

Stream & Location: Abram Creek upstream of confluence w/ Kelly Lake RM: 0.04 Date: 09/24/12

Scorers Full Name & Affiliation: Seth Hathorn, Jan Brewer, Northeast Ohio Regional Sewer District

River Code: STORET #: Lat./ Long.: 41.417618, 1.8668 Office verified location

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Includes categories: BEST TYPES, OTHER TYPES, ORIGIN, and QUALITY. Includes a 'Substrate' score box with value 15.

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts... Includes categories: UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS, ROOTWADS, BOULDERS, OXBOWS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS. Includes an 'Amount' score box with value 13.

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). Includes categories: SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY. Includes a 'Channel' score box with value 11.

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). Includes categories: EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY. Includes a 'Riparian' score box with value 7.

5) POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY. Includes a 'Recreation Potential' box and a 'Pool / Current' score box with value 6.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Includes categories: RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, RIFFLE / RUN EMBEDDEDNESS. Includes a 'Riffle / Run' score box with value 5.

6) GRADIENT (31.25 ft/mi) DRAINAGE AREA (10.8 mi^2). Includes categories: GRADIENT, DRAINAGE AREA. Includes a 'Gradient' score box with value 6.

**AJ SAMPLED REACH**

Check ALL that apply

**METHOD**

- BOAT
- WADE
- L. LINE
- OTHER

**STAGE**

- 1st sample pass-- 2nd
- HIGH
- UP
- NORMAL
- LOW
- DRY

**DISTANCE**

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

**CLARITY**

- 1st --sample pass-- 2nd
- < 20 cm
- 20-40 cm
- 40-70 cm
- > 70 cm/ CTB
- SECCHI DEPTH

meters

**CANOPY**

- > 85%- OPEN
- 55%-<85%
- 30%-<55%
- 10%-<30%
- <10%- CLOSED

**CJ RECREATION**

- AREA DEPTH
- POOL:  >100r2  >3ft

**BJ AESTHETICS**

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

**DJ MAINTENANCE**

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

**EJ ISSUES**

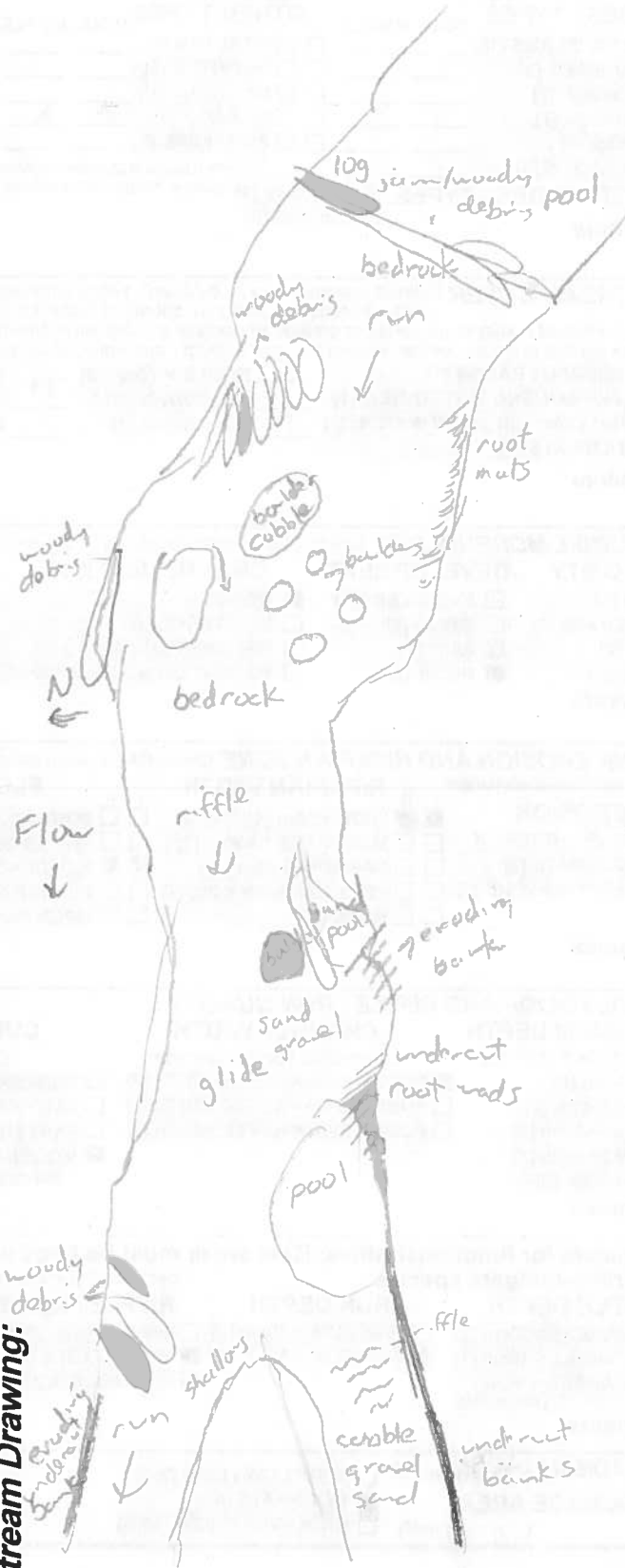
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
- ACID / MINE / QJARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

**FJ MEASUREMENTS**

- $\bar{x}$  width
- $\bar{x}$  depth
- max. depth
- $\bar{x}$  bankfull width
- bankfull  $\bar{x}$  depth
- W/D ratio
- bankfull max. depth
- floodprone  $\bar{x}$  width
- entrench. ratio

Legacy Tree:

**Stream Drawing:**



Comment RE: Reach consistency/ Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

**Stream & Location:** Abram Creek W/entrance of RR tracks W of Millers **RM:** 3.65 **Date:** 07/24/12

Seth Hothem, Jonathan Braver **Scorers Full Name & Affiliation:** Northeast Ohio Regional Sewer District

**River Code:** - **STORET #:** - **Lat./Long.:** 41.3920 181.8383 **Office verified location**

**1) SUBSTRATE** Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

<p><b>BEST TYPES</b></p> <input type="checkbox"/> BLDR//SLABS [10] <input type="checkbox"/> BOULDER [9] <input type="checkbox"/> COBBLE [8] <input type="checkbox"/> GRAVEL [7] <input checked="" type="checkbox"/> SAND [6] <input type="checkbox"/> BEDROCK [5]	<p><b>POOL RIFFLE</b></p> <p><u>X</u> <u>      </u>  <u>X</u> <u>      </u>  <u>X</u> <u>      </u>  <u>X</u> <u>      </u></p>	<p><b>OTHER TYPES</b></p> <input type="checkbox"/> HARDPAN [4] <input type="checkbox"/> DETRITUS [3] <input type="checkbox"/> MUCK [2] <input checked="" type="checkbox"/> SILT [2] <input type="checkbox"/> ARTIFICIAL [0]	<p><b>POOL RIFFLE</b></p> <p><u>      </u> <u>      </u>  <u>X</u> <u>      </u>  <u>X</u> <u>      </u>  <u>X</u> <u>      </u></p>	<p><b>ORIGIN</b></p> <input type="checkbox"/> LIMESTONE [1] <input checked="" type="checkbox"/> TILLS [1] <input type="checkbox"/> WETLANDS [0] <input type="checkbox"/> HARDPAN [0] <input type="checkbox"/> SANDSTONE [0] <input type="checkbox"/> RIP/RAP [0] <input type="checkbox"/> LACUSTURINE [0] <input type="checkbox"/> SHALE [-1] <input type="checkbox"/> COAL FINES [-2]	<p><b>QUALITY</b></p> <input checked="" type="checkbox"/> HEAVY [-2] <input type="checkbox"/> MODERATE [-1] <input type="checkbox"/> NORMAL [0] <input type="checkbox"/> FREE [1] <input checked="" type="checkbox"/> EXTENSIVE [-2] <input type="checkbox"/> MODERATE [-1] <input type="checkbox"/> NORMAL [0] <input type="checkbox"/> NONE [1]	<p>SILT</p> <p>EMBEDDEDNESS</p>	<div style="border: 1px solid black; border-radius: 15px; padding: 5px; width: 40px; text-align: center; margin: 0 auto;">7</div> <p>Substrate Maximum 20</p>
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**NUMBER OF BEST TYPES:**  4 or more [2]  3 or less [0]

**Comments**

**2) INSTREAM COVER** Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

<p><u>2</u> UNDERCUT BANKS [1]  <u>1</u> OVERHANGING VEGETATION [1]  <u>1</u> SHALLOWS (IN SLOW WATER) [1]  <u>1</u> ROOTMATS [1]</p>	<p><u>1</u> POOLS &gt; 70cm [2]  <u>1</u> ROOTWADS [1]  <u>1</u> BOULDERS [1]</p>	<p><u>0</u> OXBOWS, BACKWATERS [1]  <u>0</u> AQUATIC MACROPHYTES [1]  <u>2</u> LOGS OR WOODY DEBRIS [1]</p>	<p><b>AMOUNT</b></p> <input type="checkbox"/> EXTENSIVE >75% [11] <input checked="" type="checkbox"/> MODERATE 25-75% [7] <input type="checkbox"/> SPARSE 5-<25% [3] <input type="checkbox"/> NEARLY ABSENT <5% [1]
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**Comments**

**Cover**  
Maximum  
20

16

**3) CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

<p><b>SINUOSITY</b></p> <input type="checkbox"/> HIGH [4] <input type="checkbox"/> MODERATE [3] <input type="checkbox"/> LOW [2] <input checked="" type="checkbox"/> NONE [1]	<p><b>DEVELOPMENT</b></p> <input type="checkbox"/> EXCELLENT [7] <input type="checkbox"/> GOOD [5] <input type="checkbox"/> FAIR [3] <input checked="" type="checkbox"/> POOR [1]	<p><b>CHANNELIZATION</b></p> <input type="checkbox"/> NONE [6] <input checked="" type="checkbox"/> RECOVERED [4] <input checked="" type="checkbox"/> RECOVERING [3] <input type="checkbox"/> RECENT OR NO RECOVERY [1]	<p><b>STABILITY</b></p> <input checked="" type="checkbox"/> HIGH [3] <input type="checkbox"/> MODERATE [2] <input type="checkbox"/> LOW [1]
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**Comments**

**Channel**  
Maximum  
20

8.5

**4) BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

<p><b>EROSION</b></p> <input type="checkbox"/> NONE / LITTLE [3] <input checked="" type="checkbox"/> MODERATE [2] <input type="checkbox"/> HEAVY / SEVERE [1]	<p><b>RIPARIAN WIDTH</b></p> <input type="checkbox"/> WIDE > 50m [4] <input type="checkbox"/> MODERATE 10-50m [3] <input checked="" type="checkbox"/> NARROW 5-10m [2] <input type="checkbox"/> VERY NARROW < 5m [1] <input type="checkbox"/> NONE [0]	<p><b>FLOOD PLAIN QUALITY</b></p> <input type="checkbox"/> FOREST, SWAMP [3] <input type="checkbox"/> SHRUB OR OLD FIELD [2] <input checked="" type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1] <input type="checkbox"/> FENCED PASTURE [1] <input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<p><b>CONSERVATION TILLAGE [1]</b>  <input type="checkbox"/> URBAN OR INDUSTRIAL [0]  <input type="checkbox"/> MINING / CONSTRUCTION [0]</p>
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**Comments**

**Riparian**  
Maximum  
10

5

**5) POOL / GLIDE AND RIFFLE / RUN QUALITY**

<p><b>MAXIMUM DEPTH</b> Check ONE (ONLY!)</p> <input type="checkbox"/> > 1m [6] <input checked="" type="checkbox"/> 0.7-<1m [4] <input type="checkbox"/> 0.4-<0.7m [2] <input type="checkbox"/> 0.2-<0.4m [1] <input type="checkbox"/> < 0.2m [0]	<p><b>CHANNEL WIDTH</b> Check ONE (Or 2 &amp; average)</p> <input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2] <input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1] <input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<p><b>CURRENT VELOCITY</b> Check ALL that apply</p> <input type="checkbox"/> TORRENTIAL [-1] <input type="checkbox"/> VERY FAST [1] <input type="checkbox"/> FAST [1] <input checked="" type="checkbox"/> MODERATE [1] <input checked="" type="checkbox"/> SLOW [1] <input type="checkbox"/> INTERSTITIAL [-1] <input type="checkbox"/> INTERMITTENT [-2] <input type="checkbox"/> EDDIES [1] <p style="text-align: center; font-size: small;">Indicate for reach - pools and riffles.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><b>Recreation Potential</b></p> <p>Primary Contact</p> <p>Secondary Contact</p> <p>(circle one and comment on back)</p> </div>
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**Comments**

**Pool / Current**  
Maximum  
12

7

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:  NO RIFFLE [metric=0]

Check ONE (Or 2 & average).

<p><b>RIFFLE DEPTH</b></p> <input type="checkbox"/> BEST AREAS > 10cm [2] <input type="checkbox"/> BEST AREAS 5-10cm [1] <input type="checkbox"/> BEST AREAS < 5cm [metric=0]	<p><b>RUN DEPTH</b></p> <input type="checkbox"/> MAXIMUM > 50cm [2] <input type="checkbox"/> MAXIMUM < 50cm [1]	<p><b>RIFFLE / RUN SUBSTRATE</b></p> <input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2] <input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1] <input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<p><b>RIFFLE / RUN EMBEDDEDNESS</b></p> <input type="checkbox"/> NONE [2] <input type="checkbox"/> LOW [1] <input type="checkbox"/> MODERATE [0] <input type="checkbox"/> EXTENSIVE [-1]
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**Comments**

**Riffle / Run**  
Maximum  
8

0

**6) GRADIENT** 7.19 ft/mi  VERY LOW - LOW [2-4]  MODERATE [6-10]  HIGH - VERY HIGH [10-6]

**DRAINAGE AREA** ( 7.3 mi<sup>2</sup>)

**%POOL:**  **%GLIDE:**   
**%RUN:**  **%RIFFLE:**

**Comments**

**Gradient**  
Maximum  
10

16

*Gradient change from 7.14 to 7.19*



Stream & Location: Abram Creek Western Wildcat Road RM: 4110 Date: 7/24/12

Jon Brauer Seth Hothorn Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: STORET #: Lat./ Long.: 41.3920 81.8379 Office verified location

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Includes categories: BEST TYPES, OTHER TYPES, ORIGIN, and QUALITY. Includes a 'Substrate' box with a score of 1 and a maximum of 20.

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts... Includes categories: UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS, ROOTWADS, BOULDERS, OXBOWS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS. Includes an 'AMOUNT' box with a score of 17 and a maximum of 20.

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). Includes categories: SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY. Includes a 'Channel' box with a score of 8.5 and a maximum of 20.

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). Includes categories: EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY. Includes a 'Riparian' box with a score of 4.25 and a maximum of 10.

5) POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY. Includes a 'Recreation Potential' box with 'Primary Contact' and 'Secondary Contact' options. Includes a 'Pool / Current' box with a score of 4 and a maximum of 12.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). Includes categories: RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, RIFFLE / RUN EMBEDDEDNESS. Includes a 'Riffle / Run' box with a score of 0 and a maximum of 8.

6) GRADIENT (0.11 ft/mi) DRAINAGE AREA (4.44 mi^2). Includes categories: VERY LOW - LOW, MODERATE, HIGH - VERY HIGH. Includes a 'Gradient' box with a score of 2 and a maximum of 10.

Gradient change from 7.14 to 0.10 [impounded]



Comment RE: Reach consistency/Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

**AJ SAMPLED REACH**

Check ALL that apply

**METHOD**

- BOAT
- WADE
- L. LINE
- OTHER

**STAGE**

- 1st -sample pass-- 2nd
- HIGH
  - UP
  - NORMAL
  - LOW
  - DRY

**DISTANCE**

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

**CLARITY**

- 1st 2nd
- < 20 cm
  - 20-40 cm
  - 40-70 cm
  - > 70 cm/ CTB
  - SECCHI DEPTH

meters

**CANOPY**

- > 85%- OPEN
- 55%-<85%
- 30%-<55%
- 10%-<30%
- <10%- CLOSED

**CJ RECREATION**

- AREA DEPTH
- POOL:  >100R2  >3ft

**BJ AESTHETICS**

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/ISSOs/OUTFALLS

**DJ MAINTENANCE**

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCOURED
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

**EJ ISSUES**

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

**FJ MEASUREMENTS**

- $\bar{x}$  width
- $\bar{x}$  depth
- max. depth
- $\bar{x}$  bankfull width
- bankfull  $\bar{x}$  depth
- W/D ratio
- bankfull max. depth
- floodprone  $\bar{x}^2$  width
- entrench. ratio

Legacy Tree:

**Stream Drawing:**

