

Region <u>SCR</u>	County <u>Dodge</u>	Report Date <u>11/1992</u>	Classification <u>LFF</u>
Water Body: <u>Lomira Creek</u>			
Discharger: <u>Lomira WWTTP</u>			

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 Channelized
- 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: photos

Historical Reports in file:

11/25/92 - Mark Sesing
8/1991 - Mark Sesing
7/16/75 - Tom Bambridge

Additional Comments/How to improve report:

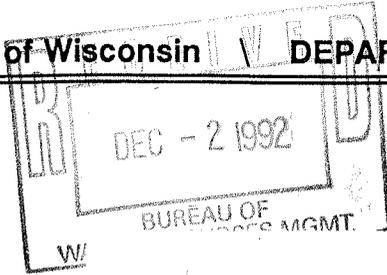
- need to confirm whether this should be LFF ~~LAL~~ yes
- LFF is pretty well justified

LFF(?)

Joe Ball / WR 2



State of Wisconsin DEPARTMENT OF NATURAL RESOURCES



Horicon Area Headquarters
1210 N. Palmatory Street
Horicon, Wisconsin 53032
TELEPHONE 414-485-3000
TELEFAX 414-485-3008

FILE REF:

Date: 11-25-92

To : Tom Bainbridge/ SD

From: Mark Sesing/ Horicon [Signature]

Re: Amendment to the 1991 Stream Classification recommended in "Lomira Creek Triennial Standards Review Village of Lomira WWTP"

I am recommending an amendment to the above report. In particular, the report recommends upgrading the stream classification of Lomira creek from a LFF(e) classification to a WFFF(d) use. It is this recommendation that requires amending.

Recently gathered data on Lomira ck and the re-interpretation of data gathered prior to 1992 has led me to conclude that Lomira creek (from the Village downstream to Soo Rd) should remain classified as a LFF(e). The following facts support this recommendation:

- 1. Fish monitoring data collected upstream of the WWTP (see table 1) on 11-25-87 and 9-15-92 indicates a tolerant community of forage fish with the exception of centrarchid species (bluegills and sunfish sp) The centrarchids and possibly other species are believed to be exported from Sterr pond upstream rather than being "products" of Lomira creek. One pool reach in the creek appears to hold the majority of individuals and the habitat above and below is limiting as evidenced by the lack of forage collected in those reaches (Sesing and Fix,1992). The fish abundance here is also believed to be partly a result of recruitment from Sterr pond.
2. Fish monitoring 1 mi. downstream of the WWTP documented a low diversity assemblage of very tolerant forage fish (Sesing and Fix, 1992)
3. Further habitat observations made downstream from the WWTP in 1992 indicate a creek with permanent cultural modifications and irretrievable qualities primarily due to channelization and deep deposits of sediment, some from natural origin, some from cultural NPS and possibly point sources.



Table 1. LOMIRA CREEK FISH SPECIES

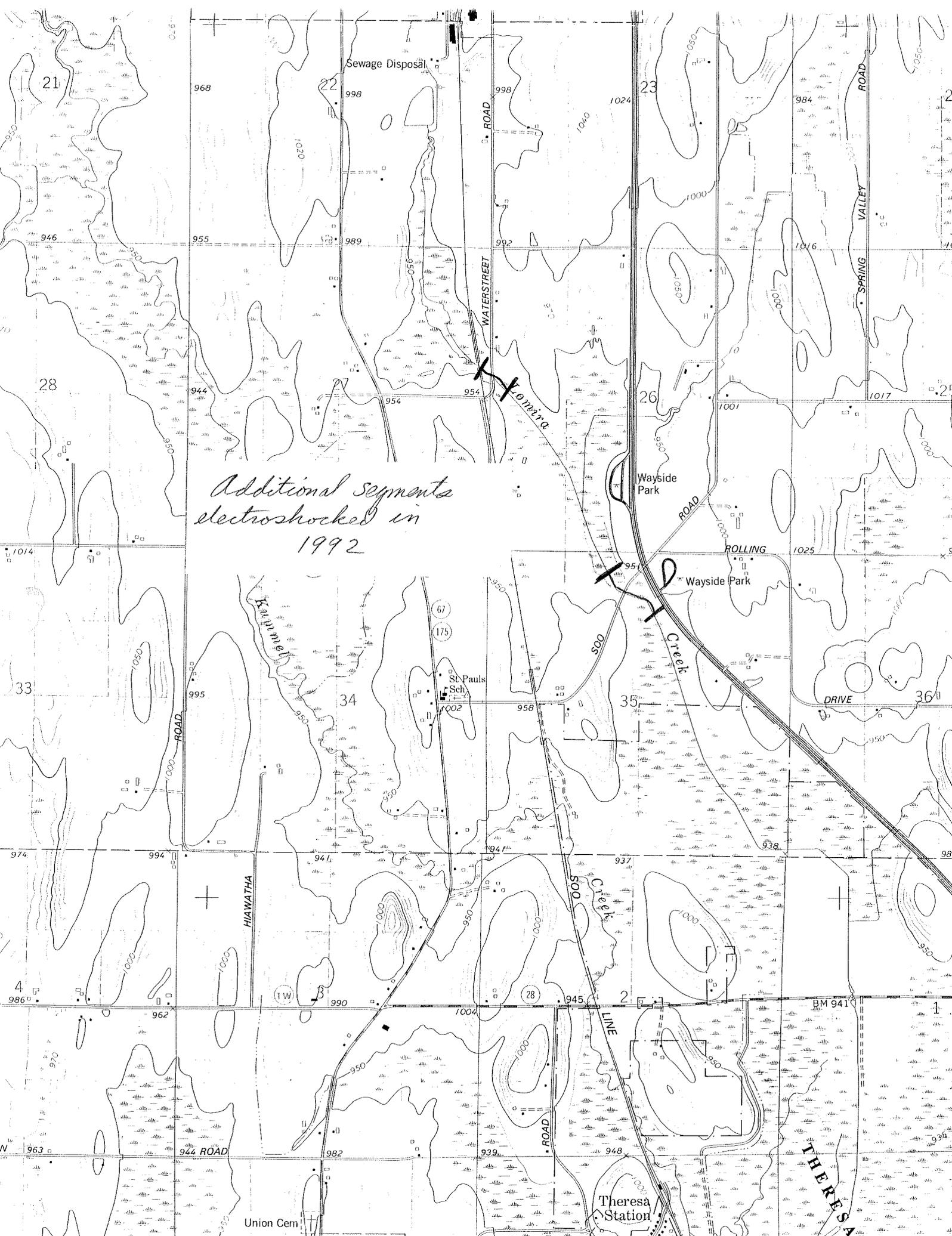
Location and Date	Species and # of Individual Fish Located
Upstream WWTP (~75M) 11-25-87	Central mudminnow 18/ Fathead minnow 14/ White sucker 1/ Bullhead sp. 1/ Green sunfish 5/ Creek chub 8/ Carp 1/ Brook stickleback 6/
9-15-92	Central mudminnow 12/ Fathead minnow 87/ Sunfish sp, immature, 29/ Creek chub 1/ Brook stickleback 12
Downstream WWTP (~1mi) Waterstreet Rd X-ing 9-15-92	Central mudminnow 4/ Fathead minnow 8/ Green sunfish 1/ Creek chub 2/
Downstream WWTP (~2mi) Soo Rd X-ing 9-15-92	Central mudminnow 12/ Fathead minnow 42/ White sucker 2/ Creek chub 3/ Green sunfish 2/ Brook stickleback 43/ Central stoneroller 3/ Johnny darter 3
Downstream WWTP (~4mi) STH 28 X-ing 6-10-72	** Central mudminnow/ Fathead Minnow White Sucker/ Black Bullhead Perch/ Green Sunfish/ Northern Pike

210

110

67

** Data from Don Fago, qualitative data



*Additional segments
electroshocked in
1992*

10/18/92

Sewage Disposal

St. Pauls Sch.

Wayside Park

Wayside Park

Theresa Station

Union Cem

THE THERESA

104 change

LOMIRA CREEK

TRIENNIAL STANDARDS REVIEW VILLAGE OF LOMIRA WWTP

AUGUST 1991

MARK SESING, SOUTHERN DISTRICT

**BUREAU OF WATER RESOURCES MANAGEMENT
WISCONSIN DEPARTMENT OF NATURAL RESOURCES**

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SUMMARY

A review of habitat, biology and water quality of Lomira Creek supports changing the original designated use classification; i.e., Intermediate Fish and Aquatic Life [now called LFF(e), Limited Forage Fish Community] to a Warmwater Forage Fish use classification [WWFF(d)]. A change in the hydrologic classification, from noncontinuous to continuous, is also recommended.

INTRODUCTION

Lomira Creek is a small continuous flowing stream which originates in springs at Crystal pond within the Village of Lomira and flows southeasterly for approximately 10 kilometers (6 miles) where it joins the East Branch of Rock River.

Originating in the village, the stream's riparian land uses are urban residential, then changing to wetland and agricultural. Urban stormwater from village streets, agricultural runoff and discharges to the stream from the Village's WWTP (aerated stabilization lagoons) are significant.

The Village is permitted to discharge treated wastewater to Lomira Creek under WPDES Permit #WI-0020532-4.

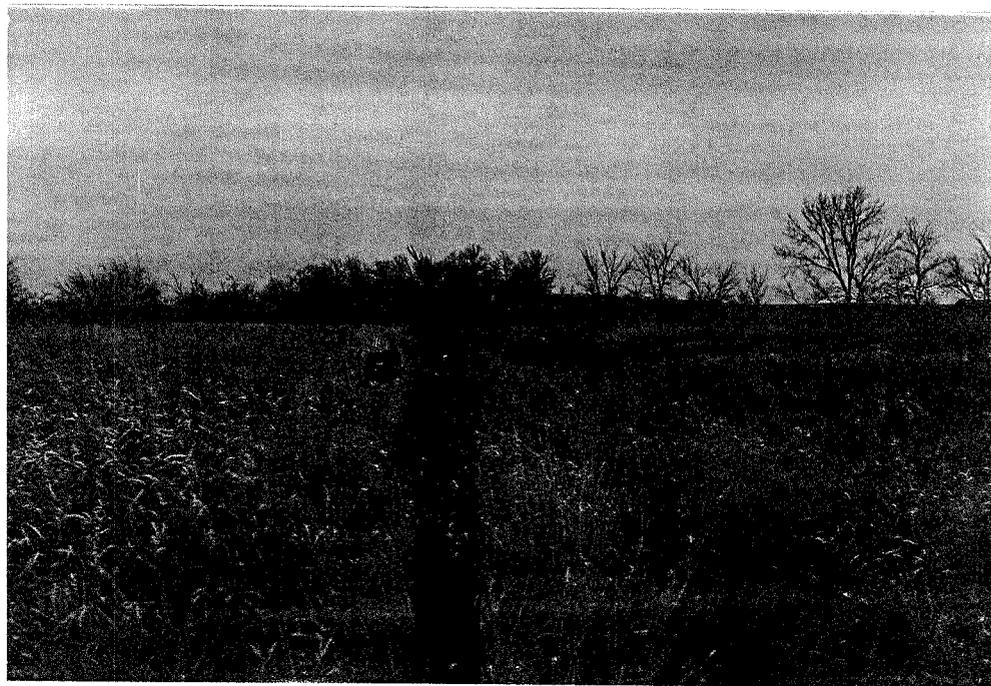
The Q7,10 is 0.22 CFS (*Soo Road*), and the drainage area upstream of this point is 6 sq. km. or 3.7 sq. mi. (*USGS, 1979*). The lower reaches of Lomira Creek are within the Theresa Marsh State Wildlife Area and flows are managed for waterfowl habitat during migratory periods.



Riffle at Lomira Ck. Upstream of WWTP



Lomira Ck Upstream of WWTP; Riparian Uses



Lomira Ck Downstream of WWTP: Riparian Uses

STREAM BIOLOGY, WATER QUALITY AND HABITAT

Ratings of the stream indicate good forage fish habitat. Watershed erosion and nonpoint sources are moderate. Riparian cover and stream depth provide good shelter for smaller fishes and other aquatic life. Upstream reaches with rubble, gravel, and sand substrate give way to a silt-detrital substrate as the stream enters grassy wetlands south of the Lomira WWTP. Embeddedness is 100% within the wetland reaches.

Overhead bank cover and vegetation provides very suitable forage fish cover. The width varied from 0.6 m to 3 m. Most of the reaches observed were less than 1.5 m in width. Depths averaged over 0.3 m and ranged from < 0.3 m to 1 m in pools. Channelization was not obvious in the inventoried segments although reaches within the village and segments downstream do appear to have been "ditched" at some time.

The available habitat at Lomira Creek does support a diverse community of forage fish and macroinvertebrates. Semi-qualitative backpack electroshocking on November 25, 1987 documented a relatively diverse and abundant forage fish population including C. mudminnows, fathead minnows, brook stickleback, northern creek chubs, and green sunfish among others (see Table).

Semi-qualitative macroinvertebrate sampling within a riffle reach upstream of the WWTP discharge indicates good water quality relative to organic pollution (HBI value: 4.88). The sample was dominated by amphipods, *Gammarus pseudolimneus*; larval black flies, *Sumulium vittatum*, and the caddisfly, *Hydropsyche betteni*. These organisms represent a moderate range of tolerance regarding organic pollution (see Appendix).

After reviewing all the available information regarding the biology, habitat and water quality of Lomira Creek, it is recommended that the designated biological use classification be changed to WWFF(d), Warmwater Forage Fish Community. It is further recommended that the hydrologic classification be changed from noncontinuous to continuous flow.

MXS:kas

WPSHARE\WR1LOMRA.MXS

MACROINVERTEBRATE FIELD AND BENCH SHEET

Department of Natural Resources

Form 3200-81

9-86

Sample ID # 871106-14-LC Waterbody Name Lomira Crk.
 Y Y M M D D Cnty Field #

Water Temp (Celsius) 4.5 Dissolved Oxygen (mg/l) 12.0

Sample Location: NE 3E 22 13N 17E Master Waterbody # 0864100
 1/16 1/4 Sec. Tn., Rng.

Project Name Lomira Crk. Standards Review Station # 0863

Ave. Stream Width (Ft.) at Site 4' Ave. Stream Depth (Ft.) at Site 1.5'

Collector JESING M Field # _____ Rep 1 Rep 2 Rep 3
 (Last Name, First Initial) Measured Velocity (fps) _____

Sorter _____ Est. Velocity (fps) V. Slow (<0.2)
 Est. % of sample sorted _____ Slow (0.2-0.5)
 Moderate (0.5-1.5)
 Fast (1.5->)

Taxonomist _____
 Location Description LC - Lomira Creek - at riffle area Sampled Habitat: 1. Riffle 2. Run
near bend by entrance fence gate to WWTP 3. Pool 4. Lake
(i.e. N.W. cor. of entry gate ~ 150')

Sampling Device: 1. D Frame, 2. Artificial Substrate, 3. Surber, Est. Time Spent Sampling (Min.) 3
 4. Other

Substrate at Site Location (%)
 Bedrock _____ Rubble (2.5 - 10.0" dia.) 40 Sand 10 Clay _____ Muck _____
 Boulders (10.0" dia.) _____ Gravel (0.1 - 2.5" dia.) _____ Silt _____ Detritus 10 Debris/Veg _____

Substrate Sampled (%) (Same as above LT)
 Bedrock _____ Rubble (2.5 - 10.0" dia.) 40 Sand 10 Clay _____ Muck _____
 Boulders (10.0 dia.) _____ Gravel (0.1 - 2.5" dia.) _____ Silt _____ Detritus 10 Debris/Veg _____

Aquatic Vegetation 10 % of Total Stream Channel at Sample Site

Observed Instream Water Quality Indicators (Perceived WQ: Excellent, Good, Fair, Poor)

	Not Present	Insignificant	Significant	Comments
Turbidity	(1)	2	3	
Chlorine or Toxic Scour	(1)	2	3	
Macrophytes	1	(2)	3	
Filamentous Algae	(1)	2	3	
Planktonic Algae	(1)	2	3	
Slimes	(1)	2	3	
Iron Bacteria	(1)	2	3	

Factors Which May Be Affecting Habitat Quality

	Not Present	Insignificant	Significant	Comments
Sludge Deposits	(1)	2	3	
Silt and Sediment	1	(2)	3	Downstream of WWTP, sediment is limiting substrate habitat
Channel Ditching	1	(2)	3	
Down/Up Stream Impoundment	1	2	(3)	
Low Flows	1	(2)	3	
Wetlands	1	(2)	(3)	Downstream wetland; detrital muck - substrate predominates

Pollutant Sources

	Not Present	Insignificant	Significant	Comments
Livestock Pasturing	(1)	2	3	
Barnyard Runoff	(1)	2	3	
Cropland Runoff	1	(2)	3	
Tile Drains	1	(2)	3	
Septic Systems	1	(2)	3	
Streambank Erosion	1	(2)	3	
Urban Runoff	1	2	(3)	Some urban runoff from the village of Lomira
Construction Runoff	1	(2)	3	
Point Source (Specify Type)	1	2	3	
Other (Specify)	1	2	3	? possible from industry

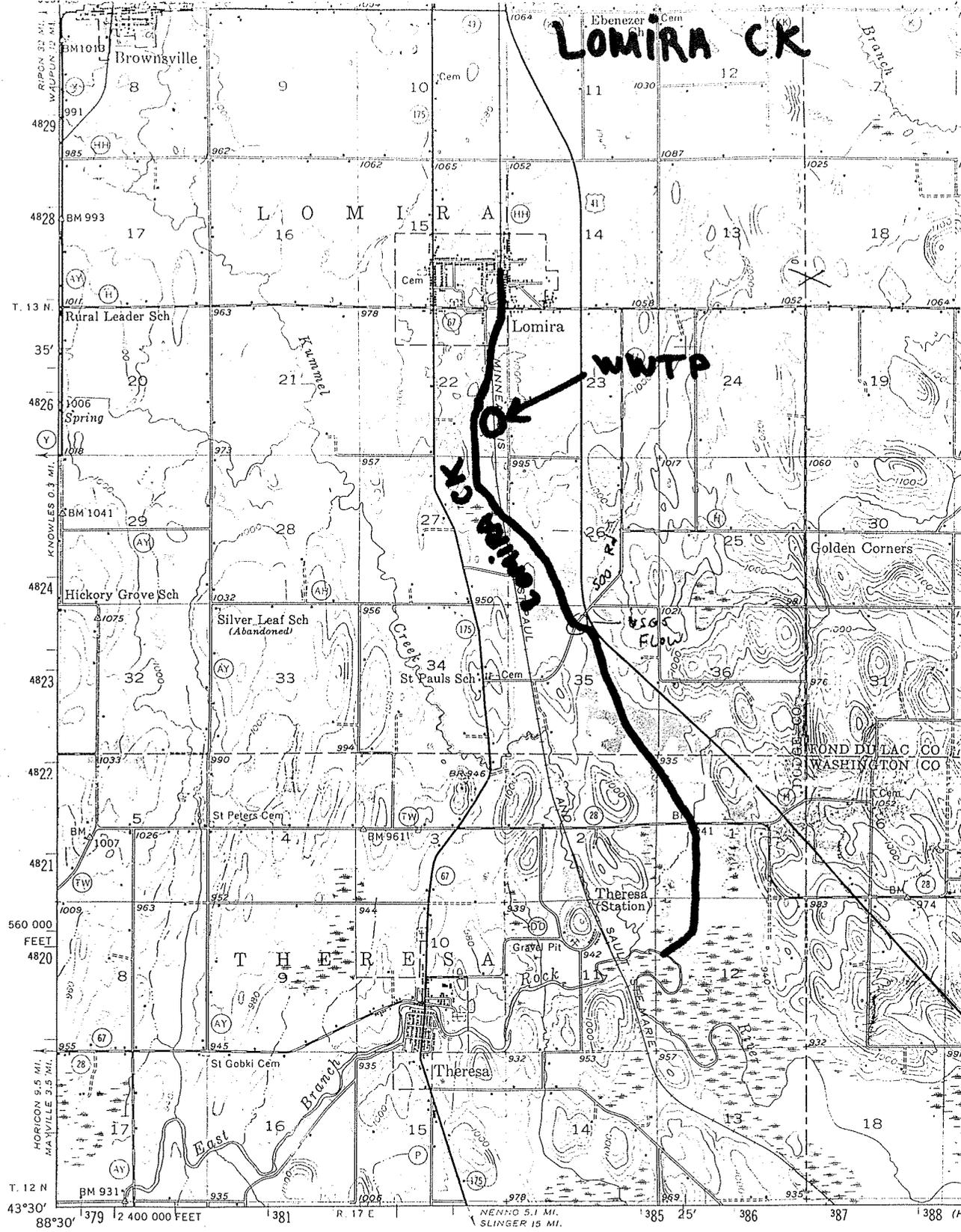
Stream Lomira Reach Location Lomira downstream to 300 Rd Reach Score/Rating 185
 County Dodge Date _____ Evaluator M. Seasing Classification WWFF (recc.)

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. 12	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. 14	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. 12	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' 20
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: _____

Column Scores E _____ +G _____ +F _____ +P _____ = 185 = Score

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



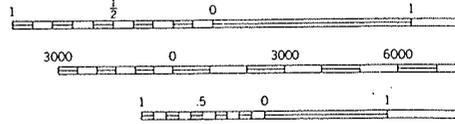
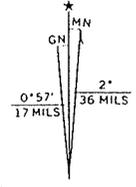
LOMIRA CK

WWTTP

WATERWAY

HORICON 3270

Mapped, edited, and published by the Geological Survey
 Control by USGS and USC&GS
 Topography from aerial photographs by Kelsh plotter
 and by planetable surveys 1955. Aerial photographs taken 1952
 Polyconic projection. 1927 North American datum
 10,000-foot grid based on Wisconsin coordinate system, south zone
 1000-meter Universal Transverse Mercator grid ticks,
 zone 16, shown in blue



CONTOUR
 DOTTED LINES R
 DATUM

THIS MAP COMPLIES WITH
 FOR SALE BY U. S. GEOLOGICAL SURVEY
 AND WISCONSIN, GEOLOGICAL AND NATURAL HISTORY DEPARTMENT
 A FOLDER DESCRIBING TOPOGRAPHIC

LOMIRA
DODGE COUNTY

July 16, 1975

The Lomira waste water treatment plant discharges its waste water to the Lomira Tributary which has a 7Q10 of .04 cfs. The Lomira Tributary flows south for approximately $4\frac{1}{2}$ miles before joining the East Branch of the Rock River near Theresa Station. The Lomira Tributary flows through open agricultural land as well as low wetland areas.

Two ponds located in Lomira used for recreational purposes supplied the headwaters of the Lomira Tributary with added flow. The Lomira Tributary is not a high quality stream; however, it is capable of supporting benthic life and forage fish species. The main concern in the classification of this stream would be the possible build up of nutrients in the Theresa Marsh. Nutrient monitoring should be conducted in this area to determine if a higher degree of nutrient removal is necessary.

RECOMMENDATIONS

The Lomira Tributary should be classified as noncontinuous intermediate fish and aquatic life.

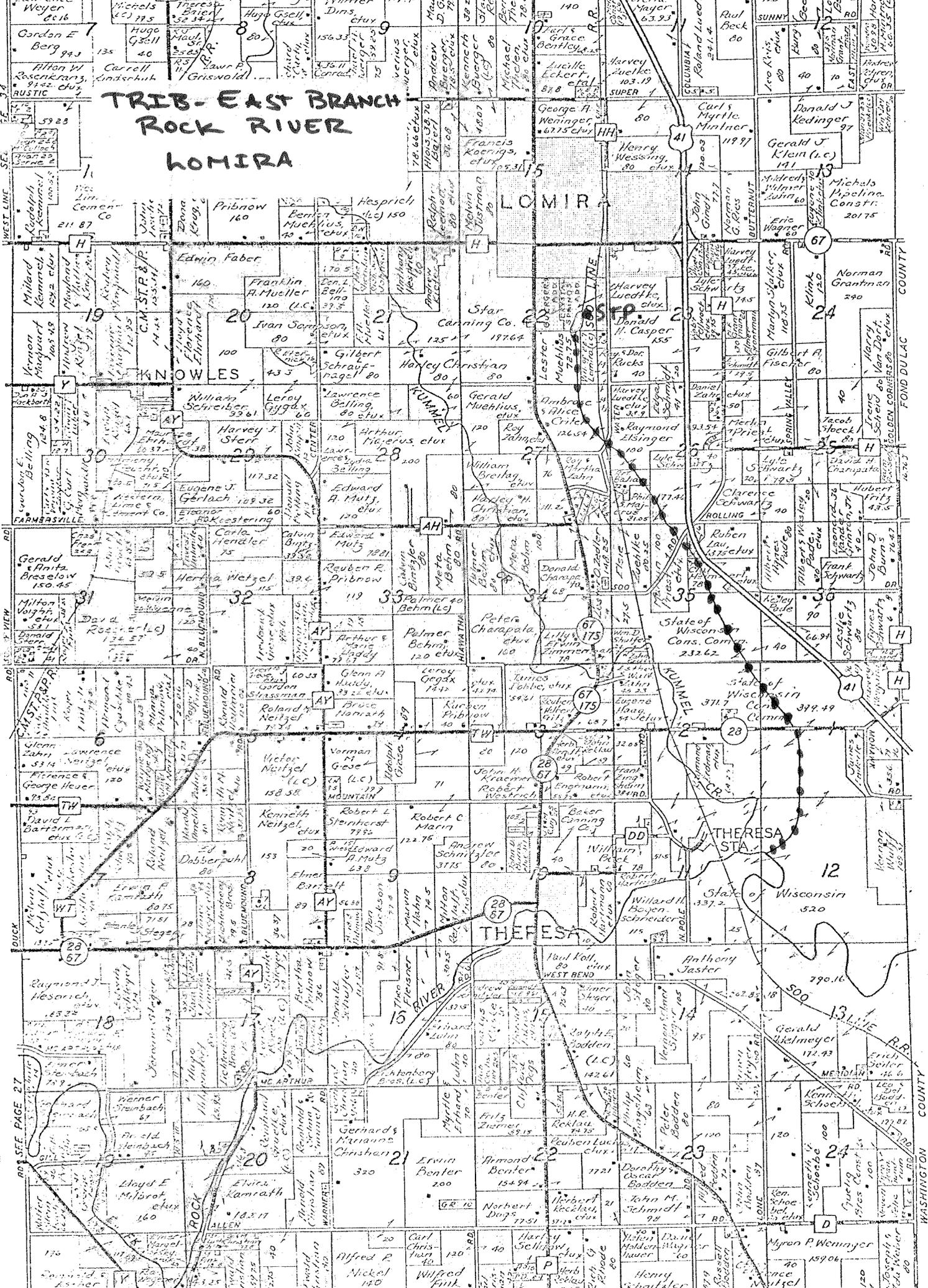
The above recommendations represent a concurrence of opinion of the stream classification team who are as follows:

Bob Weber, District Engineer; Jim Congdon, Area Fish Manager; and Tom Bainbridge, Stream Classification Coordinator.


Tom Bainbridge
Stream Classification Coordinator

TB:lg

TRIB-EAST BRANCH ROCK RIVER LOMIRA



LOMIRA

TERESA STA.

TERESA

WEST LINE
SE
5929
RD 34
RD 33
RD 32
RD 31
RD 30
RD 29
RD 28
RD 27
RD 26
RD 25
RD 24
RD 23
RD 22
RD 21
RD 20
RD 19
RD 18
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RD 14
RD 13
RD 12
RD 11
RD 10
RD 9
RD 8
RD 7
RD 6
RD 5
RD 4
RD 3
RD 2
RD 1
RD 0

FOND DU LAC COUNTY
WASHINGTON COUNTY



↑ LOMIRA- STP outfall Area.



← LOMIRA- First Town
Road Bridge below STP