Site Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | |
|---|--|
| Site GPS Coordinates: UTM X: 0668296 | Y: 4332334 |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | |
| Global Positioning System (GPS) | Interpolation |
| Static Mode <input checked="" type="checkbox"/> | 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 |
| 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 _____ ± _____ Feet or ± _____ Meters |
| EPE ± 20 _____ Feet or ± _____ Meters | |
| PDOP | |

Photos:

| Upstream Photos | | Downstream Photos | | Other Photos | |
|----------------------------|---------------|-------------------------------------|---|--------------|--|
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| See Attached Photos | | 0159-1-25 0159-1-26 0159-1-28 | Upstream, Site #1, Transect #1 Downstream Site #1, Transect #1 Upstream, Site #1, Transect #7 - Tire tracks | 0159-1-29 | Downstream Site #1, Transect #1 Tire tracks |

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 type="checkbox"/> State parks | <input type="checkbox"/> National forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkway |
| <input checked="" type="checkbox"/> No trespass sign | <input checked="" type="checkbox"/> Fence | <input type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the above | <input checked="" type="checkbox"/> Other: |
| Comments: WWTP Service Road | | | | |

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: None | | | | | |

* Page Two – Data Sheet B for WBID # 159-1 :

Stream Morphology:



Upstream View's Physical Dimensions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

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

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | 20 | 5 | 50 | 0.1 | |
| RUN | | | | | |
| POOL | | | | | |

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

If so, is there an obvious current? Yes No

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

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

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

| | | | | | | | | | | | |
|----|----------|----|----------|----|--------|---|--------|----|------------|---|-----------|
| 20 | % Cobble | 40 | % Gravel | 10 | % Sand | - | % Silt | 30 | % Mud/Clay | - | % Bedrock |
|----|----------|----|----------|----|--------|---|--------|----|------------|---|-----------|

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

Minor amount of algae, plants in gravel beds.

Water Characteristics*: (Mark all that apply.)

| | | | | | |
|------------------|--|---------------------------------|--|--|---------------------------------|
| Odor: | <input checked="" type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input 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: |

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: Renee Martin Date of Survey: 5/8/07

Organization: AE Solution Position: Env. Specialist



Missouri
Department of
Natural Resources

Name: Mill Creek WBID: 159 Site # 1

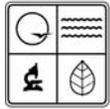
DO 7.62 mg/L
Water Temp 14.8 °C

Transect Cross-Section

| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | |
|----|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| | Distance (m) | Depth (m) |
| 1 | 1.00 | 0.10 | 0.00 | 0.10 | 2.50 | 0.10 | 0.00 | 0.20 | 0.10 | 0.10 | 0.40 | 0.10 | 0.40 | 0.10 | 0.50 | 0.10 | 1.20 | 0.10 | 0.30 | 0.10 | 1.00 | 0.10 |
| 2 | 1.30 | 0.10 | 0.70 | 0.40 | 3.50 | 0.30 | 1.40 | 0.40 | 0.55 | 0.40 | 1.00 | 0.20 | 1.70 | 0.50 | 1.60 | 0.20 | 1.80 | 0.10 | 1.10 | 0.20 | 1.50 | 0.10 |
| 3 | 1.60 | 0.10 | 1.40 | 0.70 | 4.50 | 0.70 | 2.80 | 0.10 | 1.00 | 0.90 | 1.60 | 0.20 | 3.00 | 0.60 | 2.70 | 0.00 | 2.40 | 0.10 | 1.90 | 0.10 | 2.00 | 0.20 |
| 4 | 1.90 | 0.10 | 2.10 | 0.90 | 5.50 | 1.00 | 4.20 | 0.10 | 1.45 | 0.80 | 2.20 | 0.30 | 4.30 | 0.40 | 3.80 | 0.00 | 3.00 | 0.20 | 2.70 | 0.10 | 2.50 | 0.10 |
| 5 | 2.20 | 0.10 | 2.80 | 0.90 | 6.50 | 1.00 | 5.60 | 0.20 | 1.90 | 0.70 | 2.80 | 0.30 | 5.60 | 0.30 | 4.90 | 0.10 | 3.60 | 0.10 | 3.50 | 0.10 | 3.00 | 0.10 |
| 6 | 2.50 | 0.10 | 3.50 | 1.00 | 7.50 | 1.00 | 7.00 | 0.30 | 2.35 | 0.60 | 3.40 | 0.30 | 6.90 | 0.25 | 6.00 | 0.10 | 4.20 | 0.20 | 4.30 | 0.10 | 3.50 | 0.10 |
| 7 | 2.80 | 0.10 | 4.20 | 0.70 | 8.50 | 1.00 | 8.40 | 0.40 | 2.80 | 0.40 | 4.00 | 0.30 | 8.20 | 0.20 | 7.10 | 0.10 | 4.80 | 0.20 | 5.10 | 0.10 | 4.00 | 0.10 |
| 8 | 3.10 | 0.10 | 4.90 | 0.55 | 9.50 | 1.00 | 9.80 | 0.40 | 3.25 | 0.30 | 4.60 | 0.25 | 9.50 | 0.20 | 8.20 | 0.10 | 5.44 | 0.15 | 5.90 | 0.10 | 4.50 | 0.10 |
| 9 | 3.40 | 0.10 | 5.60 | 0.15 | 10.50 | 1.00 | 11.20 | 0.50 | 3.70 | 0.20 | 5.20 | 0.20 | 10.80 | 0.10 | 9.30 | 0.10 | 6.60 | 0.10 | 6.70 | 0.10 | 5.00 | 0.20 |
| 10 | 3.70 | 0.10 | 6.30 | 0.10 | 11.50 | 1.00 | 12.60 | 0.40 | 4.15 | 0.10 | 5.80 | 0.20 | 12.10 | 0.10 | 10.40 | 0.10 | 7.20 | 0.10 | 7.50 | 0.10 | 5.50 | 0.10 |
| 11 | 4.00 | 0.10 | 7.00 | 0.10 | 12.50 | 0.70 | 14.00 | 0.10 | 4.60 | 0.10 | 6.40 | 0.10 | 13.40 | 0.10 | 11.50 | 0.10 | 7.80 | 0.10 | 8.30 | 0.10 | 6.00 | 0.10 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |

Site Maximum 1.00

Site Median 0.10

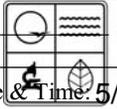


Missouri
Department of
Natural Resources

WBID# 159

Field Data Sheets for Recreational Use Stream Surveys

Site# 2



**Missouri
Department of
Natural Resources**

Data Sheet B - Site Characterization

(must be completed for each site)

| | |
|--|--|
| Date & Time: 5/14/2022 | Site Location Description (e.g., road crossing): |
| Personnel (Data Collectors): Renee Martin | Mill Creek Site 2 @ WWTF |
| Current Weather Conditions: Clear | Facility Name: Silex WWTF |
| Weather Conditions for Past 10 days: Unknown | Permit Number: MO 0108243 |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/> | |

Site Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | |
|---|--|
| Site GPS Coordinates: UTM X: 0668270 | Y: 4332158 |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | |
| Global Positioning System (GPS) | Interpolation |
| Static Mode <input checked="" type="checkbox"/> | 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 |
| 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 _____ ± _____ Feet or ± _____ Meters |
| EPE ± 16 _____ Feet or ± _____ Meters | |
| PDOP | |

Photos:

| Upstream Photos | | Downstream Photos | | Other Photos | |
|----------------------------|---------------|------------------------|--|------------------------|--|
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| See Attached Photos | | 0159-2-52 0159-2-33 | Upstream, Site #2, Transect #1 Downstream, Site #2, Transect #1 | 0159-2-34 0159-2-35 | Downstream, Site #2, Transect #3 Tire Tracks Downstream, Site #2, Transect #5 Tire Tracks |

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 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 checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the above | <input checked="" type="checkbox"/> Other: |

Comments: Gravel bar with tire tracks

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: None

Stream Morphology:



Upstream View's Physical Dimensions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

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

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | 10 | 8 | 20 | 0.1 | |
| RUN | | | | | |
| POOL | | | | | |

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

If so, is there an obvious current? Yes No

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

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

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

| | | | | | | | | | | |
|----------|----|----------|---|--------|---|--------|----|------------|---|-----------|
| % Cobble | 80 | % Gravel | - | % Sand | - | % Silt | 20 | % Mud/Clay | - | % Bedrock |
|----------|----|----------|---|--------|---|--------|----|------------|---|-----------|

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

Some algae present on substrate

Water Characteristics*: (Mark all that apply.)

| | | | | | |
|------------------|---|---------------------------------|--|--|---------------------------------|
| Odor: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Color: | <input 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: |

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: Renee Martin Date of Survey: 5/8/07

Organization: AE Solution Position: Env. Specialist



Missouri
Department of
Natural Resources

Mill Creek

WBID: 159 Site # 2

DO 8.2 mg/L
Water Temp 14.8 °C

Transect Cross-Section

| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | |
|----|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|
| | Distance (m) | Depth (m) |
| 1 | 1.20 | 0.10 | 0.50 | 0.10 | 0.50 | 0.10 | 0.00 | 0.80 | 0.00 | 0.10 | 0.20 | 0.15 | 0.80 | 0.10 | 1.10 | 0.10 | 1.90 | 0.00 | 0.90 | 0.10 | 0.50 | 0.10 |
| 2 | 1.70 | 0.10 | 1.10 | 0.10 | 1.80 | 0.20 | 0.00 | 0.60 | 0.90 | 0.50 | 1.50 | 0.20 | 1.60 | 0.20 | 1.80 | 0.20 | 2.80 | 0.15 | 2.10 | 0.10 | 1.40 | 0.10 |
| 3 | 2.20 | 0.20 | 1.70 | 0.10 | 3.10 | 0.10 | 1.30 | 0.40 | 1.80 | 0.60 | 2.80 | 0.20 | 2.40 | 0.20 | 2.50 | 0.20 | 3.70 | 0.10 | 3.30 | 0.10 | 2.30 | 0.10 |
| 4 | 2.70 | 0.20 | 2.30 | 0.10 | 4.40 | 0.10 | 2.60 | 0.20 | 2.70 | 0.70 | 4.10 | 0.20 | 3.20 | 0.20 | 3.20 | 0.30 | 4.60 | 0.10 | 4.50 | 0.10 | 3.20 | 0.10 |
| 5 | 3.20 | 0.30 | 2.90 | 0.30 | 5.70 | 0.20 | 3.90 | 0.10 | 3.60 | 0.75 | 5.40 | 0.20 | 4.00 | 0.20 | 3.90 | 0.35 | 5.50 | 0.10 | 5.70 | 0.10 | 4.10 | 0.10 |
| 6 | 3.70 | 0.40 | 3.50 | 0.40 | 7.00 | 0.10 | 5.20 | 0.00 | 4.50 | 0.70 | 6.70 | 0.20 | 4.80 | 0.10 | 4.60 | 0.30 | 6.40 | 0.10 | 6.90 | 0.10 | 5.00 | 0.10 |
| 7 | 4.20 | 0.50 | 4.10 | 0.50 | 8.30 | 0.20 | 6.50 | 0.00 | 5.40 | 0.60 | 8.00 | 0.20 | 5.60 | 0.10 | 5.30 | 0.35 | 7.30 | 0.10 | 8.10 | 0.10 | 5.90 | 0.10 |
| 8 | 4.70 | 0.55 | 4.70 | 0.60 | 9.60 | 0.10 | 7.80 | 0.00 | 6.30 | 0.40 | 9.30 | 0.20 | 6.40 | 0.10 | 6.00 | 0.30 | 8.20 | 0.15 | 9.30 | 0.20 | 6.80 | 0.10 |
| 9 | 5.20 | 0.50 | 5.30 | 0.75 | 10.90 | 0.00 | 9.10 | 0.10 | 7.20 | 0.40 | 10.60 | 0.10 | 7.20 | 0.10 | 6.20 | 0.40 | 9.10 | 0.20 | 10.50 | 0.15 | 7.70 | 0.10 |
| 10 | 5.70 | 0.35 | 5.90 | 0.90 | 12.20 | 0.30 | 10.40 | 0.30 | 8.10 | 0.25 | 11.90 | 0.00 | 8.00 | 0.10 | 7.40 | 0.35 | 10.00 | 0.20 | 11.70 | 0.15 | 8.60 | 0.10 |
| 11 | 6.20 | 0.40 | 6.50 | 0.85 | 13.50 | 0.20 | 11.70 | 0.15 | 9.00 | 0.10 | 13.20 | 0.10 | 8.80 | 0.10 | 8.10 | 0.20 | 10.90 | 0.20 | 12.90 | 0.10 | 9.50 | 0.10 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |

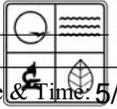
Site Maximum 0.90

Site Median 0.15

WBID# 159

Field Data Sheets for Recreational Use Stream Surveys

Site# 3



**Missouri
Department of
Natural Resources**

Data Sheet B - Site Characterization

(must be completed for each site)

| | |
|--|--|
| Date & Time: 5/20/15 | Site Location Description (e.g., road crossing): |
| Personnel (Data Collectors): Renee Martin | South Mill Creek Rd. |
| Current Weather Conditions: Clear | Facility Name: Silex WWTF |
| Weather Conditions for Past 10 days: Unknown | Permit Number: MO 0108243 |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/> | |

Site Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | |
|---|--|
| Site GPS Coordinates: UTM X: 0668316 | Y: 4331989 |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | |
| Global Positioning System (GPS) | Interpolation |
| Static Mode <input checked="" type="checkbox"/> | 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 |
| 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 _____ ± _____ Feet or ± _____ Meters |
| EPE ± 14 _____ Feet or ± _____ Meters | |
| PDOP | |

Photos:

| Upstream Photos | | Downstream Photos | | Other Photos | |
|----------------------------|---------------|-------------------------------------|--|--------------|---------------|
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| See Attached Photos | | 0159-3-37 0159-3-36 0159-3-38 | Upstream Site #3, Transect #1 Downstream Site #3, Transect #1 - Tire tracks Upstream, Site #3, Transect #4 - Tire tracks | | |

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 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 checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the above | <input checked="" type="checkbox"/> Other: |

Comments: Tire trail leading down towards water

Indications of Human Use*: (attach photos)

| | | | | | |
|---|--|--|---|---|--|
| <input checked="" 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: Gravel road

Stream Morphology:



Upstream View's Physical Dimensions: Is there any water present at this view? Yes No
 If so, is there an obvious current? Yes No

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

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | 12.0 | 50 | 0.1 | 0.2 |
| RUN | | | | | |
| POOL | | | | | |

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

If so, is there an obvious current? Yes No

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

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

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

| | | | | | | | | | | | |
|---|----------|----|----------|----|--------|---|--------|---|------------|---|-----------|
| - | % Cobble | 50 | % Gravel | 50 | % Sand | - | % Silt | - | % Mud/Clay | - | % Bedrock |
|---|----------|----|----------|----|--------|---|--------|---|------------|---|-----------|

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

Algae covered gravel/substrate

Water Characteristics*: (Mark all that apply.)

| | | | | | |
|------------------|---|---------------------------------|--|--|---------------------------------|
| Odor: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Color: | <input 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: |

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: Renee Martin Date of Survey: 5/7/07

Organization: AE Solution Position: Env. Specialist



Missouri
Department of
Natural Resources

Name: Mill Creek WBID: 159 Site # 3

DO 8.7 mg/L
Water Temp 15.3 °C

Transect Cross-Section

| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | |
|----|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|
| | Distance (m) | Depth (m) |
| 1 | 0.60 | 0.10 | 0.70 | 0.10 | 0.60 | 0.10 | 0.80 | 0.10 | 3.00 | 0.10 | 0.00 | 1.00 | 0.30 | 0.10 | 0.60 | 0.10 | 0.00 | 0.10 | 0.00 | 0.20 | 0.40 | 0.10 |
| 2 | 1.70 | 0.20 | 1.80 | 0.45 | 1.60 | 0.45 | 1.70 | 0.20 | 3.50 | 0.10 | 0.60 | 1.00 | 1.20 | 0.30 | 1.20 | 0.10 | 0.60 | 0.40 | 0.90 | 0.70 | 0.60 | 0.30 |
| 3 | 2.80 | 0.20 | 2.90 | 0.65 | 2.60 | 0.65 | 2.60 | 0.40 | 4.00 | 0.10 | 1.20 | 1.00 | 2.10 | 0.30 | 1.80 | 0.20 | 1.20 | 0.60 | 1.80 | 1.00 | 0.80 | 0.40 |
| 4 | 3.90 | 0.15 | 4.00 | 0.60 | 3.60 | 0.60 | 3.50 | 0.55 | 4.50 | 0.00 | 1.80 | 1.00 | 3.00 | 0.00 | 2.40 | 0.20 | 1.80 | 0.60 | 2.70 | 1.00 | 1.00 | 0.40 |
| 5 | 5.00 | 0.10 | 5.10 | 0.50 | 4.60 | 0.50 | 4.40 | 0.50 | 5.00 | 0.10 | 2.40 | 1.00 | 3.90 | 0.00 | 3.00 | 0.20 | 2.40 | 0.60 | 3.60 | 1.00 | 1.20 | 0.30 |
| 6 | 6.10 | 0.10 | 6.20 | 0.50 | 5.60 | 0.50 | 5.30 | 0.50 | 5.50 | 0.10 | 3.00 | 1.00 | 4.80 | 0.40 | 3.60 | 0.20 | 3.00 | 0.40 | 4.50 | 1.00 | 1.40 | 0.30 |
| 7 | 7.20 | 0.10 | 7.30 | 0.45 | 6.60 | 0.45 | 6.20 | 0.50 | 6.00 | 0.10 | 3.60 | 0.80 | 5.70 | 0.60 | 4.20 | 0.10 | 3.60 | 0.40 | 5.40 | 1.00 | 1.60 | 0.20 |
| 8 | 8.30 | 0.10 | 8.40 | 0.40 | 7.60 | 0.40 | 7.10 | 0.50 | 6.50 | 0.10 | 4.20 | 0.55 | 6.60 | 0.60 | 5.40 | 0.10 | 4.20 | 0.20 | 6.30 | 1.00 | 1.80 | 0.20 |
| 9 | 9.40 | 0.10 | 9.50 | 0.35 | 8.60 | 0.35 | 8.00 | 0.60 | 7.00 | 0.10 | 4.80 | 0.35 | 7.50 | 0.50 | 6.00 | 0.10 | 4.80 | 0.15 | 7.20 | 0.50 | 2.00 | 0.20 |
| 10 | 10.50 | 0.30 | 10.60 | 0.30 | 9.60 | 0.30 | 8.90 | 0.50 | 7.50 | 0.10 | 5.40 | 0.20 | 8.40 | 0.40 | 6.60 | 0.10 | 5.40 | 0.10 | 8.10 | 0.30 | 2.20 | 0.10 |
| 11 | 11.60 | 0.40 | 11.70 | 0.10 | 10.60 | 0.10 | 9.80 | 0.20 | 8.00 | 0.10 | 6.00 | 0.10 | 9.30 | 0.15 | 7.20 | 0.10 | 6.00 | 0.10 | 9.00 | 0.20 | 2.40 | 0.10 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |

Site Maximum 1.00

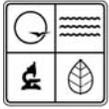
Site Median 0.30



1. Upstream Site 1, Transect 1



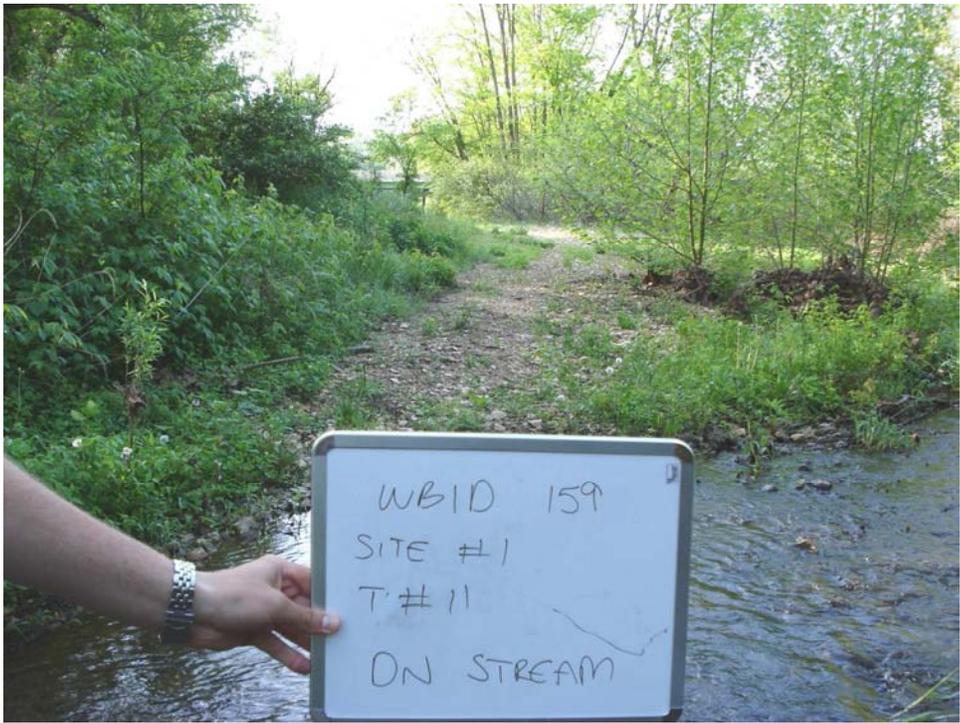
2. Downstream Site 1, Transect 1



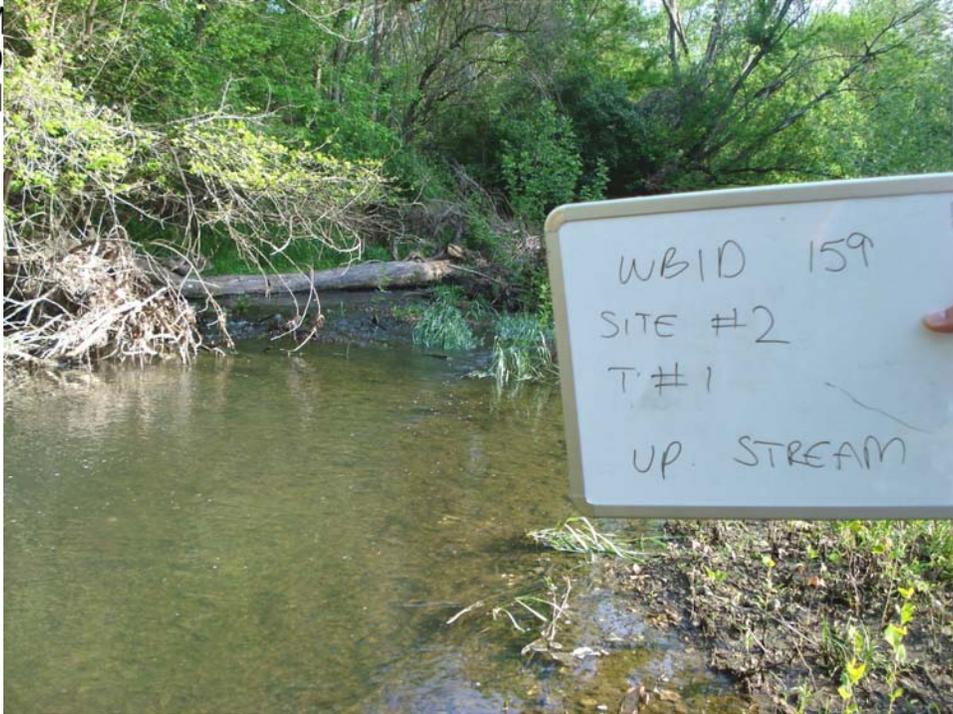
N
D
M



3. Upstream Site 1, Transect 7 Tire Tracks



4. Downstream Site 1, Transect 11 Tire Tracks



5. Upstream Site 2, Transect 1



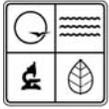
6. Downstream Site 2, Transect 1



7. Downstream Site 2, Transect 3 Tire Tracks



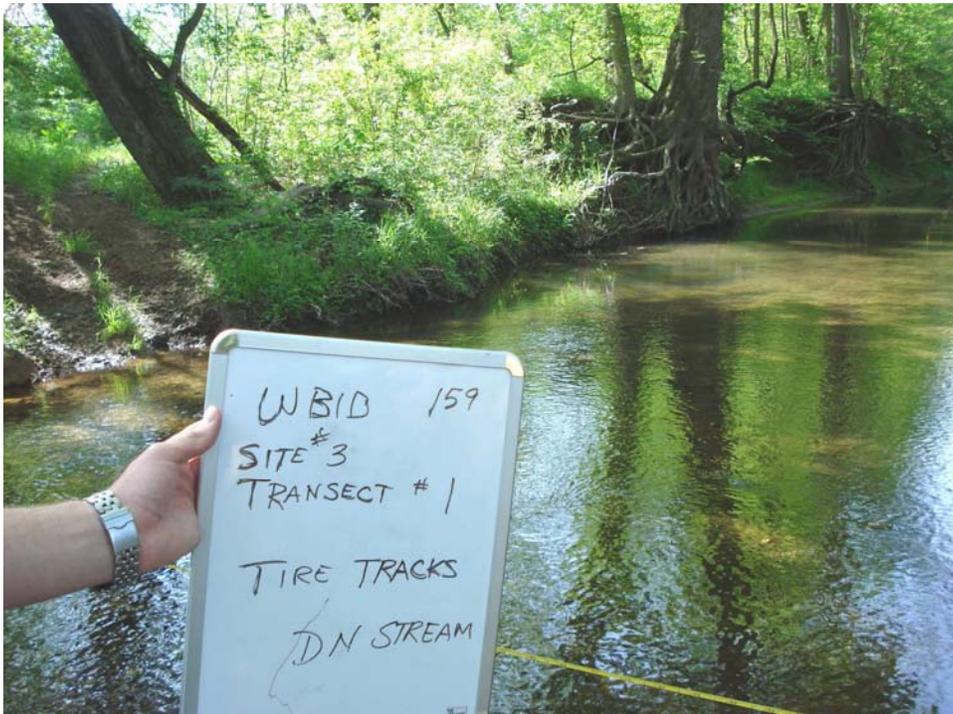
8. Downstream Site 2, Transect 5 Tire Tracks



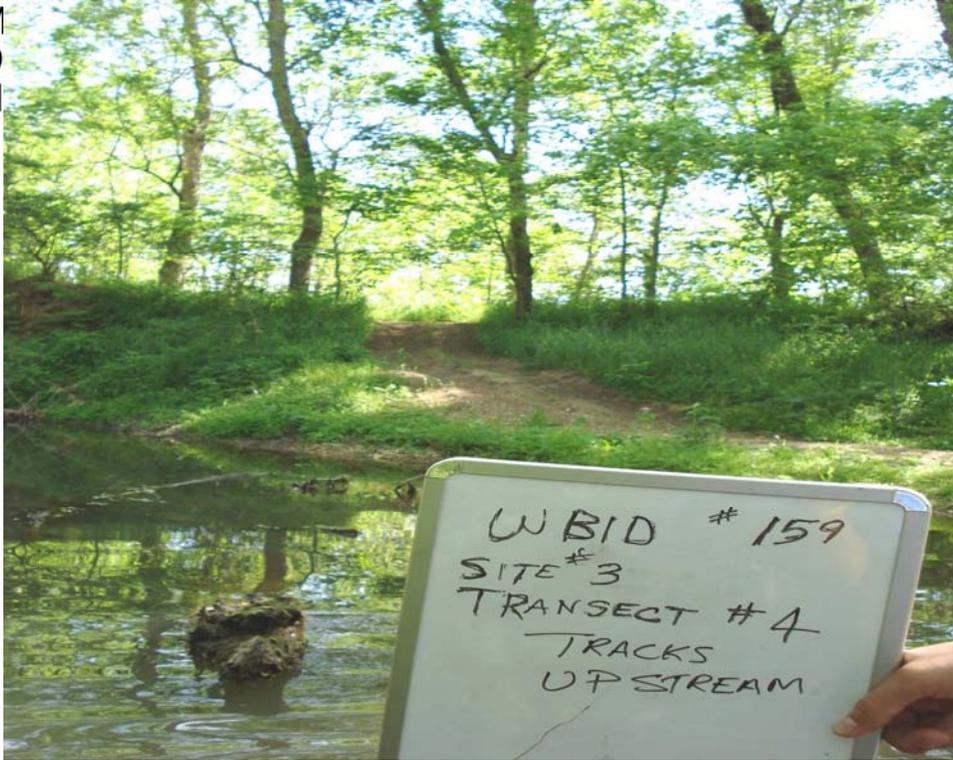
M
D
N



9. Upstream Site 3, Transect 1



10. Downstream Site 3, Transect 1 Tire Tracks



11. Upstream Site 3, Transect 4 Tire Tracks