

Region NER County Fond du Lac Report Date October 1993 and August 1975 Classification LFF
 Water Body: Alto Tributary to the South Branch of the Rock River
 Discharger: Alto Creamery

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 *for the reach upstream of Alto Creamery only.*
- ☐ 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 *Some ditching has occurred*
- ☐ 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
- ☐ 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) *None in the 1975 report. Good macroinvertebrate and fish data. HBI used.*
- ☐ Chemical Data (temp, D.O., etc.) *None in the 1975 report. None in the 1993 report. Previous discharge of hazardous substances from creamery mentioned but not identified or measured.*
- ☒ Physical Data (flow, depth, etc.) *None in the 1975 report although part of the stream is termed an "effluent ditch". Flow, depth described in 1993 report. Also riffle areas.*
- ☒ Habitat Description *None in the 1975 report. Good description in 1993 report of poor substrate, etc., although much of the problem has been caused by man and may be reversible.*
- ☒ Site Description/Map *Very general description in the 1975 report. OK description in 1993 report.*
- ☐ Other: _____

Historical Reports in file:

- Alto Co-OP Creamery - Fond du Lac County - Wastewater Receiving Stream Classification Report, Aug. 1975, 1p, 1map,
 - Alto Tributary to the South Branch of the Rock River Triennial Standards Review, October 1993, 3p, 1map, 3 photos.

Additional Comments/How to improve report:

- Only a portion of the stream is described as an effluent ditch. The other portion seems to have been impacted by agricultural runoff, ditching, sedimentation from grazing and erosion, etc. These impacts may not be irreversible.*

Fond du Lac
County

ALTO TRIBUTARY TO THE
SOUTH BRANCH OF THE ROCK RIVER

TRIENNIAL STANDARDS REVIEW

OCTOBER 1993

RICHARD DREHER / MARK SESING

SOUTHERN DISTRICT

BUREAU OF WATER RESOURCE MANAGEMENT
WISCONSIN DEPARTMENT OF NATURAL RESOURCES

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SUMMARY

After reviewing information relating to stream habitat, water quality, and biology, it is recommended that the Alto Tributary remain classified as a Limited Forage Fish Community, LFF(e).

The tributary received a variance from full fish and aquatic life standards for one or more of the following reasons: ^{? which?}

- a) The presence of in-place pollutants;
- b) Low natural stream flow;
- c) Natural background conditions;
- d) Irretrievable cultural alterations.

Recreational uses would be limited to partial body contact only, due to limited depths and substrate qualities.

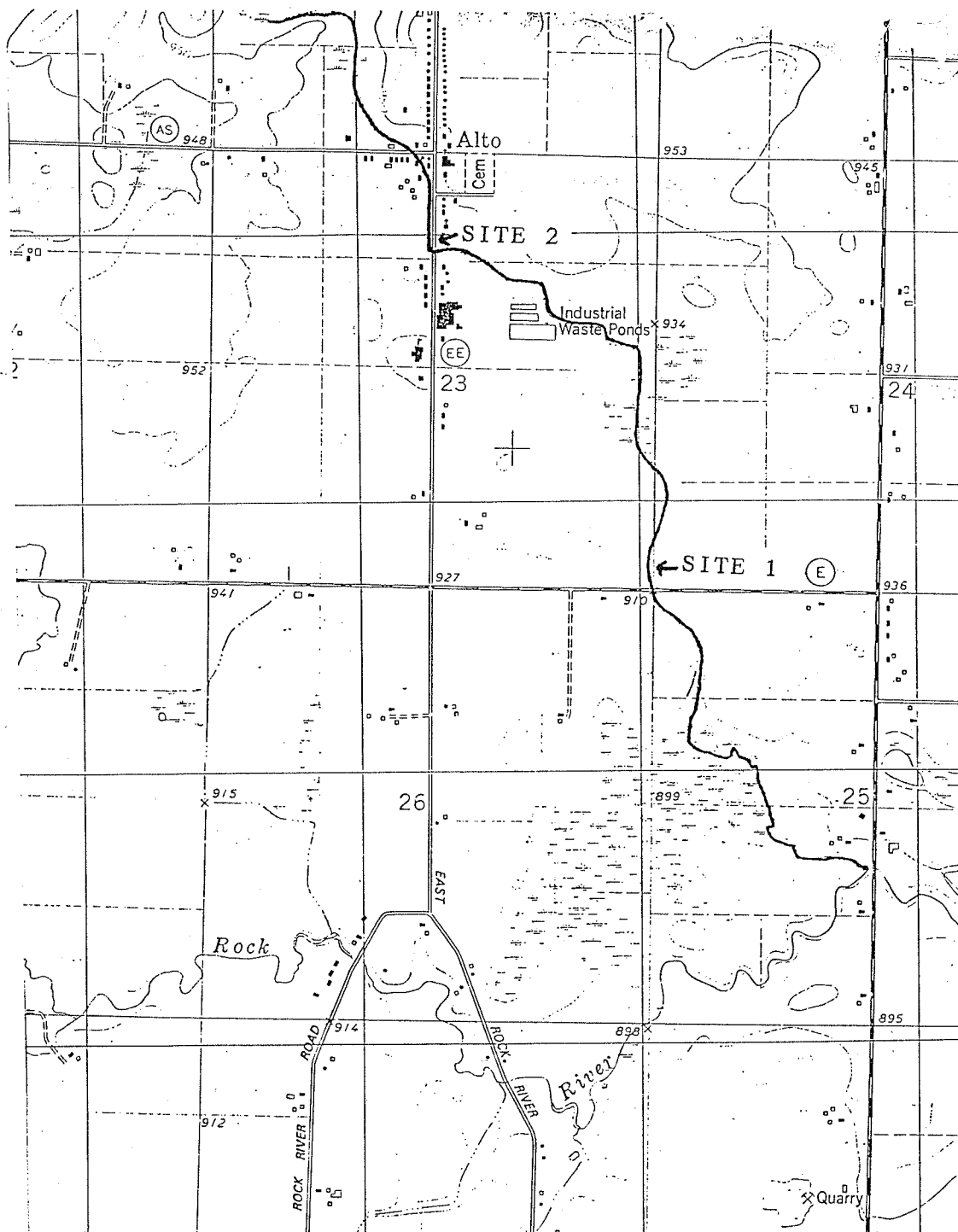
GENERAL DESCRIPTION

The Alto Tributary originates in wetlands near the town of Alto, flows past the Alto Creamery, and then continues southeast to connect with the Rock River South Branch near State Highway 49 (see map). It is generally a shallow (<3 ft.), narrow stream with an average width less than 4 feet.

Habitat and water quality conditions are poor. Pasturing close to the stream and nearby cropland runoff has resulted in the stream not reaching it's full biological potential (photo 1). Discharges of hazardous substances in the past from the Alto Coop Creamery have also caused degradation of the stream.

ALTO TRIBUTARY - MONITORING SITES

June, 1991



STREAM HABITAT, WATER QUALITY, BIOLOGY

-UPSTREAM FROM ALTO CREAMERY

From the stream's origin up until the Alto Coop Creamery, the stream has a very low flow. The width is usually less than 3 feet with depths ranging from 1-2 feet. Average stream velocity is very slow (<0.5 fps.) with fish life limited. The low flow is very limiting with respect to supporting any stable aquatic life.

Macroinvertebrate communities in this upstream portion indicate poor conditions with significant organic pollution. The family Physidae comprised over 65% of the macroinvertebrates collected with the stream having an HBI value of 7.04 placing this site in the "fairly poor" category according to Hilsenhoff's interpretation of biotic index values.

Habitat conditions are not conducive for supporting full fish and aquatic life. Fine organic silt and mud dominate the substrate. Some detritus material is present, along with a slight amount of sand and gravel. Imbeddedness is often near 100% and no riffled areas are present.

Instream vegetation is very limited. There is approximately 10% instream cover with the riparian area dominated by tall grasses. The upstream stretch has no wooded areas.

-DOWNSTREAM FROM ALTO CREAMERY

Downstream from the Alto Creamery, the riparian areas are dominated by grassy wetlands and cropland. The row cropping along with nearby pastures, causes severe habitat degradation. The stream has also been ditched which has resulted in a loss of habitat for fish and wildlife (photo 2).

The fish life in the downstream portion are mostly tolerant or very tolerant forage species. They include the central stoneroller, creek chub, white sucker, and mudminnow (App. 1).

The HBI downstream from Alto is 6.45. This indicates fairly poor water conditions with significant organic pollution present. The two major macroinvertebrate families found here, Talitridae and Baetidae, are tolerant of the pollution.

Stream habitat is variable. Although some areas are nearly covered by 75% vegetation, most of the stream lacks any suitable habitat. Some detritus is present along the mud-muck bottom. Siltation is heavy with embeddedness high. Any riffing is rare except for one segment directly below the bridge on Lake Maria Road. Riparian area vegetation is mainly tall grasses, with a few scattered woodlots or row cropped fields.

Wetland losses in this section are evident due to both cropping and pasturing which occurs directly in the wetland (photo 3). Ditching has also caused a loss of wetland areas.

Principle limiting factors and threats to full potential use include limited habitat due to sedimentation from cropland, ditching, grazing, and streambank erosion. Hazardous discharges from the creamery could also threaten the future biological use of the tributary.

After reviewing all the available information regarding the biology, habitat, and water quality of Alto Tributary, it is recommended that the designated biological use classification remain LFF(e), Limited Forage Fish Community.



Photo 1 - Near site 2.
Upstream from Alto
Creamery. Row cropping
increases the erosion
potential. Bank cover
is dominated by grasses.

Photo 2 - Upstream of Lake
Maria Road (site 1).
Channelization is severe
limiting habitat.



Photo 3 - Upstream of site 1.
Pasturing occurs in wetlands
near Alto Trib. The stream
flows through the tall grass
in the picture.

FISH MONITORING / JUNE 26, 1991

ALTO TRIBUTARY - DOWNSTREAM

central stoneroller	4
creek chub	6
5-spined stickleback	2
mudminnow	1
white sucker	2
sunfish	1

* Upstream from the Alto Creamery was not monitored in respect to fish since flow and depth limited the fish population here.

Appendix 1

Stream Rack-S.B Reach Location site 1 below bridge Reach Score/Rating 185
 County FOL Date 6/26/91 Evaluator Sesing/Dreher/Esler 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 6" to 1'	6 3" to 6"	18 <3"
	Warm >1.5'	0 10" to 1.5'	6 6" to 10"	18 <6"
Avg. Depth of Pools	Cold >4'	0 3' to 4'	6 2' to 3'	18 <2'
	Warm >5'	0 4' to 5'	6 3' to 4'	18 <3'
Flow, at Rep. Low Flow	Cold >2 cfs	0 1-2 cfs	6 .5-1 cfs	18 <.5 cfs
	Warm >5 cfs	0 2-5 cfs	6 1-2 cfs	18 <1 cfs
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:

22163

Column Scores

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

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

10:30 A.M.

PHYSICAL CHARACTERIZATION/WATER QUALITY
FIELD DATA SHEET

Below bridge
hwy E

PHYSICAL CHARACTERIZATION

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest Field Pasture Agricultural Residential Commercial Industrial Other

Local Watershed Erosion: None Moderate Heavy

Local Watershed NPS Pollution: No evidence Some Potential Sources Obvious Sources

Estimated Stream Width _____ m Estimated Stream Depth: Riffle _____ m Run _____ m Pool _____ m

High Water Mark _____ m Velocity _____ Dam Present: Yes _____ No _____ Channelized: Yes _____ No _____

Canopy Cover: Open Partly Open Partly Shaded Shaded

SEDIMENT/SUBSTRATE:

Sediment Odors: Normal Sewage Petroleum Chemical Anaerobic None Other

Sediment Oils: Absent Slight Moderate Profuse

Sediment Deposits: Sludge Sawdust Paper Fiber Sand Relict Shells Other Silt

Are the undersides of stones which are not deeply embedded black? Yes No

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
<u>Bedrock</u>		
Boulder	>256-mm (10 in.)	
Cobble	64-256-mm (2.5-10 in.)	
Gravel	2-64-mm (0.1-2.5 in.)	
Sand	0.06-2.00-mm (gritty)	
<u>Silt</u>	.004-.06-mm	
Clay	<.004-mm (slick)	

moderate
Organic Substrate Components

Substrate Type	Characteristic	Percent Composition in Sampling Area
<u>Detritus</u>	Sticks, Wood, Coarse Plant Materials (CPOM)	
<u>Muck-Mud</u>	Black, Very Fine Organic (FPOM)	
Marl	Grey, Shell Fragments	

WATER QUALITY

Temperature 20.5 °C Dissolved Oxygen 11.5 pH 8.1 Conductivity _____ Other _____

Instrument(s) Used _____

Stream Type: Coldwater Warmwater

Water Odors: Normal Sewage Petroleum Chemical None Other

Water Surface Oils: Slick Sheen Globa Flecks None

Turbidity: Clear Slightly Turbid Turbid Opaque Water Color Brown

WEATHER CONDITIONS

PHOTOGRAPH NUMBER

site 1

Below bridge hwy E

6/26/91 10:30 AM

Stream Reach Type	Run	
Stream Reach Length meter	150	
Stream Reach Depth (ft.)		
present	1.5'	
$\bar{z}$ max. present		
$\bar{z}$ low flow		
Stream Reach Width (ft.)		
$\bar{x}$ present	13'	
$\bar{x}$ high flow		
$\bar{x}$ low flow		
Substrate Size (Min. 10%)		
Detritus (P/Present)		
Clay		
Silt	70	
Sand	10	
Gravel .25"-3.0"	10	
Rubble 3.01"-12.0"	10	
Boulder >12.01"		
Bedrock		
Velocity $\bar{x}$ present (m e)	.5	
Vel. max. present		
Gradient	low	
Bottom Deposition (Min. 10%)		
% area bottom covered	90	
$\bar{x}$ depth sediment	~~0.75'~~	
max. depth sediment	1.0'	
deposition type	lateral	
Material Comp. (Min. 10%)		
detritus		
silt	100	
sand		
gravel		
Overhead Bank Cover		
$\bar{x}$ bank width *0', <.25', <.5' etc.		
% of reach (10% Min.)		
$\bar{x}$ depth below bank *		
$\bar{x}$ bank + veg. width *		
% of reach (10% Min.)		
$\bar{x}$ depth below bank+veg.*		
Instream Cover Rating		
↑ Cover Material (Min. 10%)		
1=np rock/bould. (P/Present)ff	10	
2=ff log/tree/roots	20	
3=gf debris (other)		
4=fg instream veg.	30 ~~20~~ 50	
5=gg bank+veg. (terrestrial)	50	
depth/channel morph.		
% Shading (0, 25, 50, 75, 100)		
Aquatic Veg. (Min. 10%) macro	30	
% coverage meso		
Floodplain Vegetation Type		
Purple Loosestrife	NO	
r Bank Height		
Bank Stability % >90 >70 >50 <50	70	
Lower Bank Deposition	High	
Channelization	NO	
Comments		

Stream SBr Rock Reach Location site 2 - 1st br. lge down of A170 Reach Score/Rating 210
 Junty FDL Date 6/26/91 Evaluator Sesun / Dreier / ESR Classification _____
9:30 AM

Rating Item	Category			
	Excellent	Good	Fair	Poor
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Avg. Depth Riffles and Runs	Cold >1'	0	6" to 1'	6
	Warm >1.5'	0	10" to 1.5'	6
Avg. Depth of Pools	Cold >4'	0	3' to 4'	6
	Warm >5'	0	4' to 5'	6
Flow, at Rep. Low Flow	Cold >2 cfs	0	1-2 cfs	6
	Warm >5 cfs	0	2-5 cfs	6
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 (15)	Stream does not enhance aesthetics. Condition of stream is offensive. 16

Column Totals:

Column Scores

E

+G

+F

+P

=

210

= Score

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

6/26/91
9:30 a.m.

PHYSICAL CHARACTERIZATION/WATER QUALITY
FIELD DATA SHEET

PHYSICAL CHARACTERIZATION

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest Field/Pasture Agricultural Residential Commercial Industrial Other

Local Watershed Erosion: None Moderate Heavy

Local Watershed NPS Pollution: No evidence Some Potential Sources Obvious Sources

Estimated Stream Width m Estimated Stream Depth: Riffle m Run m Pool m

High Water Mark m Velocity Dam Present: Yes No Channelized: Yes No

Canopy Cover: Open Partly Open Partly Shaded Shaded

SEDIMENT/SUBSTRATE:

Sediment Odors: Normal Sewage Petroleum Chemical Anaerobic None Other

Sediment Oils: Absent Slight Moderate Profuse

Sediment Deposits: Sludge Sawdust Paper Fiber Sand Relict Shells Other Silt

Are the undersides of stones which are not deeply embedded black? Yes No

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
Bedrock		
Boulder	>256-mm (10 in.)	
Cobble	64-256-mm (2.5-10 in.)	
Gravel	2-64-mm (0.1-2.5 in.)	
Sand	0.06-2.00-mm (gritty)	
Silt	.004-.06-mm	
Clay	<.004-mm (slick)	

Organic Substrate Components

Substrate Type	Characteristic	Percent Composition in Sampling Area
<u>Detritus</u>	<u>Some</u> Sticks, Wood, Coarse Plant Materials (CPOM)	
<u>Muck-Mud</u>	Black, Very Fine Organic (FPOM)	
Marl	Gray, Shell Fragments	

WATER QUALITY

Temperature 16.9 C Dissolved Oxygen 7.0 pH 7.7 Conductivity Other

Instrument(s) Used

Stream Type: Coldwater Warmwater

Water Odors: Normal Sewage Petroleum Chemical None Other

Water Surface Oils: Slick Sheen Globs Flecks None

Turbidity: Clear Slightly Turbid Turbid Opaque Water Color

to turbid

WEATHER CONDITIONS

PHOTOGRAPH NUMBER

Site 2

Below Alto 9:30 AM 6/26/91

stream Reach Type	Run	
stream Reach Length	All run (as far as can be seen)	
stream Reach Depth (ft.)		
- present	.5'	
z max. present		
z low flow		
stream Reach Width (ft.)		
x present	3'	
x high flow		
x low flow		
substrate Size (Min. 10%)		
Detritus (P/Present)		
Clay		
Silt	70	
Sand	10	
Gravel .25"-3.0"	10	
Rubble 3.01"-12.0"	10	
Boulder >12.01"		
Bedrock		
velocity x present (m e)	.1 (minimal movement)	
Vel. max. present		
gradient	low	
bottom Deposition (Min. 10%)		
% area bottom covered	80	
x depth sediment		
max. depth sediment	4'	
deposition type	lateral	
Material Comp. (Min. 10%)		
detritus		
silt	100	
sand		
gravel		
overhead Bank Cover		
x bank width *0', .25', .5' etc.		
% of reach (10% Min.)		
x depth below bank *		
x bank + veg. width *		
% of reach (10% Min.)		
x depth below bank+veg.*		
instream Cover Rating		
↑ Cover Material (Min. 10%)		
=np rock/bould. (P/Present) fl	20	
=ff log/tree/roots		
=gf debris (other)		
=fg instream veg.	20	
=gg bank+veg. (terrestrial)	60	
depth/channel morph.		
% Shading (0, 25, 50, 75, 100)		
Aquatic Veg. (Min. 10%) macro	10	
% coverage meso		
Floodplain Vegetation Type		
Purple Loosestrife	No	
or Bank Height		
Bank Stability % >90 >70 >50 <50	70	
Lower Bank Deposition	high	
Channelization	No	
Comments		

Silt

Alto Co-op Creamery - Fond du Lac County

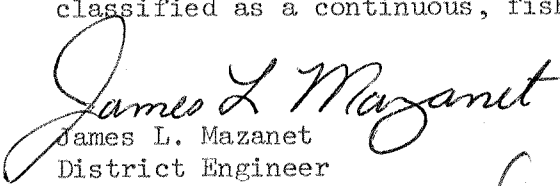
Wastewater Receiving Stream Classification

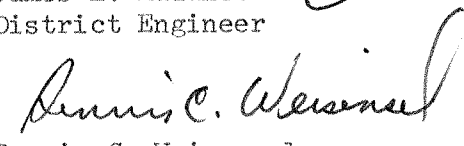
Survey Date: 8-6-75

The Alto Co-op Creamery has two discharges. One discharge consists of cooling water, and goes to a non-continuous stream. The other discharge consists of treated process wastewater. This discharge goes to a ditch which joins the non-continuous stream at point 2, (see map). The stream flows through agricultural land and joins the Rock River near State Highway "49". The stream is dry above County Highway "EE" during dry periods. South of County Highway "E", there is evidence of past ditching, probably done for drainage reasons.

Recommendations

Classify the discharge from the plant (pt. 1) to the confluence with the cooling water discharge (pt. 2) as an effluent ditch. From point 2 to the confluence with the Rock River the stream shall be classified as a non-continuous intermediate aquatic life use stream. The Rock River shall be classified as a continuous, fish and aquatic life stream.


James L. Mazanet
District Engineer


Dennis C. Weisensel
District Biologist

JLM:DCW:sh

ALTO



W
W
I
C

COOLING
WATER



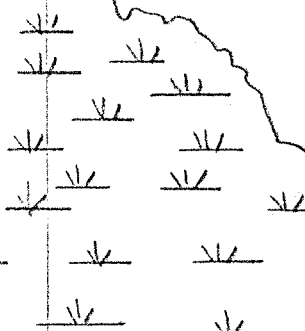
①

ALTO CO-OP
CREAMERY

②

CTH 'E'

STH '49'



③

RIVER

ROCK



Confluence of stream with Rock River
near State Highway "49".



Rock River looking east from County
"49" bridge.



Dry streambed at County "EE" above
Alto Co-op Creamery.



Stream at County "EE" below Alto
Co-op Creamery.