

Region NER **County** Outagamie **Report Date** 6/1995 **Classification** LFF/FAI?
Water Body: Bear Creek
Discharger: V. of Bear Creek WWTP

If stream is classified as Limited Forage Fish (LFF) or Limited Aquatic Life (LAL), check any of the following Use Attainability Analysis factors that are identified in the classification report:

- Naturally occurring pollutant concentrations prevent the attainment of use
- Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met
- Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place
- Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or operate such modification in a way that would result in the attainment of the use
- Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses habitat
- Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact

Supporting Evidence in the report (include comments on how complete/thorough data is)

- Biological Data (fish/invert)
- Chemical Data (temp, D.O., etc.)
- Physical Data (flow, depth, etc.)
- Habitat Description
- Site Description/Map
- Other:

Historical Reports in file:

- 6/1995 - Tim Doelger
- 11/1990 - Tim Doelger
- 5/1974 - David Hildeth / Dennis Weisense
- 10/1995 - DATA - ?

Additional Comments/How to improve report:

** file notes that an addition stream assessment should be done in order to determine appropriate classification. -LFF seems to be fairly well justified -- if WUFF should be appropriate class'n for P2, there needs to be more documentation*

Stream Bear Cr Reach Location Hwy 76 Reach Score/Rating 237/Poor
 County Outagamie Date 6-29-95 Evaluator CB + RM Classification LAL
 Lat _____° _____' N Long _____° _____' W pH _____ D.O. 4.4 Temp. 23.

COMMENTS OR SITE DESCRIPTION

D.O. violation!
Some crayfish
not much for macroinvertebrates
Some gravel substrate

Rating Item	Category			
	Excellent	Good	Fair	Poor
WATERSHED EROSION	No evidence of significant erosion. Stable forest or grassland. Little potential for future erosion. 8	Some erosion evident. No significant "raw" areas. Good land mgmt. practices. Low potential for significant erosion. 10	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. 14	Heavy erosion evident. Probable erosion from any runoff. 16
WATERSHED NONPOINT SOURCE	No evidence of significant source. Little potential for future problems. 8	Some potential sources (roads, urban areas, farm fields). 10	Moderate sources (small wetlands, tile fields, urban areas, intense agriculture). 14	Obvious sources (major wetland drainage, high use urban or industrial area). 20
BANK EROSION FAILURE	No evidence of significant erosion or bank failure. Little potential for future problems. 4	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 18
BANK VEGETATIVE PROTECTION	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. 6	70-90% density. Fewer plant species. A few barren or thin areas. Veg. appears generally healthy. 9	50-70% density. Dominated by grass, sparse trees, and shrubs. Plant types and cond. suggest poorer soil binding. 15	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. 16
LOWER BANK CHANNEL CAPACITY	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. 8	Adequate. Overbank flows rare. W/D ratio 8-15. 10	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. 14	Inadequate. Overbank flow common. W/D ratio >25. 18
LOWER BANK DEPOSITION	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. 9	Moderate dep. of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
BOTTOM SCOURING AND DEPOSITION	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at restrictions and where grades steepen. Some deposition in pools. 8	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. 16	More than 50% of the bottom changing yearly long. Pools almost absent due to deposits. 20
BOTTOM SUBSTRATE/AVAILABLE COVER	Greater than 50% rubble, gravel, or other stable habitat. 2	30-50% rubble, gravel or other stable habitat. Adequate habitat. 7	10-30% rubble gravel or other stable habitat. Habitat availability less than desirable. 17	Less than 10% rubble, gravel or other stable habitat. Lack of habitat is obvious. 22
AVG. DEPTH RIFFLES AND RUNS	Cold >1' 0 Warm >1.5' 0	6" to 1' 6 10" to 1.5" 6	3" to 6" 18 6" to 10" 18	<3" 24 <6" 24
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POOL/RIFFLE, RUN/BEND RATIO (DIST. BETWEEN RIFFLES/ STREAM WIDTH)	5-7. Variety of habitats. Deep riffles and pois. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. 16	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
AESTHETICS	Wilderness characteristics. Outstanding natural beauty. Usually wooded or ungrazed corridor. 8	High natural beauty. Trees. Historic site. Some development may be visible. 10	Common setting, not offensive. Developed but uncluttered area. 14	Stream does not enhance aesthetics. Condition of the stream is offensive. 16

COLUMN SCORES E 0 + G 0 + F 91 + P 146 = 237 = SCORE
 <70 = Excellent, 71-129 = Good, 130-200 = Fair, >200 = Poor

Stream Bear Cr Reach Location Market Road Reach Score/Rating 252 - Poor
 County Outagamie Date 6-29-95 Evaluator CB+RM Classification WWFF
 Lat _____° N Long _____° W pH — D.O. 3.89 Temp. 20.7

COMMENTS OR SITE DESCRIPTION

D.O. Violation
Stream Channelized
poor Cropping practices - lots of sediment
High organic loads to stream

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COLUMN SCORES E 0 + G 0 + F 30 + P 222 = 252 = SCORE
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Channel

Stream Habitat Rating Form
Form 3200-68

Dept. of Natural Resources

Stream un. trib to Bear Reach Location Market Rd Reach Score/Rating 232/Poor

County Outagamie Date 6-29-95 Evaluator CB+RM Classification Unknown

Lat _____ ° N Long _____ ° W pH _____ D.O. 2.0 Temp. 24

COMMENTS OR SITE DESCRIPTION

D.O. violation
Stream channelized
tadpoles - coming to surface for oxygen.
lots of algae + streambank erosion
Poor Cropping Practices, High turbidity, lots of streambed sediment.

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Stream Habitat Rating Form
Form 3200-68

Dept. of Natural Resources

Stream un. trib to Bear Cr Reach Location Hwy 0 + Hamble Corners Reach Score/Rating 245 Poor
 County Outagamie Date 6-29-95 Evaluator CB + RM Classification unknown
 Lat _____ ° N Long _____ ° W pH _____ D.O. 5.5 Temp. 28.3

COMMENTS OR SITE DESCRIPTION

*Barnyard very close to stream
 a variety of aquatic plants abundant; contain
 duckweed, pond weed, + arrowhead.
 heavy sed. w/ high nutrients - sulfur smell +
 bubbles from sediment.*

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COLUMN SCORES E 0 + G 0 + F 75 + P 170 = 245 = SCORE
 <70 = Excellent, 71-129 = Good, 130-200 = Fair, >200 = Poor

Stream Habitat Rating Form
Form 3200-68

Dept. of Natural Resources

Stream Bear Creek Reach Location Mayflower Rd Reach Score/Rating 246 - Poor
 County Outagamie Date 6-29-95 Evaluator CB + RM Classification WWFF
 Lat _____ ° N Long _____ ° W pH _____ D.O. 3.14 Temp. 22.3

COMMENTS OR SITE DESCRIPTION

D.O. violation
 - High turbidity
 - lots of Ag
 - heavy sediment deposits

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Stream Bear Cr Reach Location Hwy 0 Reach Score/Rating _____
 County Outagamie Date 6-24-95 Evaluator CB+RobM Classification WWFF
 Lat _____ ° N Long _____ ° W pH _____ D.O. _____ Temp. _____

COMMENTS OR SITE DESCRIPTION

*Drove by site
low flow
all channelized*

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FLOW AT REP. LOW FLOW	Cold > 2 cfs 0 Warm > 5 cfs 0	1-2 cfs 6 2-5 cfs 6	.5-1 cfs 18 1-2 cfs 18	< .5 cfs 24 < 1 cfs 24
POOL/RIFLE, RUN/BEND RATIO (DIST. BETWEEN RIFFLES/ STREAM WIDTH)	5-7. Variety of habitats. Deep riffles and pools. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. 16	> 25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
AESTHETICS	Wilderness characteristics. Outstanding natural beauty. Usually wooded or ungrazed corridor. 8	High natural beauty. Trees. Historic site. Some development may be visible. 10	Common setting, not offensive. Developed but uncluttered area. 14	Stream does not enhance aesthetics. Condition of the stream is offensive. 16

COLUMN SCORES E _____ + G _____ + F _____ + p _____ = _____ = SCORE
 < 70 = Excellent, 71-129 = Good, 130-200 = Fair, > 200 = Poor

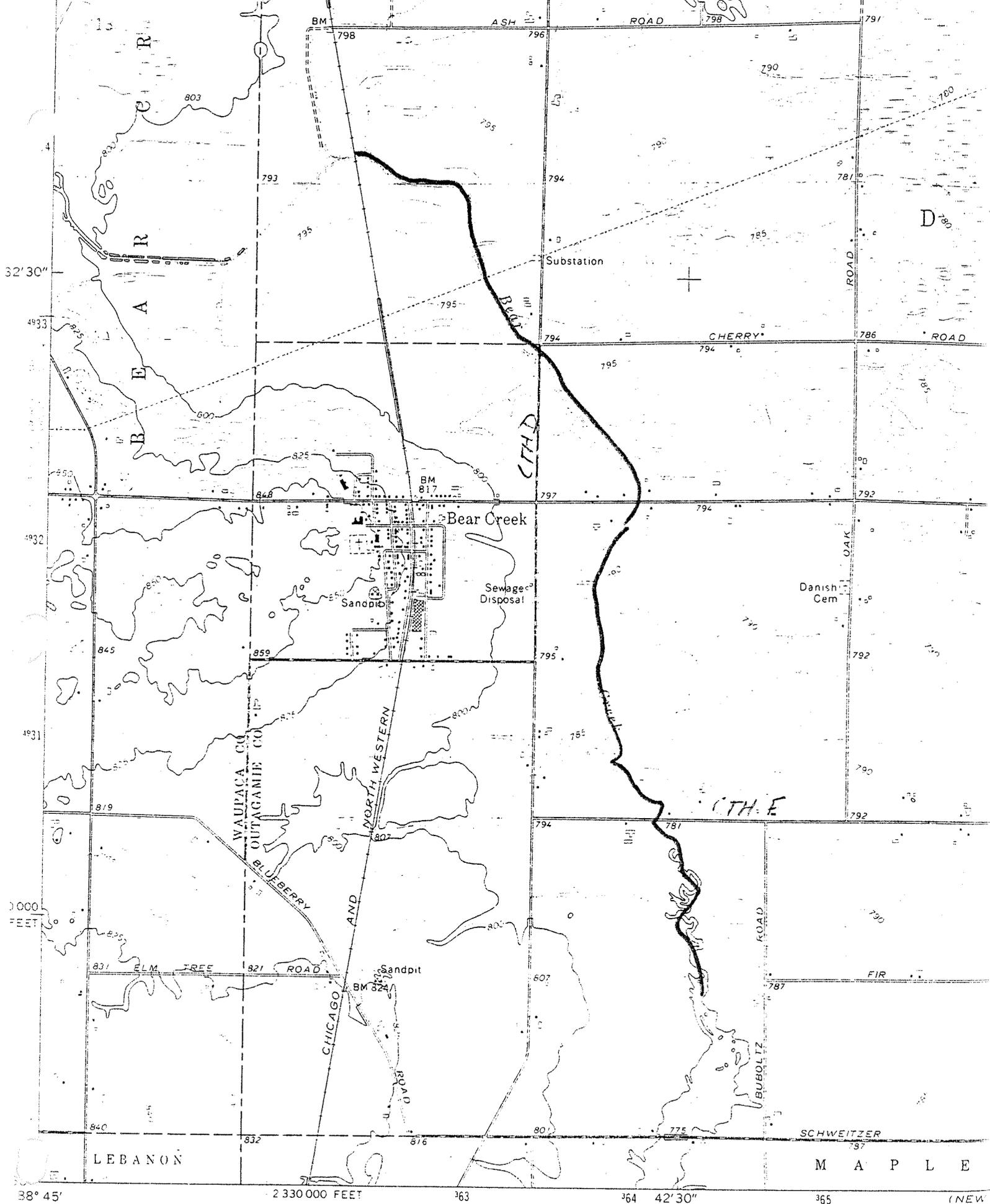
TRIENNIAL STANDARDS REVIEW
BEAR CREEK
JUNE, 1995

Bear Creek at the Village of Bear Creek is currently classified as a Limited Forage Fish Community from the POTW downstream to its confluence with the Embarrass River.

A survey performed in May, 1991 does not support this classification. Data collected during this survey (attached) indicate that a more appropriate classification should be Warm Water Forage Fish.

There is adequate flow, good habitat, and the biotic index shows fair water quality. In addition it is common knowledge that the stream is used for spring spawning of Northern Pike and supports panfish at most times of the year.

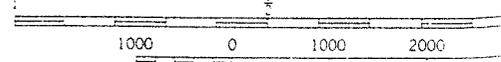
Bear Creek should be classified as a Warm Water Forage Fish Community from the Bear Creek POTW downstream to its confluence with the Embarrass River.



Mapped, edited, and published by the Geological Survey
 in cooperation with the Wisconsin Highway Commission
 and Wisconsin Geological and Natural History Survey

Control by USGS and USCGS

★
 MN
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(NEW
 32
 SCALE

LOW FLOW STREAM CROSS SECTION & DISCHARGE DATA

STP: BEAR CR Date: 5/21/91

Location CTH D
 _____ or Stake # _____

Tapedown (opt.) _____ Flow Meter # _____ Recorder's Initials Doelger
 Time _____ Stream Width _____ # Measurements _____

Distance from Bank (ft)	Depth (ft)	Velocity	Area (ft ²)	Discharge	Comments: (Vegetation-Sludge)
1	.2	.0			
2	.2	.1	.024		
3	.2	.1	.024		
4	.3	.1	.195		
5	.9	.1	.535		
6	.3	.1	.34		
7	.9	.1	.332		
8	1.1	.65	.715		
9	1.1	.5	.55		
10	1.0	.4	.4		
11	1.0	.62	.62		
12	1.1	.52	.57		
13	1.1	.55	.60		
14	1.0	.3	.3		
15	.8	.0		5.6 CFS	
16	BANK				
17					
18					

SEGMENT DATA SHEET

Treatment Plant: _____

Segment # _____

Date: _____

Observation # _____

Recorders Int.: _____

Stake &/or Sample # _____

Distance Downstream _____ paces or feet

Time _____ pH _____

Measurement Conditions

DO _____ (Unit # _____)

Sun - Shade

Temp _____ °C

Riffle - Run - Pool

Before - With - After/Dye

% Overcast _____

% Shade _____

Est. Stream Width _____ Est. Stream Depth _____

Bottom Type _____

% Stream Found

Comments

SLUDGE _____ % Depth _____

MUD _____ % Depth _____

MACROPHYTES _____ %

	Scarce	Common	Abundant
- Elodea	s	c	a
- Potamogeton	s	c	a
- Sagittaria	s	c	a
- Myriophyllum	s	c	a
- Vallisneria	s	c	a
-	s	c	a
-	s	c	a

FILAMENTOUS ALGAE _____ % Stream

SLIMES _____ % Stream

LITTER & DETRITUS _____ % Depth

Fish Observed _____

Land marks (major) _____

Land Use _____

Other _____

Stream BEAR C Reach Location CARD Reach Score/Rating 187
 County OUTAGAMIE Date 4/21/91 Evaluator Doyle Classification _____

Rating Item	Category			
	Excellent	Good	Fair	Poor
Watershed Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion. 8	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion. 10	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. 14	Heavy erosion evident. Probable erosion from any run off. 16
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). 10	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). 14	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. 4	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20
Bank Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. 6	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy. 9	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding. 15	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. 18
Lower Bank Channel Capacity	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. 8	Adequate. Overbank flows rare. W/D ratio 8-15. 10	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. 14	Inadequate, overbank flow common. W/D ratio >25. 16
Lower Bank Deposition	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. 9	Moderate deposition of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. 16	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. 20
Bottom Substrate/ Available Cover	Greater than 50% rubble, gravel or other stable habitat. 2	30-50% rubble, gravel or other stable habitat. Adequate habitat. 7	10-30% rubble, gravel or other stable habitat. Habitat availability less than desirable. 17	Less than 10% rubble gravel or other stable habitat. Lack of habitat is obvious. 22
Avg. Depth Riffles and Runs	Cold >1' 0 Warm >3' 0	6" to 1' 6 10" to 1.5' 6	3" to 6" 18 6" to 10" 18	<3" 24 <6" 24
Avg. Depth of Pools	Cold >4' 0 Warm >5' 0	3' to 4' 6 4' to 5' 6	2' to 3' 18 3' to 4' 18	<2' 24 <3' 24
Flow, at Rep. Low Flow	Cold >2 cfs 0 Warm >5 cfs 0	1-2 cfs 6 2-5 cfs 6	.5-1 cfs 18 1-2 cfs 18	<.5 cfs 24 <1 cfs 24
Pool/Riffle, Run/Bend Ratio (distance between riffles ÷ stream width)	5-7. Variety of habitat. Deep riffles and pools. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. 16	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or unpastured corridor. 8	High natural beauty. Trees, historic site. Some development may be visible. 10	Common setting, not offensive. Developed but uncluttered area. 14	Stream does not enhance aesthetics. Condition of stream is offensive. 16

Column Totals: _____
 Column Scores E _____ + G 27 + F 160 + P _____ = 187 = Score

<70 = Excellent, 71-129 = Good, 130-200 = Fair, >200 = Poor

FIELD MEASUREMENTS

D.O. _____ TEMP _____ PH _____ AVG WIDTH _____
AVG DEPTH _____ FLOW MEAS _____ LENGTH OF SEGMENT _____

OBSERVATIONS SCARCE (S), COMMON (C), ABUNDANT (A)

SLUDGE _____ MUD _____ MACROPHYTES _____ SLIMES _____
FILAMENTOUS ALGAE _____ LITTER & DETRITUS _____
PLANKTONIC ALGAE _____ IRON BACTERIA _____ TURBIDITY _____
COMMENTS:

EXTERNAL IMPACTS SEVERE (S), MODERATE (M), LIGHT (L)

AGRICULTURAL _____ CHANNELIZATION _____ CONSTRUCTION _____
STORM SEWERS _____ POINT SOURCES _____
COMMENTS:

BIOTA HBI FBI OTHER

MACROINVERTEBRATES _____
FISH OBSERVED _____
WILDLIFE USES _____

WATER CHEMISTRY

BOD5 _____ TOT P _____ CHLORIDE _____ LEAD _____ MFFC _____
DISS P _____ CADMIUM _____ MAGNESIUM _____ HARDNESS _____
MFFS _____ TOT D N _____ CALCIUM _____ MANGANESE _____
COPPER _____ NH3N _____ NICKLE _____ SUSP SOLIDS _____
NO2-N+NO3-N _____ ZINC _____ IRON _____

CLASSIFICATION

GREAT LAKES COMMUNITY _____ WARM WATER FORAGE _____
COLD WATER COMMUNITY _____ LIMITED FORAGE FISH _____
WARM WATER SPORT FISH _____ LIMITED AQUATIC LIFE _____

LAKE MICHIGAN District Biotic Index Report

HBI-Rep1: 6.125 Rep2: 0.000 Rep3: 0.000 Rep4: Rep5:

Sample ID # 910521-45-02 Waterbody Name BEAR CREEK

Water Temp (Celsius) Dissolved Oxygen (mg/l)

Sample Location: SE SW S29 T24N R15E Master Waterbody #

Project Name TRIENNIAL REVIEW Storet Station #

Stream Width (Ft.) at Site 25.0 Ave. Stream Depth (Ft.) at Site 1.0

Collector DOELGER, T. Field # 02 Rep 1

Measured Velocity (fps)

Est. Velocity (fps)

Sorter PYATSKOWIT, JOEL

Est % of sample sorted 100 Moderate (0.5-1.5)

Taxonomist DIMICK, J. Sampled Habitat

Location Description 100 FEET UPSTREAM OF CTH F 2. Run

Est. Time Spent Sampling (Min.) 5

Sampling Device 1. D Frame

Substrate at Site Location (%)

0.0 Bedrock	10.0 Rubble	0.0 Sand	0.0 Clay	25.0 Muck
0.0 Boulders	0.0 Gravel	25.0 Silt	25.0 Detritus	15.0 Debris/Veg

Substrate Sampled (%) (Same as above Yes)

0.0 Bedrock	0.0 Rubble	0.0 Sand	0.0 Clay	0.0 Muck
0.0 Boulders	0.0 Gravel	0.0 Silt	0.0 Detritus	0.0 Debris/Veg

Aquatic Vegetation 0 % of Total Stream Channel at Sampling Site
 Observed Instream Water Quality Indicators (Perceived WQ)

	Not Present	Insig- nificant	Sig- nificant	Comments
Turbidity	1			
Chlorine or Toxic Scour	1			
Microphytes		2		
Filamentous Algae		2		
Planktonic Algae		2		
Slimes	1			
Iron Bacteria	1			

Factors Which May Be Affecting Habitat Quality

Sludge Deposits	1		
Silt and Sediment			3
Channel Ditching		2	
Down/Up Stream Impoundment	1		
Low Flows		2	
Wetlands		2	

Pollutant Sources

Livestock Pasturing			3
Baryard Runoff			3
Cropland Runoff			3
Tile Drains			3
Septic Systems		2	
Stream Bank Erosion		2	
Urban Runoff	1		
Construction Runoff	1		
Point Source (Specify Type)			3 SAUERKRAUT PROCESSOR
Other (Specify)			VILLAGE OF BEAR CREEK

SAMPLE ID# 910521-45-02

*** TAXA ***	*** SPECIES ***	TAXONOMIC KEY USED	TOL VAL	ORGANISM ID	ORGANISM COUNT	REP1	REP2	REP3
EPHEMEROPTERA								
BAETIDAE								
BAETIS	FLAVISTRIGA	*1	4.00	02010104	7	0	0	0
CAENIDAE								
CAENIS		*1	7.00	02030200	1	0	0	0
ODONATA								
COENAGRIONIDAE								
POOR SPECIMEN		*1		03030900	2	0	0	0
TRICHOPTERA								
HYDROPTILIDAE								
HYDROPTILA		*1	6.00	04050200	1	0	0	0
COLEOPTERA								
ELMIDAE								
OPTIOSERVUS		*1	4.00	07020500	1	0	0	0
DIPTERA								
CHIRONOMIDAE								
	PUPAE	*2		08050002	2	0	0	0
	POOR SPECIMEN	*1		08050004	1	0	0	0
CRICOTOPUS	NR.BICINCTUS	*3	6.00	08051301	2	0	0	0
	NR.INTERSECTUS	*3	7.00	08051302	2	0	0	0
EUKIEFFERIELLA	SP.A	*3	8.00	08052301	1	0	0	0
MICROTENDIPES		*1	6.00	08053500	3	0	0	0
PARACHIRONOMUS		*1	5.00	08054200	1	0	0	0
PARATANYTARSUS	SP.A	*3	6.00	08054601	3	0	0	0
PHAENOPSECTRA		*3	7.00	08054900	2	0	0	0
POLYPEDILUM	NR.CONVICTUM	*3	5.00	08055001	2	0	0	0
	NR.FALLAX	*3	4.00	08055002	2	0	0	0
CONCHAPELOPIA		*3	6.00	08058200	5	0	0	0
CHIRONOMINAE	**POOR SPECIMEN**	*1		08059401	1	0	0	0
SIMULIIDAE								
SIMULIUM	VENUSTUM	*4	5.00	08110215	9	0	0	0
	VERECUNDUM	*4	6.00	08110216	27	0	0	0
	VITTATUM	*4	7.00	08110217	2	0	0	0
	PUPAE	*2		08110700	2	0	0	0
	POOR SPECIMEN	*1		08110800	1	0	0	0
AMPHIPODA								
TALITRIDAE								
HYALLELA	AZTECA	*2	8.00	09020101	5	0	0	0
ISOPODA								
ASELLIDAE								
ASELLUS	INTERMEDIUS	*5	8.00	10010101	12	0	0	0
OLIGOCHAETA								
TUBIFICIDAE		*6		16030000	6	0	0	0
HIRUDINEA								
ERPOBDELLIDAE		*6		17010000	2	0	0	0

SAMPLE ID# 910521-45-02

*** TAXA ***	*** SPECIES ***	TAXONOMIC KEY USED	TOL VAL	ORGANISM ID	ORGANISM COUNT	REP1	REP2	REP3
--------------	-----------------	--------------------	---------	-------------	----------------	------	------	------

*** TOTALS: *** 105 0 0

*** BIOTIC INDEX: *** 6.125

Taxonomic Key Code References

- *1 HILSENHOFF 1981,82
- *2 PENNAK 1978
- *3 HILSENHOFF 1981,85
- *4 HILSENHOFF 1985
- *5 WILLIAMS 1972
- *6 KLEMM 1985

LAKE MICHIGAN District Biotic Index Report

HBI-Rep1: 6.116 Rep2: 0.000 Rep3: 0.000 Rep4: Rep5:

Sample ID # 910521-45-01 Waterbody Name BEAR CREEK
 Water Temp (Celsius) Dissolved Oxygen (mg/l)
 Sample Location: NE SE S19 T24N R15E Master Waterbody #
 Project Name TRIENNIAL REVIEW Storet Station #
 Stream Width (Ft.) at Site 20.0 Ave. Stream Depth (Ft.) at Site 0.75
 Collector DOELGER, T. Field # 01 Rep 1
 Measured Velocity (fps)
 Sorter PYATSKOWIT, JOEL Est. Velocity (fps)
 Est % of sample sorted 42 Moderate (0.5-1.5)
 Taxonomist DIMICK, J. Sampled Habitat
 Location Description 50 FEET UPSTREAM OF CTH F 2. Run

Est. Time Spent Sampling (Min.) 5

Sampling Device 1. D Frame

Substrate at Site Location (%)

0.0 Bedrock	10.0 Rubble	0.0 Sand	0.0 Clay	25.0 Muck
0.0 Boulders	0.0 Gravel	25.0 Silt	25.0 Detritus	15.0 Debris/Veg

Substrate Sampled (%) (Same as above Yes)

0.0 Bedrock	0.0 Rubble	0.0 Sand	0.0 Clay	0.0 Muck
0.0 Boulders	0.0 Gravel	0.0 Silt	0.0 Detritus	0.0 Debris/Veg

Aquatic Vegetation 25 % of Total Stream Channel at Sampling Site

Observed Instream Water Quality Indicators (Perceived WQ Fair)

	Not Present	Insig- nificant	Sig- nificant	Comments
Turbidity	1			
Chlorine or Toxic Scour	1			
Microphytes		2		
Filamentous Algae		2		
Planktonic Algae		2		
Slimes	1			
Iron Bacteria	1			

Factors Which May Be Affecting Habitat Quality

Sludge Deposits	1		
Silt and Sediment			3
Channel Ditching		2	
Down/Up Stream Impoundment	1		
Low Flows		2	
Wetlands		2	

Pollutant Sources

Livestock Pasturing			3
Barnyard Runoff			3
Cropland Runoff			3
Tile Drains			3
Septic Systems		2	
Stream Bank Erosion		2	
Urban Runoff	1		
Construction Runoff	1		
Point Source (Specify Type)	1		
Other (Specify)			

SAMPLE ID# 910521-45-01

*** TAXA ***	*** SPECIES ***	TAXONOMIC KEY USED	TOL VAL	ORGANISM ID	ORGANISM COUNT	REP1	REP2	REP3
EPHEMEROPTERA								
BAETIDAE								
BAETIS	FLAVISTRIGA	*1	4.00	02010104	14	0	0	0
	POOR SPECIMEN	*1		02010115	4	0	0	0
	NOTOS	*1		02010117	1	0	0	0
HEPTAGENIIDAE								
STENACRON	INTERPUNCTATUM	*1	7.00	02060501	3	0	0	0
LEPTOPHLEBIIDAE								
POOR SPECIMEN		*1		02070600	2	0	0	0
ODONATA								
COENAGRIONIDAE								
POOR SPECIMEN		*1		03030900	1	0	0	0
TRICHOPTERA								
HYDROPSYCHIDAE								
CHEUMATOPSYCHE		*1	5.00	04040100	2	0	0	0
HYDROPSYCHE	BETTENI	*2	6.00	04040201	3	0	0	0
CERATOPSYCHE	BRONTA	*2	5.00	04040703	1	0	0	0
HYDROPTILIDAE								
HYDROPTILA		*1	6.00	04050200	1	0	0	0
POOR SPECIMEN		*1		04051100	1	0	0	0
LIMNEPHILIDAE								
ANABOLIA		*1	5.00	04080100	1	0	0	0
COLEOPTERA								
ELMIDAE								
DUBIRAPHIA		*1	6.00	07020200	1	0	0	0
	VITTATA	*1	6.00	07020204	1	0	0	0
STENELMIS		*1	5.00	07020600	1	0	0	0
GYRINIDAE								
GYRINUS		*1		07030200	1	0	0	0
DYTISCIDAE								
POTAMONECTES		*1		07051200	2	0	0	0
DIPTERA								
CHIRONOMIDAE								
	PUPAE	*3		08050002	1	0	0	0
CRYPTOCHIRONOMUS		*1	8.00	08051400	1	0	0	0
LIMNOPHYES		*4	8.00	08053100	1	0	0	0
MICROPSECTRA		*1	7.00	08053400	1	0	0	0
MICROTENDIPES		*1	6.00	08053500	1	0	0	0
PARATANYTARSUS	SP. A	*4	6.00	08054601	1	0	0	0
PARATENDIPES		*1	8.00	08054700	2	0	0	0
POLYPEDILUM	NR. CONVICTUM	*4	5.00	08055001	4	0	0	0
	NR. FALLAX	*4	4.00	08055002	1	0	0	0
STICTOCHIRONOMUS		*1	9.00	08056500	3	0	0	0
CONCHAPELOPIA		*4	6.00	08058200	6	0	0	0
SIMULIIDAE								
SIMULIUM	VERECUNDUM	*5	6.00	08110216	21	0	0	0
PUPAE		*3		08110700	1	0	0	0
TABANIDAE								
CHRYSOFS		*1	6.00	08130100	1	0	0	0

SAMPLE ID# 910521-45-01

PAGE 3

	*** TAXA ***	*** SPECIES	TAXONOMIC TOL		ORGANISM ID	ORGANISM COUNT		
			KEY USED	VAL		REP1	REP2	REP3
DIPTERA								
TIPULIDAE								
ANTOCHA			*1	3.00	08140100	2	0	0
PILARIA			*1	7.00	08141000	1	0	0
AMPHIPODA								
GAMMARIDAE								
GAMMARUS		PSEUDOLIMNAEUS	*6	4.00	09010201	10	0	0
TALITRIDAE								
HYALLELA		AZTECA	*3	8.00	09020101	5	0	0
ISOPODA								
ASELLIDAE								
ASELLUS		INTERMEDIUS	*7	8.00	10010101	23	0	0
OLIGOCHAETA								
TUBIFICIDAE			*8		16030000	1	0	0
HIRUDINEA								
ERPOBDELLIDAE			*8		17010000	1	0	0
*** TOTALS: ***						128		
							0	
								0
*** BIOTIC INDEX: ***						6.116		

Taxonomic Key Code References

- *1 HILSENHOFF 1981,82
- *2 HILSENHOFF 1981,86
- *3 PENNAK 1978
- *4 HILSENHOFF 1981,85
- *5 HILSENHOFF 1985
- *6 HOLSINGER 1972
- *7 WILLIAMS 1972
- *8 KLEMM 1985

SEGMENT DATA SHEET

Treatment Plant: _____

Segment # _____

Date: _____

Observation # _____

Recorders Int.: _____

Stake &/or Sample # _____

Distance Downstream _____ paces or feet

Time _____ pH _____

Measurement Conditions

DO _____ (Unit # _____)

Sun - Shade

Temp _____ °C

Riffle - Run - Pool

Before - With - After/Dye

% Overcast _____

% Shade _____

Est. Stream Width _____ Ave. Est. Stream Depth _____

Bottom Type _____

	<u>% Stream Found</u>	<u>Comments</u>
SLUDGE	_____ %	Depth _____
MUD	_____ %	Depth _____
MACROPHYTES	_____ %	

	Scarce	Common	Abundant
- Elodea	s	c	a
- Potomageton	s	c	a
- Sagittaria	s	c	a
- Myriophyllum	s	c	a
- Vallisineria	s	c	a
-	s	c	a
-	s	c	a

FILAMENTOUS ALGAE	_____ %	Stream
SLIMES	_____ %	Stream
LITTER & DETRITUS	_____ %	Depth _____

Fish Observed _____

Land marks (major) _____

Land Use _____

Other _____

Stream BEAR CREEK Reach Location CTH F Reach Score/Rating 174
 County WISCONSIN Date 1/21/91 Evaluator [Signature] Classification _____

Rating Item	Category							
	Excellent	Good	Fair	Poor				
Watershed Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion. <u>8</u>	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion. <u>10</u>	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. <u>14</u>	Heavy erosion evident. Probable erosion from any run off. <u>16</u>				
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. <u>8</u>	Some potential sources (roads, urban area, farm fields). <u>10</u>	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). <u>14</u>	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). <u>16</u>				
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. <u>4</u>	Infrequent, small areas, mostly healed over. Some potential in extreme floods. <u>8</u>	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. <u>16</u>	Many eroded areas. "Raw" areas frequent along straight sections and bends. <u>20</u>				
Bank Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. <u>6</u>	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy. <u>9</u>	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding. <u>15</u>	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. <u>18</u>				
Lower Bank Channel Capacity	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. <u>8</u>	Adequate. Overbank flows rare. W/D ratio 8-15. <u>10</u>	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. <u>14</u>	Inadequate, overbank flow common. W/D ratio >25. <u>16</u>				
Lower Bank Deposition	Little or no enlargement of channel or point bars. <u>6</u>	Some new increase in bar formation, mostly from coarse gravel. <u>9</u>	Moderate deposition of new gravel and coarse sand on old and some new bars. <u>15</u>	Heavy deposits of fine material, increased bar development. <u>18</u>				
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. <u>4</u>	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. <u>8</u>	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. <u>16</u>	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. <u>20</u>				
Bottom Substrate/ Available Cover	Greater than 50% rubble, gravel or other stable habitat. <u>2</u>	30-50% rubble, gravel or other stable habitat. Adequate habitat. <u>7</u>	10-30% rubble, gravel or other stable habitat. Habitat availability less than desirable. <u>17</u>	Less than 10% rubble gravel or other stable habitat. Lack of habitat is obvious. <u>22</u>				
Avg. Depth Riffles and Runs	Cold >1'	0	6" to 1'	6	3" to 6"	18	<3"	24
	Warm >1.5'	0	10" to 1.5'	6	6" to 10"	18	<6"	24
Avg. Depth of Pools	Cold >4'	0	3' to 4'	6	2' to 3'	18	<2'	24
	Warm >5'	0	4' to 5'	6	3' to 4'	18	<3'	24
Flow, at Rep. Low Flow	Cold >2 cfs	0	1-2 cfs	6	.5-1 cfs	18	<.5 cfs	24
	Warm >5 cfs	0	2-5 cfs	6	1-2 cfs	18	<1 cfs	24
Pool/Riffle, Run/Bend Ratio (distance between riffles ÷ stream width)	5-7. Variety of habitat. Deep riffles and pools. <u>4</u>	7-15. Adequate depth in pools and riffles. Bends provide habitat. <u>8</u>	15-25. Occasional riffle or bend. Bottom contours provide some habitat. <u>16</u>	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. <u>20</u>				
Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or un-pastured corridor. <u>8</u>	High natural beauty. Trees, historic site. Some development may be visible. <u>10</u>	Common setting, not offensive. Developed but uncluttered area. <u>14</u>	Stream does not enhance aesthetics. Condition of stream is offensive. <u>16</u>				

Column Totals: _____

Column Scores E 6 + G 34 + F 110 + P 24 = 174 = Score

FIELD MEASUREMENTS

D.O. _____ TEMP _____ pH _____ AVG WIDTH _____
AVG DEPTH _____ FLOW MEAS _____ LENGTH OF SEGMENT _____

OBSERVATIONS SCARCE (S), COMMON (C), ABUNDANT (A)

SLUDGE _____ MUD _____ MACROPHYTES _____ SLIMES _____
FILAMENTOUS ALGAE _____ LITTER & DETRITUS _____
PLANKTONIC ALGAE _____ IRON BACTERIA _____ TURBIDITY _____
COMMENTS:

EXTERNAL IMPACTS SEVERE (S), MODERATE (M), LIGHT (L)

AGRICULTURAL _____ CHANNELIZATION _____ CONSTRUCTION _____
STORM SEWERS _____ POINT SOURCES _____
COMMENTS:

BIOTA HBI FBI OTHER

MACROINVERTEBRATES _____
FISH OBSERVED _____
WILDLIFE USES _____

WATER CHEMISTRY

BOD5 _____ TOT P _____ CHLORIDE _____ LEAD _____ MFFC _____
DISS P _____ CADMIUM _____ MAGNESIUM _____ HARDNESS _____
MFFS _____ TOT D N _____ CALCIUM _____ MANGANESE _____
COPPER _____ NH3N _____ NICKLE _____ SUSP SOLIDS _____
NO2-N+NO3-N _____ ZINC _____ IRON _____

CLASSIFICATION

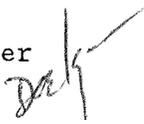
GREAT LAKES COMMUNITY _____ WARM WATER FORAGE _____
COLD WATER COMMUNITY _____ LIMITED FORAGE FISH _____
WARM WATER SPORT FISH _____ LIMITED AQUATIC LIFE _____

CORRESPONDENCE/MEMORANDUM

STATE OF WISCONSIN

Date: November 15, 1990 File Ref: 3200

To: Jeff Brauer - WW/2

From: Tim Doelger 

Subject: Classification for an Unnamed Tributary of Bear Creek

On November 13, 1990 we inspected a proposed site for a new cooling water discharge from Flanagan Bros. Inc. The discharge would be adjacent to the abandoned Chicago & Northwestern Railroad Grade just south of Beech Avenue. The wastewater would flow in a southerly direction approximately one half mile to an unnamed tributary of Bear Creek. The tributary is quite likely a continuous perennial stream that joins Bear Creek about 3/4 mile from the Railroad Grade (see map).

Above the railroad the stream is severely channelized and is cropped to its banks resulting in noticeable NPS impacts. Below the Railroad Grade the stream begins to meander and has a natural appearance. It is well buffered from agricultural practices by a strip approximately 50 feet wide on either side composed of canary grass and some upland species. Of note are several extremely large oak trees which could possibly be pre-settlement in age indicating that the area has always been wet and unsuitable for cropland.

The stream continues in an easterly direction, crosses CTH D, and then flows through a pasture. Cattle are allowed access at this point and the banks are trampled.

Habitat in terms of pools, riffles, and rocks is virtually non-existent for the entire length of the stream that was evaluated and several grab samples of instream vegetation produced only Gammarus Spp.

Due to intense agricultural activity, lack of suitable habitat, upstream channeling and low flows, this stream is only capable of supporting very tolerant aquatic species and should be classified as continuous-limited aquatic life (marginal).

Because of the distance between the proposed discharge and Bear Creek (\approx 1 mile) and the buffering provided by this distance, district WRM supports the proposed location.

TD:cs

Attach.

cc: Tom Krsnich

→ Joe Ball

Stream UNNAMED TRIB BEAR CR Reach Location UPSTREAM OF CNW RR Reach Score/Rating 240/POOR
 County OUTAGAMIE Date 11/13/90 Evaluator DOELGER Classification CONTINUOUS-MARGINAL

Rating Item	Category			
	Excellent	Good	Fair	Poor
Watershed Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion. 8	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion. 10	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. 14	Heavy erosion evident. Probable erosion from any run off. 16
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). 10	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). 14	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. 4	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20
Bank Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. 6	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy. 9	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding. 15	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. 18
Lower Bank Channel Capacity	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. 8	Adequate. Overbank flows rare. W/D ratio 8-15. 10	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. 14	Inadequate, overbank flow common. W/D ratio >25. 16
Lower Bank Deposition	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. 9	Moderate deposition of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. 16	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. 20
Bottom Substrate/ Available Cover	Greater than 50% rubble, gravel or other stable habitat. 2	30-50% rubble, gravel or other stable habitat. Adequate habitat. 7	10-30% rubble, gravel or other stable habitat. Habitat availability less than desirable. 17	Less than 10% rubble gravel or other stable habitat. Lack of habitat is obvious. 22
Avg. Depth Riffles and Runs	Cold >1' 0 Warm >1.5' 0	6" to 1' 6 10" to 1.5' 6	3" to 6" 18 6" to 10" 18	<3" 24 <6" 24
Avg. Depth of Pools	Cold >4' 0 Warm >5' 0	3' to 4' 6 4' to 5' 6	2' to 3' 18 3' to 4' 18	<2' 24 <3' 24
Flow, at Rep. Low Flow	Cold >2 cfs 0 Warm >5 cfs 0	1-2 cfs 6 2-5 cfs 6	.5-1 cfs 18 1-2 cfs 18	<.5 cfs 24 <1 cfs 24
Pool/Riffle, Run/Bend Ratio (distance between riffles ÷ stream width)	5-7. Variety of habitat. Deep riffles and pools. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. 16	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or un-pastured corridor. 8	High natural beauty. Trees, historic site. Some development may be visible. 10	Common setting, not offensive. Developed but uncluttered area. 14	Stream does not enhance aesthetics. Condition of stream is offensive. 16

Column Totals: 8 30 202

Column Scores E 8 +G 30 +F 202 = 240 = Score

<70 = Excellent, 71-129 = Good, 130-200 = Fair, >200 = Poor

Stream UNNAMED TRIB TO BEAR CP Reach Location BELOW CNW RR GRADE Reach Score/Rating 197/FAIR MINUS
 County OUTAGAMIE Date 11/13/90 Evaluator DJKW Classification CONTINUOUS MARGINAL

Rating Item	Category			
	Excellent	Good	Fair	Poor
Watershed Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion. (8)	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion. 10	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. 14	Heavy erosion evident. Probable erosion from any run off. 16
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). 10	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). (14)	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. (4)	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20
Bank Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. (6)	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy. 9	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding. 15	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. 18
Lower Bank Channel Capacity	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. 8	Adequate. Overbank flows rare. W/D ratio 8-15. (10)	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. 14	Inadequate, overbank flow common. W/D ratio >25. 16
Lower Bank Deposition	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. 9	Moderate deposition of new gravel and coarse sand on old and some new bars. (15)	Heavy deposits of fine material, increased bar development. 18
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. (16)	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. 20
Bottom Substrate/Available Cover	Greater than 50% rubble, gravel or other stable habitat. 2	30-50% rubble, gravel or other stable habitat. Adequate habitat. 7	10-30% rubble, gravel or other stable habitat. Habitat availability less than desirable. 17	Less than 10% rubble gravel or other stable habitat. Lack of habitat is obvious. (22)
Avg. Depth Riffles and Runs	Cold >1' 0 Warm >1.5' 0	6" to 1' 6 10" to 1.5' 6	3" to 6" 18 6" to 10" 18	<3" 24 <6" (23)
Avg. Depth of Pools	Cold >4' 0 Warm >5' 0	3' to 4' 6 4' to 5' 6	2' to 3' 18 3' to 4' 18	<2' 24 <3' (23)
Flow, at Rep. Low Flow	Cold >2 cfs 0 Warm >5 cfs 0	1-2 cfs 6 2-5 cfs 6	.5-1 cfs 18 1-2 cfs 18	<.5 cfs 24 <1 cfs (23)
Pool/Riffle, Run/Bend Ratio (distance between riffles ÷ stream width)	5-7. Variety of habitat. Deep riffles and pools. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. (16)	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or un-pastured corridor. 8	High natural beauty. Trees, historic site. Some development may be visible. 10	Common setting, not offensive. Developed but uncluttered area. (14)	Stream does not enhance aesthetics. Condition of stream is offensive. 16

Column Totals: 18 10 75 94

Column Scores E 18 + G 10 + F 75 + P 94 = 197 = Score

<70 = Excellent, 71-129 = Good, 130-200 = Fair, >200 = Poor

Stream UNNAMED TRIB Reach Location BELOW CTH D Reach Score/Rating 230/Poor
 County OUTAGAMIE Date 11/13/90 Evaluator [Signature] Classification CONTINUOUS - MARGINAL

Rating Item	Category			
	Excellent	Good	Fair	Poor
Watershed Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion. 8	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion. 10	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. 14	Heavy erosion evident. Probable erosion from any run off. 16
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). 10	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). 14	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. 4	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20
Bank Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. 6	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy. 9	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding. 15	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. 18
Lower Bank Channel Capacity	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. 8	Adequate. Overbank flows rare. W/D ratio 8-15. 10	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. 14	Inadequate, overbank flow common. W/D ratio >25. 16
Lower Bank Deposition	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. 9	Moderate deposition of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. 16	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. 20
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Avg. Depth Riffles and Runs	Cold >1' 0 Warm >1.5' 0	6" to 1' 6 10" to 1.5' 6	3" to 6" 18 6" to 10" 18	<3" 24 <6" 24
Avg. Depth of Pools	Cold >4' 0 Warm >5' 0	3' to 4' 6 4' to 5' 6	2' to 3' 18 3' to 4' 18	<2' 24 <3' 24
Flow, at Rep. Low Flow	Cold >2 cfs 0 Warm >5 cfs 0	1-2 cfs 6 2-5 cfs 6	.5-1 cfs 18 1-2 cfs 18	<.5 cfs 24 <1 cfs 24
Pool/Riffle, Run/Bend Ratio (distance between riffles ÷ stream width)	5-7. Variety of habitat. Deep riffles and pools. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. 16	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or un-pastured corridor. 8	High natural beauty. Trees, historic site. Some development may be visible. 10	Common setting, not offensive. Developed but uncluttered area. 14	Stream does not enhance aesthetics. Condition of stream is offensive. 16

Column Totals: _____ 120 _____ 110

Column Scores E _____ +G _____ +F 120 +P 110 = 230 = Score

<70 = Excellent, 71-129 = Good, 130-200 = Fair, >200 = Poor

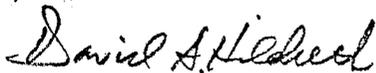
STREAM CLASSIFICATION

Survey Date: May 11, 1976

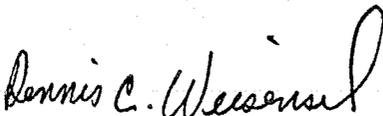
Village of Bear Creek - Outagamie County

The Village of Bear Creek WWTP effluent pipe extends about 1000 feet east to Bear Creek. The Q7,10 (USGS) is approximately .10 cfs. Flow measurement conducted in 1968 by the NEWRPC indicated zero flow in Bear Creek at the CTH 'W' bridge about five miles below the WWTP discharge. The land along the stream is agricultural and portions of the stream appear to have been ditched years ago. Aquatic organisms such as mayflies, caddis flies, midges, and fingernail clams were observed in the stream near the Hwy '76 bridge which indicate that the stream bed was continually wet during the last year. The low flow, straight channel and agricultural uses along the stream make it unsuitable for a fisheries population.

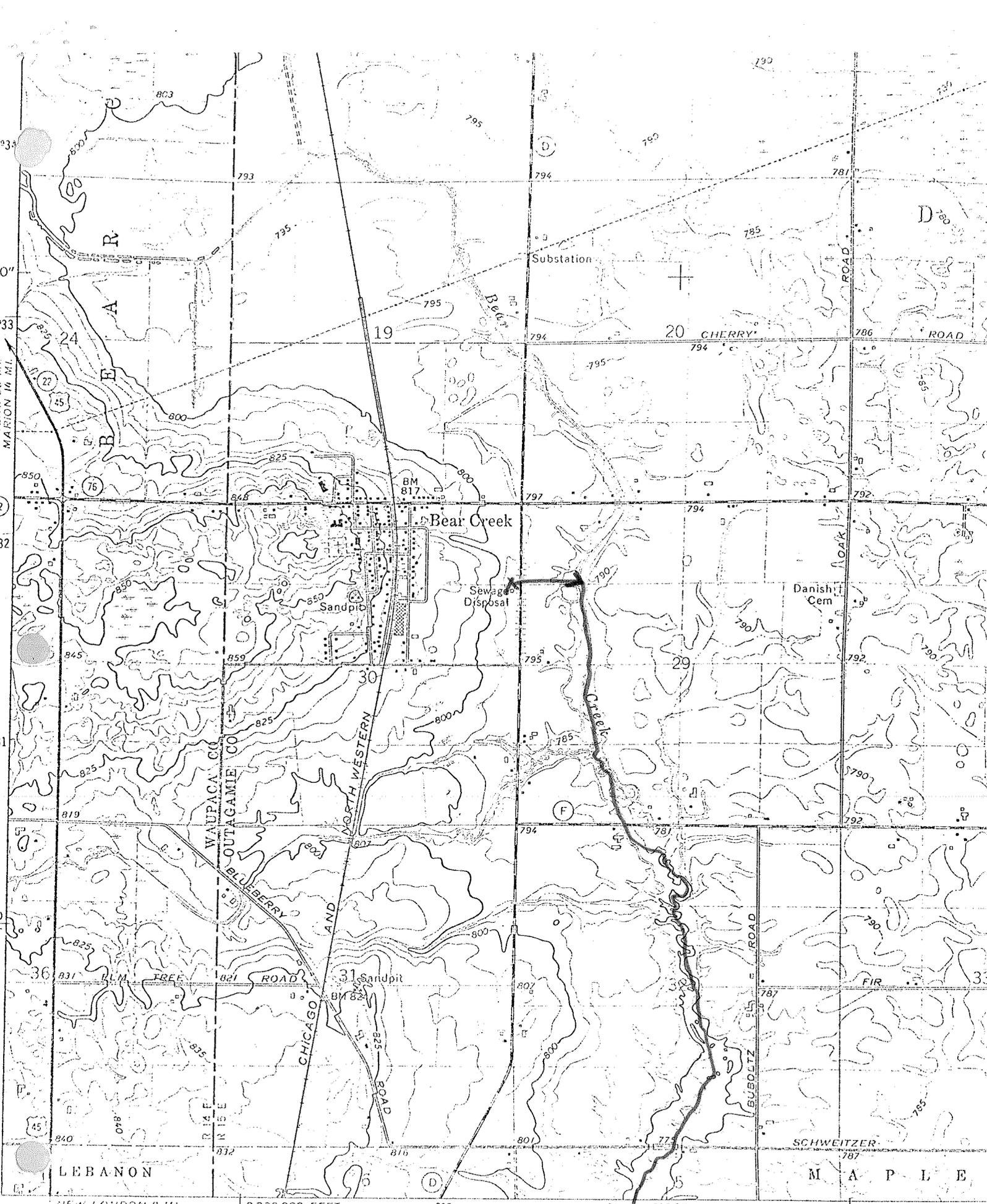
Recommendations: Bear Creek should be classified as continuous, intermediate fish and aquatic life from the WWTP outfall down to the Embarrass River about 5¼ miles below the WWTP. The Embarrass is a continuous stream which should meet fish and aquatic life standards. The WWTP effluent should be completely assimilated well before Bear Creek confluences with The Embarrass.



David A. Hildreth
District Engineer



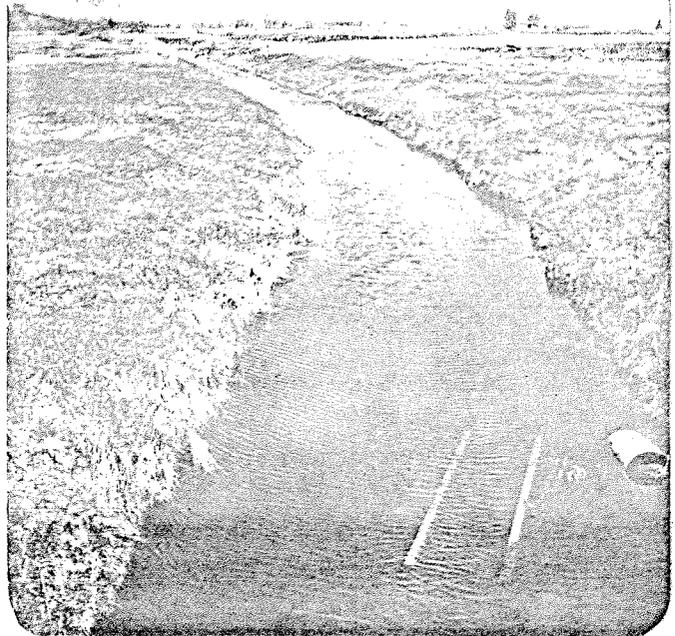
Dennis C. Weisensel
District Biologist



To Embarrass River



Hwy '76' - downstream



Hwy '76' - upstream



CTH 'F' - upstream



CTH 'F' - downstream