



# Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

**QHEI Score:** 65.75

**Stream & Location:** Big Creek 3926 Valley Rd. **RM:** 1.00 **Date:** 12/2/14  
Zablotny Eric S. **Scorers Full Name & Affiliation:** Northeast Ohio Regional Sewer District  
**River Code:** 1 **STORET #:**            **Lat./ Long.:** 41.4436 181.6996 **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 type="checkbox"/> SAND [6] <input type="checkbox"/> BEDROCK [5]	<p><b>POOL RIFFLE</b></p> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p><b>OTHER TYPES</b></p> <input type="checkbox"/> HARDPAN [4] <input type="checkbox"/> DETRITUS [3] <input type="checkbox"/> MUCK [2] <input type="checkbox"/> SILT [2] <input type="checkbox"/> ARTIFICIAL [0]	<p><b>POOL RIFFLE</b></p> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<p><b>ORIGIN</b></p> <input type="checkbox"/> LIMESTONE [1] <input 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 type="checkbox"/> HEAVY [-2] <input type="checkbox"/> MODERATE [-1] <input type="checkbox"/> NORMAL [0] <input type="checkbox"/> FREE [1] <input type="checkbox"/> EXTENSIVE [-2] <input type="checkbox"/> MODERATE [-1] <input type="checkbox"/> NORMAL [0] <input type="checkbox"/> NONE [1]	<p><b>SILT</b></p> <p><b>EMBEDDEDNESS</b></p>	<p><b>Substrate</b></p> <div style="border: 1px solid black; border-radius: 10px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">15</div> <p>Maximum 20</p>
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**NUMBER OF BEST TYPES:**  4 or more [2]  3 or less [0] (Score natural substrates; ignore sludge from point-sources)

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

**Cover**  
Maximum 20 7

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

**Channel**  
Maximum 20 13

**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 checked="" 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 checked="" 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 type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1] <input type="checkbox"/> FENCED PASTURE [1] <input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<p><b>CONSERVATION TILLAGE</b> [1]  <input checked="" type="checkbox"/> URBAN OR INDUSTRIAL [0]  <input type="checkbox"/> MINING / CONSTRUCTION [0]</p>
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**Comments** 2.5+2 2.25 1.5

**Riparian**  
Maximum 10 3.75

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

<p><b>MAXIMUM DEPTH</b></p> <p>Check ONE (ONLY!)</p> <input checked="" type="checkbox"/> > 1m [6] <input 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></p> <p>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></p> <p>Check ALL that apply</p> <input type="checkbox"/> TORRENTIAL [-1] <input checked="" type="checkbox"/> VERY FAST [1] <input checked="" type="checkbox"/> FAST [1] <input checked="" type="checkbox"/> MODERATE [1] <input type="checkbox"/> SLOW [1] <input type="checkbox"/> INTERSTITIAL [-1] <input type="checkbox"/> INTERMITTENT [-2] <input type="checkbox"/> EDDIES [1] <p>Indicate for reach - pools and riffles.</p>	<p><b>Recreation Potential</b></p> <p><b>Primary Contact</b></p> <p><b>Secondary Contact</b></p> <p>(circle one and comment on back)</p>
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**Comments** \_\_\_\_\_

**Pool / Current**  
Maximum 12 11

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).  NO RIFFLE [metric=0]

<p><b>RIFFLE DEPTH</b></p> <input checked="" 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 checked="" 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 checked="" 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 checked="" type="checkbox"/> LOW [1] <input type="checkbox"/> MODERATE [0] <input type="checkbox"/> EXTENSIVE [-1]
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**Comments** \_\_\_\_\_

**Riffle / Run**  
Maximum 8 6

**6) GRADIENT** (15.66 ft/mi)  VERY LOW - LOW [2-4]  MODERATE [6-10]  HIGH - VERY HIGH [10-6]

**DRAINAGE AREA** (36.9 mi<sup>2</sup>)

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

**Gradient**  
Maximum 10 10

**AJ SAMPLED REACH**

Check ALL that apply

**METHOD**

BOAT       STAGE

WADE       HIGH     

L. LINE     UP       

OTHER      NORMAL

LOW     

DRY     

**DISTANCE**

0.5 Km

0.2 Km

0.15 Km

0.12 Km

OTHER

meters

**CANOPY**

1st pass \_\_\_\_\_ cm

2nd pass \_\_\_\_\_ cm

> 85% - OPEN

55% - 85%

30% - 55%

10% - 30%

< 10% - CLOSED

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

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**CLARITY**

1st - sample pass - 2nd

< 20 cm     

20 - 40 cm   

40 - 70 cm   

> 70 cm / CTB

SECCHI DEPTH

**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

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  $x^2$  width

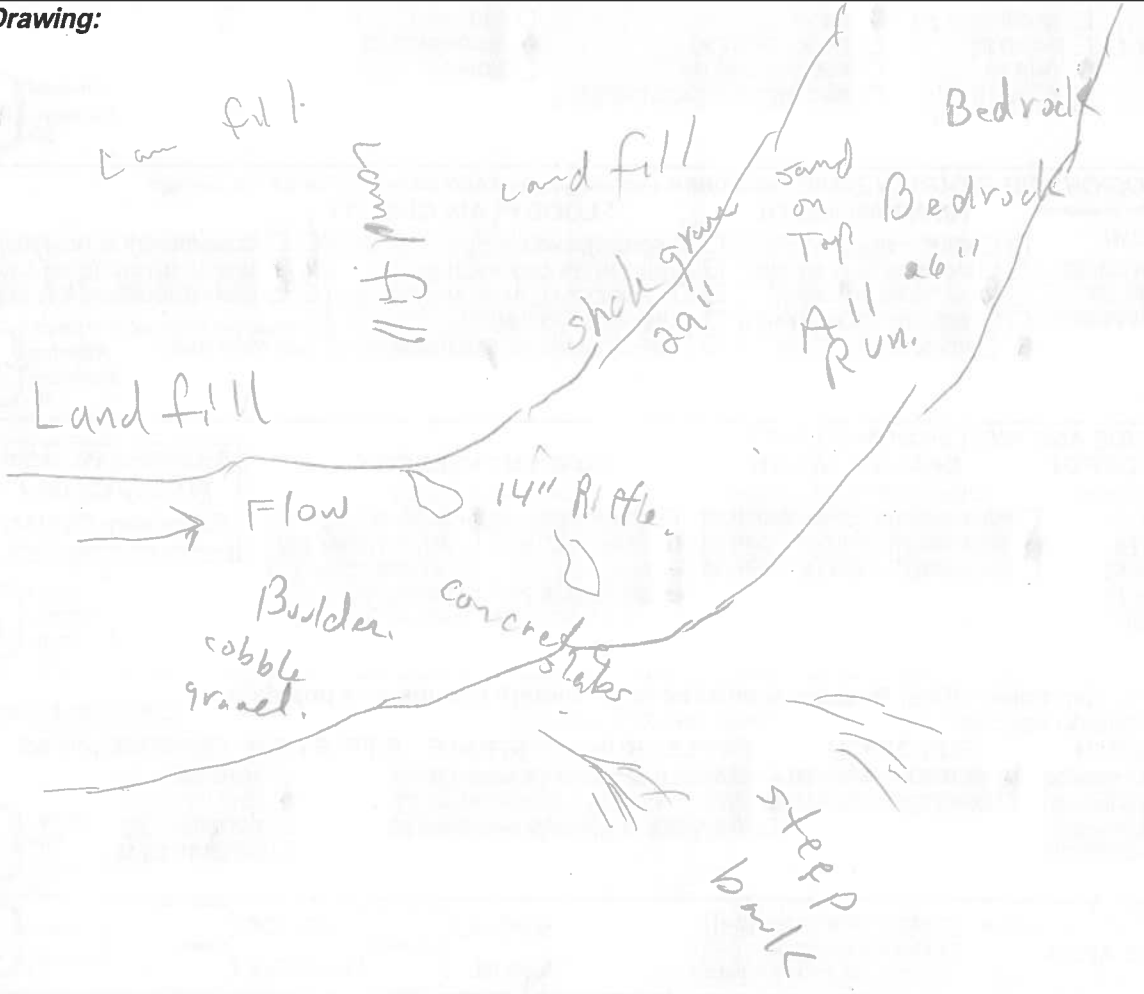
entrench. ratio

Legacy Tree:

**CJ RECREATION**      AREA DEPTH

POOL:  >100ft<sup>2</sup>  >3ft

**Stream Drawing:**



Stream & Location: Big Creek Jennings Rd. RM: 0.15 Date: 02/2/14

Zablotny Eric S. Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: STORET #: Lat./ Long.: 41.4460 78.1.6965 Office verified location

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

Substrate assessment table with categories: BEST TYPES, OTHER TYPES, POOL RIFFLE, ORIGIN, and QUALITY. Includes a score box for 15.

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...

Instream Cover assessment table with categories: UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, POOLS, ROOTWADS, BOULDERS, OXBOWS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS. Includes a score box for 12.

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

Channel Morphology assessment table with categories: SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY. Includes a score box for 12.

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

Bank Erosion and Riparian Zone assessment table with categories: EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY. Includes a score box for 3.

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

Pool / Glide and Riffle / Run Quality assessment table with categories: MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY, Recreation Potential. Includes a score box for 11.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Riffle / Run Quality assessment table with categories: RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, RIFFLE / RUN EMBEDDEDNESS. Includes a score box for 5.

6) GRADIENT (17.6 ft/ml)

Gradient assessment table with categories: DRAINAGE AREA, GRADIENT, % POOL, % GLIDE, % RUN, % RIFFLE. Includes a score box for 10.

**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

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

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- CLARITY**
- 1st-sample pass- 2nd
- < 20 cm
  - 20-40 cm
  - 40-70 cm
  - > 70 cm/ CTB
  - SECCHI DEPTH
- CANOPY**
- 1st pass \_\_\_\_\_ cm
- 2nd pass \_\_\_\_\_ cm
- > 85% - OPEN
  - 55% - 85%
  - 30% - 55%
  - 10% - 30%
  - < 10% - CLOSED

- 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

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  $x^2$  width
  - entrench. ratio
  - Legacy Tree:

**Stream Drawing:**

