



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

70.5

Stream & Location: Euclid Creek East Branch Trib. @ RM 1.55

RM: 01.00 Date: 06/20/24

Seth Nothen

Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: 019-041-000 STORET #: 300145 Lat./Long.: 41.5563 / 81.5623

Office verified location ☐

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

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BLDR /SLABS [10]	☒ POOL RIFFLE	☒ HARDPAN [4]	☒ POOL RIFFLE	☐ LIMESTONE [1]	☐ SILT	☐ HEAVY [-2]	Substrate 14.5 Maximum 20
☐ BOULDER [9]	☒	☐ DETRITUS [3]	☒	☐ TILLS [1]	☐	☐ MODERATE [-1]	
☒ COBBLE [8]	☒	☐ MUCK [2]	☒	☐ WETLANDS [0]	☐	☐ NORMAL [0]	
☐ GRAVEL [7]	☒	☐ SILT [2]	☒	☐ HARDPAN [0]	☐	☐ FREE [1]	
☐ SAND [6]	☒	☐ ARTIFICIAL [0]	☒	☐ SANDSTONE [0]	☐	☐ EXTENSIVE [-2]	
☐ BEDROCK [5]	☒	(Score natural substrates; ignore sludge from point-sources)		☐ RIP/RAP [0]	☐	☐ MODERATE [-1]	
NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0]				☐ LACUSTURINE [0]	☐ IMBEDDEDNESS	☐ NORMAL [0]	
Comments				☐ SHALE [-1]	☐	☐ NONE [1]	
				☐ COAL FINES [-2]	☐		

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.

AMOUNT

Check ONE (Or 2 & average)

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

Comments

Cover
Maximum
20
15

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☒ HIGH [4]	☐ EXCELLENT [7]	☒ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

Channel
Maximum
20
16

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

River right looking downstream

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

Comments

Indicate predominant land use(s) past 100m riparian.

Riparian
Maximum
10
4

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check ONE (ONLY!)

- ☒ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (Or 2 & average)

- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply

- ☐ TORRENTIAL [-1]
- ☐ SLOW [1]
- ☐ VERY FAST [1]
- ☐ INTERSTITIAL [-1]
- ☐ FAST [1]
- ☐ INTERMITTENT [-2]
- ☒ MODERATE [1]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Pool /
Current
Maximum
12
11

Comments

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

Comments

Riffle /
Run
Maximum
8
6

6] GRADIENT (89.1 ft/mi) ☐ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]

DRAINAGE AREA

(0.88 mi²)

%POOL:

%GLIDE:

%RUN:

%RIFFLE:

Gradient
Maximum
10
9

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 STAGE

1st-sample pass-- 2nd

- ☐ BOAT ☐ HIGH ☐
☐ WADE ☐ UP ☐
☐ L. LINE ☐ NORMAL ☐
☐ OTHER ☐ LOW ☐
☐ DISTANCE ☐ DRY ☐

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: ☐ > 100ft² ☐ > 3ft

FJ MEASUREMENTS

- WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT & GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H₂O / TILE / H₂O TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

Circle some & COMMENT

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
ARMOURD / SLUMPS
ISLANDS / SCOURD
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

BJ AESTHETICS

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

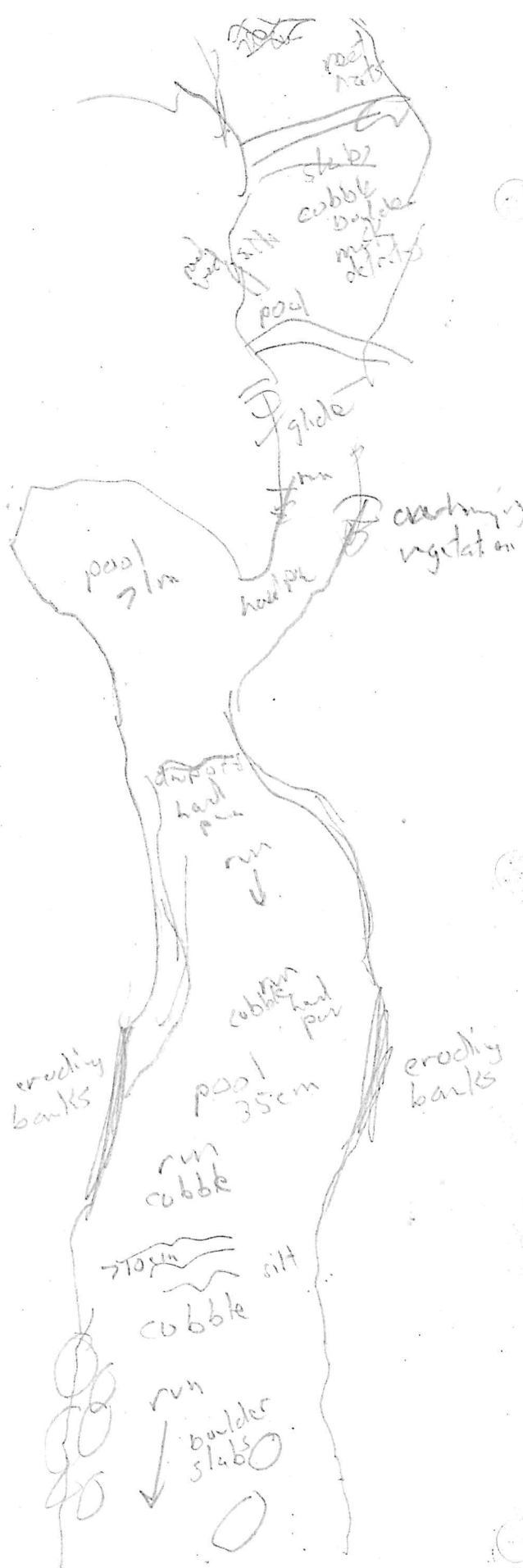
EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT & GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H₂O / TILE / H₂O 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:



Stream & Location: Euclid Creek, 100 ft Upstream of St. Clair Avenue RM: 01.65 Date: 6/27/24

Mark Mattheis

Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer DistrictRiver Code: 019-041-000 STORET #: 504250 Lat./Long.: 41.5743 181.5474 (NAD 83 - decimal °) Office verified location ☐1) SUBSTRATE Check ONLY Two substrate TYPE BOXES;
estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES

POOL RIFFLE

OTHER TYPES

POOL RIFFLE

ORIGIN

QUALITY

- ☐
- BLDR / SLABS [10]
-
- ☐
- BOULDER [9]
-
- ☒
- COBBLE [8]
-
- ☐
- GRAVEL [7]
-
- ☐
- SAND [6]
-
- ☒
- BEDROCK [5]

- ☒
- POOL RIFFLE [10]
-
- ☒
- POOL RIFFLE [9]
-
- ☒
- POOL RIFFLE [8]
-
- ☒
- POOL RIFFLE [7]
-
- ☒
- POOL RIFFLE [6]
-
- ☒
- POOL RIFFLE [5]

- ☐
- HARDPAN [4]
-
- ☐
- DETRITUS [3]
-
- ☐
- MUCK [2]
-
- ☐
- SILT [2]
-
- ☐
- ARTIFICIAL [0]

- ☒
- POOL RIFFLE [4]
-
- ☒
- POOL RIFFLE [3]
-
- ☒
- POOL RIFFLE [2]
-
- ☒
- POOL RIFFLE [2]
-
- ☒
- POOL RIFFLE [0]

- ☐
- LIMESTONE [1]
-
- ☒
- TILLS [1]
-
- ☐
- WETLANDS [0]
-
- ☐
- HARDPAN [0]
-
- ☐
- SANDSTONE [0]
-
- ☐
- RIP/RAP [0]
-
- ☐
- LACUSTURINE [0]
-
- ☐
- SHALE [-1]
-
- ☐
- COAL FINES [-2]

SILT

EMBEDDEDNESS

- ☐
- HEAVY [-2]
-
- ☒
- MODERATE [-1]
-
- ☐
- NORMAL [0]
-
- ☐
- FREE [1]
-
- ☐
- EXTENSIVE [-2]
-
- ☒
- MODERATE [-1]
-
- ☐
- NORMAL [0]
-
- ☐
- NONE [1]

Substrate
Maximum
20
14NUMBER OF BEST TYPES: ☒ 4 or more [2] sludge from point-sources
☐ 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.

AMOUNT

Check ONE (Or 2 & average)

- ☐
- 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]

- ☐
- EXTENSIVE >75% [11]
-
- ☒
- MODERATE 25-75% [7]
-
- ☒
- SPARSE 5-<25% [3]
-
- ☐
- NEARLY ABSENT <5% [1]

Cover
Maximum
20
12

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

SINUOSITY

DEVELOPMENT

CHANNELIZATION

STABILITY

- ☐
- HIGH [4]
-
- ☐
- MODERATE [3]
-
- ☒
- LOW [2]
-
- ☐
- NONE [1]

- ☐
- EXCELLENT [7]
-
- ☒
- GOOD [5]
-
- ☒
- FAIR [3]
-
- ☐
- POOR [1]

- ☒
- NONE [6]
-
- ☐
- RECOVERED [4]
-
- ☐
- RECOVERING [3]
-
- ☐
- RECENT OR NO RECOVERY [1]

- ☒
- HIGH [3]
-
- ☐
- MODERATE [2]
-
- ☐
- 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

RIPARIAN WIDTH

FLOOD PLAIN QUALITY

- ☐
- EROSION
-
- ☒
- NONE / LITTLE [3]
-
- ☒
- MODERATE [2]
-
- ☐
- HEAVY / SEVERE [1]

- ☐
- WIDE > 50m [4]
-
- ☒
- MODERATE 10-50m [3]
-
- ☐
- NARROW 5-10m [2]
-
- ☐
- VERY NARROW < 5m [1]
-
- ☐
- NONE [0]

- ☐
- 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]

Indicate predominant land use(s)
past 100m riparian.Riparian
Maximum
10
6.25

Comments

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

Recreation Potential

Primary Contact

Secondary Contact

(circle one and comment on back)

Check ONE (ONLY!)

Check ONE (Or 2 & average)

Check ALL that apply

- ☒
- > 1m [6]
-
- ☐
- 0.7-<1m [4]
-
- ☐
- 0.4-<0.7m [2]
-
- ☐
- 0.2-<0.4m [1]
-
- ☐
- < 0.2m [0]

- ☒
- POOL WIDTH > RIFFLE WIDTH [2]
-
- ☐
- POOL WIDTH = RIFFLE WIDTH [1]
-
- ☐
- POOL WIDTH < RIFFLE WIDTH [0]

- ☐
- TORRENTIAL [-1]
-
- ☐
- VERY FAST [1]
-
- ☒
- FAST [1]
-
- ☒
- MODERATE [1]
-
- ☐
- SLOW [1]
-
- ☐
- INTERSTITIAL [-1]
-
- ☐
- INTERMITTENT [-2]
-
- ☐
- EDDIES [1]

Indicate for reach - pools and riffles.

Pool /
Current
Maximum
12
11

Comments

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

RUN DEPTH

RIFFLE / RUN SUBSTRATE

RIFFLE / RUN EMBEDDEDNESS

- ☒
- BEST AREAS > 10cm [2]
-
- ☐
- BEST AREAS 5-10cm [1]
-
- ☐
- BEST AREAS < 5cm [metric=0]

- ☒
- MAXIMUM > 50cm [2]
-
- ☐
- MAXIMUM < 50cm [1]

- ☒
- STABLE (e.g., Cobble, Boulder) [2]
-
- ☐
- MOD. STABLE (e.g., Large Gravel) [1]
-
- ☐
- UNSTABLE (e.g., Fine Gravel, Sand) [0]

- ☐
- NONE [2]
-
- ☐
- LOW [1]
-
- ☒
- MODERATE [0]
-
- ☐
- EXTENSIVE [-1]

Riffle /
Run
Maximum
8
6

Comments

6) GRADIENT (16.20 ft/mi)

DRAINAGE AREA

(21.80 mi²)

- ☐
- VERY LOW - LOW [2-4]
-
- ☒
- MODERATE [6-10]
-
- ☒
- HIGH - VERY HIGH [10-6]

%POOL: %GLIDE: %RUN: %RIFFLE: Gradient
Maximum
10
10

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

- 1st sample pass-- 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ L. LINE ☐ NORMAL ☐
- ☐ OTHER ☐ LOW ☐
- ☐ DRY ☐

DISTANCE

- ☐ 0.5 Km ☐ CLARITY
- ☐ 0.2 Km ☐ 1st sample pass-- 2nd
- ☐ 0.15 Km ☐ < 20 cm ☐
- ☐ 0.12 Km ☐ 20-40 cm ☐
- ☐ OTHER ☐ 40-70 cm ☐
- ☐ > 70 cm/ CTB ☐
- ☐ SECCHI DEPTH ☐

meters

CANOPY

- ☐ > 85%- OPEN 1st pass _____ cm
- ☐ 55%-<85% 2nd pass _____ cm
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

CJ RECREATION

AREA DEPTH
POOL: ☐ >100ft² ☐ >3ft

BJAESTHETICS

- ☐ 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 CUT / NA
- ☐ LEVEED / ONE-SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BEDLOAD-STABLE
- ☐ ARMOURD / SLUMPS
- ☐ ISLANDS / SCOURD
- ☐ 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 H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

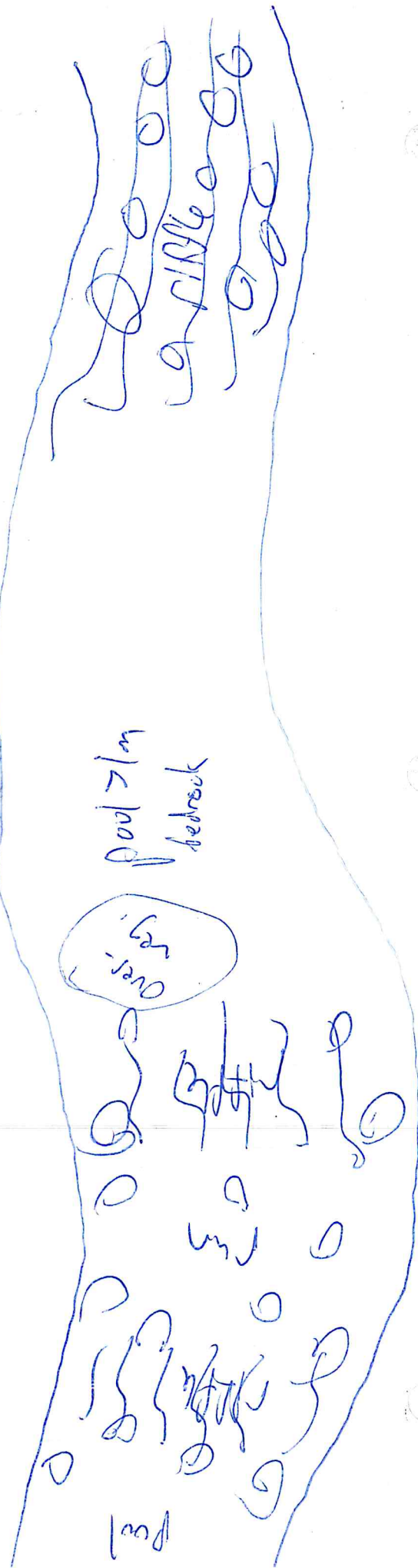
FJ MEASUREMENTS

- ☐ width
- ☐ depth
- ☐ max. depth
- ☐ bankfull width
- ☐ bankfull x depth
- ☐ W/D ratio
- ☐ bankfull max. depth
- ☐ floodprone x² width
- ☐ entrench. ratio
- Legacy Tree:

Stream Drawing:

→ flow →

N →



Stream & Location: Euclid Creek, 150 ft Downstream of Lakeshore Blvd.RM: 00.55 Date: 7/5/24JUSTIN TELEPScorers Full Name & Affiliation: Northeast Ohio Regional Sewer DistrictRiver Code: 019-041-000 STORET #: F01A47 Lat./Long.: 41.5841 / 81.5602Office verified location ☐1] SUBSTRATE Check ONLY Two substrate TYPE BOXES;
estimate % or note every type present

Check ONE (Or 2 & average)

- | BEST TYPES | POOL RIFFLE | OTHER TYPES | POOL RIFFLE |
|--|-------------------------------------|---|-------------------------------------|
| ☐ BLDR / SLABS [10] | ☐ | ☐ HARDPAN [4] | ☐ |
| ☐ BOULDER [9] | ☒ | ☐ DETRITUS [3] | ☒ |
| ☐ COBBLE [8] | ☒ | ☐ MUCK [2] | ☒ |
| ☒ GRAVEL [7] | ☒ | ☐ SILT [2] | ☒ |
| ☒ SAND [6] | ☒ | ☐ ARTIFICIAL [0] | ☐ |
| ☐ BEDROCK [5] | ☐ | | |

(Score natural substrates; ignore

NUMBER OF BEST TYPES: ☒ 4 or more [2] sludge from point-sources)
☐ 3 or less [0]Comments 6+7+2+1-1.5-1.5

- | ORIGIN |
|---|
| ☐ LIMESTONE [1] |
| ☒ TILLS [1] |
| ☐ WETLANDS [0] |
| ☐ HARDPAN [0] |
| ☐ SANDSTONE [0] |
| ☐ RIP/RAP [0] |
| ☐ LACUSTURINE [0] |
| ☐ SHALE [-1] |
| ☐ COAL FINES [-2] |

SILT

EMBEDDEDNESS

- | QUALITY |
|--|
| ☒ HEAVY [-2] |
| ☒ MODERATE [-1] |
| ☐ NORMAL [0] |
| ☐ FREE [1] |
| ☒ EXTENSIVE [-2] |
| ☒ MODERATE [-1] |
| ☐ NORMAL [0] |
| ☐ NONE [1] |

Substrate
13
Maximum
20

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.

AMOUNT

Check ONE (Or 2 & average)

- | | | |
|--|--|--|
| ☒ UNDERCUT BANKS [1] | ☒ POOLS > 70cm [2] | ☐ OXBOWS, BACKWATERS [1] |
| ☒ OVERHANGING VEGETATION [1] | ☐ ROOTWADS [1] | ☐ AQUATIC MACROPHYTES [1] |
| ☒ SHALLOWS (IN SLOW WATER) [1] | ☒ BOULDERS [1] | ☒ LOGS OR WOODY DEBRIS [1] |
| ☐ ROOTMATS [1] | | |

- | | |
|--|---|
| ☐ EXTENSIVE >75% [11] | ☒ SPARSE 5-<25% [3] |
| ☐ MODERATE 25-75% [7] | ☐ NEARLY ABSENT <5% [1] |

Comments

Cover
Maximum
20
9

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

- | SINUOSITY | DEVELOPMENT | CHANNELIZATION | STABILITY |
|---|--|--|---|
| ☐ HIGH [4] | ☐ EXCELLENT [7] | ☒ NONE [6] | ☐ HIGH [3] |
| ☐ MODERATE [3] | ☐ GOOD [5] | ☐ RECOVERED [4] | ☐ MODERATE [2] |
| ☒ LOW [2] | ☒ FAIR [3] | ☐ RECOVERING [3] | ☒ LOW [1] |
| ☐ NONE [1] | ☐ POOR [1] | ☐ RECENT OR NO RECOVERY [1] | |

Comments No true riffle, Pools deep and well definedChannel
Maximum
20
12

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

River right looking downstream

- | EROSION | RIPARIAN WIDTH | FLOOD PLAIN QUALITY | |
|---|--|--|--|
| ☒ NONE / LITTLE [3] | ☐ WIDE > 50m [4] | ☐ FOREST, SWAMP [3] | ☐ CONSERVATION TILLAGE [1] |
| ☐ MODERATE [2] | ☐ MODERATE 10-50m [3] | ☐ SHRUB OR OLD FIELD [2] | ☐ URBAN OR INDUSTRIAL [0] |
| ☐ HEAVY / SEVERE [1] | ☒ NARROW 5-10m [2] | ☒ RESIDENTIAL, PARK, NEW FIELD [1] | ☐ MINING / CONSTRUCTION [0] |
| | ☐ VERY NARROW < 5m [1] | ☐ FENCED PASTURE [1] | |
| | ☐ NONE [0] | ☐ OPEN PASTURE, ROWCROP [0] | |

Indicate predominant land use(s)
past 100m riparian.Riparian
Maximum
10
6

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

Check ONE (ONLY!)

Check ONE (Or 2 & average)

Check ALL that apply

- | | | | |
|--|---|--|--|
| ☒ > 1m [6] | ☐ POOL WIDTH > RIFFLE WIDTH [2] | ☐ TORRENTIAL [-1] | ☒ SLOW [1] |
| ☐ 0.7-<1m [4] | ☒ POOL WIDTH = RIFFLE WIDTH [1] | ☐ VERY FAST [1] | ☐ INTERSTITIAL [-1] |
| ☐ 0.4-<0.7m [2] | ☐ POOL WIDTH < RIFFLE WIDTH [0] | ☐ FAST [1] | ☐ INTERMITTENT [-2] |
| ☐ 0.2-<0.4m [1] | | ☒ MODERATE [1] | ☐ EDDIES [1] |
| ☐ < 0.2m [0] | | | |

Indicate for reach - pools and riffles.

Comments Riffle not functional, shallow <5cm and no broken water.Pool /
Current
Maximum
12
9

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

Comments

Riffle /
Run
Maximum
8
06] GRADIENT (5.90 ft/mi)
DRAINAGE AREA
(23.00 mi²)

- | |
|--|
| ☐ VERY LOW - LOW [2-4] |
| ☐ MODERATE [6-10] |
| ☐ HIGH - VERY HIGH [10-6] |

%POOL: 30 %GLIDE: 60
%RUN: 10 %RIFFLE: 0Gradient
Maximum
10
6

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

STAGE

1st - sample pass-- 2nd

☐ BOAT ☐ HIGH ☐

☒ WADE ☐ UP ☐

☐ L LINE ☒ NORMAL ☐

☐ OTHER ☐ 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: ☒ >100ft² ☐ >3ft

BJ AESTHETICS

☐ NUISANCE ALGAE

☐ INVASIVE MACROPHYTES

☐ EXCESS TURBIDITY

☐ DISCOLORATION

☐ FOAM / SCUM

☐ OIL SHEEN

☐ TRASH / LITTER

☐ NUISANCE ODOR

☐ SLUDGE DEPOSITS

☐ CSOs/SSOs/OUTFALLS

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ 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

☐ PUBLIC / PRIVATE / BOTH / NA

☐ ACTIVE / HISTORIC / BOTH / NA

☐ YOUNG-SUCCESSION-OLD

☐ SPRAY / SNAG / REMOVED

☐ MODIFIED / DIPPED OUT / NA