

Stream & Location: CHAGRIN RIVER VS of WELBY Creek RM: 36-70 Date: 08/29/14

Roads / Notation: Scores Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: STORET #: Lat./ Long.: 41.4250 181.4176 Office verified location

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average). BEST TYPES: BLDR/SLABS [10], BOULDER [9], COBBLE [8], GRAVEL [7], SAND [6], BEDROCK [6]. OTHER TYPES: HARDPAN [4], DETRITUS [3], MUCK [2], SILT [2], ARTIFICIAL [0]. ORIGIN: LIMESTONE [1], TILLS [1], WETLANDS [0], HARDPAN [0], SANDSTONE [0], RIP/RAP [0], LACUSTURINE [0], SHALE [-1], COAL FINES [-2]. QUALITY: HEAVY [-2], MODERATE [-1], NORMAL [0], FREE [1], EXTENSIVE [-2], MODERATE [-1], NORMAL [0], NONE [1].

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. UNDERCUT BANKS [1], OVERHANGING VEGETATION [1], SHALLOWS (IN SLOW WATER) [1], ROOTMATS [1]. POOLS > 70cm [2], ROOTWADS [1], BOULDERS [1]. OXBOWS, BACKWATERS [1], AQUATIC MACROPHYTES [1], LOGS OR WOODY DEBRIS [1]. AMOUNT: EXTENSIVE >75% [11], MODERATE 25-75% [7], SPARSE 5-<25% [3], NEARLY ABSENT <5% [1].

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY: HIGH [4], MODERATE [3], LOW [2], NONE [1]. DEVELOPMENT: EXCELLENT [7], GOOD [5], FAIR [3], POOR [1]. CHANNELIZATION: NONE [6], RECOVERED [4], RECOVERING [3], RECENT OR NO RECOVERY [1]. STABILITY: HIGH [3], MODERATE [2], LOW [1].

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). River right looking downstream. EROSION: NONE / LITTLE [3], MODERATE [2], HEAVY / SEVERE [1]. RIPARIAN WIDTH: WIDE > 50m [4], MODERATE 10-50m [3], NARROW 5-10m [2], VERY NARROW < 5m [1], NONE [0]. FLOOD PLAIN QUALITY: FOREST, SWAMP [3], SHRUB OR OLD FIELD [2], RESIDENTIAL, PARK, NEW FIELD [1], FENCED PASTURE [1], OPEN PASTURE, ROWCROP [0]. CONSERVATION TILLAGE [1], URBAN OR INDUSTRIAL [0], MINING / CONSTRUCTION [0].

5) POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH: > 1m [6], 0.7-<1m [4], 0.4-<0.7m [2], 0.2-<0.4m [1], < 0.2m [0]. CHANNEL WIDTH: POOL WIDTH > RIFFLE WIDTH [2], POOL WIDTH = RIFFLE WIDTH [1], POOL WIDTH < RIFFLE WIDTH [0]. CURRENT VELOCITY: TORRENTIAL [-1], VERY FAST [1], FAST [1], MODERATE [1], SLOW [1], INTERSTITIAL [-1], INTERMITTENT [-2], EDDIES [1]. Recreation Potential: Primary Contact, Secondary Contact. Pool / Current Maximum 12.

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]. RIFFLE DEPTH: BEST AREAS > 10cm [2], BEST AREAS 5-10cm [1], BEST AREAS < 5cm [metric=0]. RUN DEPTH: MAXIMUM > 50cm [2], MAXIMUM < 50cm [1]. RIFFLE / RUN SUBSTRATE: STABLE (e.g., Cobble, Boulder) [2], MOD. STABLE (e.g., Large Gravel) [1], UNSTABLE (e.g., Fine Gravel, Sand) [0]. RIFFLE / RUN EMBEDDEDNESS: NONE [2], LOW [1], MODERATE [0], EXTENSIVE [-1]. Riffle / Run Maximum 8.

6) GRADIENT (37.04 ft/ml) DRAINAGE AREA (120.0 m^2). VERY LOW - LOW [2-4], MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL: %, %GLIDE: %, %RUN: %, %RIFFLE: %. Gradient Maximum 10.

**AJ SAMP** **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
- SECHCHI DEPTH

meters

**CANOPY**

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

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

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

**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**

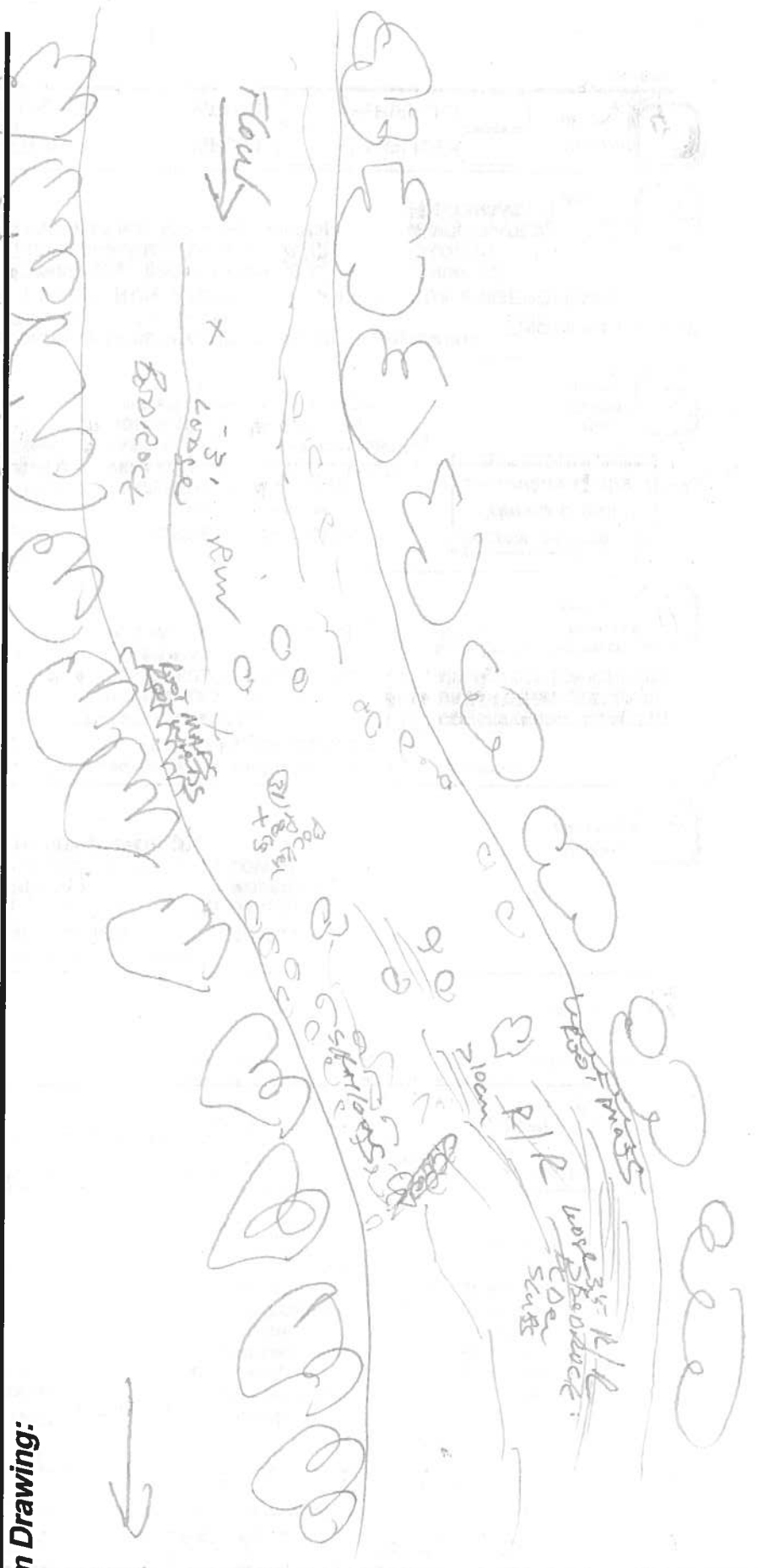
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / 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:**



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

**Stream & Location:** CHAGARDIN REGIONAL DISTRICT PEPPER-WOOD CREEK RM: 22.60 Date: 08/29/14

RHOADES / HORTON **Scorer's Full Name & Affiliation:** Northeast Ohio Regional Sewer District

**River Code:** - - **STORET #:** - **Lat./Long.:** 41.4707 181.4052 (NAD 83 - decimal) **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 checked="" type="checkbox"/> COBBLE [8] <input checked="" type="checkbox"/> GRAVEL [7] <input type="checkbox"/> SAND [6] <input type="checkbox"/> BEDROCK [5]	<p><b>POOL RIFFLE</b></p> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" 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 checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<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 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 checked="" type="checkbox"/> MODERATE [-1] <input type="checkbox"/> NORMAL [0] <input type="checkbox"/> NONE [1]	<p><b>EMBEDDEDNESS</b></p> <p>SILT</p>	<p><b>Substrate</b></p> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">17</div> <p>Maximum 20</p>
--	---	--	---	--	---	--	--

**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><b>UNDERCUT BANKS</b> [1]</p> <p><b>OVERHANGING VEGETATION</b> [1]</p> <p><b>SHALLOWS (IN SLOW WATER)</b> [1]</p> <p><b>ROOTMATS</b> [1]</p>	<p><b>POOLS &gt; 70cm</b> [2]</p> <p><b>ROOTWADS</b> [1]</p> <p><b>BOULDERS</b> [1]</p>	<p><b>OXBOWS, BACKWATERS</b> [1]</p> <p><b>AQUATIC MACROPHYTES</b> [1]</p> <p><b>LOGS OR WOODY DEBRIS</b> [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]
---	---	---	--

**Comments**

**Channel**  
Maximum 20 10

**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 checked="" type="checkbox"/> GOOD [5] <input 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 checked="" type="checkbox"/> HIGH [3] <input type="checkbox"/> MODERATE [2] <input type="checkbox"/> LOW [1]
--	--	--	---

**Comments**

**Channel**  
Maximum 20 15

**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 checked="" type="checkbox"/> WIDE > 50m [4] <input type="checkbox"/> MODERATE 10-50m [3] <input 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 checked="" 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</b> [1]  <input type="checkbox"/> URBAN OR INDUSTRIAL [0]  <input type="checkbox"/> MINING / CONSTRUCTION [0]</p> <p>Indicate predominant land use(s) past 100m riparian.</p>
---	--	---	--

**Comments**

**Riparian**  
Maximum 10 6.5

**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 checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2] <input 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 type="checkbox"/> VERY FAST [1] <input checked="" type="checkbox"/> FAST [1] <input checked="" type="checkbox"/> MODERATE [1]	<p>Check ALL that apply</p> <input checked="" type="checkbox"/> SLOW [1] <input type="checkbox"/> INTERSTITIAL [-1] <input type="checkbox"/> INTERMITTENT [-2] <input checked="" type="checkbox"/> EDDIES [1]	<p><b>Recreation Potential</b></p> <p>Primary Contact</p> <p>Secondary Contact</p> <p><small>(circle one and comment on back)</small></p>
---	---	---	--	---

**Comments**

**Pool / Current**  
Maximum 12 12

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 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 checked="" 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 checked="" type="checkbox"/> MODERATE [0] <input type="checkbox"/> EXTENSIVE [-1]
--	---	---	--

**Comments**

**Riffle / Run**  
Maximum 8 6

**6] GRADIENT** (10.53 ft/ml)  VERY LOW - LOW [2-4]  MODERATE [6-10]  HIGH - VERY HIGH [10-6]

**DRAINAGE AREA** (153 ml<sup>2</sup>)

**% POOL:**  **% GLIDE:**

**% RUN:**  **% RIFFLE:**

**Gradient**  
Maximum 10 8

**AJ SAMP 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/ C/TB  
 SECCHI DEPTH

**CLARITY**  
 1st 2nd  
 < 20 cm  
 20-40 cm  
 40-70 cm  
 > 70 cm/ C/TB  
 SECCHI DEPTH

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

**CJ RECREATION**  
 AREA DEPTH  
 POOL:  > 100ft²  > 3ft

**DJ MAINTENANCE** Circle some & COMMENT

- 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

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

- 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:**



Stream & Location: Pepper-Luce DS of creeks de WWTP RM: 3.30 Date: 01/19/14

E Soehren, J. Kniffle, D. Friedman Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: - STORET #: - Lat./ Long.: 41.47 18.44 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average) ORIGIN QUALITY. Includes categories like BLDR/SLABS, BOULDER, COBBLE, GRAVEL, SAND, BEDROCK, LIMESTONE, SILT, etc.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts... AMOUNT Check ONE (Or 2 & average). Includes categories like UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS, ROOTWADS, BOULDERS, OXBOWS, BACKWATERS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS.

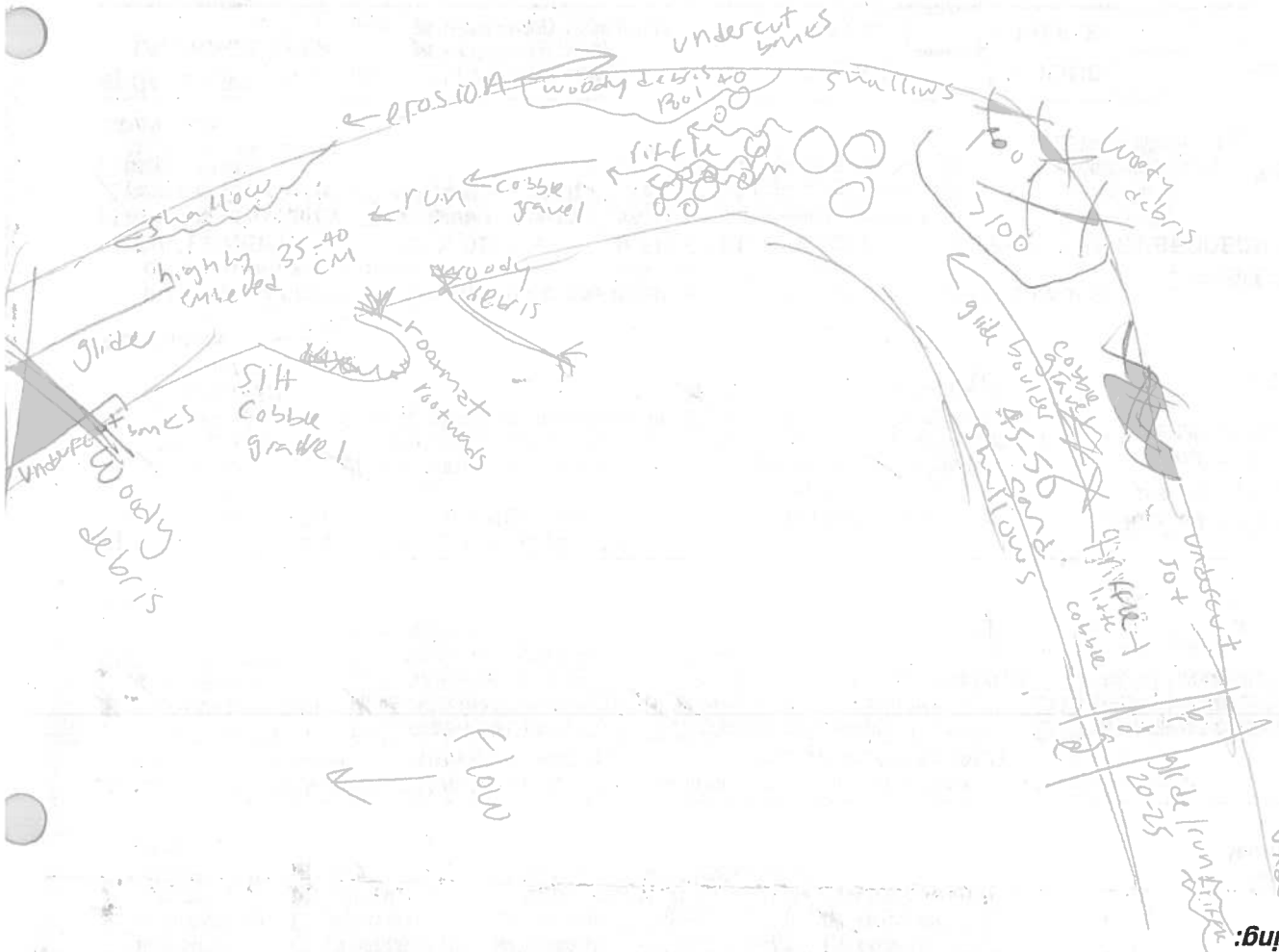
3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average) SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY. Includes categories like HIGH, MODERATE, LOW, NONE, EXCELLENT, GOOD, FAIR, POOR, NONE, RECOVERED, RECOVERING, RECENT OR NO RECOVERY, HIGH, MODERATE, LOW.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average) RIPARIAN WIDTH FLOOD PLAIN QUALITY. Includes categories like EROSION, MODERATE, HEAVY/SEVERE, WIDE, MODERATE, NARROW, VERY NARROW, NONE, FOREST, SWAMP, SHRUB OR OLD FIELD, RESIDENTIAL, PARK, NEW FIELD, FENCED PASTURE, OPEN PASTURE, ROWCROP, CONSERVATION TILLAGE, URBAN OR INDUSTRIAL, MINING / CONSTRUCTION.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH CHANNEL WIDTH CURRENT VELOCITY Recreation Potential Primary Contact Secondary Contact. Includes categories like > 1m, 0.7-1m, 0.4-0.7m, 0.2-0.4m, < 0.2m, POOL WIDTH > RIFFLE WIDTH, POOL WIDTH = RIFFLE WIDTH, POOL WIDTH < RIFFLE WIDTH, TORRENTIAL, VERY FAST, FAST, MODERATE, SLOW, INTERSTITIAL, INTERMITTENT, EDDIES.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: RIFFLE DEPTH RUN DEPTH RIFFLE / RUN SUBSTRATE RIFFLE / RUN EMBEDDEDNESS. Includes categories like BEST AREAS > 10cm, BEST AREAS 5-10cm, BEST AREAS < 5cm, MAXIMUM > 50cm, MAXIMUM < 50cm, STABLE, MOD. STABLE, UNSTABLE, NONE, LOW, MODERATE, EXTENSIVE.

6] GRADIENT (20.00 ft/ml) DRAINAGE AREA (7.1 ml^2) VERY LOW - LOW, MODERATE, HIGH - VERY HIGH. %POOL, %GLIDE, %RUN, %RIFFLE. Gradient Maximum 10.



Stream Drawing:

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

**A) SAMPLED REACH**

Check ALL that apply

**METHOD**

1st - sample pass - 2nd

BOAT

WADE

L LINE

OTHER

DISTANCE

0.5 Km

0.2 Km

0.15 Km

0.12 Km

OTHER

1st - sample pass - 2nd

< 20 cm

20-40 cm

40-70 cm

> 70 cm / CTB

SECCI DEPTH

meters

CANOPY

> 85% - OPEN

55% - 85%

30% - 55%

10% - 30%

< 10% - CLOSED

**STAGE**

BOAT

WADE

L LINE

OTHER

LOW

DRY

**CLARITY**

1st - sample pass - 2nd

HIGH

UP

NORMAL

OTHER

**BJ AESTHETICS**

PUBLIC / PRIVATE / BOTH / NA

ACTIVE / HISTORIC / BOTH / NA

YOUNG-SUCCESSION-OLD

MODIFIED / DIPPED OUT / NA

LEAVED / ONE SIDED

RELOCATED / CUTOFFS

MOVING-BEDLOAD-STABLE

ARMOURD / SLUMPS

ISLANDS / SCOURD

IMPOUNDED / DESICCATED

FLOOD CONTROL / DRAINAGE

AREA DEPTH

> 100m<sup>2</sup>

> 3M

POOL:

NUISANCE ALGAE

INVASIVE MACROPHYTES

EXCESS TURBIDITY

DISCOLORATION

FOAM / SCUM

OIL SHEEN

TRASH / LITTER

NUISANCE ODOR

SLUDGE DEPOSITS

CSOs/SSOs/OUTFALLS

**DJ MAINTENANCE**

Circle some & COMMENT

WMP / CSO / NPDES / INDUSTRY

HARDENED / URBAN / DIRTGRIME

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

NATURAL / WETLAND / STAGNANT

ACID / MINE / QUARRY / FLOW

PARK / GOLF / LAWN / HOME

ATMOSPHERE / DATA PAUCITY

**EJ ISSUES**

WMP / CSO / NPDES / INDUSTRY

HARDENED / URBAN / DIRTGRIME

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

NATURAL / WETLAND / STAGNANT

ACID / MINE / QUARRY / FLOW

PARK / GOLF / LAWN / HOME

ATMOSPHERE / DATA PAUCITY

**FJ MEASUREMENTS**

width

depth

max. depth

bankfull width

bankfull depth

W/D ratio

bankfull max. depth

floodprone x<sup>2</sup> width

entrench. ratio

Legacy Tree:

Stream & Location: Wiley Creek Trib to Chagrin RM: 1.00 Date: 09/19/14

Scorers Full Name & Affiliation: Jill Novak / Dawn Feldman Northeast Ohio Regional Sewer District Office verified location

River Code: STORET #: Lat./ Long.: 41.4360 181.4242

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Includes categories: BEST TYPES, OTHER TYPES, ORIGIN, and QUALITY. Includes handwritten scores and a 'Substrate' box with value 18.5.

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 handwritten scores and a 'Cover' box with value 15.

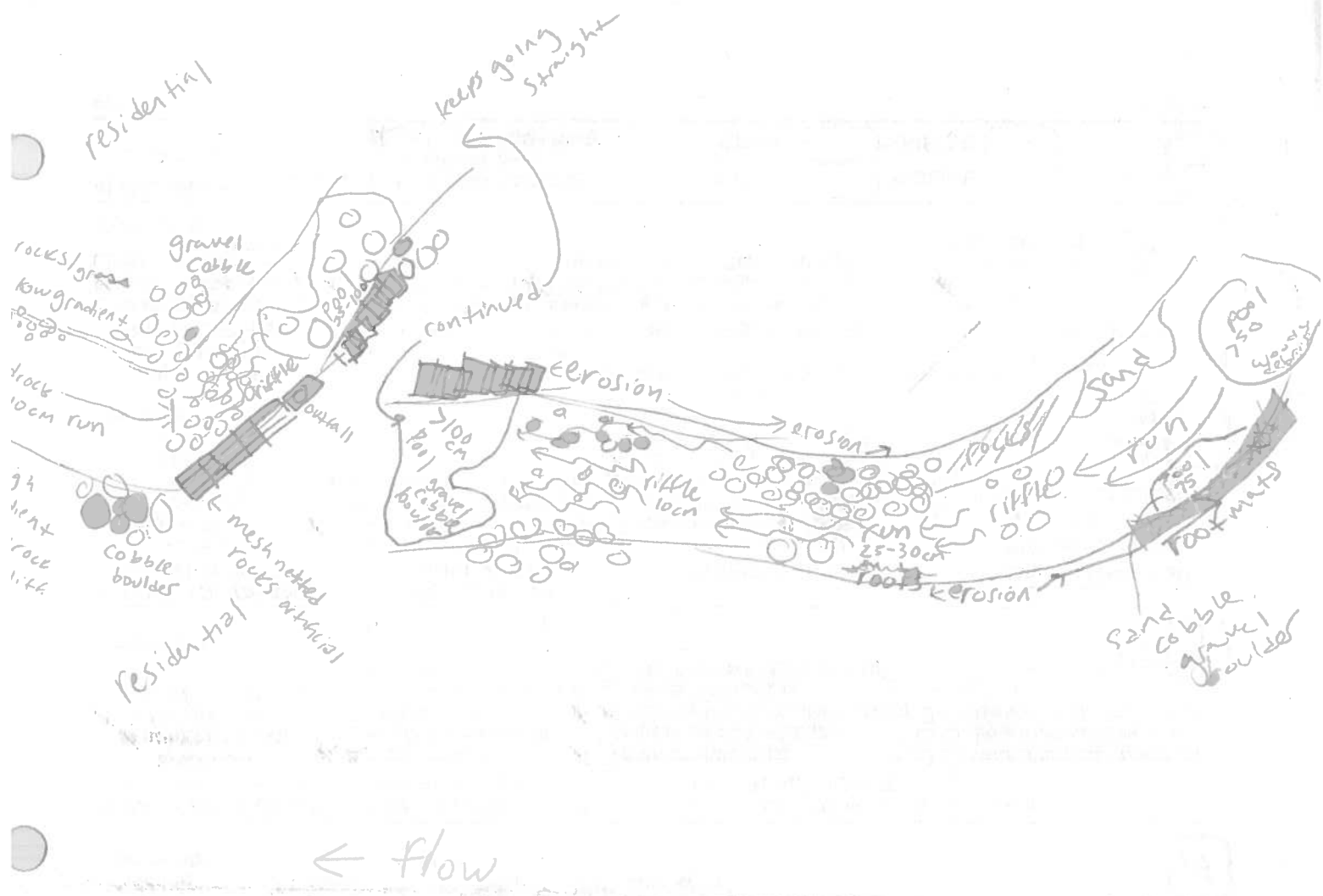
3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). Includes categories: SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY. Includes handwritten scores and a 'Channel' box with value 18.

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, CONSERVATION TILLAGE, URBAN OR INDUSTRIAL, MINING / CONSTRUCTION. Includes handwritten scores and a 'Riparian' box with value 9.

5) POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY. Includes categories: MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY. Includes handwritten scores and a 'Pool / Current' box with value 11.

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 handwritten scores and a 'Riffle / Run' box with value 4.

6) GRADIENT (76.44 ft/mi) DRAINAGE AREA (4.0 mi^2) VERY LOW - LOW, MODERATE, HIGH - VERY HIGH. Includes categories: GRADIENT, DRAINAGE AREA. Includes handwritten scores and a 'Gradient' box with value 4.



**Stream Drawing:**

**A) SAMPLED REACH**  
 Check ALL that apply

**METHOD**

BOAT  
 WADE  
 L. LINE  
 NORMAL  
 OTHER

**DISTANCE**

0.5 Km  
 0.2 Km  
 0.15 Km  
 0.12 Km  
 OTHER

**STAGE**

1st-sample pass- 2nd

HIGH  
 UP  
 NORMAL  
 LOW  
 DRY

**CLARITY**

1st-sample pass- 2nd

< 20 cm  
 20-40 cm  
 40-70 cm  
 > 70 cm/CTB

**CANOPY**

1st-sample pass- 2nd

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

**B) AESTHETICS**

NUISANCE ALGAE  
 INVASIVE MACROPHYTES  
 YOUNG-SUCCESSION-OLD  
 EXCESS TURBIDITY  
 DISCOLORATION  
 FOAM / SCUM  
 OIL SHEEN  
 TRASH / LITTER  
 NUISANCE ODOR  
 SLUDGE DEPOSITS  
 CSOS/SSOS/OUTFALLS

**C) RECREATION**

AREA DEPTH

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

**D) MAINTENANCE**

PUBLIC / PRIVATE / BOTH / NA  
 ACTIVE / HISTORIC / BOTH / NA  
 SPRAY / SNAG / REMOVED  
 MODIFIED / DIPPED OUT / NA  
 LEAVED / ONE SIDED  
 RELOCATED / CUTOFFS  
 MOVING-BEDLOAD-STABLE  
 ARMORED / SLUMPS  
 ISLANDS / SCURED  
 IMPOUNDED / DESICATED  
 FLOOD CONTROL / DRAINAGE

**E) ISSUES**

WMTF / 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

**F) MEASUREMENTS**

W/D ratio  
 bankfull width  
 max. depth  
 bankfull width  
 bankfull max. depth  
 floodprone x<sup>2</sup> width  
 entrench. ratio  
 Legacy Tree:

Circle some & COMMENT

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



Stream & Location: Unnamed trib to Pepper Luce RM: 030 Date: 09/28/14

Fredman, Hothem Hateson Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: STORET #: Lat./ Long. 41.4600 81.4318 Office verified location

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

Substrate assessment grid with categories: BEST TYPES, OTHER TYPES, ORIGIN, and QUALITY. Includes checkboxes for various substrate types and a final score of 17.5.

Comments: 7+8+2+0.5+0+0

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 grid with categories: UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS, ROOTWADS, BOULDERS, OXBOWS, BACKWATERS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS. Includes checkboxes and a final score of 13.

Comments: 6+7

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

Channel morphology assessment grid with categories: SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY. Includes checkboxes and a final score of 13.5.

Comments: 2.5+3+6+2

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 grid with categories: EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY. Includes checkboxes and a final score of 6.

Comments: 2.5+2.5+1

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

Pool/glide and riffle/run quality assessment grid with categories: MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY. Includes checkboxes and a final score of 8.

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

Riffle/run quality assessment grid with categories: RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, RIFFLE / RUN EMBEDDEDNESS. Includes checkboxes and a final score of 3.5.

Comments: 1+1+1+0.5

6) GRADIENT (37.03 ft/ml) DRAINAGE AREA (0.5 ml^2) Assessment grid with categories: GRADIENT, DRAINAGE AREA. Includes checkboxes and a final score of 8.

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

AJ SAMPLEL 4CH

Check ALL apply

**METHOD**

- BOAT
  - WADE
  - L. LINE
  - OTHER
- STAGE**
- 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:  >100R?  >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

**EJ ISSUES**

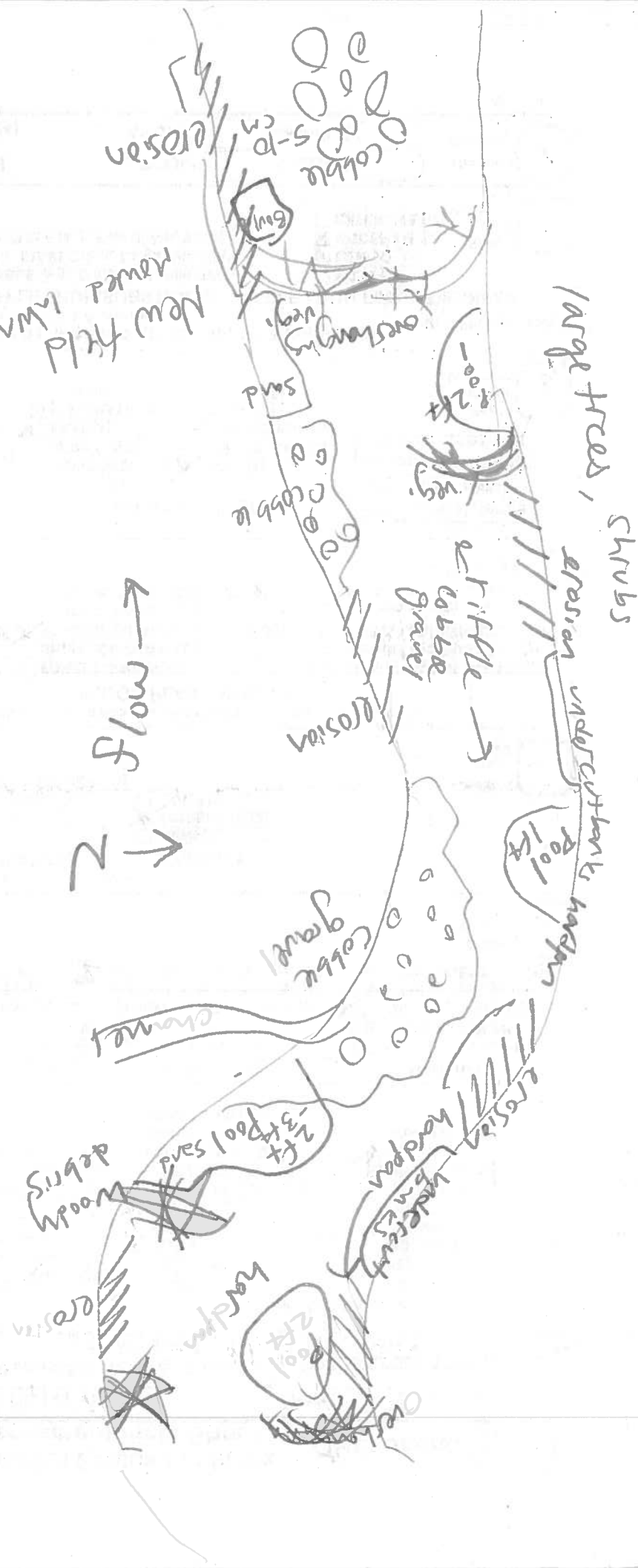
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / 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  $\bar{x}$  width
- entrench. ratio

Legacy Tree:

**Stream Drawing:**





# Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

**QHEI Score:** 40.5

Stream & Location: Chagrin Polo Field DS of Quail Hollow RM: 0 Date: 01/26/14

S. Hothorn, M. Matteson, D. Freeman Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: - - - STORET #: - - - Lat./Long.: 41.4553 181.4 Office verified location

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

<b>BEST TYPES</b>	<b>POOL RIFFLE</b>	<b>OTHER TYPES</b>	<b>POOL RIFFLE</b>	<b>ORIGIN</b>	<b>QUALITY</b>
<input type="checkbox"/> BLDR /SLABS [10]	<input type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/>	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> HEAVY [-2]
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/>	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/>	<input checked="" type="checkbox"/> TILLS [1]	<input type="checkbox"/> MODERATE [-1]
<input type="checkbox"/> COBBLE [8]	<input checked="" type="checkbox"/>	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/>	<input type="checkbox"/> WETLANDS [0]	<input checked="" type="checkbox"/> NORMAL [0]
<input checked="" type="checkbox"/> GRAVEL [7]	<input checked="" type="checkbox"/>	<input type="checkbox"/> SILT [2]	<input checked="" type="checkbox"/>	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> FREE [1]
<input checked="" type="checkbox"/> SAND [6]	<input checked="" type="checkbox"/>	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/>	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> EXTENSIVE [-2]
<input type="checkbox"/> BEDROCK [5]	<input type="checkbox"/>			<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/> MODERATE [-1]
NUMBER OF BEST TYPES: <input type="checkbox"/> 4 or more [2] <input checked="" type="checkbox"/> 3 or less [0]				<input type="checkbox"/> LACUSTURINE [0]	<input checked="" type="checkbox"/> NORMAL [0]
Comments: <u>7+6+0+1+0+0</u>				<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/> NONE [1]
				<input type="checkbox"/> COAL FINES [-2]	

Substrate Maximum 20 **14**

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.

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

Comments: 4+2 Channel Maximum 20 **6**

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

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

Comments: 1+1+1+3 Channel Maximum 20 **6**

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

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

Comments: 3+0+1 Riparian Maximum 10 **4**

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

<b>MAXIMUM DEPTH</b>	<b>CHANNEL WIDTH</b>	<b>CURRENT VELOCITY</b>	<b>Recreation Potential</b>
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply	<b>Primary Contact</b>
<input type="checkbox"/> > 1m [6]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	<b>Secondary Contact</b>
<input type="checkbox"/> 0.7-1m [4]	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input checked="" type="checkbox"/> SLOW [1]	(circle one and comment on back)
<input type="checkbox"/> 0.4-0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/> VERY FAST [1]	
<input checked="" type="checkbox"/> 0.2-0.4m [1]		<input type="checkbox"/> FAST [1]	
<input type="checkbox"/> < 0.2m [0]		<input checked="" type="checkbox"/> MODERATE [1]	
		<input type="checkbox"/> INTERSTITIAL [-1]	
		<input type="checkbox"/> INTERMITTENT [-2]	
		<input type="checkbox"/> EDDIES [1]	

Comments: 1+1+1+1 Pool / Current Maximum 12 **4**

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]

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

Comments: 1+1+0.5+0 Riffle / Run Maximum 8 **2.5**

6) **GRADIENT** (71.42 ft/mi)  VERY LOW - LOW [2-4]  MODERATE [6-10]  HIGH - VERY HIGH [10-6]

**DRAINAGE AREA** (0.8 mi<sup>2</sup>)

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

Gradient Maximum 10 **4**

**AJ SAMPLED REACH**

Check ALL that apply

- METHOD**
- BOAT
  - WADE
  - L. LINE
  - OTHER
- DISTANCE**
- 0.5 Km
  - 0.2 Km
  - 0.15 Km
  - 0.12 Km
  - OTHER

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

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

- CLARITY**
- 1st -sample pass- 2nd
- < 20 cm
  - 20-40 cm
  - 40-70 cm
  - > 70 cm/ CTB
  - SECCHI DEPTH
- CANOPY**
- 1st \_\_\_\_\_ cm
- 2nd \_\_\_\_\_ 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**
- Circle some & COMMENT
- 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 / 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  $\bar{x}$  width
  - entrench. ratio
  - Legacy Tree:

- CJ RECREATION**
- AREA DEPTH
- POOL:  >100R<sup>2</sup>  >3R

**Stream Drawing:**

