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Qualitative Habitat Evaluation Index Field Sheet QHEI Score:

Qualitative Habitat Evaluation fildex Field Officer QHEFOCOTO	· L
River Code: 95 650 RM Stream: Dos floines (Grant Cheeft	
Station ID: Location: Grant Profit	
Date: 7-23-06 Scorer: ANV Latitude: 11/303410 Longitude: -88.22	iA 0
1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present	
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY	
☐☐-BLDR /SLBS[10] ☐☐-GRAVEL [7] Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE)	E)
□□-Lg BOULD. [10] □□-SAND [6] □-JIMESTONE [1] SILT: □-SILT HEAVY [-2]	
D-BOULDER [9] D-BEDROCK[5] D-TILLS [1] D-SILT MODERATE [-1]	Substrate
■□-COBBLE [8] □□-DETRITUS[3] □ -WETLANDS[0] □-SILT NORMAL [0]	
□ □-HARDPAN [4] □ □-ARTIFICIAL[0] □ -HARDPAN [0] □ -SILT FREE [1]	
□□-MUCK [2] □ -SANDSTONE [0] EMBEDDED □ -EXTENSIVE [-2]	Max 20
D-RIP/RAP [0] NESS: M-MODERATE [-1]	WIGH ZO
NUMBER OF SUBSTRATE TYPES: \$\overline{14.0r More}{12}\$ \$\overline{1}\$-LACUSTRINE [0]\$ \$\overline{1}\$-NORMAL [0]\$	
(High Quality Only, Score 5 or >)	
COMMENTS	
2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One	or Cover
(Structure) TYPE: Score All That Occur check 2 and AVERAGE)	COVE
UNDERCUT BANKS [1]POOLS> 70 cm [2]OXBOWS, BACKWATERS [1]EXTENSIVE > 75% [11]	
OVERHANGING VEGETATION [1] ROOTWADS [1] AQUATIC MACROPHYTES [1] MODERATE 25-75% [7]	
SHALLOWS (IN SLOW WATER) [1]	Max 20
3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)	01 1
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER	Channel
- HIGH [4] - EXCELLENT [7] - NONE [6] - HIGH [3] - SNAGGING - IMPOUND.	
□-MODERATE [3] □-GOOD [5] □-RECOVERED [4] □-MODERATE [2] □-RELOCATION □-ISLANDS	
LOW [2] FAIR [3] - RECOVERING [3] - LOW [1] - CANOPY REMOVAL - LEVEED	Max 20
□ - NONE [1] □ - POOR [1] □ - RECENT OR NO □ - DREDGING □ - BANK SHAPING	5
RECOVERY [1]	
CONTRICTION	5 . A
4]. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) PRIVE Right Looking	Downstream P
RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION BANK EROSION	Riparian
L R (Most Predominant Per Bank) L R L R (Per Bank)	
DD-WIDE > 50m [4] DD-SHRUB OR OLD FIELD [2] DD-URBAN OR INDUSTRIAL [0] DD-MODERATE [2]	'3 []
DD-MODERATE 10-50m [3] DD-RESIDENTIAL, PARK, NEW FIELD [1] DD-OPEN PASTURE, ROWCROP [0] DD-HEAVY/SEVERE	11Max 10
DD- NARROW 5-10 m [2] DD-FENCED PASTURE [1] DD-MINING/CONSTRUCTION [0]	.'.
□□- VERY NARROW <5 m[1] Comments:	
DD - NONE [0]	
Ha work fol	
5.]POOL/GLIDE AND RIFFLE/RUN QUALITY	Dooll
MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!]	Pool/ Current
(Check 1 or 2 & AVERAGE) (Check All That Apply)	CENTON!
>1m [6] TORRENTIAL[-1]	11 11
□ - 0.7-1m [4] □ -POOL WIDTH = RIFFLE WIDTH [1] □ -FAST[1] □ -INTERSTITIAL[-1]	11 11
□ - 0.4-0.7m [2] □ -POOL WIDTH < RIFFLE W. [0] □ -MODERATE [1] □ -INTERMITTENT[-2]	Max 12
	Max 12
	Max 12
□ - 0.2- 0.4m [1]	
□ - 0.2- 0.4m [1]	Max 12
U- 0.2- 0.4m [1]	
□ - 0.2- 0.4m [1] □ -VERY FAST[1] □ - < 0.2m [POOL=0] COMMENTS: □ -NONE [-1] CHECK ONE OR CHECK 2 AND AVERAGE	Riffle/Run
□ - 0.2- 0.4m [1] □ - VERY FAST[1] □ - < 0.2m [POOL=0] COMMENTS: □ - NONE [-1] CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS □ - Best Areas >10 cm [2] □ - MAX > 50 [2] □ - STABLE (e.g., Cobble, Boulder) [2] □ - NONE [2] □ - Best Areas 5-10 cm[1] □ - MAX < 50[1] □ - MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1]	· ·
□ - 0.2- 0.4m [1] □ - VERY FAST[1] □ - < 0.2m [POOL=0] COMMENTS: □ -NONE [-1] CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS □ - Best Areas >10 cm [2] □ - MAX > 50 [2] □ -STABLE (e.g.,Cobble, Boulder) [2] □ - NONE [2] □ - Best Areas 5-10 cm[1] □ - MAX < 50[1] □ -MOD. STABLE (e.g.,Large Gravel) [1] □ - LOW [1] □ - Best Areas < 5 cm □ - WODERATE [0]	Riffle/Run
□ - 0.2- 0.4m [1] □ - VERY FAST[1] □ - < 0.2m [POOL=0] COMMENTS: □ - NONE [-1] CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS □ - Best Areas >10 cm [2] □ - MAX > 50 [2] □ - STABLE (e.g., Cobble, Boulder) [2] □ - NONE [2] □ - Best Areas 5-10 cm[1] □ - MAX < 50[1] □ - MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1]	Riffle/Run Max 8
□ - 0.2- 0.4m [1] □ - VERY FAST[1] □ - < 0.2m [POOL=0] COMMENTS: □ -NONE [-1] CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS □ - Best Areas >10 cm [2] □ - MAX > 50 [2] □ -STABLE (e.g.,Cobble, Boulder) [2] □ - NONE [2] □ - Best Areas 5-10 cm[1] □ - MAX < 50[1] □ -MOD. STABLE (e.g.,Large Gravel) [1] □ - LOW [1] □ - Best Areas < 5 cm □ - WODERATE [0]	Riffle/Run Max 8
- 0.2- 0.4m [1]	Riffle/Run Max 8 Gradient
- 0.2- 0.4m [1]	Riffle/Run Max 8 Gradient Max 10
- 0.2- 0.4m [1]	Riffle/Run Max 8 Gradient

Modified 06/01/2005 128/08 Not

Is Sampling Reach Representative of the Stream (Y/N) If Not, Explain:	Major Suspected Sources of Impacts (Check All That Apply):
Lat/Long (Beg): Lat/Long (Mid):	None D Industrial D WWTP D
Lat/Long (End):	Ag □ Livestock □ Silviculture□
Lat/Long(X-Loc):	Construction ☐ Urban Runoff ☑ CSOs ☐
Gear: Distance: Water Clarity: Water Stage: Canopy -% Open First Sampling Pass A 3/m 25 cm not mal 8/00	Suburban Impacts 🗖 Mining 🗖 Channelization 🗖
Stream Measurements:	Riparian Removal-☐ Landfills ☐ Natural ☐
Subjective Aesthetic Average Average Maximum Av. Bankfull Bankfull Mean W/D Bankfull Max Floodprone Entrench Rating Rating Width Depth Depth Width Depth Ratio Depth Area Width Ratio (1-10) Gradient: □ - Low, □ - Moderate, □ - High	Dams Other Flow Alteration Other:
Stream Drawing:	
W The state of the	
	_ 080,000,
104	and the fade
To The Year of Helphane	
	Yes/No
Instructions for scoring the alternate cover metric: Each cover type should receive a score	Is Stream Ephemeral (no pools, totally dry or only damp spots)?
of between 0 and 2, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include	Is there water upstream? How Far: Is There Water Close Downstream?
of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	How Far:
	Is Dry Channel Mostly Natural?

Qualitative Habitat Evaluation Index Field Sheet QHEI Score:	
154	7
Qualitative Habitat Evaluation Index Field Sheet QHEI Score:	
River Code: 95-656 RM& Stream: 045 Plaines	
Station ID: Sitt 93 Location: 1) ST Lement RO Date: 714-04 Scorer: ALT Latitude: 41.66753-0 Longitude: - 88.644910	_
Date: 714-06 Scorer: ALJ Latitude: 41.66753-0 Longitude: - 88,644910	_
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY	
□ □ -BLDR /SLBS[10] □ □ -GRAVEL [7] Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE) □ □ -Lg BOULD. [10] □ □ □ -SAND [6]	
□□-BOULDER [9] □-TILLS [1] □-TILLS [1] Subs	trate
□□-COBBLE [8] □□-DETRITUS[3] □ -WETLANDS[0] □-SILT NORMAL [0] □-HARDPAN [4] □□-ARTIFICIAL[0] , □□-HARDPAN [0] □-SILT FREE [1]	
□□-MUCK [2] □ -SANDSTONE [0] EMBEDDED □-EXTENSIVE [-2] Max	
NUMBER OF SUBSTRATE TYPES:	
(High Quality Only, Score 5 or >)	
COMMENTS	_
(Structure) TYPE: Score All That Occur check 2 and AVERAGE)	/er
UNDERCUT BANKS [1]	
	20
#ROOTMATS [1] COMMENTS: United to the second	
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER Chan	nel
□ - HIGH [4] □ - EXCELLENT [7] # - NONE [6]	7)
- MODERATE [3]) 20
□ - NONE [1] □ - POOR [1] □ - RECENT OR NO □ - DREDGING □ - BANK SHAPING	
COMMENTS: RECOVERY [1]	
4]. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION BIANK EROSION	stream
L R (Per Bank) L R (Most Predominant Per Bank) L R L R (Per Bank)	rian
TEP- VERY WIDE > 100m [5] TEP-FOREST, SWAMP [3] TEP-FOREST, SWAMP	
DI - MODERATE 10-50m [3] DI - RESIDENTIAL, PARK, NEW FIELD [1] DI - OPEN PASTURE, ROWCROP [0] DI - HEAVY/SEVERE[1] MAX	10
□□- NARROW 5-10 m [2] □□-FENCED PASTURE [1] □□-MINING/CONSTRUCTION [0]	
□□- VERY NARROW <5 m[1] Comments: □□- NONE [0]	
5.]POOL/GLIDE AND RIFFLE/RUN QUALITY	.,
MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!] Curre	
(Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply) - >1m [6]	\exists
- 0.7-1m [4] - POOL WIDTH = RIFFLE WIDTH [1] - FAST[1] - INTERSTITIAL[-1]	
□ - 0.4-0.7m [2] □ -POOL WIDTH < RIFFLE W. [0] □ -MODERATE [1] □ -INTERMITTENT[-2] □ - 0.2- 0.4m [1] □ -IMPOUNDED [-1] □ -VERY FAST[1]	12
□ - 0.2- 0.4m [1] □ -IMPOUNDED [-1] ■ -SLOW [1] □ -VERY FAST[1] □ - < 0.2m [POOL=0] COMMENTS: □ -NONE [-1]	
CHECK ONE OF CHECK 3 AND AVERAGE Riffle/	— Run
CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS	\exists
□ - Best Areas >10 cm [2] □ - MAX > 50 [2] □ - STABLE (e.g., Cobble, Boulder) [2] □ - NONE [2] □ - NONE [2] □ - MAX < 50[1] □ - MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1] Max €	
□ - Best Areas 5-10 cm[1] □ - MAX < 50[1] □ -MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1] MAX 8 □ - Best Areas < 5 cm □ - MODERATE [0] □ - MODERATE [0] Grad	
NO RIFFLE [Metric=0]	\exists
COMMENTS Max	
6] GRADIENT (ft/mi):DRAINAGE AREA (sq.mi.) : %POOL: %GLIDE: %GLIDE: %	10
%RIFFLE: C %RUN:	

Sampling Reach Representative of the Stream (Y/N) If Not, Explain:	Major Suspected Sources of Impacts (Check All That Apply): None Industrial WWTP Ag Livestock Silviculture Construction Urban Runoff CSOs Suburban Impacts Mining Channelization Riparian Removal Landfills Natural Dams Impacts Dams
Gradient: (1-10) - Low, - Moderate, - High Stream Drawing:	Other Flow Alteration Other:
** ** ** ** ** ** ** ** ** ** ** ** **	
Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type	Yes/No Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream? How Far: Is There Water Close Downstream?
of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	How Far: Is Dry Channel Mostly Natural?

Qualitative Habitat Evaluation Index Field Sheet QHEI Score:
River Code: 45 656 RM: 290 / Stream: 1963 Mainte
Station ID: DP-01 (6-45) Location:
Date: 7-21-06 Scorer: 100 Latitude: 41, 55 436 Longitude: 88, 696 920
1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY
Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE)
DD-Lg BOULD. [10] D-SAND [6] D-LIMESTONE [1] SILT: D-SILT HEAVY [-2] DD-BOULDER [9] DEBEDROCK[5] D-TILLS [1] B-SILT MODERATE [-1] Substrate
D-COBBLE [8] V D-DETRITUS[3] D-WETLANDS[0] Z-SILT NORMAL [0]
□ □-HARDPAN [4] □ □-ARTIFICIAL[0] □-HARDPAN [0] □-SILT FREE [1]
DD-MUCK [2]
NUMBER OF SUBSTRATE TYPES: #4 or More [2]
(High Quality Only, Score 5 or >)
COMMENTS COAL FINES [-2]
2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) (Structure) TYPE; Score All That Occur Cover
UNDERCUT BANKS [1] POOLS> 70 cm [2] OXBOWS, BACKWATERS [1] D - EXTENSIVE > 75% [11]
TOVERHANGING VEGETATION [1] PROOTWADS [1] AQUATIC MACROPHYTES [1] D-MODERATE 25-75% [7]
SHALLOWS (IN SLOW WATER) [1] LOGS OR WOODY DEBRIS [1] S- SPARSE 5-25% [3] Max 20
3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) SINI IOSTTY MODIFICATIONS CHANNEL TRAILITY MODIFICATIONS (OTHER Channel
SINOSITI DEVELOTMENT CIPATION STADIENT MODIFICATIONS OTTEN
□- HIGH [4] □- EXCELLENT [7] # NONE [6] # HIGH [3] □- SNAGGING □- IMPOUND. □- MODERATE [3] □- GOOD [5] □- RECOVERED [4] □- MODERATE [2] □- RELOCATION □- ISLANDS
LOW [2] MAY 20 BY LOW [2] MAY FAIR [3] D - RECOVERING [3] D - LOW [1] D - CANOPY REMOVAL D - LEVEED Max 20
□- NONE [1] □- POOR [1] □- RECENT OR NO □- DREDGING □- BANK SHAPING
RECOVERY [1] — ONE SIDE CHANNEL MODIFICATIONS
COMMENTS: G- IMPOUNDED [-1]
4]. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream
RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION Riparian
L R (Most Predominant Per Bank) L R L R (Per Bank)
DI- WIDE > 50m [4] DI-SHRUB OR OLD FIELD [2] DI-MODERATE [2]
MODERATE 10-50m [3] D D-RESIDENTIAL, PARK, NEW FIELD [1] D D-OPEN PASTURE, ROWCROP [0] D D-HEAVY/SEVERE[1] Max 10
Marrow 5-10 m [2]
□□- VERY NARROW <5 m[1] Comments:
DD-NONE [0]
ESPOOLICH DE AND DIEEL E/DHN OHALTY
5.]POOL/GLIDE AND RIFFLE/RUN QUALITY Pool/ MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!] Current
MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLEST] Current (Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply)
(check to 2 d tv 2 to to 2) Content to 2 d tv 2 to to 2) Content to 2 d tv 2 to to 2) Content to 2 d tv 2 to to 2) Content to 2 d tv 2 to to 2) Content to 2 d tv 2 to to 2) Content to 2 d tv 2 to to 2) Content to 2 d tv 2 to to 2) Content to 2 d tv 2 to to 2) Content to 2 d tv 2 to to 2) Content to 2 d tv 2 to to 2) Content to 2 d tv 2 to to 2) Content to 2 d tv 2 to 2
D- 0.7-1m [4] D-POOL WIDTH = RIFFLE WIDTH [1] BF-FAST[1] D-INTERSTITIAL[-1]
□ - 0.4-0.7m [2] IZ-POOL WIDTH < RIFFLE W. [0] IZ-MODERATE [1] □-INTERMITTENT[-2] Max 12
□ - 0.2- 0.4m [1] □ -IMPOUNDED [-1] □ -VERY FAST[1]
□ - < 0.2m [POOL=0] COMMENTS: □-NONE [-1]
CHECK ONE OR CHECK 2 AND AVERAGE Riffle/Run
CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS
Best Areas >10 cm [2] AMAX > 50 [2] Best Areas 10 cm [2] D - NONE [2]
□ - Best Areas 5-10 cm[1] □ - MAX < 50[1] □-MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1] Max 8
□ - Best Areas < 5 cm □-UNSTABLE (Fine Gravel, Sand) [0] □ - MODERATE [0] Gradient
☐ - NO RIFFLE [Metric=0] ☐ - EXTENSIVE [-1]
COMMENTS
% POOL . [Max 10
6] GRADIENT (ft/mi):DRAINAGE AREA (sq.mi.) : %POOL: %GLIDE:/O
**Best areas must be large enough to support a population of rittle-obligate species %RIFFLE: 20 %RUN:

Subjective Rating (1-10) Gradient: Subjective Rating (1-10) Gradient: Gradi	Gear: Distance: Water Clarity: Water Stage: Canopy -% Open First Sampling Pass Stream Measurements: Average Average Maximum Av. Bankfull Bankfull Mean W/D Width Depth Depth Width Depth Ratio Bankfull Max Floodprone Entrench. Depth Area Width Ratio	Mining Channelization Riparian Removal Landfills Landfills
Stream Drawing: Flow	Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Yes/No Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream? How Far: Is There Water Close Downstream? How Far: Is Dry Channel Mostly Natural?

	NEW TOWNS
gare () and	
Qualitative Habitat Eva	aluation Index Field Sheet QHEI Score:
River Code: 95-156 RM: 285-8 Stream: (Off Plaines
Station ID: DP-05 Location: B	The state of the s
Date: 72766 Scorer: NV Latitude:	41.499496 Longitude: -88.106.854
1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES;	Estimate % present
	LE SUBSTRATE ORIGIN SUBSTRATE QUALITY
	Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE)
	☐ -LIMESTONE [1] SILT: ☐ -SILT HEAVY [-2]
- BOULDER [9] - D-BEDROCK[5] - COBBLE [8] - D-DETRITUS[3]	ma-ticas [1]
D-HARDPAN [4] LOGARTIFICIAL[0]	☐ -WETLANDS[0] ☐ -SILT NORMAL [0] ☐ -HARDPAN [0] ☐ -SILT FREE [1]
DD-MUCK [2] V DD-SILT [2] V O	EL CANDETONE DE EMPEDDED EL EXTENSIVE I 21
	Max 20 I -RIP/RAP [0] NESS: I -MODERATE [-1]
NUMBER OF SUBSTRATE TYPES: 4 or More [2]	☐ -LACUSTRINE [0] ■-NORMAL [0]
(High Quality Only, Score 5 or >)	□ -SHALE [-1] □ -NONE [1]
COMMENTS	CI-COAL FINES [-2]
2] INSTREAM COVER (Give each cover type a score of 0 to TYPE: Score All That Occur	LOVER
(0.1.1.1.1.1.1)	onositz and vital vital
UNDERCUT BANKS [1] POOLS> 70 cm [2] OVERHANGING VEGETATION [1] ROOTWADS [1]	OXBOWS, BACKWATERS [1] - EXTENSIVE > 75% [11] AQUATIC MACROPHYTES [1] MODERATE 25-75% [7]
SHALLOWS (IN SLOW WATER) [1] BOULDERS [1]	LOGS OR WOODY DEBRIS [1] ZI - SPARSE 5-25% [3] Max 20
ROOTMATS [1] COMMENTS:	
3] CHANNEL MORPHOLOGY: (Check ONLY One PER Cate	- · · · · · · · · · · · · · · · · · · ·
SINUOSITY DEVELOPMENT CHANNELIZATION	STABILITY MODIFICATIONS/OTHER Channel
☐ - HIGH [4] ☐ - EXCELLENT [7] ☐ - NONE [6]	HIGH [3] - SNAGGING - IMPOUND.
☐-MODERATE [3] ☐-GOOD [5] ☐-RECOVERED [4]	□ - MODERATE [2] □ - RELOCATION □ - ISLANDS
LOW [2]	THAN 20
D - NONE [1] D - POOR [1] D - RECENT OR NO RECOVERY [1]	☐ - DREDGING ☐ - BANK SHAPING ☐ - ONE SIDE CHANNEL MODIFICATIONS
COMMENTS: D- IMPOUNDED [-1]	- ONE SIDE CHARREE MODIFICATIONS
	bank or check 2 and AVERAGE per bank) PRiver Right Looking Downstrear
	ALITY (PAST 100 Meter RIPARIAN) BANK EROSION Riparian
L R (Per Bank) L R (Most Predominant Per Bank	() L R L R (Per Bank)
UI - VERY WIDE > 100m [5] FOREST, SWAMP [3]	D D-CONSERVATION TILLAGE [1] E-NONE/LITTLE [3]
WIDE > 50m [4] SHRUB OR OLD FIELD [2]	LE URBAN OR INDUSTRIAL [0] D MODERATE [2]
ロロ- MARROW 5-10 m [2] ロー・FENCED PASTURE [1]	[1] DD-OPEN PASTURE, ROWCROP [0] DD-HEAVY/SEVERE[1] Max 10
DD- VERY NARROW <5 m[1] Comments:	H H-MINING/CONSTRUCTION [0]
DD- NONE [0]	
5.]POOL/GLIDE AND RIFFLE/RUN QUALITY	Pool/
MAX. DEPTH MORPHOLOGY	CURRENT VELOCITY [POOLS & RIFFLES!] Current
(Check 1 ONLY!) (Check 1 or 2 & AVERAGE)	(Check All That Apply)
P->1m [6] POOL WIDTH > RIFFLE WIDTH [2]	Ø-EDDIES[1] □-TORRENTIAL[-1]
□ - 0.7-1m [4] □ -POOL WIDTH = RIFFLE WIDTH [1] □ - 0.4-0.7m [2] □ -POOL WIDTH < RIFFLE W. [0]	☐-FAST[1] ☐-INTERSTITIAL[-1] Max 12 ☐-MODERATE [1] ☐-INTERMITTENT[-2]
□ - 0.2- 0.4m [1] □-IMPOUNDED [-1]	12 -SLOW [1] 12 -VERY FAST[1]
□ - < 0.2m [POOL=0] COMMENTS:	□-NONE [-1]
CHECK ONE C	DR CHECK 2 AND AVERAGE Riffle/Run
	FLE/RUN SUBSTRATE RIFFLE/RUN_EMBEDDEDNESS
Best Areas >10 cm [2]	BLE (e.g., Cobble, Boulder) [2]

m 🖗 □ - MAX < 50[1] ☐-MOD. STABLE (e.g., Large Gravel) [1] LOW [1] Max 8 ☐ - Best Areas 5-10 cm[1] □-UNSTABLE (Fine Gravel, Sand) [0] ☐ - MODERATE [0] □ - Best Areas < 5 cm Gradient □ - EXTENSIVE [-1] ☐ - NO RIFFLE [Metric=0] COMMENTS Max 10 %POOL: 40 %GLIDE: _DRAINAGE AREA (sq.mi.):_ 6] GRADIENT (ft/mi): ___ %RIFFLE: %RUN: 30 ** Best areas must be large enough to support a population of riffle-obligate species Modified 06/01/2005

Is Sampling Reach Representative of the Stream (Y/N) If Not, Exp <u>lain:</u>	Major Suspected Sources of Impacts (Check All That Apply):
Lat/Long (Beg):	None D Industrial D WWTP D Ag D Livestock D Silviculture D Construction D Urban Runoff E
Gear: Distance: Water Clarity: Water Stage: Canopy -% Open First Sampling Pass	CSOs Suburban Impacts Mining Channelization Riparian Removal Landfills Natural Dams Other Flow Alteration Other:
Stream Drawing: Ray Ron	Same of the same o
Signal Stations of the Station	Pres/No.
Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream? How Far: Is There Water Close Downstream? How Far: Is Dry Channel Mostly Natural?

NUI

Qualitative Habitat Evaluation Index Field Sheet QHEI Score:

Station [D:	River Code: 95 656 RM: 2900 Stream: Des Plaines	
SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES: Estimate % present TYPE POOL RIFFLE SUBSTRATE ORIGIN Check ONE (OR 2 & WERAGE) Check ON		
Di-BLIDR RUBSITION	Date: 1-08-05 Scorer: AAS Latitude: 41, 65449 Longitude: - 88, 8615	1/
D-BDR RUBS[0]	1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present	
□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY	
DBOULDER [9]	□□-BLDR /SLBS[10] □□-GRAVEL [7]	:)
DBCOEBLE [8]	□□-Lg BOULD. [10] □□-SAND [6] □-SILT HEAVY [-2]	
D-HARDPAN A	□ □-BOULDER [9] ✓ □-TILLS [1]	Substrate
SANDSTONE [0] EMBEDDED CATTENSIVE [-2] Max 20 Max	COBBLE [8] - DETRITUS[3] D -WETLANDS[0] -SILT NORMAL [0]	
NUMBER OF SUBSTRATE TYPES:	□□-HARDPAN [4] □□-ARTIFICIAL[0] □-HARDPAN [0] □-SILT FREE [1]	
NUMBER OF SUBSTRATE TYPES:		May 20
Commons		Wax 20
CHIST QUARTY ONLY, SCORE 5 or > D-3 or Less [0]	NUMBER OF SUBSTRATE TYPES: #24 or More [2]	
2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT_(Check ONLY One or check 2 and AVERAGE 1		
COVERY Check TyPE: Soore All That Occur Check 2 and AVERAGE COVERY COVER	COMMENTSCOAL FINES [-2]	
COVERY Check TyPE: Soore All That Occur Check 2 and AVERAGE COVERY COVER		or _
Dispercio Banks [1]		Cover
AQUATIC MACROPHYTES [1]		
SPARLOWS (IN SLOW WATER) [1]		
NEARLY ABSENT < 5%[1] NEARLY ABSENT ABSENT NEARLY ABSENT ABSENT NEARLY ABS		Max 20
SINJOSTY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER CHANNELIZATION CHANNELIZATIO		
SINUOSITY		
HIGH [4]		Channel
Part		
Comments		11 11
□ - NONE [1] □ - POOR [1] □ - RECENT OR NO		May 20
COMMENTS:		Max 20
COMMENTS:		
4]. RIPARIAN ZONE AND BANK EROSION(check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN WIDTH RIPARIAN R	E MDOINDED L 43	
RIPARIAN WIDTH		Downstream (
R (Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L R (
Conservation tillage [1]		
D- WIDE > 50m [4]		
□ - MODERATE 10-50m [3] □ □-RESIDENTIAL,PARK,NEW FIELD [1] □ □-OPEN PASTURE,ROWCROP [0] □ □-HEAVY/SEVERE[1] Max 10 □ - NARROW 5-10 m [2] □ □-FENCED PASTURE [1] □ □-MINING/CONSTRUCTION [0] 5.]POOL/GLIDE AND RIFFLE/RUN QUALITY MAX. DEPTH MORPHOLOGY (Check 1 or 2 & AVERAGE) (Check 1 ONLY!) (Check 1 or 2 & AVERAGE) - ** - ** - ** - ** - ** - ** - ** -	L R (Per Bank) L R (Most Predominant Per Bank) L R L R (Per Bank)	Riparian
□ - NARROW 5-10 m [2] □ -FENCED PASTURE [1] □ -MINING/CONSTRUCTION [0] □ - VERY NARROW <5 m[1] Comments: □ - NONE [0] 5.]POOL/GLIDE AND RIFFLE/RUN QUALITY MAX. DEPTH	L R (Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L R (Per Bank) L R (Per Bank) L R (Per Bank)	Riparian
Comments:	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L	Riparian
D- NONE [0]	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L	Riparian
5.]POOL/GLIDE AND RIFFLE/RUN QUALITY MAX. DEPTH MORPHOLOGY (Check 1 ONLY!) (Check All That Apply) - 1-TORRENTIAL[-1] - 2-TORRENTIAL[-1] - 1-TORRENTIAL[-1] - 1-TORRENTIAL[-1] - 1-TORRENTIAL[-1] - 2-TORRENTIAL[-1] - 3-TORRENTIAL[-1] - 1-TORRENTIAL[-1] - 3-TORRENTIAL[-1] - 3-TORRENTIAL[-1] - 3-TORRENTIAL[-1] - 4-O.7-1m [4] - 1-POOL WIDTH = RIFFLE WIDTH [1] - 3-FAST[1] -	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L	Riparian
MAX. DEPTH MORPHOLOGY (Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply) (Check All	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank)	Riparian
MAX. DEPTH (Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply) (Check All That Apply (Check All	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank)	Riparian
(Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply) ->1m [6]	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L	Riparian Max 10
# - >1m [6]	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L	Riparian JMax 10
- 0.4-0.7m [2]	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank)	Riparian JMax 10
- 0.4-0.7m [2]	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L Resident Successed S	Riparian JMax 10
CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS RIF	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L R (Parket) L Refuncion (Illuse) L	Pool/ Current
CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE DEPTH RIFFLE DEPTH Best Areas >10 cm [2] B- AMAX > 50 [2] B- AMAX > 50 [2] B- Best Areas 5-10 cm[1] B- Best Areas < 5 cm B- UN STABLE (e.g., Cobble, Boulder) [2] B- MAX < 50[1] B- MAX & B- MAX	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L R (Park All Fall Fall Fall Fall Fall Fall Fall	Pool/ Current
RIFFLE DEPTH - Best Areas >10 cm [2] - Best Areas >5-10 cm [1] - Best Areas <5 cm - NO RIFFLE [Metric=0] COMMENTS - BRIFFLE (sq., Cobble, Boulder) [2] - MAX < 50[1] - MAX 8 - MAX = 10 - MAX < 50[1] - MAX < 50[1] - MAX = 10 - MAX < 50[1] - MAX = 10 - MAX	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L R (Par Ban	Pool/ Current
RIFFLE DEPTH - Best Areas >10 cm [2] - Best Areas >5-10 cm [1] - Best Areas <5 cm - NO RIFFLE [Metric=0] COMMENTS - BRIFFLE (sq., Cobble, Boulder) [2] - MAX < 50[1] - MAX 8 - MAX = 10 - MAX < 50[1] - MAX < 50[1] - MAX = 10 - MAX < 50[1] - MAX = 10 - MAX	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L R (Path Set Pool Not	Pool/ Current
Best Areas >10 cm [2] B- MAX > 50 [2] B- STABLE (e.g.,Cobble, Boulder) [2] D- NONE [2] D- NONE [2] D- MAX < 50[1] D- MOD. STABLE (e.g.,Large Gravel) [1] D- LOW [1] Max 8 D- Best Areas < 5 cm D- UNSTABLE (Fine Gravel,Sand) [0] D- MODERATE [0] Gradient D- NO RIFFLE [Metric=0] D- EXTENSIVE [-1] GRADIENT (ft/mi): DRAINAGE AREA (sq.mi.): %POOL: 65 %GLIDE: 67 %RUN: 67 %RUN	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) Poole Moperate [2] - None [1] - None	Pool/ Current Max 12
Best Areas >10 cm [2] B- MAX > 50 [2] B- STABLE (e.g.,Cobble, Boulder) [2] D- NONE [2] D- NONE [2] D- MAX < 50[1] D- MOD. STABLE (e.g.,Large Gravel) [1] D- LOW [1] Max 8 D- Best Areas < 5 cm D- UNSTABLE (Fine Gravel,Sand) [0] D- MODERATE [0] Gradient D- NO RIFFLE [Metric=0] D- EXTENSIVE [-1] GRADIENT (ft/mi): DRAINAGE AREA (sq.mi.): %POOL: 65 %GLIDE: 67 %RUN: 67 %RUN	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L Poopen Pasture (Poopen Pasture (P	Pool/ Current Max 12
□- Best Areas 5-10 cm[1] □- MAX < 50[1] □-MOD. STABLE (e.g., Large Gravel) [1] □-LOW [1] Max 8 □- Best Areas < 5 cm □-UNSTABLE (Fine Gravel, Sand) [0] □-MODERATE [0] Gradient □- NO RIFFLE [Metric=0] □-EXTENSIVE [-1] COMMENTS □- MAX < 50[1] □-MOD. STABLE (e.g., Large Gravel) [1] □-LOW [1] Max 8 □-MODERATE [0] □-MODERATE [0] □-MODERATE [0] Gradient □- NO RIFFLE [Metric=0] □-EXTENSIVE [-1] Max 10 Max 10	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L Re(Per Bank) L R (Per Bank) Popolentis CHECK ONE OR CHECK 2 AND AVERAGE	Pool/ Current Max 12
Gradient - Best Areas < 5 cm - NO RIFFLE [Metric=0] COMMENTS - EXTENSIVE [-1] - EXTENSIVE [-1] - EXTENSIVE [-1] - Moderate [0] Gradient Max 10 - MODERATE [0] - EXTENSIVE [-1] - Max 10 - Moderate [0] - Redient - Max 10 - Moderate [0] - Redient - Max 10 - Moderate [0] - Redient - Max 10	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Ban	Pool/ Current Max 12
COMMENTS - EXTENSIVE [-1] COMMENTS 6] GRADIENT (ft/mi):DRAINAGE AREA (sq.mi.) : %POOL: %GLIDE: %RUN:	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Ban	Pool/ Current Max 12 Riffle/Run
6] GRADIENT (ft/mi):DRAINAGE AREA (sq.mi.) : %POOL: 6 %GLIDE: // Max 10 %RIFFLE: // %RUN: //	L R (Most Predominant Per Bank) L R (Per B	Pool/ Current Max 12 Riffle/Run Max 8
6] GRADIENT (ft/mi):DRAINAGE AREA (sq.mi.) : %POOL: 6 %GLIDE: // Max 10 %RIFFLE: // %RUN: //	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L R (Par Ban	Pool/ Current Max 12 Riffle/Run Max 8
6] GRADIENT (ft/mi):DRAINAGE AREA (sq.mi.) : %POOL:	L R (Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L R (Pank) L R	Pool/ Current Max 12 Riffle/Run Max 8
%RIFFLE: 7 %RUN: 7	L R (Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L R (Pank) L R	Pool/ Current Max 12 Riffle/Run Max 8 Gradient
** Best areas must be large enough to support a population of riffle-obligate species 70 NIFFLE. 70 NUN. 75	L R (Most Predominant Per Bank) L R (Most Predominant Per Bank) L R (Per Ban	Pool/ Current Max 12 Riffle/Run Max 8 Gradient
	L R (Most Predominant Per Bank) L R (Per Bank) L R (Pat Surfaction) L	Pool/ Current Max 12 Riffle/Run Max 8 Gradient

Is Sampling Reach Represent Lat/Long (Beg): Lat/Long (Mid): Lat/Long (End): Lat/Long(X-Loc): Subjective Aesthetic Rating (1-10) Gradient: (1-10) Gradient: — High	Gear: Distance: Water Clarity: Water Stage: Canopy -% Oper First Sampling Pass A Stream Measurements: Average Average Maximum Av. Bankfull Bankfull Mean W/D Bankfull Max Floodprone Entrence Width Depth Width Depth Ratio Depth Area Width Ratio	Mining Channelization Riparian Removal Landfills Landfills
Stream Drawing:	bedrock/ Shallow Emersept weeds	
	Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Yes/No Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream? How Far: How Far: Is There Water Close Downstream? How Far: Is Dry Channel Mostly Natural?



April 1980 - April	
Qualitative Habitat Evaluation Index Field Sheet QHEI Score:	7
	₫
River Code: 95 656 RM: 373.5 Stream: IH-vois River Les Vans Rome	_
Station ID: 10-18 Location: USST transaction DP-18	-
Date: 7-26-06 Scorer: AA J Latitude: 4(3875) Longitude: -88, 2526/	
1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present	
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY D-BLDR (SLBS(10) D-GRAVEL [7] Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE)	
□□-Lg BOULD. [10] □□-SAND [6] □□-LIMESTONE [1] SILT: □□-S ILT HEAVY [-2] □□-BOULDER [9] □□-BEDROCK[5] □□-SILT MODERATE [-1] Substr	rate
D-COBBLE [8] D-DETRITUS[3] D-WETLANDS[0] D-SILT NORMAL [0]	- 7)
□□-HARDPAN [4] □□-ARTIFICIAL[0] □-HARDPAN [0] □-SILT FREE [1]	11 ,
DILMICK [2] DISCULT [2] DISCUL	7)
Max 2	20
NUMBER OF SUBSTRATE TYPES: 4 or More [2] -LACUSTRINE [0] -NORMAL [0]	
(High Quality Only, Score 5 or >)	
COMMENTSD-COAL FINES [-2]	
2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or Coverage)	ar.
(Structure) TTPE: Score All Final Occur , check 2 and AVERAGE)	" ግ
UNDERCUT BANKS [1] POOLS> 70 cm [2] OXBOWS, BACKWATERS [1] - EXTENSIVE > 75% [11]	
OVERHANGING VEGETATION [1] ROOTWADS [1] AQUATIC MACROPHYTES [1] MODERATE 25-75% [7]	7)
/ SHALLOWS (IN SLOW WATER) [1] SOULDERS [1] LOGS OR WOODY DEBRIS [1] - SPARSE 5-25% [3] Max 2	20
OROOTMATS [1] COMMENTS: - NEARLY ABSENT < 5%[1]	
3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER Chann	ıel
U- HIGH [4] U- EXCELLENT [7] II- NONE [6] U- HIGH [3] U- SNAGGING U- IMPOUND.	a)
MODERATE [3] GOOD [5] GOOD [4] RECOVERED [4] RODERATE [2] GOOD GOOD GOOD GOOD GOOD GOOD GOOD GOO	
□ - LOW [2] □ - FAIR [3] □ - RECOVERING [3] □ - LOW [1] □ - CANOPY REMOVAL □ - LEVEED Max 2	7)
□ - NONE [1] □ - POOR [1] □ - RECENT OR NO □ - DREDGING □ - BANK SHAPING	10
RECOVERY [1] □ - ONE SIDE CHANNEL MODIFICATIONS	
COMMENTS: S- IMPOUNDED [-1]	
4]. RIPARIAN ZONE AND BANK EROSION(check ONE box per bank or check 2 and AVERAGE per bank) Priver Right Looking Downsto	ream
RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION Riparia	an
L R (Per Bank) L R (Most Predominant Per Bank) L R L R (Per Bank)	<u></u>
VERY WIDE > 100m [5] TO FOREST, SWAMP [3] TO CONSERVATION TILLAGE [1] TO CONSERVATION TILLAGE [1]]]
□□- WIDE > 50m [4] □□-SHRUB OR OLD FIELD [2] □□-URBAN OR INDUSTRIAL [0] □□-MODERATE [2] □□-MODERATE 10-50m [3] □□-RESIDENTIAL,PARK,NEW FIELD [1] □□-OPEN PASTURE,ROWCROP [0] □□-HEAVY/SEVERE[1] MAX 11	0
	•
DD- VERY NARROW <5 m[1] Comments:	
□ □ - NONE [0]	
5.]POOL/GLIDE AND RIFFLE/RUN QUALITY Pool/	,
MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!] Currer	
(Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply)	_
□- >1m [6] □-POOL WIDTH > RIFFLE WIDTH [2] □-EDDIES[1] □-TORRENTIAL[-1]	
- 0.7-1m [4] - POOL WIDTH = RIFFLE WIDTH [1] - FAST[1] - INTERSTITIAL[-1] Max 1:	취
- 0.4-0.7m [2] - POOL WIDTH < RIFFLE W. [0] - WODERATE [1] - INTERMITTENT[-2]	4
□- 0.2- 0.4m [1]	
□ - < 0.2m [POOL=0] COMMENTS: □-NONE [-1]	_
CHECK ONE OF CHECK A AND AVERAGE RIFIE/R	tun
CHECK ONE OR CHECK 2 AND AVERAGE DIESE FORTH PIECE PROTECTION SUBSTRATE PIECE PROTECTION FARESTORINGS	T)
RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS D- Best Areas > 10 cm [2] D- MAX > 50 [2] D-STABLE (e.g., Cobble, Boulder) [2] D- NONE [2]	
D- Best Areas 5-10 cm[1]	=)
□- Best Areas < 5 cm □-UNSTABLE (Fine Gravel, Sand) [0] □- MODERATE [0] Gradie	
NO RIFFLE [Metric=0] II - EXTENSIVE [-1]	<u></u>
COMMENTS	.
Max 10	7)
6] GRADIENT (ft/mi):DRAINAGE AREA (sq.mi.) : %POOL: 107) %GLIDE:	U
** Bast ares must be large enough to support a population of riffle-obligate species %RIFFLE: %RUN:	

Is Sampling Reach Representative of the Stream (Y/N) If Not, Explain:	Major Suspected Sources of Impacts (Check All That Apply):
Lat/Long (Beg):	None □ Industrial □ WWTP 団
Lat/Long (Mid): Lat/Long (End):	Ag □ Livestock □ Silviculture □
Lat/Long(X-Loc):	Construction ☐ Urban Runoff ☐ CSOs ☐
Gear: Distance: Water Clarity: Water Stage: Canopy -% Open	Suburban Impacts 🗖 Mining 🗖
4 4 Sampling Pass N 5 Km 25cm normal 90/00	Channelization □ / Riparian Removal ☑ Landfills □ /
Stream Measurements: Subjective Aesthetic Average Average Maximum Av. Bankfull Bankfull Mean W/D Bankfull Max Floodprone Entrench Rating Rating Width Depth Width Depth Ratio Depth Area Width Ratio	Natural 🗖 / Dams 🖫
(1-10) Gradient: (1-10)	Other Flow Alteration Other:
Stream Drawing: () () () () () () () () () (
	I slands
Jacobs Clatter English	it.
The state of the s	
	Yes/No
Instructions for scoring the alternate cover metric: Each cover type should receive a score	Is Stream Ephemeral (no pools, totally dry or only damp spots)?
of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type	Is there water upstream? How Far:
of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed	.Is There Water Close Downstream? How Far:
rootwads in deep/fast water, or deep, well-defined, functional pools.	Is Dry Channel Mostly Natural?

five Habitat F



	Qualitative Habitat Ev	aluation Index Field S	heet QHEI Score:	
River Code: 95-666	RM:2740 Stream:	Filinois Rivel	DosPano	
Station ID: OP-	Location: 💋	51 STONE Light	ng Pier	
Date: 7-06 06	_Scorer: <u>NA</u> Latitude.	: 46 38 33 Lo	ñgitude <u>: -88, 246</u>	78
1] SUBSTRATE (Check Of	NLY Two SubstrateTYPE BOXES	; Estimate % present		
TYPE POOL R	,	FLE SUBSTRATE ORIGIN	SUBSTRATE QUALITY	
□□-BLDR /SLBS[10]		_Check ONE (OR 2 & AVERAGE)	Check ONE (OR 2 & AVERAGE	Ξ)
		LIMESTONE [1] SILT:	D-SILT HEAVY [-2]	Substrate
DD-BOULDER [9] V		TILLS [1]	SILT MODERATE [-1]	Substrate
	DD-DETRITUS[3]	O -WETLANDS[0] O -HARDPAN [0]	C -SILT NORMAL [0]	
□ □-MUCK [2]	DBSILT [2] Z	SANDSTONE [0] EMBEDDE	D -SILT FREE [1]	
		_ RIP/RAP [0] NESS:	M-MODERATE [-1]	Max 20
NUMBER OF SUBSTRATE TYPE	PES: 12 4 or More [2]	D-LACUSTRINE [0]	☐-NORMAL [0]	
(High Quality Only, Score 5 or		□-SHALE [-1]	D-NONE [1]	
COMMENTS				·
2] INSTREAM COVER (Gi	ive each cover type a score of 0 to		AMOUNT: (Check ONLY One of	or Cover
(Structure)	TYPE: Score All That Occu	\sim	check 2 and AVERAGE)	Cover
UNDERCUT BANKS [1]	POOLS> 70 cm [2]	OXBOWS, BACKWATERS [1]	D - EXTENSIVE > 75% [11]	
OVERHANGING VEGETATION		AQUATIC MACROPHYTES [1]	MODERATE 25-75% [7]	
SHALLOWS (IN SLOW WATE		LOGS OR WOODY DEBRIS [1]	☐ - SPARSE 5-25% [3]	Max 20
COMMI			☐ - NEARLY ABSENT < 5%[1]	
		itegory OR check 2 and AVERAGE STABILITY MODIFICATI	•	Channel
	OPMENT CHANNELIZATION CELLENT [7] DE NONE [6]	D-HIGH [3] D-SNAGG	<u>ONS/OTHER</u> ING □-IMPOUND.	
	OOD [5]			11 11
LOW [2]		·	Y REMOVAL 🗖 - LEVEED	May 20
□ - NONE [1] □ - PO				Max 20
	RECOVERY [1]	🗖 - ONE SII	DE CHANNEL MODIFICATIONS	
COMMENTS:	MPOUNDED [-1]]		
4]. RIPARIAN ZONE AND E	3ANK EROSION(check ONE box pe	er bank or check 2 and AVERAGE per	bank) PRiver Right Looking	Downstream (
<u>RIPARIAN WIDTH</u>		<u> JALITY (PAST 100 Meter RIPARIAN</u>		Riparian
L R (Per Bank)	L R (Most Predominant Per Bar		L R (Per Bank)	
VERY WIDE > 100m [5]	FOREST, SWAMP [3]	CONSERVATION TILLAGE		11 11
□□- WIDE > 50m [4]	SHRUB OR OLD FIELD [2]	☐ ☐ -URBAN OR INDUSTRIAL D [1] ☐ ☐ -OPEN PASTURE,ROWCR		Max 10
☐ ☐ - MODERATE 10-50m [3] ☐ ☐ - NARROW 5-10 m [2]	☐ ☐-FENCED PASTURE [1]	□ □-MINING/CONSTRUCTIO		1
VERY NARROW <5 m[1]		i i manto construccijo	it [o]	
DD - NONE [0]	Comments:			
· · · · · · · · · · · · · · · · · · ·				
5.]POOL/GLIDE AND RIFFL	E/RUN QUALITY		,	Pool/
MAX. DEPTH	MORPHOLOGY	CURRENT VELOCIT	Y POOLS & RIFFLESI]	Current
(Check 1 ONLY!)	(Check 1 or 2 & AVERAGE)	(Check All	That Apply)	
• •	POOL WIDTH > RIFFLE WIDTH [2]		-TORRENTIAL[-1]	
	-POOL WIDTH = RIFFLE WIDTH [1]		INTERSTITIAL[-1]	Max 12
	-BOOL WIDTH < RIFFLE W. [0] -IMPOUNDED [-1]		INTERMITTENT[-2]	
		b -slow [1] □ -NONE [-1]	-VERY FAST[1]	
□- < 0.2m [POOL=0] CC	DMMENTS:	<u> </u>		
	CHECK ONE	OR CHECK 2 AND AVERAGE		Riffle/Run
RIFFLE DEPTH	•		FFLE/RUN EMBEDDEDNESS	
☐ - Best Areas >10 cm [2]		ABLE (e.g.,Cobble, Boulder) [2]	□-NONE [2]	
☐ - Best Areas 5-10 cm[1]			• •	May 9
Best Areas < 5 cm	□ - MAX < 50[1] □ - MO	D. STABLE (e.g.,Large Gravel) [1]	m - row [i]	Max 8
		D. STABLE (e.g.,Large Gravel) [1] STABLE (Fine Gravel,Sand) [0]	- MODERATE [0]	Gradient
NO RIFFLE [Metric=0]				
NO RIFFLE [Metric=0] COMMENTS			□ - MODERATE [0]	
COMMENTS	□-UN:	STABLE (Fine Gravel,Sand) [0]	- MODERATE [0]	
		STABLE (Fine Gravel,Sand) [0]	- MODERATE [0] - EXTENSIVE [-1]	Gradient

	s Sampling Reach Repre Lat/Long (Beg): Lat/Long (Mid): Lat/Long (End): Lat/Long(X-Loc): Subjective Rating (1-10) Gradient: (1-10) Gradient: -Hig	Stream Measurements: Average Average Maximum Av. Bankfull Bankfull Mean W/D Bankfull Max Floodprone Entrench. Width Depth Depth Width Depth Depth Width Depth Area Width Ratio	Major Suspected Sources of Impacts (Check All That Apply): None ID Industrial ME WWTP ME Ag III Livestock IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
Y)	Stream Drawing:	Hallon Lord	\$7000 fishing Piel
	Flour	Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Yes/No

ETTON MULTINES

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: River Code: 95-. RM; 247. & Stream: Station ID: Location: _ Scorer: AAU Latitude: Longitude: ~ 용통 69300 1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY GRAVEL [7] W □ □-BLDR /SLBS[10] Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE) SAND [6] □ -LIMESTONE [1] SILT: D-SILT HEAVY [-2] □ □ -Lg BOULD, [10] Substrate □□-BOULDER [9] _ □□BEDROCK[5] I TILLS [1] -SILT MODERATE [-1] □ □-COBBLE [8] SILT NORMAL [0] __ DETRITUS[3] □ -WETLANDS[0] -SILT FREE [1] □□-HARDPAN [4] _ -HARDPAN [0] D D-ARTIFICIAL[0] □ □-MUCK [2] □ □-SILT [2] □ -SANDSTONE [0] EMBEDDED □-EXTENSIVE [-2] Max 20 **U**-MODERATE [-1] -RIP/RAP [0] NESS: NUMBER OF SUBSTRATE TYPES: ☐ -LACUSTRINE [0] NORMAL [0] 4 or More [2] (High Quality Only, Score 5 or >) ☐-NONE [1] □-3 or Less [0] ☐ -SHALE [-1] COMMENTS COAL FINES [-2] 2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or Cover TYPE: Score All That Occur (Structure) check 2 and AVERAGE) _UNDERCUT BANKS [1] / POOLS> 70 cm [2] OXBOWS, BACKWATERS [1] **II - 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] Max 20 ROOTMATS [1] COMMENTS: - NEARLY ABSENT < 5%[1]</p> 3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) Channel CHANNELIZATION SINUOSITY DEVELOPMENT STABILITY MODIFICATIONS/OTHER - IMPOUND. **-** HIGH [4] - EXCELLENT [7] OF NONE [6] ☑ HIGH [3] SNAGGING GOOD [5] MODERATE [3] □ - RECOVERED [4] M- MODERATE [2] - RELOCATION - ISLANDS □ - RECOVERING [3] □ - CANOPY REMOVAL □ - LEVEED □ - FAIR [3] **D** - LOW [1] □ - LOW [2] □ - DREDGING - BANK SHAPING ☐ - NONE [1] □ - POOR [1] **II - RECENT OR NO** □ - ONE SIDE CHANNEL MODIFICATIONS RECOVERY [1] IMPOUNDED [-1] COMMENTS: 4]. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) 🖗 River Right Looking Downstream 🖟 FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION RIPARIAN WIDTH Riparian L R (Most Predominant Per Bank) L R L R (Per Bank) ₿ (Per Bank) **100** - VERY WIDE > 100m [5] MONE/LITTLE [3] FOREST, SWAMP [3] ☐ ☐-CONSERVATION TILLAGE [1] ☐ ☐ URBAN OR INDUSTRIAL [0] □ □ - WIDE > 50m [4] ☐ ☐-SHRUB OR OLD FIELD [2] □ □-MODERATE [2] □ □ RESIDENTIAL, PARK, NEW FIELD [1] □ □ -OPEN PASTURE, ROWCROP [0] □ □ -HEAVY/SEVERE[1] Max 10 □ □ - MODERATE 10-50m [3] □ □-FENCED PASTURE [1] □ □ -MINING/CONSTRUCTION [0] □ □ - NARROW 5-10 m [2] VERY NARROW <5 m[1] Comments: □ □ - NONE [0] 5. IPOOL/GLIDE AND RIFFLE/RUN QUALITY Pool/ MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!] MAX. DEPTH Current (Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply) - >1m [6] -POOL WIDTH > RIFFLE WIDTH [2] -EDDIES[1] □ -TORRENTIAL[-1] □ - 0.7-1m [4] -POOL WIDTH = RIFFLE WIDTH [1] □-INTERSTITIAL[-1] □-FAST[1] -POOL WIDTH < RIFFLE W. [0] -MODERATE [1] ☐-INTERMITTENT[-2] □ - 0.4-0.7m [2] IMPOUNDED [-1] B-SLOW [1] □ - 0.2- 0.4m [1] -VERY FAST[1] □ - < 0.2m [POOL=0]</p> COMMENTS: □-NONE [-1] Riffle/Run CHECK ONE OR CHECK 2 AND AVERAGE **RUN DEPTH** RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS RIFFLE DEPTH □ - Best Areas >10 cm [2] □ - MAX > 50 [2] G-STABLE (e.g., Cobble, Boulder) [2] □ - NONE [2] Max 8 □ - Best Areas 5-10 cm[1] □ - MAX < 50[1]</p> □-MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1] □-UNSTABLE (Fine Gravel, Sand) [0] ☐ - Best Areas < 5 cm - MODERATE [0] Gradient MC NO RIFFLE [Metric=0] - EXTENSIVE [-1] COMMENTS 6] GRADIENT (ft/mi): _____DRAINAGE AREA (sq.mi.) :_ %POOL: 1/クフ/\ %GLIDE: %RIFFLE: %RUN: ** Best areas must be large enough to support a population of riffie-obligate species

Is Sampling Reach Representative of the Stream (Y/N) If Not, Explain: Lat/Long (Beg): Lat/Long (Mid): Lat/Long (End): Lat/Long(X-Loc): Gear: Distance: Water Clarity: Water Stage: Canopy -% Open First Sampling Pass Stream Measurements: Subjective Aesthetic Rating Rating (1-10) Gradient: (1-10) Gradient: (1-10) Gradient: (1-10) Gradient: — Low, — Moderate, — -High	Major Suspected Sources of Impacts (Check All That Apply): None Impacts (Check All That Apply): None Impacts I
Stream Drawing: Factor Factor	13778
Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Yes/No Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream? How Far: Is There Water Close Downstream? How Far: Is Dry Channel Mostly Natural?

Edito 30

and the second of the second Qualitative Habitat Evaluation Index Field Sheet QHEI Score: River Code: 95-680 RM: 342 / Stream: Illingis Location: UPST Station ID: Grain Silo Scorer: AA, Latitude: 41.33984 Longitude: ー&&, Date: 7-d5-06 1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present POOL RIFFLE SUBSTRATE ORIGIN POOL RIFFLE SUBSTRATE QUALITY Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE) GRAVEL [7] □ □ -Lg BOULD. [10] __ **12 13**-SAND [6] □ *LIMESTONE [1] SILT: □-SILT HEAVY [-2] DD-BOULDER [9] Substrate □-SILT MODERATE [-1] TILLS [1] □ □ BEDROCK[5] DETRITUS[3] □ -WETLANDS[0] □□-COBBLE [8] SILT NORMAL [0] □ □-HARDPAN [4] __ □-SILT FREE [1] __ D-ARTIFICIAL[0] -HARDPAN [0] □ □-MUCK [2] □-EXTENSIVE [-2] □ □-SILT [2] □ -SANDSTONE [0] EMBEDDED Max 20 MODERATE [-1] □ -RIP/RAP [0] NESS: NORMAL [0] NUMBER OF SUBSTRATE TYPES: #-4 or More [2] □ -LACUSTRINE [0] (High Quality Only, Score 5 or >) □-3 or Less [0] -SHALE [-1] □-NONE [1] F-COAL FINES [-2] COMMENTS 2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or Cover TYPE: Score All That Occur (Structure) check 2 and AVERAGE) UNDERCUT BANKS [1] _____POOLS> 70 cm [2] OXBOWS, BACKWATERS [1] **I** - EXTENSIVE > 75% [11] FROOTWADS [1] AQUATIC MACROPHYTES [1] MODERATE 25-75% [7] Overhanging vegetation [1] ☑ - SPARSE 5-25% [3] I SHALLOWS (IN SLOW WATER) [1] / BOULDERS [1] LOGS OR WOODY DEBRIS [1] Max 20 □ - NEARLY ABSENT < 5%[1]</p> COMMENTS: ____ROOTMATS [1] 3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) Channel SINUOSITY DEVELOPMENT **CHANNELIZATION** STABILITY MODIFICATIONS/OTHER ☐ - HIGH [4] □ - EXCELLENT [7] **D**- NONE [6] □-,HIGH [3] - SNAGGING - IMPOUND. M- MODERATE [2] II - RELOCATION □ - RECOVERED [4] - ISLANDS D; MODERATE [3] □ - GOOD [5] **ṁ** - FAIR [3] **₫** - LOW [2] □ - RECOVERING [3] ☐ - LOW [1] ☐ - CANOPY REMOVAL ☐ - LEVEED □ - POOR [1] □ - DREDGING - BANK SHAPING ☐ - NONE [1] □ - RECENT OR NO - ONE SIDE CHANNEL MODIFICATIONS RECOVERY [1] IMPOUNDED [-1] COMMENTS: _ 41. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) Priver Right Looking Downstream P FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) **BANK EROSION** RIPARIAN WIDTH Riparian L R (Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) □ □ - VERY WIDE > 100m [5] MONE/LITTLE [3] FOREST, SWAMP [3] ☐ ☐-CONSERVATION TILLAGE [1] I IN SHRUB OR OLD FIELD [2] ☐ ☐-URBAN OR INDUSTRIAL [0] □ □-MODERATE [2] □□- WIDE > 50m [4] MODERATE 10-50m [3] CRESIDENTIAL, PARK, NEW FIELD [1] DOPEN PASTURE, ROWCROP [0] CONTROL - HEAVY/SEVERE[1] Max 10 ☐ ☐-FENCED PASTURE [1] □ □-MINING/CONSTRUCTION [0] □ □ - NARROW 5-10 m [2] □□- VERY NARROW <5 m[1] Comments: □ □ - NONE [0] 5.IPOOL/GLIDE AND RIFFLE/RUN QUALITY Pool/ CURRENT VELOCITY [POOLS & RIFFLES!] MAX. DEPTH MORPHOLOGY Current (Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply) ₽ >1m [6] -POOL WIDTH > RIFFLE WIDTH [2] -EDDIES[1] ☐-TORRENTIAL[-1] □ - 0.7-1m [4] -POOL WIDTH = RIFFLE WIDTH [1] □-FAST[1] □-INTERSTITIAL[-1] -PØOL WIDTH < RIFFLE W. [0] □ - 0.4-0.7m [2] □-MØDERATE [1] ☐-INTERMITTENT[-2] MPOUNDED [-1] SLOW [1] □ - 0.2-0.4m [1] -VERY FAST[1] ■ NONE [-1] □ - < 0.2m [POOL=0] COMMENTS: Riffle/Run CHECK ONE OR CHECK 2 AND AVERAGE **RUN DEPTH** RIFFLE/RUN SUBSTRATE RIFFLE DEPTH RIFFLE/RUN EMBEDDEDNESS - MAX > 50 [2] □ - Best Areas >10 cm [2] **D-STABLE** (e.g., Cobble, Boulder) [2] ☐ - NONE [2] Max 8 □ - MAX < 50[1]</p> ☐ MOD. STABLE (e.g., Large Gravel) [1] □ - Best Areas 5-10 cm[1] □ - LOW [1] □ - Best Areas < 5 cm □-UNSTABLE (Fine Gravel, Sand) [0] □ - MODERATE [0] Gradient NO RIFFLE [Metric=0] - EXTENSIVE [-1] COMMENTS

DRAINAGE AREA (sq.mi.):

6] GRADIENT (ft/mi):

*`Best areas must be large enough to support a population of riffie-obligate species

%POOL: Vor

%RIFFLE:

%GLIDE:

%RUN:

Modified 06/01/2005

Max 10

Is Sampling Reach Representative of the Stream (Y/N) If Not, Explain:	Major Suspected Sources of Impacts (Check All That Apply):
Lat/Long (Beg):	None □ Industrial □
Lat/Long (Mid):	WWTP ⊠ Ag □
Lat/Long (End):	Livestock ☐ Silviculture ☐
Lat/Long(X-Loc):	Construction 🛮 Urban Runoff 🗹
Gear: Distance: Water Clarity: Water Stage: Car	CSOs ☐ nopy -% Open Suburban Impacts ☐
First Sampling Pass A .5 Km 50 cm Normal	Mining Channelization Riparian Removal CT
Stream Measurements: Subjective Aesthetic Average Average Maximum Av. Bankfull Bankfull Mean W/D Bankfull Max Floodp	Landfills II Natural II
Rating Rating Width Depth Depth Width Depth Ratio Depth Area W	/idth Ratio Other Flow Alteration □
Gradient: (1-10) □ - Low, □ - Moderate,□ -High	Other:
Stream Drawing:	
1000	
- For I - I - I - I - I - I - I - I - I - I	
- End	
barge Slow	
de «	
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	The state of the s
	Yes/No
	Is Stream Ephemeral (no pools,
Instructions for scoring the alternate cover metric: Each cover type should receive of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very	a score totally dry or only damp spots)? small sthere water upstream?
amounts or if more common of marginal quality: 2 - Cover type present in modera	ate How Far:
amounts, but not of highest quality or in small amounts of highest quality; 3 - Cov of highest quality in moderate or greater amounts. Examples of highest quality in	clude How Far:
very large boulders in deep or fast water, large diameter logs that are stable, well de rootwads in deep/fast water, or deep, well-defined, functional pools.	l
1000	Is Dry Channel Mostly Natural?

1. Elital , 10.00

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1500	
5.00	
131 1/1	
3 70	
200	
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Qualitative Habitat Evaluation Index Field Sheet QHEI Score:	
River Code: 95-600 RM: 343.3 Stream: Illinois River	
Station ID: DP-15 Location: DST Marker 245.3	
Date: 7/0506 Scorer: NAT Latitude: 4/1, 3/986 Longitude: -88 / 0300	
1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present	
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY	
☐ ☐-BLDR /SLBS[10] ☐ ☐ ☐ GRAVEL [7] Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE)	
□□-Lg BOULD.[10] □ LIMESTONE [1] SILT: □-SILT HEAVY [-2]	
□□-BOULDER [9] □-SILT MODERATE [-1] Substrat	е
□□-COBBLE [8] □-WETLANDS[0] □-WETLANDS[0]	
D-MUCK [2] D-SANDSTONE [0] EMBEDDED D-EXTENSIVE [-2] Max 20	
NUMBER OF SUBSTRATE TYPES: Later A or More [2] LACUSTRINE [0] NESS: Later A or More [2] LACUSTRINE [0] LACUSTRINE [0]	
(High Quality Only, Score 5 or >)	
COMMENTS D-COAL FINES [-2]	
21 INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or	
(Structure) TYPE: Score All That Occur check 2 and AVERAGE)	
UNDERCUT BANKS [1] POOLS> 70 cm [2] OXBOWS, BACKWATERS [1] D - EXTENSIVE > 75% [11]	
OVERHANGING VEGETATION [1] PROOTWADS [1] QAQUATIC MACROPHYTES [1] - MODERATE 25-75% [7]	myr t B
/_SHALLOWS (IN SLOW WATER) [1] / BOULDERS [1] / LOGS OR WOODY DEBRIS [1] P- SPARSE 5-25% [3] Max 20	
CROOTMATS [1] COMMENTS: NEARLY ABSENT < 5%[1]	
3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)	
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER Channel	
□- HIGH [4] □- EXCELLENT [7] □- NONE [6] □- HIGH [3] □- SNAGGING □- IMPOUND.	
□ - MODERATE [3] □ - GOOD [5] □ - RECOVERED [4] ☑ - MODERATE [2] □ - RELOCATION □ - ISLANDS	
LOW [2]	
□ - NONE [1] □ - POOR [1] □ - RECENT OR NO □ - DREDGING □ - BANK SHAPING RECOVERY [1] □ - ONE SIDE CHANNEL MODIFICATIONS	
COMMENTS: TAPOUNDED [-1]	
4]. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream	am
DIDADIAN WIDTH ELOOD DI AIN OUALITY (DAST 100 Motor DIDADIAN) RANK EDOSION	
L R (Per Bank) L R (Most Predominant Per Bank) L R L R (Per Bank)	
U - VERY WIDE > 100m [5]	
WID-WIDE > 50m [4] GISHRUB OR OLD FIELD [2] GISHRUB OR OLD FIELD [2] GISHRUB OR OLD FIELD [2]	
MODERATE 10-50m [3] GRESIDENTIAL, PARK, NEW FIELD [1] GOPEN PASTURE, ROWCROP [0] GOD-HEAVY/SEVERE[1] Max 10	
NARROW 5-10 m [2]	
□□- VERY NARROW <5 m[1] Comments:	
□□- NONE [0]	
EXPOSITION AND DIFFLE (DIM OUALITY	
5.]POOL/GLIDE AND RIFFLE/RUN QUALITY MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!] Current	
MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!] Current (Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply)	
☐ - POOL WIDTH > RIFFLE WIDTH [2] ☐ -EDDIES[1] ☐ -TORRENTIAL[-1]	
□ - 0.7-1m [4] □ -POOL WIDTH = RIFFLE WIDTH [1] □ -FAST[1] □ -INTERSTITIAL[-1]	
□- 0.4-0.7m [2] □-960L WIDTH < RIFFLE W. [0] □-MODERATE [1] □-INTERMITTENT[-2] Max 12	
□ - 0.2- 0.4m [1] □ -VERY FAST[1] □ -VERY FAST[1]	
□ - < 0.2m [POOL=0] COMMENTS: □-NONE [-1]	
Riffle/Rur	
CHECK ONE OR CHECK 2 AND AVERAGE	٠.
RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS	
D- Best Areas > 10 cm [2]	
□ - Best Areas 5-10 cm[1] □ - MAX < 50[1] □ - MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1] MAX 8	ι
☐- Best Areas < 5 cm ☐-UNSTABLE (Fine Gravel, Sand) [0] ☐- MODERATE [0] ☐- Gradient ☐- NO RIFFLE [Metric=0] ☐- EXTENSIVE [-1] ☐- EXTENSIVE [-1]	
COWWENT2	
6] GRADIENT (ft/mi): DRAINAGE AREA (sq.mi.) : %POOL: 760 %GLIDE: Max 10	
** Best areas must be large enough to support a population of rittle-obligate species **Rest areas must be large enough to support a population of rittle-obligate species	

□ - Low, □ - Moderate, □ -High	
Slow	Artificial Assets
Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream? How Far: Is There Water Close Downstream? How Far: Is Dry Channel Mostly Natural?

9 dile 1- 10:58

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Qualitative Habitat Evaluation Index Field Sheet QHEI Score: RM: 25/-4 Stream: River Code: 95-650 Station ID: Location: (@) Date: 7-17-04 Scorer: AHV Latitude: Longitude: - 88, 630 49 1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE) 口口-GRAVEL[7] □ □-BLDR /SLBS[10] □ □ -Lg BOULD. [10] _ **2** 13-SAND [6] □ -LIMESTONE [1] SILT: □-SILT HEAVY [-2] Substrate □□-BOULDER [9] ∠ □ □-BEDROCK[5] 7 TILLS [1] ☐ -SILT MODERATE [-1] COBBLE [8] DDDETRITUS[3] MSILT NORMAL [0] □ -WETLANDS[0] □ □-HARDPAN [4] __ □ □-ARTIFICIAL[0] // □ -HARDPAN [0] □-SILT FREE [1] □ □-SILT [2] □ □-MUCK [2] □ -SANDSTONE [0] EMBEDDED □-EXTENSIVE [-2] Max 20 □-RIP/RAP [0] NESS: ☐-MODERATE [-1] NUMBER OF SUBSTRATE TYPES: -LACUSTRINE [0] M-NORMAL [0] **12** 4 or More [2] (High Quality Only, Score 5 or >) □-3 or Less [0] □ -SHALE [-1] **□**-NONE [1] COMMENTS_ COAL FINES [-2] 2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or Cover TYPE: Score All That Occur (Structure) check 2 and AVERAGE) \perp _POOLS> 70 cm [2] □ - EXTENSIVE > 75% [11] _UNDERCUT BANKS [1] OXBOWS, BACKWATERS [1] MODERATE 25-75% [7] ____OVERHANGING VEGETATION [1] ____ROOTWADS [1] ZAQUATIC MACROPHYTES [1] SPARSE 5-25% [3] SHALLOWS (IN SLOW WATER) [1] _BOULDERS [1] LOGS OR WOODY DEBRIS [1] Max 20 D - NEARLY ABSENT < 5%[1] ROOTMATS [1] COMMENTS: 3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) Channel CHANNELIZATION MODIFICATIONS/OTHER SINUOSITY DEVELOPMENT STABILITY □ - EXCELLENT [7] □ NONE [6] □ - SNAGGING □ - IMPOUND. □ - HIGH [4] □ - HIGH [3] □ - RECOVERED [4] MODERATE [2] - RELOCATION - ISLANDS □ -,MODERATE [3] **□** - GOOD [5] **E** LOW [2] **19** FAIR [3] □ - RECOVERING [3] □ - LOW [1] □ - CANOPY REMOVAL □ - LEVEED Max 20 □ - NONE [1] □ - POOR [1] - RECENT OR NO □ - DREDGING ☐ - BANK SHAPING RECOVERY [1] □ - ONE SIDE CHANNEL MODIFICATIONS M- IMPOUNDED [-1] COMMENTS: 4] RIPARIAN ZONE AND BANK EROSION(check ONE box per bank or check 2 and AVERAGE per bank) PRiver Right Looking Downstream P FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) RIPARIAN WIDTH **BANK EROSION** Riparian L R (Most Predominant Per Bank) L R (Per Bank) L R (Per Bank) #13 - VERY WIDE > 100m [5] FOREST, SWAMP [3] I -NONE/LITTLE [3] ☐ ☐-CONSERVATION TILLAGE [1] MODERATE [2] ☐ ☐-SHRUB OR OLD FIELD [2] ☐ ☐ -URBAN OR INDUSTRIAL [0] **DD** - WIDE > 50m [4] □□- MODERATE 10-50m [3] □□ RESIDENTIAL, PARK, NEW FIELD [1] □□-OPEN PASTURE, ROWCROP [0] □□-HEAVY/SEVERE[1] Max 10 FENCED PASTURE [1] □ □-MINING/CONSTRUCTION [0] □ □ - NARROW 5-10 m [2] VERY NARROW <5 m[1] Comments: NONE [0] 5.]POOL/GLIDE AND RIFFLE/RUN QUALITY Pool/ MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!] MAX. DEPTH Current (Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply) ☐ POOL WIDTH > RIFFLE WIDTH [2] ***** >1m [6] -EDDIES[1] □ -TORRENTIAL[-1] -POOL WIDTH = RIFFLE WIDTH [1] □-INTERSTITIAL[-1] □ - 0.7-1m [4] □-FAST[1] Max 12 -POOL WIDTH < RIFFLE W. [0] **II** - 0.4-0.7m [2] ☐-MODERATE [1] □-INTERMITTENT[-2] M-IMPOUNDED [-1] #-SLOW [1] □ - 0.2- 0.4m [1] -VERY FAST[1] COMMENTS: □ - < 0.2m [POOL=0]</p> □-NONE [-1] Riffle/Run CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE DEPTH **RUN DEPTH** RIFFLE/RUN SUBSTRATE RIFFLE/RUN_EMBEDDEDNESS □ - Best Areas >10 cm [2] **-** MAX > 50 [2] D-STABLE (e.g., Cobble, Boulder) [2] ☐ - NONE [2] Max 8 □ - Best Areas 5-10 cm[1] □ - MAX < 50[1] II-MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1] U-UNSTABLE (Fine Gravel, Sand) [0] □ - Best Areas < 5 cm □ - MODERATE [0] Gradient NO RIFFLE [Metric=0] ☐ - EXTENSIVE [-1] COMMENTS %POOL: ₩0~0 %GLIDE: DRAINAGE AREA (sq.mi.) : 61 GRADIENT (ft/mi): %RUN: %RIFFLE * Best areas must be large enough to support a population of riffie-obligate species

> Modified 06/01/2005

it/Long (Beg):	esentative of the Stre		f Not, Exp <u>la</u>				impa	Indu	None 🗖	
t/Long (Mid):	· · · · · · · · · · · · · · · · · · ·							W	WTP 19 Ag 10 stock 10	
t/Long (End): t/Long(X-Loc):			<u></u>	.,				Silvic Constru	ulture□ uction □	
	Ge	ear: Dis	stance:	Water Clarity:	Water Stage:	Canopy -%	Open	Urban R . (Suburban Im	CSOs 🗖	
C 5	First Sampling Pass	4	5 km	600 cm	Normal	% 60	,	M Channeliz	Aining 🔲	
/ Later			Stream Me	asurements:					noval 🔟 ndfills 🔲 atural 🔲	
bjective Aesthetlo Rating Rating 1-10) (1-10)	Average Average Width Depth	Maximum Av. Ba Depth Wid		ull Mean W/D pth Ratio	Bankfull Max Depth I	Floodprone Ent	rench. Katio	[Other Flow Alte	Dams 🗹	
1-10) Gradient: (1-10) Low, ロ- Moderate,ロ -Hi	_{jh} [Other:		
ream Drawing:	Pastura				4	2000		7		
	1000000		Sin	A9	, 10	2001e		Mar hay	/	
CCF	4900000	9000 000	00000 Joy	0000	1000 CDD	300HQ		Of Car	M. A. a	
26203	000000	100	<i>[1</i>							
(F66660V	<i>y</i> 0000000	Ded	dof					Ed-1 gara	A Raf	
(666 BBB	000000	Dod	Jo _f					Q- Qqqs	A Nap	
(FBCGGGG	<i>y</i> 000000	bout _	Joy		Class			\$)-1 Gg 6	N. P. Nap	
(Color Colo	<i>y</i>	bode	101		\$100			Qgo	N. P. Nap	
(Colors		Bouto	101		<u>\$100</u>			Qgo	THE WAS	
(-6 C - 6 C		Bouto	101		<u>\$100</u>			Qgo	A Nap	
(-6 C - 6 C		Sand/	COBLA		<u>\$100</u>			Qgo	A Nap	
Contract of the contract of th		Sand/	Cobba		<u>\$100</u>			Qgo	A Alap	
(-6 C - 6 C		Sand/	Cobbia		5/00			GJ-1 Ggs	A Nap	
Contract of the contract of th		Sand/	Cobbile		\$100 -		Yes//	9000 (1)		
Contract of the second of the	Instructions for scor	Sand/ ring the alternate Where: 0 - Co	e cover metri	ent: 1 - Cover	type should retype present	eceive a score	Yes/	So is Stream Epherr totally dry or only	neral (no pools, damp spots)?	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Instructions for scor of between 0 and 3 amounts or if more amounts, but not of	ring the alternates, Where: 0 - Coocommon of man of highest quality	e cover metri ver type abs rginal quality or in small a	ent; 1 - Cover /; 2 - Cover ty; amounts of hig	type should re type present in repersent in	eceive a score in very small moderate 3 - Cover type	Yes/	is Stream Epherr totally dry or only ls there water up How Far:	neral (no pools, r damp spots)? stream?	
	Instructions for scor	ring the alternates, Where: 0 - Common of main fhighest quality moderate or grindeep or fast w	e cover metriver type abs rginal quality or in small a eater amour	ent; 1 - Cover v; 2 - Cover typ amounts of hig nts. Examples iameter logs th	type should re type present type present in r ghest quality; 3 of highest quality at are stable, w	eceive a score in very small moderate 3 - Cover type ality include		Is Stream Ephem totally dry or only ls there water up How Far:	neral (no pools, r damp spots)? stream?	

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Qualitative Habitat Evaluation Index Field Sheet QHEI Score:

River Code: 95-650 RM: 2561 Stream: Tilingis River	
Station ID: /// Location:	
Date: 7-27-06 Scorer: 10/7 Latitude: 4/ 32282 Longitude: - 88, 552	25
1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present	
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY	
□□-BLDR /SLBS[10] □□-GRAVEL [7]	E)
D-Lg BOULD. [10] ED-SAND [6] D-LIMESTONE [1] SILT: D-SILT HEAVY [-2]	
□ □ BOULDER [9] / □ □ BEDROCK[5] □ -SILT MODERATE [-1]	Substrate
COBBLE [8] DD-DETRITUS[3] D -WETLANDS[0] D-SILT NORMAL [0]	
□□-HARDPAN [4] □□-ARTIFICIAL[0] □-HARDPAN [0] □-SILT FREE [1]	
□ □-MUCK [2] □ □-SILT [2] □ -SANDSTONE [0] EMBEDDED □-EXTENSIVE [-2]	Max 20
	Wax 20
NUMBER OF SUBSTRATE TYPES: 12-4 or More [2]	
(High Quality Only, Score 5 or >)	
COMMENTS P-COAL FINES [-2]	
2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One	or
(Structure) TYPE: Score All That Occur check 2 and AVERAGE)	Cover
LUNDERCUT BANKS [1] POOLS> 70 cm [2] LOXBOWS, BACKWATERS [1] D - EXTENSIVE > 75% [11]	
Overhanging vegetation [1] L ROOTWADS [1] OAQUATIC MACROPHYTES [1] O-MODERATE 25-75% [7]	
✓ SHALLOWS (IN SLOW WATER) [1] BOULDERS [1] LOGS OR WOODY DEBRIS [1] BY- SPARSE 5-25% [3]	Max 20
3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)	
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER	Channel
□- HIGH [4] □- EXCELLENT [7] □- NONE [6] □- HIGH [3] □- SNAGGING □- IMPOUND.	
MODERATE [3] GOOD [5] - RECOVERED [4] - MODERATE [2] - RELOCATION - ISLANDS	
LOW [2]	Max 20
□ - NONE [1] □ - POOR [1] □ - RECENT OR NO □ - DREDGING □ - BANK SHAPING	
RECOVERY [1]	
COMMENTS: ET- IMPOUNDED [-1]	
4]. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking	Downstream
RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION	
L R (Most Predominant Per Bank) L R L R (Per Bank)	Riparian
TO - VERY WIDE > 100m [5] FOREST, SWAMP [3] DI-CONSERVATION TILLAGE [1]	
□□- WIDE > 50m [4] □□-SHRUB OR OLD FIELD [2] □□-URBAN OR INDUSTRIAL [0] □□-MODERATE [2]	· ()
MODERATE 10-50m [3] DERESIDENTIAL, PARK, NEW FIELD [1] DO-OPEN PASTURE, ROWCROP [0] DO-HEAVY/SEVERE	11Max 10
□ □-NARROW 5-10 m [2] □ □-FENCED PASTURE [1] □ □-MINING/CONSTRUCTION [0]	
□□- VERY NARROW <5 m[1] Comments: □□- NONE [0]	
mm - Moure [o]	
5.IPOOL/GLIDE AND RIFFLE/RUN QUALITY	D 1/
MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES1]	Pool/
	Current
(Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply) 由-POOL WIDTH > RIFFLE WIDTH [2] ロ-EDDIES[1] ロ-TORRENTIAL[-1]	
- 0.7-1m [4]	
- 0.4-0.7m [2] - POOL WIDTH - RIFFLE W. [0] - MODERATE [1] - INTERMITTENT[-2]	Max 12
□ - < 0.2m [POOL=0] COMMENTS: □-NONE [-1]	
CHECK ONE OD CHECK 3 YND WEDYCE	Riffle/Run
CHECK ONE OR CHECK 2 AND AVERAGE DIET FORTH DIET FORTH DIET PRESENTATE DIED FORTH EMPENDEDNICS	
RIFFLE DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS	-
D- Best Areas >10 cm [2]	May
□- Best Areas 5-10 cm[1] □- MAX < 50[1] □-MOD. STABLE (e.g., Large Gravel) [1] □- LOW [1]	Max 8
□ - Best Areas < 5 cm □ - MODERATE [0] □ - MODERATE [0]	Gradient
NO RIFFLE [Metric=0] - EXTENSIVE [-1]	
COMMENTS	
	Max 10
6] GRADIENT (ft/mi):DRAINAGE AREA (sq.mi.) : %POOL: 6 %GLIDE:	Max 10
	Max 10

.at/Long (Beg): .at/Long (Mid): .at/Long (End): .at/Long(X-Loc):	resentative of the Stream (Y/N	I) If Not, Explain:		Impacts (Check All That Apply): None Impacts (Ch
ubjective Aestheti Rating Rating (1-10) Gradient: - Low, □- Moderate,□	Width Depth Depth	Distance: Water Clarity: Stream Measurements: Av. Bankfull Bankfull Mean W/D Width Depth Ratio	Water Stage: Canopy -% Op Nol ma / % / OO Bankfull Max Floodprone Entrer Depth Area Width Rati	Mining Channelization Riparian Removal Landfills Natural
ream Drawing		ind ind	ant Blow	2568 colorate Flore
				For I also
		Slow	Sand/Bould	Yes/No Is Stream Ephemeral (no pools,

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Land Land Qualitative Habitat Evaluation Index Field Sheet QHEI Score: RM: 268.0 Stream: River Code: 95 686 I Ilinois Station ID: Location: AUA Latitude: 46.37904 Longitude: - 88,33740 Date: 7-14-06 Scorer: NAL 1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY TYPE Check ONE (OR 2 & AVERAGE) □ □-BLDR /SLBS[10] . GRAVEL [7] Check ONE (OR 2 & AVERAGE) □ □-Lg BOULD. [10] ____ _ **D B** SAND [6] -LIMESTONE [1] SILT: **II-SILT HEAVY [-2]** Substrate □□-BOULDER [9] 📈 BEDROCK[5] 127-TILLS [1] □ -SILT MODERATE [-1] □□-COBBLE [8] ∠ SILT NORMAL [0] ____ DETRITUS[3] -WETLANDS[0] - DD-ARTIFICIAL[0] □ □-HARDPAN [4] ____ -HARDPAN [0] □-SILT FREE [1] □ □-MUCK [2] □ □-SILT [2] □ -SANDSTONE [0] EMBEDDED □ -EXTENSIVE [-2] Max 20 -RIP/RAP [0] □-MODERATE [-1] NESS: PORMAL [0] NUMBER OF SUBSTRATE TYPES: □ -LACUSTRINE [0] EF4 or More [2] (High Quality Only, Score 5 or >) □-3 or Less [0] □-NONE [1] -SHALE [-1] -COAL FINES [-2] COMMENTS 2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or Cover TYPE: Score All That Occur (Structure) check 2 and AVERAGE) _POOLS> 70 cm [2] - EXTENSIVE > 75% [11] ∠OXBOWS, BACKWATERS [1] __UNDERCUT BANKS [1] AQUATIC MACROPHYTES [1] __ROOTWADS [1] - MODERATE 25-75% [7] LOVERHANGING VEGETATION [1] LOGS OR WOODY DEBRIS [1] **IB** - SPARSE 5-25% [3] _SHALLOWS (IN SLOW WATER) [1] <u> __</u>BOULDERS [1] Max 20 ROOTMATS [1] □ - NEARLY ABSENT < 5%[1] COMMENTS: 3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) Channel MODIFICATIONS/OTHER SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY □ - HIGH [3] □ - SNAGGING - IMPOUND. □ - HIGH [4] ☐ - EXCELLENT [7] 10 - NONE [6] M-MODERATE [2] - RELOCATION □, MODERATE [3] □ - RECOVERED [4] - ISLANDS □ , GOOD [5] LOW [1] ☐ - CANOPY REMOVAL ☐ - LEVEED □ - RECOVERING [3] **₽** - LOW [2] 12 - FAIR [3] □ - NONE [1]. □ - POOR [1] III - RECENT OR NO DREDGING - BANK SHAPING RECOVERY [1] - ONE SIDE CHANNEL MODIFICATIONS M- IMPOUNDED [-1] COMMENTS: 4]. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) 🗗 River Right Looking Downstream 🖗 FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) **BANK EROSION** RIPARIAN WIDTH Riparian L R (Most Predominant Per Bank) L R (Per Bank) L R L R (Per Bank) □ □ - VERY WIDE > 100m [5] M -NONE/LITTLE [3] FOREST, SWAMP [3] ☐ ☐-CONSERVATION TILLAGE [1] WIDE > 50m [4] ☐ E -MODERATE [2] ☐ ☐-SHRUB OR OLD FIELD [2] ☐ ☐ -URBAN OR INDUSTRIAL [0] □□- MODERATE 10-50m [3] □□-RESIDENTIAL, PARK, NEW FIELD [1] □□-OPEN PASTURE, ROWCROP [0] □□-HEAVY/SEVERE[1] Max 10 □ □-MINING/CONSTRUCTION [0] □ □ - NARROW 5-10 m [2] -FENCED PASTURE [1] □□- VERY NARROW <5 m[1] Comments: □ - NONE [0] 5.IPOOL/GLIDE AND RIFFLE/RUN QUALITY Pool/ MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLESI] Current (Check 1 ONLY!) (Check All That Apply) (Check 1 or 2 & AVERAGE) □ -EDDIES[1] >1m [6] POOL WIDTH > RIFFLE WIDTH [2] ☐ -TORRENTIAL[-1] □-POOL WIDTH = RIFFLE WIDTH [1] ☐-INTERSTITIAL[-1] □ - 0.7-1m [4] ☐-FA5T[1] Max 12 - BOOL WIDTH < RIFFLE W. [0] ☑-MODERATE [1] □-INTERMITTENT[-2] □ - 0.4-0.7m [2] IMPOUNDED [-1] 12 -SLOW [1] -VERY FAST[1] □ - 0.2-0.4m [1] **□**-NONE [-1] □ - < 0.2m'[POOL=0]</p> COMMENTS: Riffle/Run CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS ☐ - Best Areas >10 cm [2] □ - MAX > 50 [2] CI-STABLE (e.g., Cobble, Boulder) [2] **D** - NONE [2] □ - Best Areas 5-10 cm[1] □ - MAX < 50[1]</p> ☐ MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1] Max 8 □ - Best Areas < 5 cm **U-UNSTABLE** (Fine Gravel, Sand) [0] □ - MODERATE [0] Gradient NO RIFFLE [Metric=0] □ - EXTENSIVE [-1] COMMENTS

_DRAINAGE AREA (sq.mi.):__

6] GRADIENT (ft/mi):

Best areas must be large enough to support a population of riffie-obligate species

%POOL: 1/かか

%RIFFLE

%GLIDE:

%RUN:

Modified

Max 10

06/01/2005

Is Sampling Reach Representative of the Stream (Y/N) If Not, Explain:	Major Suspected Sources of Impacts (Check All That Apply):
Lat/Long (Beg): Lat/Long (Mid):	None D Industrial D WWTP 1 Ag D
Lat/Long (End):Lat/Long(X-Loc):	Livestock □ Silviculture □ Construction □ Urban Runoff ☑
Gear: Distance: Water Clarity: Water Stage: Canopy -% Open First Sampling Pass STM 50cm normal % 160	CSOs 🗖 Suburban Impacts 🗖 Mining 🗖 Channelization 🗖 Riparian Removal 🔟
Stream Measurements: Subjective Aesthetic Average Average Maximum Av. Bankfull Bankfull Mean W/D Bankfull Max Floodprone Entrench. Rating Rating Width Depth Depth Width Depth Ratio Depth Area Width Ratio (1-10) Gradient: - Low, - Moderate, - High	Landfills Natural Dams Other Flow Alteration Other:
Stream Drawing:	
gravel Sind	
	·
Son Flow	
Boulder-Cobble	The state of the s
10000 (000m	
Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small	Yes/No Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream?
amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed	How Far: Is There Water Close Downstream? How Far:
rootwads in deep/fast water, or deep, well-defined, functional pools.	Is Dry Channel Mostly Natural?

VIBI

Qualitative Habitat Evaluation Index Field Sheet QHET Score:	_
River Code: 95 1660 RM: 365 Ostream: Illinais Rivale	_
Station ID: 18 Location: UPST mouth of Philocht Slow	Cs Cq 5
Date: 7-6/06 Scorer: 10 Latitude: 41, 36/20 Longitude: -88, 39/45	
1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present	
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY	
□□-BLDR /SLBS[10] □□-GRAVEL [7] Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE)	
□□-Lg BOULD. [10] □ □-SILT HEAVY [-2] □□-ROULDER [9] □ □-SILT HEAVY [-2] □□-SULT HEAVY [-1] Substr	rato
The state of the s	ale -)
□ ■ COBBLE [8] □ □ -WETLANDS[0] □ -SILT NORMAL [0] □ -HARDPAN [4] □ □ -ARTIFICIAL[0] □ -HARDPAN [0] □ -SILT FREE [1]	
DILMICK [2] DIRECTOR OF CAMPETONE FOR EARLED DED DIEVERSING [2]	ال
Max 2	20
NUMBER OF SUBSTRATE TYPES: 4 or More [2]	
(High Quality Only, Score 5 or >)	
COMMENTS	
21 INSTREAM COVER (Cive each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONI V One or	
(Structure) TYPE: Score All That Occur check 2 and AVERAGE)	÷r =>
UNDERCUT BANKS [1] POOLS> 70 cm [2] OXBOWS, BACKWATERS [1] - EXTENSIVE > 75% [11]	71
OVERHANGING VEGETATION [1] ROOTWADS [1] AQUATIC MACROPHYTES [1] MODERATE 25-75% [7]	
SHALLOWS (IN SLOW WATER) [1] BOULDERS [1] LOGS OR WOODY DEBRIS [1] W- SPARSE 5-25% [3] Max 2	20
ROOTMATS [1] COMMENTS: U- NEARLY ABSENT < 5%[1]	
3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)	s a l
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER Chann	ا ا
- HIGH [4] - EXCELLENT [7] NONE [6] - HIGH [3] - SNAGGING - IMPOUND.]]
MODERATE [3] GOOD [5] GOOD [4] MODERATE [2] RECOVERED [4] MODERATE [2] C-RELOCATION C-ISLANDS Max 2 Max 2	الد
· · · · · · · · · · · · · · · · · ·	<u>2</u> 0
□ - NONE [1] □ - POOR [1] □ - RECENT OR NO □ - DREDGING □ - BANK SHAPING RECOVERY [1] □ - ONE SIDE CHANNEL MODIFICATIONS	
COMMENTS: D- IMPOUNDED [-1]	
41. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) P River Right Looking Downsti	ream 🖗
4]. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) Priver Right Looking Downston RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION BANK EROSION BANK EROSION	
4]. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstr RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) L R (Per Bank) L R (Per Bank) L R (Per Bank)	
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RIPARIAN WIDTH L R (Per Bank) L B (Most Predominant Per Bank) L R (Per Bank) D D CONSERVATION TILLAGE [1] D D - WIDE > 50m [4] D D - SHRUB OR OLD FIELD [2] D D - URBAN OR INDUSTRIAL [0]	an
RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) L R	an
RIPARIAN WIDTH L R (Per Bank) L B (Most Predominant Per Bank) L R (Per Bank) D D CONSERVATION TILLAGE [1] D D - WIDE > 50m [4] D D - SHRUB OR OLD FIELD [2] D D - URBAN OR INDUSTRIAL [0]	an
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RIPARIAN WIDTH RIPARIAN WIDTH RIPARIAN L R (Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) D-CONSERVATION TILLAGE [1] D-NONE/LITTLE [3]	an
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RIPARIAN WIDTH RODD PLAIN QUALITY (PAST 100 Meter RIPARIAN) Riparia Ripa	an O
RIPARIAN WIDTH R (Per Bank) L R (Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) R (Pe	an o o o o o o o o o o o o o o o o o o o
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RIPARIAN WIDTH L R (Per Bank) Riparial D - WIDE > 100m [5] D - FERCEST, SWAMP [3] D - CONSERVATION TILLAGE [1] D - HODERATE 10-50m [3] D - SHRUB OR OLD FIELD [2] D - U-RBAN OR INDUSTRIAL [0] D - WIDE > 50m [4] D - MODERATE 10-50m [3] D - RESIDENTIAL, PARK, NEW FIELD [1] D - OPEN PASTURE, ROWCROP [0] D - HEAVY/SEVERE[1]	an O
RIPARIAN WIDTH L R (Per Bank) Riparia L R (Per Bank) L R (Per Bank) L R (Per Bank) R (Per Bank) L R (Per Bank) R (Per Bank) L R (Per Bank) R (Pank) R (Per Bank) R (Per Ba	an O
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RIPARIAN WIDTH L R (Per Bank) Riparia D	nt 1

	Distance: Water Clarity: Water Stage: Canopy -% Oper Stream Measurements: Iximum Av. Bankfull Bankfull Mean W/D Depth Width Depth Ratio Depth Area Width Ratio	Mining Channelization Riparian Removal Landfills Adducted
	Source of the second of the se	
of between 0 and 3, W amounts or if more cor amounts, but not of hig of highest quality in mo very large boulders in d	the alternate cover metric: Each cover type should receive a score there 0 - Gover type absent; 1 - Cover type present in very small mmon of marginal quality; 2 - Cover type present in moderate ghest quality or in small amounts of highest quality; 3 - Cover type oderate or greater amounts. Examples of highest quality include leep or fast water, large diameter logs that are stable, well developed water, or deep, well-defined, functional pools.	Yes/No Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream? How Far: Is There Water Close Downstream? How Far: Is Dry Channel Mostly Natural?

Edited on

College with Qualitative Habitat Evaluation Index Field Sheet QHEI Score: River Code: 95 - 1550 RM: 376.8 Stream: Station ID: Location: __ 210093 Scorer: NAIJ Latitude: 91, 40877 Longitude: -88. 22267 1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present POOL RIFFLE SUBSTRATE ORIGIN POOL RIFFLE SUBSTRATE QUALITY TYPE Check ONE (OR 2 & AVERAGE) Check QNE (OR 2 & AVERAGE) □ □-BLDR /SLBS[10] _ ___ 🔲 🗖 🗖 -GRAVEL [7] S ILT HEAVY [-2] □ □ -Lg BOULD. [10] ____ **□ □**-SAND [6] □ -LIMESTONE [1] SILT: Substrate □□-BOULDER [9] ____ D D-BEDROCK[5] TILLS [1] □ -SILT MODERATE [-1] □ □-COBBLE [8] _ DD-DETRITUS[3] ☐ -WETLANDS[0] -SILT NORMAL [0] **dru**-HARDPAN [4] ∠ □ □ □-ARTIFICIAL[0] □-HARDPAN [0] □-SJLT FREE [1] □ **#**SILT [2] □ □-MUCK [2] -SANDSTONE [0] EMBEDDED -EXTENSIVE [-2] Max 20 □ -RIP/RAP [0] NESS: ☐ -MODERATE [-1] NUMBER OF SUBSTRATE TYPES: □-4 or More [2] -LACUSTRINE [0] □ -NORMAL [0] (High Quality Only, Score 5 or >) **82**-3 or Less [0] □ -SHALE [-1] **□**-NONE [1] _-COAL FINES [-2] 2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or Cover TYPE: Score All That Occur (Structure) check 2 and AVERAGE) *Q* POOLS> 70 cm [2] _OXBOWS, BACKWATERS [1] UNDERCUT BANKS [1] ☐ - EXTENSIVE > 75% [11] AQUATIC MACROPHYTES [1] LROOTWADS [1] OVERHANGING VEGETATION [1] MODERATE 25-75% [7] LOGS OR WOODY DEBRIS [1] _SHALLOWS (IN SLOW WATER) [1] ∠BOULDERS [1] □ - SPARSE 5-25% [3] CROOTMATS [1] COMMENTS: - NEARLY ABSENT < 5%[1]</p> 3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) Channel CHANNELIZATION STABILITY MODIFICATIONS/OTHER **SINUOSITY** DEVELOPMENT □ - HIGH [4] □ - EXCELLENT [7] **1** - NONE [6] □ - HIGH [3] □ - SNAGGING - IMPOUND. □ - MODERATE [3] □ - GOOD [5] □ - RECOVERED [4] MODERATE [2] - RELOCATION - ISLANDS FAIR [3] - LOW [2] □ - RECOVERING [3] ET- LOW [1] ☐ - CANOPY REMOVAL ☐ - LEVEED ☐ - RECENT OR NO ■ - NONE [1] ☐ - POOR [1] □ - DREDGING - BANK SHAPING RECOVERY [1] - ONE SIDE CHANNEL MODIFICATIONS ET- IMPOUNDED [-1] COMMENTS: 4]. RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) 🖗 River Right Looking Downstream 🖗 RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) **BANK EROSION** Riparian L R (Per Bank) L R (Most Predominant Per Bank) L R L R (Per Bank) □ □ - VERY WIDE > 100m [5] TOTAL FOREST, SWAMP [3] E PNONE/LITTLE [3] CONSERVATION TILLAGE [1] □ □-MODERATE [2] ETE - WIDE > 50m [4] ☐ ☐-SHRUB OR OLD FIELD [2] □ □-URBAN OR INDUSTRIAL [0] □□- MODERATE 10-50m [3] □□-RESIDENTIAL, PARK, NEW FIELD [1] □□-OPEN PASTURE, ROWCROP [0] □□-HEAVY/SEVERE[1] Max 10 ☐ ☐-FENCED PASTURE [1] ☐ ☐-MINING/CONSTRUCTION [0] □ □ - NARROW 5-10 m [2] □□-VERY NARROW <5 m[1] Comments: □ □ - NONE [0] 5.]POOL/GLIDE AND RIFFLE/RUN QUALITY Pool/ MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!] Current (Check 1 ONLY!) (Check 1 or 2 & AVERAGE) . (Check All That Apply) -EDDIES[1] POOL WIDTH > RIFFLE WIDTH [2] □ - >1m [6] □ -TORRENTIAL[-1] □ - 0.7-1m [4] -POOL WIDTH = RIFFLE WIDTH [1] □-FAST[1] □-INTERSTITIAL[-1] **2** 0.4-0.7m [2] -BOOL WIDTH < RIFFLE W. [0] □-MODERATE [1] -INTERMITTENT[-2] -IMPOUNDED [-1] -SLOW [1] □ - 0.2- 0.4m [1] □ -VERY FAST[1] M-NONE [-1] □ - < 0.2m [POOL=0]</p> COMMENTS:_ Riffle/Run CHECK ONE OR CHECK 2 AND AVERAGE **RUN DEPTH** RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS RIFFLE DEPTH ☐ - Best Areas >10 cm [2] **-** MAX > 50 [2] CI-STABLE (e.g., Cobble, Boulder) [2] ☐ - NONE [2] Max 8 □ - Best Areas 5-10 cm[1] **D** - MAX < 50[1] CI-MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1] UNSTABLE (Fine Gravel, Sand) [0] □ - Best Areas < 5 cm □ - MODERATE [0] Gradient M- NO RIFFLE [Metric=0] ☐ - EXTENSIVE [-1] COMMENTS

DRAINAGE AREA (sq.mi.) :_

6] GRADIENT (ft/mi):

Best areas must be large enough to support a population of riffle-obligate species

%POOL: 1/07

%RIFFLE:

%GLIDE:

%RUN:

Modified 06/01/2005

Max 10

Sampling Reach Representative of the Stream (Y/N) If Not, Exp <u>lain:</u>	Major Suspected Sources of Impacts (Check All That Apply):
it/Long (Beg):	None D Industrial D WWTP D Ag D
at/Long (End):	Livestock ☐ Silviculture ☐
it/Long(X-Loc):	Construction Urban Runoff CSOs CS
Gear: Distance: Water Clarity: Water Stage: Canopy -% Op	en Suburban Impacts Mining Channelization
Sampling Pass 7 5 km 75 cm Normal 100%. Stream Measurements:	Riparian Removal 🗖 Landfills 🗖 /
bjective Aesthetic Average Average Maximum Av. Bankfull Bankfull Mean W/D Bankfull Max Floodprone Entrer Rating Rating Width Depth Depth Width Depth Ratio Depth Area Width Ratio (1-10) Gradient:	
Low, □- Moderate,□-High	
ream Drawing:	o e is destriction
2003293 36 Secretary	
	Macrofflytes
trote coning in	de+5
Atologia, A	Yes/No
Instructions for scoring the alternate cover metric: Each cover type should receive a score	Is Stream Ephemeral (no pools, totally dry or only damp spots)?
of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality: 2 - Cover type present in moderate	Is there water upstream?
amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include	Is There Water Close Downstream? How Far:
very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Is Dry Channel Mostly Natural?

Like fall I

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: RM: 3900 Stream: River Code: 95-656 DD-02 Location: 👲 ダァ゙ 00 h Station ID: 🔊 🗸 Latitude: 🛂 . Date: 1-11:06 Scorer: A Longitude: - 🛠 🐔 57792 1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE) □ □-BLDR /SLBS[10] □□-GRAVEL[7] ✓ □-SILT HEAVY [-2] □ □ -Lg BOULD. [10] □ □-SAND [6] □ -LIMESTONE [1] SILT: □□-BOULDER [9] Substrate BEDROCK[5] 13 -TILLS [1] □ -SILT MODERATE [-1] L DO-DETRITUS[3] **☑ □**-COBBLE [8] SILT NORMAL [0] □ -WETLANDS[0] □-SILT FREE [1] □ □-HARDPAN [4] _ - D-ARTIFICIAL[0] -HARDPAN [0] □ □-MUCK [2] □ □-SILT [2] □ -SANDSTONE [0] EMBEDDED □-EXTENSIVE [-2] Max 20 ☐ -RIP/RAP [0] ☐ -MODERATE [-1] NESS: M'-NORMAL [0] □ -LACUSTRINE [0] NUMBER OF SUBSTRATE TYPES: **E** 4 or More [2] (High Quality Only, Score 5 or >) **II-NONE** [1] □-3 or Less [0] □ -SHALE [-1] D-COAL FINES [-2] COMMENTS 2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or Cover TYPE: Score All That Occur check 2 and AVERAGE) (Structure) UNDERCUT BANKS [1] POOLS> 70 cm [2] OXBOWS, BACKWATERS [1] **-** EXTENSIVE > 75% [11] **I**OVERHANGING VEGETATION [1] ROOTWADS [1] AQUATIC MACROPHYTES [1] □ - MODERATE 25-75% [7] **D** - SPARSE 5-25% [3] _SHALLOWS (IN SLOW WATER) [1] BOULDERS [1] LOGS OR WOODY DEBRIS [1] Max 20 ROOTMATS [1] E - NEARLY ABSENT < 5%[1] COMMENTS: 3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) Channel CHANNELIZATION STABILITY MODIFICATIONS/OTHER SINUOSITY DEVELOPMENT □ - EXCELLENT [7] □ - NONE [6] **№**- HIGH [3] □ - SNAGGING - IMPOUND. □ - HIGH [4] □ - MODERATE [2] □ - RELOCATION □ - MODERATE [3] □ - GOOD [5] ☐ - RECOVERED [4] - ISLANDS □ - RECOVERING [3] □ - LOW [1] □ - CANOPY REMOVAL □ - LEVEED **D** - LOW [2] - FAIR [3] Max 20 ☐ - RECENT OR NO - DREDGING 12 - NONE [1] **國**- POOR [1] BANK SHAPING REGÓVERY [1] □ - ONE SIDE CHANNEL MODIFICATIONS MPOUNDED [-1] COMMENTS: 4], RIPARIAN ZONE AND BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank) PRiver Right Looking Downstream P FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) **BANK EROSION** RIPARIAN WIDTH Riparian L R (Most Predominant Per Bank) L R L R (Per Bank) L R (Per Bank) □ □ - VERY WIDE > 100m [5] **□ □** FOREST, SWAMP [3] ☐ ☐-CONSERVATION TILLAGE [1] **超 a**-NONE/LITTLE [3] ☐ ☐-SHRUB OR OLD FIELD [2] 自包-URBAN OR INDUSTRIAL [0] □ □-MODERATE [2] □□- WIDE > 50m [4] □□- MODERATE 10-50m [3] □□-RESIDENTIAL,PARK,NEW FIELD [1] □□-OPEN PASTURE,ROWCROP [0] □□-HEAVY/SEVERE[1] Max 10 □ □-MINING/CONSTRUCTION [0] □ □-FENCED PASTURE [1] MARROW 5-10 m [2] □□- VERY NARROW <5 m[1] Comments: □ □ - NONE [0] 5. IPOOL/GLIDE AND RIFFLE/RUN QUALITY Pool/ CURRENT VELOCITY [POOLS & RIFFLES!] MORPHOLOGY MAX. DEPTH Current (Check 1 or 2 & AVERAGE) (Check All That Apply) (Check 1 ONLY!) -POOL WIDTH > RIFFLE WIDTH [2] -EDDIES[1] ☐ -TORRENTIAL[-1] **m** >1m [6] □ - 0.7-1m [4] -POOL WIDTH = RIFFLE WIDTH [1] #-FAST[1] □-INTERSTITIAL[-1] Max 12 -POOL WIDTH < RIFFLE W. [0] □ - 0.4-0.7m [2] ☐-MODERATE [1] □-INTERMITTENT[-2] IMPOUNDED [-1] SLOW [1] □ -VERY FAST[1] □ - 0.2- 0.4m [1] □-NONE [-1] □ - < 0.2m [POOL=0]</p> COMMENTS: Riffle/Run CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE/RUN SUBSTRATE RIFFLE DEPTH **RUN DEPTH** RIFFLE/RUN EMBEDDEDNESS □ - MAX > 50 [2] **D-STABLE** (e.g., Cobble, Boulder) [2] ☐ - NONE [2] □ - Best Areas >10 cm [2] Max 8 □ - Best Areas 5-10 cm[1] **II** - MAX < 50[1] II-MOD. STABLE (e.g., Large Gravel) [1] ☐ - LOW [1] UNSTABLE (Fine Gravel, Sand) [0] □ - MODERATE [0] - Best Areas < 5 cm Gradient ■ NO RIFFLE [Metric=0] □ - EXTENSIVE [-1] COMMENTS Max 10 %GLIDE: %POOL: 6] GRADIENT (ft/mi): DRAINAGE AREA (sq.mi.) :

%RIFFLE:

** Best areas must be large enough to support a population of riffie-obligate species

%RUN:

Is Sampling Reach Representative of the Stream (Y/N) If Not, Exp <u>lain:</u>	Major Suspected Sources of Impacts (Check All That Apply):
Lat/Long (Beg): Lat/Long (Mid):	None D Industrial U WWTP U Ag D
Lat/Long (End):	Livestock ☐ Silviculture ☐
Lat/Long(X-Loc):	Construction ☐ Urban Runoff ☑ CSOs ☐
Gear: Distance: Water Clarity: Water Stage: Canopy -% Open	. Suburban Impacts □ Mining □
2 First Sampling Pass A 15 Tm 55cm normal 16/00	Channelization 🗖 Riparian Removal 🗖 Landfills 🗖 ,
Stream Measurements: Subjective Aesthetic Average Average Maximum Av. Bankfull Bankfull Mean W/D Bankfull Max Floodprone Entrench. Rating Rating Width Depth Width Depth Ratio Depth Area Width Ratio	Natural □ / Dams ⊡
(1-10) Gradient: (1-10)	Other Flow Alteration Other:
Stream Drawing:	$C(J(\zeta)(\zeta)(\zeta)) = -1$
2 / 1/1/2000	0-00
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
11 - x 100 0 10 10 10 10 10 10 10 10 10 10 10	
	- Commence of the Commence of
141	333
I HAS TO BE SOUND STORY	JOYU &
I have been been been been been been been be	Yes/No
Instructions for scoring the alternate cover metric: Each cover type should receive a score	Is Stream Ephemeral (no pools, totally dry or only damp spots)?
of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small	Is there water upstream? How Far:
amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include	Is There Water Close Downstream?
very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Is Dry Channel Mostly Natural?

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MBI 95-168 Qualitative Habitat Evaluation Index Field Shoot, OHEL Score:	7
Qualitative Habitat Evaluation Index Field Sheet QHEI Score:	
River Code: (92 696) RM: 2479 Stream: Dos Plenors	
Station ID: DEGY Location: DST Tetterson St. Juliet, 7/1	
Date: 11.66 Scorer: ANJ Latitude: 4,57,1604 Longitude:-89.087073	
1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present	
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY Charl. ONE (OR 2.6. AVERAGE) Charl. ONE (OR 2.6. AVERAGE)	
Check ONE (OR 2 & AVERAGE)	
	strate
□□-COBBLE [8] □ -SILT NORMAL [0] □-SILT NORMAL [0]	$\overline{}$
□ □-ḤARDPAN [4] □ □-ARTIFICIAL[0] □ -HARDPAN [0] □ -SILT-FREE [1]	Ш
□ -SANDSTONE [0] EMBEDDED □ -EXTENSIVE [-2]	x 20
NUMBER OF SUBSTRATE TYPES:	
COMMENTS	
(Structure) TYPE: Score All That Occur (Structure) Check 2 and AVERAGE)	ver
UNDERCUT BANKS [1] POOLS> 70 cm [2] OXBOWS, BACKWATERS [1] D - EXTENSIVE > 75% [11]	\neg
OVERHANGING VEGETATION [1] LROOTWADS [1] LAQUATIC MACROPHYTES [1] - MODERATE 25-75% [7]	
SHALLOWS (IN SLOW WATER) [1] BOULDERS [1] LOGS OR WOODY DEBRIS [1] D - SPARSE 5-25% [3] Max	∢20
PROOTMATS [1] COMMENTS: The NEARLY ABSENT < 5%[1]	
3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)	nnel
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER CHANNELIZATION D- HIGH [3] D- SNAGGING D- IMPOUND.	
- MODERATE [3] - GOOD [5] - RECOVERED [4] - MODERATE [2] - RELOCATION - ISLANDS	11
- LOW [2] - FAIR [3] - RECOVERING [3] D- LOW [1] - CANOPY REMOVAL - LEVEED Max)
# NONE [1] # - POOR [1] # - RECENT OR NO TO - DREDGING TO - BANK SHAPING	(20
RECOVERY [1] □ - ONE SIDE CHANNEL MODIFICATIONS	
COMMENTS: IMPOUNDED [-1]	
4]. RIPARIAN ZONE AND BANK EROSION(check ONE box per bank or check 2 and AVERAGE per bank) PRiver Right Looking Down	istream (
RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION Ripa	arian
L R (Per Bank) L R (Most Predominant Per Bank) L R L R (Per Bank)	<u> </u>
□□- VERY WIDE > 100m [5] □□-FOREST, SWAMP [3] □□-CONSERVATION TILLAGE [1] □□-MODE > 50m [4] □□-SHRUB OR OLD FIELD [2] □□-WIDE > 50m [4] □□-MODERATE [2]	_]]
D - MODERATE 10-50m [3] D - RESIDENTIAL, PARK, NEW FIELD [1] D - OPEN PASTURE, ROWCROP [0] D - HEAVY/SEVERE[1] MAX	(10
□□- NARROW 5-10 m [2] □□-FENCED PASTURE [1] □□-MINING/CONSTRUCTION [0]	
□□- VERY NARROW <5 m[1] Comments:	
PTD - NONE [0]	
5.]POOL/GLIDE AND RIFFLE/RUN QUALITY	
MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!] Curr	rent
(Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply) □ → POOL WIDTH > RIFFLE WIDTH [2] □ -EDDIES[1] □ -TORRENTIAL[-1]	\neg
- 0.7-1m [4]	
□ - 0.4-0.7m [2] □ -POOL WIDTH < RIFFLE W. [0] □ -MODERATE [1] □ -INTERMITTENT[-2]	: 12
□- 0.2- 0.4m [1]	
□ - < 0.2m [POOL=0] COMMENTS: □-NONE [-1]	
Riffle,	/Run
CHECK ONE OR CHECK 2 AND AVERAGE	
RIFFLE DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS	Ш
□-Best Areas >10 cm [2] □-MAX > 50 [2] □-STABLE (e.g.,Cobble, Boulder) [2] □-NONE [2] □-NONE [2] □-MAX < 50[1] □-MOD, STABLE (e.g.,Cobble, Boulder) [1] □-NONE [2] □-NONE [2]	
best Areas a to cities a many soft.	
ロ - MODERATE [0] Grace Gravet, Sail of [0] ロ - MODERATE [0] Grace Gravet, Sail of [0] ロ - EXTENSIVE [-1]	dient
COMMENTS	
	<u>_</u>
6] GRADIENT (ft/mi):DRAINAGE AREA (sq.mi.) : %POOL: % GLIDE: Max	IU
**Best areas must be large enough to support a population of riffio-obligate species %RIFFLE: %RUN:	

		entative of the Stream (Y/N) If Not, Explain:	Major Suspected Sources of Impacts (Check All That Apply): None D
	Lat/Long (Beg): Lat/Long (Mid): Lat/Long (End): Lat/Long(X-Loc):		Industrial (1) WWTP (2) Ag (2) Livestock (2) Silviculture (2) Construction (2) Urban Runoff (2)
		Gear: Distance: Water Clarity: Water Stage: Canopy -% Open First Sampling Pass A 55m 45cm Milmal % 100	CSOs Suburban Impacts Mining Channelization
	Subjective Aesthetic Rating Rating (1-10) Gradient: Gradient: Gradient:	Stream Measurements: Average Average Maximum Av. Bankfull Bankfull Mean W/D Bankfull Max Floodprone Entrench. Width Depth Depth Width Depth Ratio Depth Area Width Ratio	Riparian Removal Landfills Natural Dams Other Flow Alteration Other:
	Stream Drawing:	· · · · · · · · · · · · · · · · · · ·	
	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	uall ES	
	1090	wall	To the state of th
	B. J.	Rathing Lot.	Yes/No
A Contract of the Contract of	Flor	Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream? How Far: Is There Water Close Downstream? How Far: Is Dry Channel Mostly Natural?
	· ·		

MET

Qualitative Habitat Evaluation Index Field Sheet QHEI Score:

	zualitative i labita				
River Code: 95-656	_RM:276.5 Stream	n: Des	Plajores		
Station ID: DP-08	Locatio	n:	150 IS/G	nd (DST Durker)	Ed _
Date: 103-06	Scorer: 📈 🖊 Lat	itude: <u>4/. </u>	43953	_Longitude: -&& 169	69
1] SUBSTRATE (Check ON	LY Two SubstrateTYPE E	3OXES; Estima	ite % present	•	
TYPE POOL RI	FFLE POO	OL/RIFFLE <u>SUE</u>	SSTRATE ORIGIN	SUBSTRATE QUALITY	
□ □-BLDR /SLBS[10]	🗖 🗖 - GRAVEL [7] 🛮 💆	Check (ONE (OR 2 & AVERAGE)	Check ONE (OR 2 & AVERAC	GE)
□ □ -Lg BOULD, [10]	🗖 🗖 SAND [6] 💹 👱	<u> </u>	IMESTONE [1] SILT:	□-SILT HEAVY [-2]	
□□-BOULDER [9] 💹 _	DBEDROCK[5]		LLS [1]	SILT MODERATE [-1]	Substrate
€ □-COBBLE [8]	DD-DETRITUS[3]	🗀 -W	VETLANDS[0]	-SILT NORMAL [0]	
□□-HARDPAN [4]	— 🗖 🏳 ARTIFICIAL[0]		ARDPAN [0]	SILT FREE [1]	
□ □-MUCK [2] <u></u>	🗗 🗗 SILT [2] 🔣	□ -S.	ANDSTONE [0] EMBE	DDED D -EXTENSIVE [-2]	Max 20
		DRI	P/RAP [0] NESS	: MODERATE [-1]	
NUMBER OF SUBSTRATE TYPE	A A	□ -L/	ACUSTRINE [0]	☐ -NORMAL [0]	***
(High Quality Only, Score 5 or	>) □ -3 or Less [0]		IALE [-1]	□-NONE [1]	
COMMENTS			OAL FINES [-2]		·
· · · · · · · · · · · · · · · · · · ·	e each cover type a score		back for instructions)	·	or Cover
(Structure)	TYPE: Score All Th	~~		check 2 and AVERAGE)	
UNDERCUT BANKS [1]	POOLS> 70 cr	- V	XBOWS, BACKWATERS [1		
OVERHANGING VEGETATION	Section.		QUATIC MACROPHYTES [
SHALLOWS (IN SLOW WATER	· - · · · · · · · · · · · · · · · · · ·] _ _L	ogs or woody debris i		Max 20
ROOTMATS [1] COMME)ED 0-1	DD -1 1-1-0 1 A (CD	- NEARLY ABSENT < 5%[1)
3] CHANNEL MORPHOLOG					Channel
SINUOSITY DEVELO				ICATIONS/OTHER AGGING D - IMPOUND.	
	ELLENT [7] C NONE [6]			AGGING - IMPOUND, LOCATION - ISLANDS	
☐ - MODERATE [3] ☐ - GOO ☐ - LOW [2] ☐ - FAIF				NOPY REMOVAL - LEVEED	
				REDGING I -BANK SHAPIN	Max 20
□ - NONE [1] □ - POO	RECOVERY [1			RE SIDE CHANNEL MODIFICATIONS	u .
COMMENTS:	IMPOUND	'	= 0	L SIDE CHARACE MODII TOATIONS	
			r check 2 and AVERAGE	ener bank) PRiver Right Looking	n Downstream
4]. RIPARIAN ZONE AND B	ANK EROSION(check ONE	E box per bank o			
4]. RIPARIAN ZONE AND B	ANK EROSION(check ONE FLOOD PL	E box per bank o AIN QUALITY (PAST 100 Meter RIPA	RIAN) BANK EROSION	Downstream
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4]. RIPARIAN ZONE AND B. RIPARIAN WIDTH L R (Per Bank) - VERY WIDE > 100m [5] - WIDE > 50m [4] - WIDE > 50m [4] - WIDE > 100m [2] - NARROW 5-10 m [2] - VERY NARROW <5 m[1] - NONE [0] 5.]POOL/GLIDE AND RIFFLE MAX. DEPTH (Check 1 ONLY!) - >1m [6] - 0.7-1m [4] - 0.4-0.7m [2] - 0.2- 0.4m [1] - < 0.2m [POOL=0] CO RIFFLE DEPTH - Best Areas >10 cm [2] - Best Areas 5-10 cm [1]	ANK EROSION check ONE FLOOD PL L R (Most Predominant F FEFOREST, SWAMP [3] DISHRUB OR OLD FIELD RESIDENTIAL, PARK, NE COMMENTS: E/RUN QUALITY MORPHOLOGY (Check 1 or 2 & AVERA POOL WIDTH > RIFFLE WID POOL WIDTH > RIFFLE WID POOL WIDTH < RIFFLE W. [4] MENTS: CHECK RUN DEPTH	GE) TH [2] TH [1] ONE OR CHIC RIFFLE/RL CI-MOD. STABLE (e.	CURRENT VELC CURRENT VELC CURRENT [1] -AMDERATE [1] -NONE [-1] -CK 2 AND AVERAG IN SUBSTRATE G., Cobbie, Boulder) [LE (e.g., Large Gravel)	BANK EROSION L R (Per Bank) LAGE [1] BENK EROSION LAGE [1] LA	Riparian Riparian Pool/ Current Max 12 Riffle/Run Max 8
4]. RIPARIAN ZONE AND B. RIPARIAN WIDTH L R (Per Bank) - VERY WIDE > 100m [5] - WIDE > 50m [4] - WIDE > 50m [4] - NARROW 5-10 m [2] - VERY NARROW <5 m[1] - NONE [0] 5.]POOL/GLIDE AND RIFFLE MAX. DEPTH (Check 1 ONLY!) - >1m [6] - 0.7-1m [4] - 0.4-0.7m [2] - 0.2- 0.4m [1] - < 0.2m [POOL=0] CO RIFFLE DEPTH - Best Areas > 10 cm [2] - Best Areas < 5 cm	ANK EROSION check ONE FLOOD PL L R (Most Predominant F FEFOREST, SWAMP [3] D-SHRUB OR OLD FIELD RESIDENTIAL, PARK, NE Comments: E/RUN QUALITY MORPHOLOGY (Check 1 or 2 & AVERA POOL WIDTH > RIFFLE WID POOL WIDTH > RIFFLE WID POOL WIDTH > RIFFLE W. [6] IMPOUNDED [-1] MMENTS: CHECK RUN DEPTH CHECK RUN DEPTH CLOOD IN TOWN THE PROOL [2]	GE) TH [2] TH [1] ONE OR CHIC RIFFLE/RL CI-MOD. STABLE (e.	CURRENT VELC CURRENT VELC CURRENT [1] -AMDIES[1] -FAST[1] -MODERATE [1] -MODERATE [1] -NONE [-1] -CK 2 AND AVERAGE IN SUBSTRATE g.,Cobble, Boulder) [BANK EROSION L R (Per Bank) LAGE [1] BENK EROSION LAGE [1] LA	Riparian [3] Pool/ Current Max 12 Riffle/Run
4]. RIPARIAN ZONE AND B. RIPARIAN WIDTH L R (Per Bank) U-VERY WIDE > 100m [5] U-WIDE > 50m [4] WE-MODERATE 10-50m [3] U-VERY NARROW 5-10 m [2] U-VERY NARROW <5 m[1] U-NONE [0] 5.]POOL/GLIDE AND RIFFLE MAX. DEPTH (Check 1 ONLY!) U-SIM [6] U-0.7-1m [4] U-0.4-0.7m [2] U-0.2-0.4m [1] U-0.2-0.2m [POOL=0] CO RIFFLE DEPTH U-Best Areas > 10 cm [2] U-Best Areas < 5 cm N-NO RIFFLE [Metric=0]	ANK EROSION check ONE FLOOD PL L R (Most Predominant F FEFOREST, SWAMP [3] D-SHRUB OR OLD FIELD RESIDENTIAL, PARK, NE Comments: E/RUN QUALITY MORPHOLOGY (Check 1 or 2 & AVERA POOL WIDTH > RIFFLE WID POOL WIDTH > RIFFLE WID POOL WIDTH > RIFFLE W. [6] IMPOUNDED [-1] MMENTS: CHECK RUN DEPTH CHECK RUN DEPTH CLOOD IN TOWN THE PROOL [2]	GE) TH [2] TH [1] ONE OR CHIC RIFFLE/RL CI-MOD. STABLE (e.	CURRENT VELC CURRENT VELC CURRENT [1] -AMDERATE [1] -NONE [-1] -CK 2 AND AVERAG IN SUBSTRATE G., Cobbie, Boulder) [LE (e.g., Large Gravel)	BANK EROSION L R (Per Bank) LAGE [1] BENK EROSION LAGE [1] LA	Riparian Riparian Pool/ Current Max 12 Riffle/Run Max 8
4]. RIPARIAN ZONE AND B. RIPARIAN WIDTH L R (Per Bank) - VERY WIDE > 100m [5] - WIDE > 50m [4] - WIDE > 50m [4] - NARROW 5-10 m [2] - VERY NARROW <5 m[1] - NONE [0] 5.]POOL/GLIDE AND RIFFLE MAX. DEPTH (Check 1 ONLY!) - >1m [6] - 0.7-1m [4] - 0.4-0.7m [2] - 0.2- 0.4m [1] - < 0.2m [POOL=0] CO RIFFLE DEPTH - Best Areas > 10 cm [2] - Best Areas < 5 cm	ANK EROSION check ONE FLOOD PL L R (Most Predominant F FEFOREST, SWAMP [3] D-SHRUB OR OLD FIELD RESIDENTIAL, PARK, NE Comments: E/RUN QUALITY MORPHOLOGY (Check 1 or 2 & AVERA POOL WIDTH > RIFFLE WID POOL WIDTH > RIFFLE WID POOL WIDTH > RIFFLE W. [6] IMPOUNDED [-1] MMENTS: CHECK RUN DEPTH CHECK RUN DEPTH CLOOD IN TOWN THE PROOL [2]	GE) TH [2] TH [1] ONE OR CHIC RIFFLE/RL CI-MOD. STABLE (e.	CURRENT VELC CURRENT VELC CURRENT [1] -AMDERATE [1] -NONE [-1] -CK 2 AND AVERAG IN SUBSTRATE G., Cobbie, Boulder) [LE (e.g., Large Gravel)	BANK EROSION L R (Per Bank) LAGE [1] BENK EROSION LAGE [1] LA	Riparian Riparian Pool/ Current Max 12 Riffle/Run Max 8 Gradient
4]. RIPARIAN ZONE AND B. RIPARIAN WIDTH L R (Per Bank) - VERY WIDE > 100m [5] - WIDE > 50m [4] - WIDE > 50m [4] - WIDE > 100m [2] - NARROW 5-10 m [2] - VERY NARROW <5 m[1] - VERY NARROW <5 m[1] - NONE [0] 5.]POOL/GLIDE AND RIFFLE MAX. DEPTH (Check 1 ONLY!) - >1m [6] - 0.7-1m [4] - 0.4-0.7m [2] - 0.2- 0.4m [1] - 0.2- 0.4m [1] - Best Areas >10 cm [2] - Best Areas < 5 cm - NO RIFFLE [Metric=0] COMMENTS	ANK EROSION check ONE FLOOD PL L R (Most Predominant F FFOREST, SWAMP [3] DISHRUB OR OLD FIELD RESIDENTIAL, PARK, NE DISHRUB OR OLD FIELD RESIDENTIAL, PARK, NE COMMENTS: E/RUN QUALITY MORPHOLOGY (Check 1 or 2 & AVERA POOL WIDTH > RIFFLE WID POOL WIDTH > RIFFLE WID POOL WIDTH < RIFFLE W. [6] IMPOUNDED [-1] MMENTS: CHECK RUN DEPTH DISHRUB ONE MAX > 50 [1]	GE) TH [2] TH [1] ONE OR CHIE RIFFLE/RU RIFFLE/RU CHANGOL STABLE CHANGOL STABLE	CURRENT VELC CURRENT VELC CHeck CH	BANK EROSION L R (Per Bank) LAGE [1] BONK EROSION	Riparian Riparian Pool/ Current Max 12 Riffle/Run Max 8
4]. RIPARIAN ZONE AND B. RIPARIAN WIDTH L R (Per Bank) U-VERY WIDE > 100m [5] U-WIDE > 50m [4] WE-MODERATE 10-50m [3] U-VERY NARROW 5-10 m [2] U-VERY NARROW <5 m[1] U-NONE [0] 5.]POOL/GLIDE AND RIFFLE MAX. DEPTH (Check 1 ONLY!) U-SIM [6] U-0.7-1m [4] U-0.4-0.7m [2] U-0.2-0.4m [1] U-0.2-0.2m [POOL=0] CO RIFFLE DEPTH U-Best Areas > 10 cm [2] U-Best Areas < 5 cm N-NO RIFFLE [Metric=0]	ANK EROSION check ONE FLOOD PL L R (Most Predominant F FFOREST, SWAMP [3] DISHRUB OR OLD FIELD RESIDENTIAL, PARK, NE DISHRUB OR OLD FIELD RESIDENTIAL, PARK, NE COMMENTS: E/RUN QUALITY MORPHOLOGY (Check 1 or 2 & AVERA POOL WIDTH > RIFFLE WID POOL WIDTH > RIFFLE WID POOL WIDTH < RIFFLE W. [6] IMPOUNDED [-1] MMENTS: CHECK RUN DEPTH DISHRUB ONE MAX > 50 [1]	GE) TH [2] TH [1] ONE OR CHIE RIFFLE/RU RIFFLE/RU CHANGOL STABLE CHANGOL STABLE	CURRENT VELC CURRENT VELC CURRENT [1] -AMDERATE [1] -NONE [-1] -CK 2 AND AVERAG IN SUBSTRATE G., Cobbie, Boulder) [LE (e.g., Large Gravel)	BANK EROSION L R (Per Bank) LAGE [1] BENK EROSION LAGE [1] D-HEAVY/SEVERE CTION [0] DCITY [POOLS & RIFFLES!] LAII That Apply) D-TORRENTIAL[-1] D-INTERSTITIAL[-1] D-INTERSTITIAL[-1] D-INTERMITTENT[-2] L-VERY FAST[1] D-VERY FAST[1]	Riparian Riparian Pool/ Current Max 12 Riffle/Run Max 8 Gradient

Lat/Lo Lat/Lo Lat/Lo Subject Ratii (1-1	ong (Beg): ong (Mid): ong (End): ong(X-Loc): ctive Aesthetic	Width Depth Depth Width Depth Ratio Depth Area Width	Mining Channelization To Channelization To Channelization To Riparian Removal Chandfills
Find Hoer	am Drawing	State of the state	Is there water upstream? How Far: Is There Water Close Downstream? How Far:

do the

			17	The Walter	
	25	What t	Ì	and V	
96-156			•	•	
10	Qualitative Habita	at Evaluation Index	Field Sheet	QHEI Score	:
River Code: 95:世界	RM: 289 A Stream	n: Des Plaine	0C		
Station ID: 111-0		n: UPST AUNY	57		
Date: 20106	Scorer: AA / Lat.		Longitue	le: -88, 08369	8
1] SUBSTRATE (Check ON	LY Two SubstrateTYPE B	OXES; Estimate % present	, -		
TYPE POOL RI		L RIFFLE SUBSTRATE ORIG		BSTRATE QUALITY	
□ □-BLDR /SLBS[10]		Check ONE (OR 2 & AV	•	ONE (OR 2 & AVERAGI	E) •
BOULD. [10]	D SAND [6]			SILT HEAVY [-2] SILT MODERATE [-1]	Substrate
	DD-DETRITUS[3]	-WETLANDS[0]		SILT NORMAL [0]	
	— DD-ARTIFICIAL[0]	- HARDPAN [0]		SILT FREE [1]	
	b D -SILT [2]] EMBEDDED D		Max 20
,				MODERATE [-1]	Wax 20
NUMBER OF SUBSTRATE TYP		-LACUSTRINE [0]		NORMAL [0]	
(High Quality Only; Score 5 or	>) []-3 or Less [0]	O-SHALE [-1]		NONE [1]	
COMMENTS	ve each cover type a score			NT: (Check ONLY One	
(Structure)	TYPE: Score All The		•	and AVERAGE)	Cover
UNDERCUT BANKS [1]	POOLS> 70 cr	n [2] 🗸 OXBOWS, BACKW		TENSIVE > 75% [11]	
2 OVERHANGING VEGETATION	- T	-	• •	DERATE 25-75% [7]	
SHALLOWS (IN SLOW WATER		LOGS OR WOODY		ARSE 5-25% [3]	Max 20
ZROOTMATS [1] COMME 3] CHANNEL MORPHOLOG		EP Category OP check 2 ar		ARLY ABSENT < 5%[1]	
SINUOSITY DEVELO			MODIFICATIONS/OT	HER	Channel
	ELLENT [7] D- NONE [6]		☐ - SNAGGING	- IMPOUND.	
□ - MODERATE [3] □ - GO		RED [4] D - MODERATE [2]	- RELOCATION	🗖 - ISLANDS	
LOW [2]			- CANOPY REMO		Max 20
□ - NONE [1] 22 - POO		· ·	DREDGING	- BANK SHAPING INEL MODIFICATIONS	
COMMENTS:	RECOVERY [1	ED.[-1]	2 - ONE SIDE CHAI	INEL MODIFICATIONS	
4]. RIPARIAN ZONE AND B	ANK EROSION(check ONE	box per bank or check 2 and A	VERAGE per bank)	River Right Looking	Downstream
RIPARIAN WIDTH		AIN QUALITY (PAST 100 Met	er RIPARIAN)	BANK EROSION	Riparian
	L R (Most Predominant P	•		L R (Per Bank)	
	☐ ☐ FOREST, SWAMP [3] ☐ ☐ SHRUB OR OLD FIELD	i	FION TILLAGE [1]	M M-NONE/LITTLE [3] -MODERATE [2]	
		W FIELD [1] D D-OPEN PAS		□ □-HEAVY/SEVERE[11Max 10
			ONSTRUCTION [0]		
DD- VERY NARROW <5 m[1]	Comments:	•			
□ □ - NONE [0]					
5.IPOOL/GLIDE AND RIFFL	E/DUNI OHALITY	•			
MAX. DEPTH	MORPHOLOGY	CURRE	NT VELOCITY LPO	OLS & RIFFLES! 1	Pool/ Current
(Check 1 ONLY!)	, (Check 1 or 2 & AVERA	<u> </u>	(Check All That A	-	Carrent
	POOL WIDTH > RIFFLE WID	TH [2] -EDDIES[1]			}}
	POOL WIDTH = RIFFLE WIDT		-INTERS		Max 12
	POOL WIDTH < RIFFLE W. [0 IMPOUNDED [-1]	D] DF-MODERATI		NTTENT[-2]	
	MMENTS:	₩ -SLOW [1] □ -NONE [-1]	□ -VERY F	[T] (CP	
•	CHECK	ONE OR CHECK 2 AND A			Riffle/Run
RIFFLE DEPTH	RUN DEPTH	RIFFLE/RUN SUBSTRATE		UN EMBEDDEDNESS	
☐ - Best Areas >10 cm [2]	□ - MAX > 50 [2]	GISTABLE (e.g., Cobble, Bo		- NONE [2]	Max 8
☐ - Best Areas 5-10 cm[1]	□ - MAX < 50[1]	D-MOD. STABLE (e.g., Large	e Gravet) [1]	- LOW [1]	May O

☐ - Best Areas < 5 cm □-UNSTABLE (Fine Gravel, Sand) [0] ☐ - MODERATE [0] Gradient NO RIFFLE [Metric=0] □ - EXTENSIVE [-1] COMMENTS 6] GRADIENT (ft/mi): _____DRAINAGE AREA (sq.mi.) :_ %POOL: 700 %GLIDE: %RIFFLE %RUN: ** Best areas must be large enough to support a population of riffie-obligate species Modified 06/01/2005

Is Sampling Reach Repre Lat/Long (Beg): Lat/Long (Mid): Lat/Long (End): Lat/Long(X-Loc): Subjective Aesthetic Rating (1-10) Gradient: □ - Low, □ - Moderate, □ - Hig	Stream Measurements: Average Average Maximum Av. Bankfuli Bankfuli Mean W/D Width Depth Depth Width Depth Ratio Measurements: Average Average Maximum Av. Bankfuli Bankfuli Mean W/D Depth Area Width Ratio Midth Depth Depth Width Depth Ratio Depth Area Width Ratio	Mining Channelization Riparian Removal Landfills
Stream Drawing:	best rame. Glide	
rall For	Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Yes/No Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream? How Far: Is There Water Close Downstream? How Far: Is Dry Channel Mostly Natural?

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٠	1 1 2 2	The state of	
1 Mille	Je helt	$ heta_{-}$	
q5 Qualitative Habitat Eva	aluation Index Field S	heet QHEI Score	:
River Code: 95-755 RM: RM: Stream: /	ies Plaines		
	Ist alin come	Fank	
Date: 7-22-06 Scorer: AA. 5 Latitude:	41,93893 LO	ngitude: -88 , 133Q	59
1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES;			
	LE <u>SUBSTRATE ORIGIN</u>	SUBSTRATE QUALITY	
	Check ONE (OR 2 & AVERAGE)	Check ONE (OR 2 & AVERAG	E)
□ □ -Lg BOULD. [10] □ □ □-SAND [6] <u>keeeee</u>	D - LIMESTONE [1] SILT:	S ILT HEAVY [-2]	
□□-BOULDER [9] □□-BEDROCK[5]	TILLS [1]	II -SILT MODERATE [-1]	Substrate
□□-COBBLE [8]	-WETLANDS[0]	-SILT NORMAL [0]	
D-HARDPAN [4] D-ARTIFICIAL[0]	-HARDPAN [0]		
MEMUCK [2] W BILT [2]	-SANDSTONE [0] EMBEDDE		Max 20
	-RIP/RAP [0] NESS:	MODERATE [-1]	
NUMBER OF SUBSTRATE TYPES: 14 or More [2]	-LACUSTRINE [0]	☐ -NORMAL [0]	
(High Quality Only, Score 5 or >)	G-SHALE [-1]	□ -NONE [1]	
COMMENTS COMMENTS	CI-COAL FINES [-2]	AMOUNT: (ObsI. ONLY Oss.	
2] INSTREAM COVER (Give each cover type a score of 0 to (Structure) TYPE: Score All That Occur		AMOUNT: (Check ONLY One	or Cover
	OXBOWS, BACKWATERS [1]	check 2 and AVERAGE) - EXTENSIVE > 75% [11]	
UNDERCUT BANKS [1] ∠ POOLS> 70 cm [2] ∠ OVERHANGING VEGETATION [1] ∠ ROOTWADS [1]	AQUATIC MACROPHYTES [1]	D - MODERATE 25-75% [7]	[]
	LOGS OR WOODY DEBRIS [1]	SPARSE 5-25% [3]	Max 20
ROOTMATS [1] COMMENTS:	LOGS ON WOOD! DEBNIS [1]	☐ - NEARLY ABSENT < 5%[1]	
3] CHANNEL MORPHOLOGY: (Check ONLY One PER Cat	egory OR check 2 and AVERAGE		
SINUOSITY DEVELOPMENT CHANNELIZATION	STABILITY MODIFICATI		Channel
□ - HIGH [4] □ - EXCELLENT [7] □ - NONE [6]	□- HIGH [3] □- SNAGGI		
□-MODERATE [3] □-GOOD [5] □-RECOVERED [4]	MODERATE [2] - RELOCA	TION 🗖 - ISLANDS	
LOW [2]	LOW [1] - CANOP	REMOVAL 🗖 - LEVEED	Max 20
D-NONE [1] D-RECENT OR NO	🗖 - DREDGI	NG 🗖 - BANK SHAPING	
RECOVERY [1]	🗖 - ONE SIE	E CHANNEL MODIFICATIONS	
COMMENTS: G- IMPOUNDED [-1]			
4]. RIPARIAN ZONE AND BANK EROSION check ONE box per			Dównstrear
	ALITY (PAST 100 Meter RIPARIAN		Riparian
L R (Per Bank) L R (Most Predominant Per Bank	· ·	L R (Per Bank)	
VERY WIDE > 100m [5]	CONSERVATION TILLAGE		11
■ WIDE > 50m [4] □ SHRUB OR OLD FIELD [2] □ MODERATE 10-50m [3] □ □ RESIDENTIAL, PARK, NEW FIELD			Max 10
	- MINING/CONSTRUCTION		11
□ □ - NARROW 5-10 m [2] □ □ - FENCED PASTURE [1] □ □ - VERY NARROW <5 m[1] Comments:	A L-MINING/CONSTRUCTION	([o]	
DD - NONE [0]			
E D NONE [0]		<u> </u>	
5.]POOL/GLIDE AND RIFFLE/RUN QUALITY			Pool/
MAX. DEPTH MORPHOLOGY	CURRENT VELOCITY	[POOLS & RIFFLES!]	Current
(Check 1 ONLY!) (Check 1 or 2 & AVERAGE)	(Check All		
☑- >1m [6] ☑ -POOL WIDTH > RIFFLE WIDTH [2]		TORRENTIAL[-1]	
☐ - 0.7-1m [4] ☐ -POOL WIDTH = RIFFLE WIDTH [1]		INTERSTITIAL[-1]	May 13
□- 0.4-0.7m [2] □-POOL WIDTH < RIFFLE W. [0]		INTERMITTENT[-2]	Max 12
□ - 0.2- 0.4m [1]	· · · · · · · · · · · · · · · · · · ·	VERY FAST[1]	
□ - < 0.2m [POOL=0] COMMENTS:	☐-NONE [-1]		
			Rifflé/Run
	OR CHECK 2 AND AVERAGE	PP P (51); P(1)====================================	
<u>RIFFLE DEPTH</u> <u>RUN DEPTH</u> <u>RIF</u>	<u>FLE/RUN SUBSTRATE</u> <u>RI</u>	FFLE/RUN EMBEDDEDNESS	- 11 - 11

□ 12 - NARROW 5-10 m [2] □ 12 - VERY NARROW <5 m[1 □ 12 - NONE [0]	☐ ☐-FENCED PASTURE [1] Comments:		□ □-MINING/CONSTRU	CTION [0]		
□ - 0.7-1m [4] □ - 0.4-0.7m [2] □ - 0.2- 0.4m [1]	FLE/RUN QUALITY MORPHOLOGY (Check 1 or 2 & AVERA POOL WIDTH > RIFFLE WID POOL WIDTH = RIFFLE WID POOL WIDTH < RIFFLE W. [M-IMPOUNDED [-1] COMMENTS:	TH [2] TH [1]		All Tha	POOLS & RIFFLES!] t Apply) RENTIAL[-1] ERSTITIAL[-1] ERMITTENT[-2] Y FAST[1]	Pool/ Current Max 12
RIFFLE DEPTH - *Best Areas >10 cm [2] - Best Areas 5-10 cm[1] - Best Areas < 5 cm NO RIFFLE [Metric=0] COMMENTS	RUN DEPTH - MAX > 50 [2] - MAX < 50[1]	RIFFLE/R D-STABLE (e D-MOD, STA	IECK 2 AND AVERAG UN SUBSTRATE .g.,Cobble, Boulder) [BLE (e.g.,Large Gravel (Fine Gravel,Sand) [0	<u>RIFFL</u> [2] l) [1]	E/RUN EMBEDDEDNES - NONE [2] - LOW [1] - LOW [0] - MODERATE [0] - EXTENSIVE [-1]	Riffle/Run S Max 8 Gradient
6] GRADIENT (ft/mi):	DRAINAGE AREA (So	q.mi.) :	%POOL: %RIFFLE:	100	%GLIDE: %RUN:	Max 10 Modified 06/01/2005

Lat/Long (Mid): Lat/Long (End): Lat/Long (X-Loc):	Major Suspected Sources of Impacts (Check All That Apply): None □ Industrial ■ WWTP ■ Ag □ Livestock □ Silviculture□ Construction □ Urban Runoff □ CSOs □
Gear: Distance: Water Clarity: Water Stage: Canopy -% Open Column Col	Suburban Impacts Mining Channelization Riparian Removal Landfills Natural Dams Other Flow Alteration Other:
Stream Drawing: Obligation Acade Station Acade	
Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate	Yes/No Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream? How Far:
amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Is There Water Close Downstream? How Far: Is Dry Channel Mostly Natural?

MA SHOW

with Marky record to a fine of	
新演奏	
River Code: 13 RM: 2793 Stream: 185 Plaints	÷^
Station ID: UP-07 Location: Power lines at Rm 279.3, mains. Date: 7-22-04 Scorer: Latitude: 41 43953 Longitude: -88.16969	16/1
Date: / Ja-Q Scorer: Latitude: 41, 43.95.3 Longitude: -88.1616.4 1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present	
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY	
Check ONE (OR 2 & AVERAGE)	
DD-Lg BOULD, [10] DD-SAND [6] D-LMMESTONE [1] SILT: D-SILT HEAVY [-2]	
DI-BOULDER [9] DI-BEDROCK[5] DI-TILLS [1] DI-SILT MODERATE [-1] Substrate DI-COBBLE [8] DI-DETRITUS[3] DI-WETLANDS[0] DI-SILT NORMAL [0]	
D-HARDPAN [4] D-ARTIFICIAL[0] D-HARDPAN [0] D-SILT FREE [1]	
-SANDSTONE [0] EMBEDDED D-EXTENSIVE [-2] Max 20	
NUMBER OF SUBSTRATE TYPES: #4 or More [2]	
(High Quality Only, Score 5 or >)	
CINITED ALL COVER (China and assure time a copy of 0 to 2; one head for instructional AMOUNT (Charle ONLY One or	
(Structure) TYPE: Score All That Occur check 2 and AVERAGE)	
UNDERCUT BANKS [1] POOLS> 70 cm [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] Max 20	
I NEARLY ABSENT < 5%[1]	
3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)	
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER Channel	
☐- HIGH [4] ☐- EXCELLENT [7] ☐ NONE [6] ☐- HIGH [3] ☐- SNAGGING ☐- IMPOUND. ☐- MODERATE [3] ☐- GOOD [5] ☐- RECOVERED [4] ☐- MODERATE [2] ☐- RELOCATION ☐- ISLANDS	
D-MODERATE [3] D-GOOD [5] D-RECOVERED [4] D-MODERATE [2] D-RELOCATION D-ISLANDS D-RECOVERING [3] D-LOW [1] D-CANOPY REMOVAL D-LEVEED Max 20	
□ - NONE [1] □ - POOR [1] □ - RECENT OR NO □ - DREDGING □ - BANK SHAPING	
RECOVERY [1]	
COMMENTS:	
PIDADIAN WIDTH FLOOD DI AN OTAL TY (DAST 100 Meter PIDADIAN) RANK EDOSION	
L R (Most Predominant Per Bank) L R (Per Bank)	
VERY WIDE > 100m [5]	
UI - WIDE > 50m [4] UI - SHRUB OR OLD FIELD [2] UI - URBAN OR INDUSTRIAL [0] UI - MODERATE [2] UI - MODERATE 10-50m [3] UI - RESIDENTIAL, PARK, NEW FIELD [1] UI - OPEN PASTURE, ROWCROP [0] UI - HEAVY/SEVERE[1] MAX 10	
DD- MODERATE 10-50m [3] DD-RESIDENTIAL, PARK, NEW FIELD [1] DD-OPEN PASTURE, ROWCROP [0] DD-HEAVY/SEVERE[1] NARROW 5-10 m [2] DD-FENCED PASTURE [1] DD-MINING/CONSTRUCTION [0]	
□□- VERY NARROW <5 m[1] Comments:	
DD-NONE [0]	
E IDOOL (OLIDE AND DIEFLE/DIAN OLIVITY)	
5.]POOL/GLIDE AND RIFFLE/RUN QUALITY Pool/ MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!] Current	
(Check 1 ONLY!) / (Check 1 or 2 & AVERAGE) (Check All That Apply)	
m- >1m [6] m-POOL WIDTH > RIFFLE WIDTH [2] m-EDDIES[1] m-TORRENTIAL[-1]	
O- 0.7-1m [4] O-POOL WIDTH = RIFFLE WIDTH [1] O-FAST[1] O-INTERSTITIAL[-1] Max 12	
□ - 0.4-0.7m [2] □ -POOL WIDTH < RIFFLE W. [0] □ -MODERATE [1] □ -INTERMITTENT[-2] □ - 0.2- 0.4m [1] □ -VERY FAST[1]	
□ - < 0.2m [POOL=0] COMMENTS: □-NONE [-1]	
Riffle/Run	
CHECK ONE OR CHECK 2 AND AVERAGE	
RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS D - Best Areas > 10 cm [2] D - MAX > 50 [2] D-STABLE (e.g.,Cobble, Boulder) [2] D - NONE [2]	
□ - Best Areas >10 cm [2] □ - MAX > 50 [2] □ - STABLE (e.g., Cobble, Boulder) [2] □ - NONE [2] □ - MAX < 50 [1] □ - MAX < 50 [1] □ - MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1] Max 8	\$
□-Best Areas < 5 cm □-UNSTABLE (Fine Gravel, Sand) [0] □-MODERATE [0] Gradient	
₩- NO RIFFLE [Metric=0]	
COMMENTS *	
6] GRADIENT (ft/mi): DRAINAGE AREA (sq.mi.): %POOL: 700 %GLIDE: Max 10	
6] GRADIENT (ft/mi):DRAINAGE AREA (sq.mi.) : %POOL: %GLIDE: %RIFFLE: %RUN:	
** Read Prince miles he lenne amount to compart a nonviorities of stiffs obligate species	

** Best areas must be large enough to support a population of riffie-obligate species

Is Sampling Reach Repre Lat/Long (Beg): Lat/Long (Mid): Lat/Long (End): Lat/Long(X-Loc) Subjective Aesthetic Rating (1-10) Gradient: (1-10) Gradient: -Hig	Gear: Distance: Water Clarity: Water Stage: Canopy -% Open First Sampling Pass Stream Measurements: Average Average Maximum Av. Bankfull Bankfull Mean W/D Bankfull Max Floodprone Entrench. Width Depth Width Depth Ratio Depth Area Width Ratio	Major Suspected Sources of Impacts (Check All That Apply): None DIND Industrial IMPACT ARE INCOME. Livestock DIND Silviculture DIND Construction DIND Urban Runoff IMPACT CSOS DIND Suburban Impacts DIND Channelization DIND Riparian Removal DIND Natural DIND DAMS IMPACT OTHER IMPACT OTHER IMPACT DAMS IMPACT OTHER IMPACT DAMS IMPACT OTHER IMPACT OTHER IMPACT DAMS IMPACT OTHER IMPACT DAMS IMPACT OTHER IMPACT DAMS IMPACT DA
Stream Drawing:	Shallon Gravel	Jan
Flow	Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Yes/No Is Stream Ephemeral (no pools, totally dry or only damp spots)? Is there water upstream? How Far: Is There Water Close Downstream? How Far: Is Dry Channel Mostly Natural?

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to fine her all the Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 5.650 RM: 7/./ Stream: River Code: Station ID: Tail49/2 Lo<u>c</u>ation: <u>/</u> Date: 7-24-06 Longitude: - 운용, 글동50 Scorer: 39917 1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present POOL RIFFLE SUBSTRATE ORIGIN POOL RIFFLE SUBSTRATE QUALITY Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE) □□-BLDR /SLBS[10] □□-GRAVEL [7] LIMESTONE [1] SILT: □ □ -Lg BOULD. [10] **II-** SILT HEAVY [-2] Substrate **d** d -BOULDER [9] ∠ TILLS [1] _, DBEDROCK[5] ☐ -SILT MODERATE [-1] □ **d**COBBLE [8] ✓ □ □-DETRITUS[3] □ -WETLANDS[0] SILT NORMAL [0] - □□-ARTIFICIAL[0] □ -HARDPAN [0] □ -SILT FREE [1] □ □-MUCK [2] -SANDSTONE [0] EMBEDDED □ -EXTENSIVE [-2] □ □-SILT [2] □ -RIP/RAP [0] NESS: □ -MODERATE [-1] NUMBER OF SUBSTRATE TYPES: -LACUSTRINE [0] NORMAL [0] 4 or More [2] (High Quality Only, Score 5 or >) **II**-3 or Less [0] □ -SHALE [-1] □-NONE [1] COMMENTS CI-COAL FINES [-2] 2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or Cover TYPE: Score All That Occur (Structure) check 2 and AVERAGE) □ - EXTENSIVE > 75% [11] POOLS> 70 cm [2] OXBOWS, BACKWATERS [1] UNDERCUT BANKS [1] MODERATE 25-75% [7] OVERHANGING VEGETATION [1] ∠ROOTWADS [1] _AQUATIC MACROPHYTES [1] BOULDERS [1] LOGS OR WOODY DEBRIS [1] SPARSE 5-25% [3] Max 20 SHALLOWS (IN SLOW WATER) [1] ROOTMATS [1] - NEARLY ABSENT < 5%[1]</p> COMMENTS: 3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) Channel **CHANNELIZATION** SINUOSITY DEVELOPMENT MODIFICATIONS/OTHER STABILITY - EXCELLENT [7] NONE [6] HIGH [3] - IMPOUND. □ - SNAGGING □ - HIGH [4] MODERATE [3] **GOOD** [5] □ - MODERATE [2] □ - RELOCATION □ - ISLANDS **D** - RECOVERED [4] - FAIR [3] ☐ - RECOVERING [3] □ - LOW [1] ☐ - CANOPY REMOVAL ☐ - LEVEED **II-** LOW [2] Max 20 □ - NONE [1] ☐ - POOR [1] **II - RECENT OR NO** □ - DREDGING - BANK SHAPING ☐ - ONE SIDE CHANNEL MODIFICATIONS RECOVERY [1] □- IMPOUNDED [-1] COMMENTS: _ 4]. RIPARIAN ZONE AND BANK EROSION(check ONE box per bank or check 2 and AVERAGE per bank) 🖗 River Right Looking Downstream 🖗 RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) **BANK EROSION** Riparian L R (Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) **EXEC** - VERY WIDE > 100m [5] Z FOREST, SWAMP [3] ☐ ☐-CONSERVATION TILLAGE [1] □ □-NONE/LITTLE [3] ☐ ☐-SHRUB OR OLD FIELD [2] □ □-URBAN OR INDUSTRIAL [0] MODERATE [2] □ □ - WIDE > 50m [4] □ □ RESIDENTIAL, PARK, NEW FIELD [1] □ □ -OPEN PASTURE, ROWCROP [0] □ □ -HEAVY/SEVERE[1] Max 10 ☐ ☐ - MODERATE 10-50m [3] ☐ ☐-MINING/CONSTRUCTION [0] -FENCED PASTURE [1] □ □ - NARROW 5-10 m [2] □□- VERY NARROW <5 m[1] Comments: □ □ - NONE [0] 5.]POOL/GLIDE AND RIFFLE/RUN QUALITY Pool/ CURRENT VELOCITY [POOLS & RIFFLES!] <u>MORPHOLOGY</u> MAX. DEPTH Current (Check 1 or 2 & AVERAGE) (Check All That Apply) (Check 1 ONLY!) POOL WIDTH > RIFFLE WIDTH [2] **년** - >1m [6] Er-EDDIES[1] □ -TORRENTIAL[-1] FAST[1] □- 0.7-1m [4] -POOL WIDTH = RIFFLE WIDTH [1] □-INTERSTITIAL[-1] -POOL WIDTH < RIFFLE W. [0] MODERATE [1] -INTERMITTENT[-2] □ - 0.4-0.7m [2] -IMPOUNDED [-1] SLOW [1] VERY FAST[1] □ - 0.2- 0.4m [1] □ -NONE [-1] □ - < 0.2m [POOL=0]</p> COMMENTS: Riffle/Run CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE/RUN EMBEDDEDNESS RIFELE DEPTH RUN DEPTH BIFFLE/RUN SUBSTRATE NONE [2] Best Areas >10 cm [2] DE - MAX > 50 [2] FSTABLE (e.g., Cobble, Boulder) [2] Max 8 □ - MAX < 50[1] D-MOD. STABLE (e.g., Large Gravel) [1] **II** - LOW [1] □ - Best Areas 5-10 cm[1] Gradient UNSTABLE (Fine Gravel, Sand) [0] □ - MODERATE [0] □ - Best Areas < 5 cm</p> □ - NO RIFFLE [Metric=0] - EXTENSIVE [-1] COMMENTS Max 10

%POOL:

%RIFFLE:

DRAINAGE AREA (sq.mi.):

6] GRADIENT (ft/mi):

** Best areas must be large enough to support a population of riffle-obligate species

60

%GLIDE:

%RUN:

10

Lai Lai Lai	Sampling Reach Repre t/Long (Beg): t/Long (Mid): t/Long (End): t/Long(X-Loc): Dijective Aesthetic Rating (1-10) Gradient: (1-10) Low, □- Moderate,□-High	Gear: Distance: Water Clarity: Water Stage: Canopy -% Open First Sampling Pass Stream Measurements: Average Average Maximum Av. Bankfull Bankfull Mean W/D Width Depth Depth Width Depth Ratio Stream Measurements: Depth Area Width Ratio	Major Suspected Sources of Impacts (Check All That Apply): None DINdustrial WWTP TY Ag DINDUSTRIAN SINVICUITURE CONSTRUCTION DUrban Runoff CSOS DINDUSTRIAN SUBURBAN Impacts DINDUSTRIAN PRIPARTIAN PRIPARTIAN PRIPARTIAN DARMS DOTHER:	
Sti	ream Drawing:	20000000000000000000000000000000000000	Yes/No Is Stream Ephemeral (no totally dry or only damp sp	pools,
•		Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.	Is there water upstream? How Far: Is There Water Close Dow How Far: Is Dry Channel Mostly Nat	vnstream?

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Qualitative Habitat Evaluation Index Field Sheet QHEI Score: - 660 RM: 246.6 Stream: Station ID: 💋 🕰 Marseilles 797/m9741 Location: 1 _Latitude: '4/ Date: 7-25-06 Scorer: AAV 31986 Longitude<u>: ~%&</u> 1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present POOL RIFFLE SUBSTRATE ORIGIN POOL RIFFLE SUBSTRATE QUALITY Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE) _ DD-GRAVEL[7] ν □ □ -Lg BOULD. [10] _ _ **□ □**-SAND [6] ☐ - LIMESTONE [1] SILT: □-SILT HEAVY [-2] Substrate □□-BOULDER [9] 📈 _ __ DBEDROCK[5] 7 -TILLS [1] **II**-SILT MODERATE [-1] B-SILT NORMAL [0] ___ DETRITUS[3] □ -WETLANDS[0] - DD-ARTIFICIAL[0] HARDPAN [4] -SILT FREE [1] -HARDPAN [0] □ □-MUCK [2] D -EXTENSIVE [-2] □ □-SILT [2] □ -SANDSTONE [0] EMBEDDED Max 20 -RIP/RAP [0] NESS: ☐-MODERATE [-1] ☐ -LACUSTRINE [0] MC-NORMAL [0] NUMBER OF SUBSTRATE TYPES: 4 or More [2] (High Quality Only, Score 5 or >) □-3 or Less [0] □-SHALE [-1] □-NONE [1] D-COAL FINES [-2] COMMENTS 2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or Cover TYPE: Score All That Occur (Structure) check 2 and AVERAGE) UNDERCUT BANKS [1] POOLS> 70 cm [2] OXBOWS, BACKWATERS [1] □ - EXTENSIVE > 75% [11] 2OVERHANGING VEGETATION [1] ROOTWADS [1] AQUATIC MACROPHYTES [1] □-MODERATE 25-75% [7] LOGS OR WOODY DEBRIS [1] EP- SPARSE 5-25% [3] SHALLOWS (IN SLOW WATER) [1] BOULDERS [1] Max 20 □ - NEARLY ABSENT < 5%[1] ROOTMATS [1]. COMMENTS: 3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) Channel **CHANNELIZATION** MODIFICATIONS/OTHER SINUOSITY DEVELOPMENT <u>STABILITY</u> M- NONE [6] 0 - HIGH [4] - EXCELLENT [7] **12** HIGH [3] - SNAGGING - IMPOUND. ☐ - MODERATE [3] **™**- GOOD [5] □ - RECOVERED [4] □ - MODERATE [2] □ - RELOCATION - ISLANDS ☐ - RECOVERING [3] □ - CANOPY REMOVAL □ - LEVEED **12** - LOW [2] □ - FAIR [3] ☐ - LOW [1] ☐ - NONE [1] □ - POOR [1] **II- RECENT OR NO** - DREDGING BANK SHAPING **RECOVERY [1]** ONE SIDE CHANNEL MODIFICATIONS □- IMPOUNDED [-1] COMMENTS: _ 4]. RIPARIAN ZONE AND. BANK EROSION check ONE box per bank or check 2 and AVERAGE per bank). 🗗 River Right Looking Downstream 🛉 RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) **BANK EROSION** Riparian L R (Per Bank) L R (Most Predominant Per Bank) L R (Per Bank) # VERY WIDE > 100m [5] FOREST, SWAMP [3] M M-NONE/LITTLE [3] ☐ ☐-CONSERVATION TILLAGE [1] □ □ - WIDE > 50m [4] ☐ ☐-SHRUB OR OLD FIELD [2] □ □-URBAN OR INDUSTRIAL [0] □ □-MODERATE [2] □ □ RESIDENTIAL, PARK, NEW FIELD [1] □ □ -OPEN PASTURE, ROWCROP [0] □ □ -HEAVY/SEVERE[1] Max 10 □ □ - MODERATE 10-50m [3] □ □-MINING/CONSTRUCTION [0] ☐ ☐-FENCED PASTURE [1] □ □ - NARROW 5-10 m [2] □□- VERY NARROW <5 m[1] Comments: □ □ - NONE [0] 5.]POOL/GLIDE AND RIFFLE/RUN QUALITY Pool/ MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!] MAX. DEPTH Current (Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply) EDDIES[1] POOL WIDTH > RIFFLE WIDTH [2] >1m [6] ☐-TORRENTIAL[-1] □ - 0.7-1m [4] -POOL WIDTH = RIFFLE WIDTH [1] FAST[1] **U**-INTERSTITIAL[-1] □-POOL WIDTH < RIFFLE W. [0] M-MODERATE [1] **U** - 0.4-0.7m [2] □-INTERMITTENT[-2] ☐-IMPOUNDED [-1] **1**-SLOW [1] **D** - 0.2-0.4m [1] -VERY FAST[1] □-NONE [-1] □ - < 0.2m [POOL=0]</p> COMMENTS: Riffle/Run CHECK ONE OR CHECK 2 AND AVERAGE RIFFLE DEPTH **RUN DEPTH** RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS MAX > 50 [2] □-*Best Areas >10 cm [2] FSTABLE (e.g., Cobble, Boulder) [2] □ - NONE [2] Max 8 **⊠**- Best Areas 5-10 cm[1] □ - MAX < 50[1]</p> MOD. STABLE (e.g., Large Gravel) [1] □ - LOW [1] Gradient D-UNSTABLE (Fine Gravel, Sand) [0] ☐ - Best Areas < 5 cm MODERATE [0] □ - NO RIFFLE [Metric=0] ☐ - EXTENSIVE [-1] COMMENTS Max 10 %POOL: %GLIDE: DRAINAGE AREA (sq.mi.); 61 GRADIENT (ft/mi):

%RIFFLE

** Best areas must be large enough to support a population of riffie-obligate species

%RUN:

s Sampling Reach Representative of the Stream (Y/N) If Not, Explain:	Major Suspected Sources of Impacts (Check All That Apply):
Lat/Long (Beg):	None □ Industrial ☑ WWTP □
Lat/Long (Mid): Lat/Long (End): Lat/Long (End)	Ag □ Livestock □ Silviculture □
Lat/Long(X-Loc):	Construction □ Urban Runoff ☑
Gear: Distance: Water Clarity: Water Stage: Canopy -% Open	CSOs ☐ Suburban Impacts ☐ Mining ☐
6 First Sampling Pass A .5km 75cm normal %100	Channelization 🗍 Riparian Removal 🖸
Stream Measurements: Subjective Aesthetic Average Average Maximum Av. Bankfull Bankfull Mean W/D Bankfull Max Floodprone Entrench.	Landfills ☐ Natural ☐ Dams ☑
Rating Rating Width Depth Depth Width Depth Ratio Depth Area Width Ratio (1-10) Gradient:	Other Flow Alteration Other:
□ - Low, □- Moderate,□ -High	
Stream Drawing:	SUCU(S)
DO DO MARIO DO	
+GST RUD	
boulder I clay Entire Site	
B () () () ()	Yes/No
Instructions for scoring the alternate cover metric: Each cover type should receive a score	Is Stream Ephemeral (no pools, totally dry or only damp spots)?
of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type	Is there water upstream? How Far:
of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed	Is There Water Close Downstream? How Far:
rootwads in deep/fast water, or deep, well-defined, functional pools.	Is Dry Channel Mostly Natural?