

Region WCR County St LOUIS Report Date 8/1990 Classification LFF
 Water Body: Baldwin Creek Rush River & Trib to
 Discharger: Baldwin POTW

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
- 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
- } lowers like data is available... somewhere

Historical Reports in file:

- 8/9/1990 - Paul Laliberte
- 12/1/80 - Paul Laliberte
- 9/9/81 - Sam Spanel
- 9/22/76 - Terry Moe
- 5/25/76 - Lewis Seymour, et al.

Additional Comments/How to improve report:

- DB says LFF -- should it be LFF or LAL?
- natural limitations on stream - (low flow)
- appears as if there are "un-natural" factors - how do they affect stream & can they be controlled?

- check w/ region on this classn

CORRESPONDENCE/MEMORANDUM

STATE OF WISCONSIN

Date: August 9, 1990

To: Duane Schuettpelez - WR/2

From: Paul LaLiberte *Paul*

File Ref:

Subject: Water Quality Standards Review for the Headwaters of the Rush River near Baldwin

The water quality standards and classification of the streams in this area were last evaluated in 1986. Since that time, no additional stream data has been collected. An inspection conducted on 5/15/90 found substantial flow in the Baldwin tributary above the Baldwin POTW and in the Rush River above the confluence with the Baldwin tributary. Significant rain had fallen in the 24 hours preceding the inspection. At the 30th Avenue Bridge, flow in the Rush River had fallen to only 1-2 cfs. This point is about four miles below the outfall and one mile above the continuously flowing origin of the Rush River. The former practice of diverting wastewater to a storage lagoon for later irrigation of agricultural crops has not been practiced for two years.

The stream classification and surface water quality standards specified in 1986 should remain in effect for these water bodies. Compliance with Wisconsin's groundwater quality standards, NR 140, Wisconsin Administrative Code (first enacted in 1985) has never been addressed at this site. The effluent from the POTW, which has a design flow of 0.4 mgd, seeps to groundwater within one mile of the discharge point. Since the wastewater enters the groundwater off the POTW property, existing regulatory mechanisms cannot be readily applied. A mechanism for addressing compliance with groundwater standards at this site, and other similar sites around the state, should be developed.

c: P. Skorseth - Baldwin
WR/PL022.sz

STREAM CLASSIFICATION FOR THE RUSH RIVER
AND THE BALDWIN TRIBUTARY TO THE RUSH RIVER IN
THE VICINITY OF BALDWIN, WISCONSIN

A continuous stream, referred to as the Baldwin Tributary to the Rush River, originates in wetlands near SW, SW, T29N, R16W, Sec. 29. Most natural water sources of the Baldwin Tributary are noncontinuous in nature. A significant, continuous water source to the Baldwin Tributary is the Mid-America Dairymen Creamery cooling water outfall. The Baldwin POTW effluent ($Q_p = 0.24$ cfs) is discharged to the Baldwin Tributary about 100 feet above the confluence with the Rush River. The Rush River is a noncontinuous stream upstream from NW, NW, T28N, R17W, Sec. 26 (5 miles south of Baldwin). The only segment of the Rush River in the Baldwin area that contains water under low flow conditions is a 1/2 to 1 1/2 mile reach below the confluence with the Baldwin Tributary. The USGS has not published low flow estimates in the area for either stream because the summer low flow is primarily effluent. The area drained by the Rush River upstream from I-94 is approximately 15 square miles.

On 7/28/82, the POTW effluent was being diverted to irrigate agricultural crops, and the upstream flow in the Baldwin Tributary stopped before reaching the POTW outfall pipe. At that time, a 1/2 mile segment of the Rush River below the Baldwin Tributary contained standing water in pools. On 6/18/74 the POTW was discharging at a rate of 0.11 cfs, and the flow in the Baldwin Tributary above the POTW outfall was 0.17 cfs. Under those conditions, measurable flow was found in the Rush River about 1/2 mile below the confluence with the Baldwin Tributary, and standing water extended to 1 1/2 miles below the confluence. Flow conditions in the area on 11/3/82 were similar to those observed on 6/18/74.

The Baldwin Tributary generally ranges from 1 to 5 feet wide and up to 1 foot deep in pools. Watershed land use is agricultural and urban. The stream banks are fairly well protected by vegetation. A small, apparently man-made, rock and earthen dam behind the POTW (about 200 feet above the effluent outfall) is the likely downstream extent of continuous stream at low flow.

The 1/2 mile segment of the Rush River below the Baldwin Tributary is a series of pools and braided channels. These pools range from 15 to 200 feet in length with a maximum depth at low flow of about 4 feet. Some of the pools are the result of beaver dams. Aquatic vegetation is present in the pools and they have silty bottoms. The adjacent land use is residential and agricultural. The stream banks are generally well vegetated.

Both above and below this 1/2 mile segment, the bed of the Rush River is characterized by terrestrial vegetation and adjacent land use is agriculture. Agricultural practices would be expected to have significant impact on the water quality in these segments of the river.

Paul J. Jiruch
12-1-86

A3. Noncontinuous marginal (Class E) for the Baldwin Tributary below the downstream extent of water at representative low flow and for the Rush River upstream from its continuous origin in NW, NW, T28N, R17W, Sec. 26 (5 miles south of Baldwin) - flow is present only seasonally.

B. In the presence of continuous discharges at the present locations.

B1. Noncontinuous marginal (Class E) for the Baldwin Tributary upstream from the wetlands in SW, SW, T29N, R16W, Sec. 29 - flow is present only seasonally.

B2. Continuous intermediate (Class D) for the Baldwin Tributary from the wetland origin to the vicinity of the Baldwin POTW - use is limited to warmwater forage fish by habitat and water quality.

B3. Noncontinuous marginal (Class E) for the Baldwin Tributary from the vicinity of the Baldwin POTW to the POTW effluent outfall (about 200 feet) - flow present only seasonally.

B4. Continuous intermediate (Class D) for the Baldwin Tributary downstream from the Baldwin POTW outfall and for the Rush River from the confluence with the Baldwin Tributary extending downstream 1/2 to 1 1/2 miles - water quality and habitat limit use.

B5. Noncontinuous marginal (Class E) for the Rush River from a point about 1 mile downstream from the confluence with the Baldwin Tributary extending downstream to the vicinity of NW, NW, T28N, R17W, Sec. 26, and for the Rush River above the confluence with the Baldwin Tributary - flow present only seasonally.

B6. Continuous fish and aquatic life (Class B) for the Rush River downstream from a point in NW, NW, T28N, R17W, Sec. 26 - upstream extent of continuous flow.

Recreational Use

The recreational use potential of the Baldwin Tributary and adjacent Rush River is limited by small size, shallow depth, and poor accessibility. The anticipated recreational activities would be those related to partial body contact, such as wading and trapping, where immersion of the head is infrequent and contact is accidental or incidental. Therefore, it is recommended that recreational use be classified as partial body contact.

INFORMATION SOURCES USED IN CONDUCTING THIS EVALUATION

Flow Characteristics - Based on field observations made on 6/18/74, 8/25/75, 7/28/82, 11/3/82, and 4/6/83, and a USGS map.

Water Quality - Field measurements and samples collected on 6/18/74, 11/3/82, and 4/6/83.

Habitat Rating - Completed habitat rating forms (described in Stream Classification Guidelines for Wisconsin) at 2 sites on 7/27/82.

Macroinvertebrates - Samples collected from the Rush River and the Baldwin Tributary on 5/3/79, 11/3/72, and 4/6/83.

Fish - Electrofishing surveys in 1976, 1980, 1981, and 1982, and field observations on 7/28/82.

FISH DATA

Rush River at Hwy Y Bridge - 1976

Mottled sculpin	A
Blacknose dace	A
Rainbow darter	P
Johnny darter	P
Fantail darter	P
White sucker	C
Bigmouth shiner	C
Bluntnose minnow	C

Baldwin Tributary 1980-82

White sucker	C
Creek chub	C
Fathead minnow	C
Green sunfish	P
Carp	P
Brown trout	P (A few left from trial stocking)

PLT069

In the presence of effluents from Mid-America Dairyman and Baldwin POTW

Noncontinuous
E 26

B5

Noncontinuous
E

Continuous
D

B4

B2
↑
Continuous D

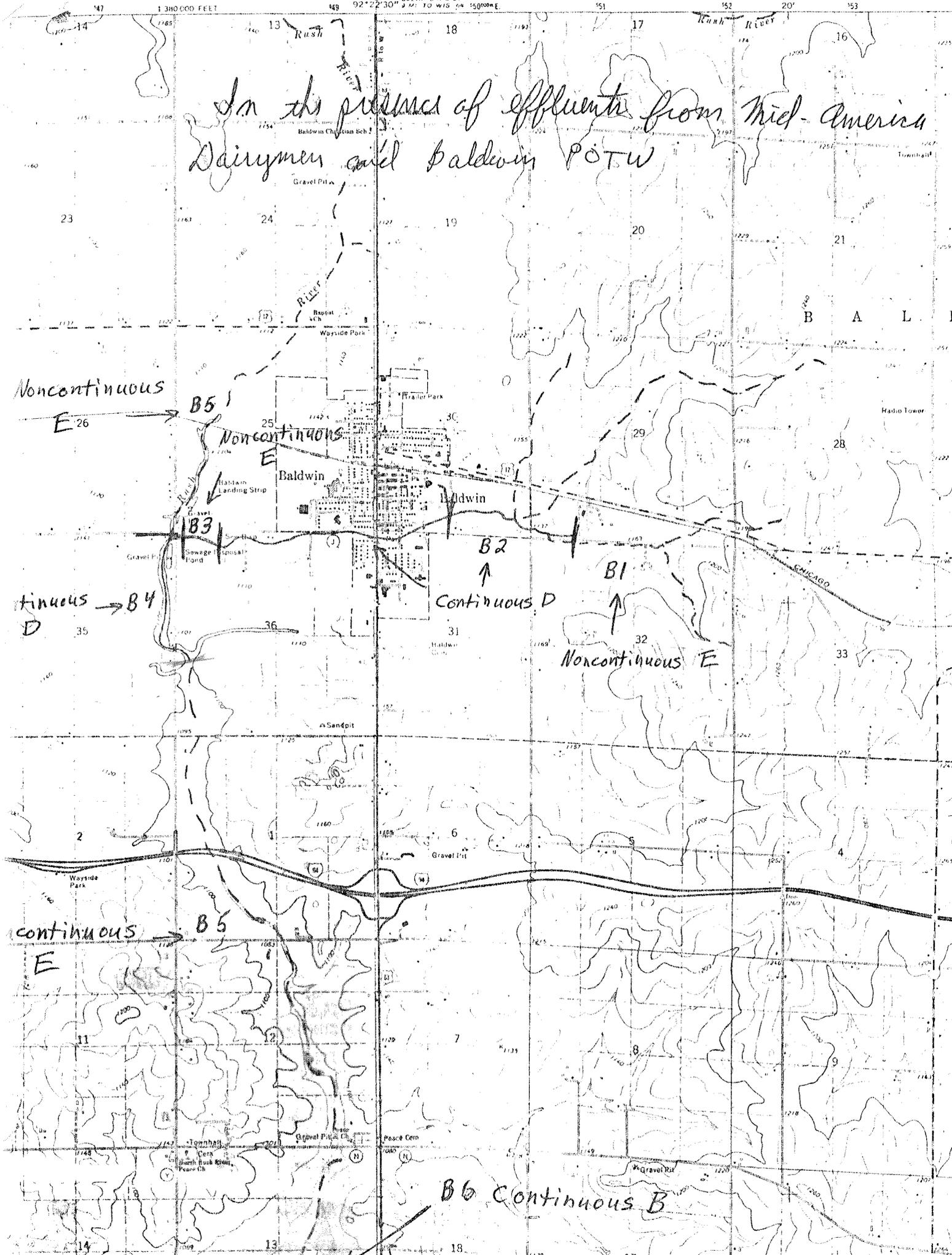
B1
↑

Noncontinuous E

continuous
E

B5

B6 Continuous B



Typical site - vicinity of row holding pond

STREAM SYSTEM HABITAT RATING FORM

Trib. to
Stream Rush R.

Reach Location From 1st downstream (below STP) bridge to STP

Reach Score/Rating 169

County St. Croix

Date 7-27-82 Evaluator LaLiberte

Classification Fair

Rating Item	Category			
	Excellent	Good	Fair	Poor
1. <u>Watershed Erosion</u>	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 runoff. 16
2. <u>Watershed Nonpoint Source</u>	No evidence of significant source. Little potential for future problem. 4	Some potential sources. (roads, urban area, farm fields). (8)	Moderate sources. (Small wetlands, tile fields, urban area, intense agriculture). 16	Obvious sources. (Major wetland drainage, high use urban or industrial area, feed lots, impoundment). 20
3. <u>Bank Erosion, Failure</u>	No evidence of significant erosion or bank failure. Little potential for future problem. (7) 6	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 9	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 15	Many eroded areas. "Raw" areas frequent along straight sections and bends. 18
4. <u>Bank Vegetative Protection</u>	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. (7) 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
5. <u>Lower Bank Channel Capacity</u>	Ample for present peak flow plus some increase. Peak flows 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 to 25. (14) (15)	Inadequate, overbank flow common. W/D ratio > 25. 16
6. <u>Lower Bank Deposition</u>	Little or no enlargement of channel or point bars. (6) 6	Some new increase in bar formation, mostly from course gravel. 9	Moderate deposition of new gravel and course sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
7. <u>Bottom Scouring and Deposition</u>	Less than 5% of the bottom affected by scouring and deposition. 4	5 to 30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30 to 50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. (16) (17)	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. 20

Rating Item	Category							
	Excellent		Good		Fair		Poor	
8. <u>Bottom Substrate</u>	Greater than 50% rubble, gravel or other stable habitat.	2	30 to 50% rubble, gravel or other stable habitat. Adequate habitat.	7	10 to 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
9. <u>Average Depth at Rep. Low Flow</u>	Greater than 24".	0	12" to 24".	6	6" to 12".	18	Less than 6".	24
10. <u>Flow, at Rep. Low Flow</u>	Warm water, >5 cfs. Cold water, >2 cfs	0	Warm water, 2 to 5 cfs. Cold water, 1 to 2 cfs.	6	Warm water, .5 to 2 cfs. Cold water, .5 to 1 cfs. Continuous blow.	18	Less than .5 cfs. Stream may cease to flow in very dry years.	24
11. <u>Pool/Riffle, Run/Bend Ratio</u>	5 to 7. Variety of habitat. Deep riffles and pools.	4	7 to 15. Adequate depth in pools and riffles. Bends provide habitat.	8	15 to 25. Occasional riffle or bend. Bottom contours provide some habitat.	16	Greater than 25. Essentially a straight stream. Generally all "flat water" or shallow riffle. Poor habitat.	20
12. <u>Aesthetics</u>	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 Total Without Effluent --

Column Total With Effluent --

Add Column Scores Without Effluent, E 0 + G 31 + F 29 + P 144 = Reach Score 230

Add Column Scores With Effluent, E _____ + G _____ + F _____ + P _____ = Reach Score 230

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

0258T

STREAM SYSTEM HABITAT RATING FORM

typical site - 1st run on 2-05 + 4-02

Stream Rush R

Reach Location Rush R 1mi - 5mi below Baldwin Trib

Reach Score/Rating 230

County St Croix

Date 7-28-82 Evaluator L. L. Lohrte Esq.

Classification Poor

Rating Item	Category			
	Excellent	Good	Fair	Poor
1. <u>Watershed Erosion</u>	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 runoff. 16
2. <u>Watershed Nonpoint Source</u>	No evidence of significant source. Little potential for future problem. 4	Some potential sources. (roads, urban area, farm fields). 8	Moderate sources. (Small wetlands, tile fields, urban area, intense agriculture). 16	Obvious sources. (Major wetland drainage, high use urban or industrial area, feed lots, impoundment). 20
3. <u>Bank Erosion, Failure</u>	No evidence of significant erosion or bank failure. Little potential for future problem. 6	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 9	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 15	Many eroded areas. "Raw" areas frequent along straight sections and bends. 18
4. <u>Bank Vegetative Protection</u>	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
5. <u>Lower Bank Channel Capacity</u>	Ample for present peak flow plus some increase. Peak flows 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 to 25. 14	Inadequate, overbank flow common. W/D ratio > 25 . 16
6. <u>Lower Bank Deposition</u>	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
7. <u>Bottom Scouring and Deposition</u>	Less than 5% of the bottom affected by scouring and deposition. 4	5 to 30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30 to 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

Rating Item	Category			
	Excellent	Good	Fair	Poor
8. <u>Bottom Substrate</u>	Greater than 50% rubble, gravel or other stable habitat. 2	30 to 50% rubble, gravel or other stable habitat. Adequate habitat. 7	10 to 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
9. <u>Average Depth at Rep. Low Flow</u>	Greater than 24". 0	12" to 24". 6	6" to 12". 18	Less than 6". 24
10. <u>Flow, at Rep. Low Flow</u>	Warm water, >5 cfs. Cold water, >2 cfs 0	Warm water, 2 to 5 cfs. Cold water, 1 to 2 cfs. 6	Warm water, .5 to 2 cfs. Cold water, .5 to 1 cfs. Continuous flow. 18	Less than .5 cfs. Stream may cease to flow in very dry years. 24
11. <u>Pool/Riffle, Run/Bend Ratio</u>	5 to 7. Variety of habitat. Deep riffles and pools. 4	7 to 15. Adequate depth in pools and riffles. Bends provide habitat. 8	15 to 25. Occasional riffle or bend. Bottom contours provide some habitat. 16	Greater than 25. Essentially a straight stream. Generally all "flat water" or shallow riffle. Poor habitat. 20
12. <u>Aesthetics</u>	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 Total Without Effluent --

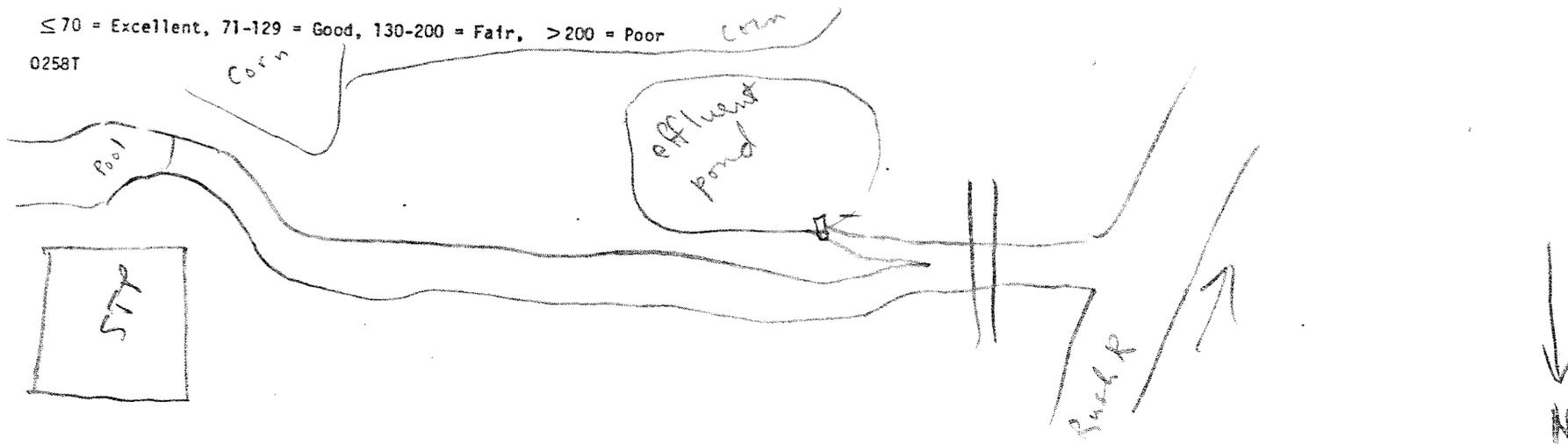
Column Total With Effluent --

Add Column Scores Without Effluent, E 20 + G 8 + F 60 + P 68 = Reach Score

Add Column Scores With Effluent, E _____ + G _____ + F _____ + P _____ = Reach Score

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

0258T



Taxonomic List of Macroinvertebrates for Site MS1
 Spring, 1983
 Baldwin
 ID by Vanessa Eigenbrodt

	a	n	axn
ARTHROPODA-CRUSTACEA			
AMPHIPODA			
TALITRIDAE			
<u>Hyallela azteca</u>	4	55	220
ARTHROPODA-INSECTA			
DYTISCIDAE			
<u>Agabetes</u> sp. (adult)	-	3	--
ELMIDAE			
<u>Macronychus glabratus</u> (larvae)	2	4	8
<u>Optioservus</u> sp. (larvae)	2	1	2
DIPTERA			
CHIRONOMIDAE			
<u>Ablabesmyia</u> sp.	3	9	27
<u>Brillia</u> sp.	3	11	33
<u>Hydrobaenus</u> sp.	2	1	2
<u>Rheotanytarsus</u> sp.	3	2	6
<u>Trissocladius</u> sp.	-	1	--
TABANIDAE			
<u>Chrysops</u> sp.	3	2	6
TIPULIDAE			
<u>Tipula</u> sp.	2	2	4
ODONATA			
AESHNIDAE			
<u>Aeshna</u> sp.	3	4	12
TRICHOPTERA			
HYDROPSYCHIDAE			
<u>Hydropsyche betteni</u>	3	6	18
MOLLUSCA-GASTROPODA			
BASOMMATOPHORA			
PHYSIDAE			
<u>Physa</u> sp.	-	3	--
MESOGASTROPODA			
HYDROBIIDAE			
<u>Amnicola</u> sp.	-	1	--
TOTALS*		97	338

BIOTIC INDEX = 348

TOTAL IDENTIFIED = 105

*Totals include only those taxa with biotic index values.

VET027

Taxonomic List of Macroinvertebrates for Site MS1
 Baldwin, Fall, 1982
 ID by Vanessa Eigenbrodt

	a	n	axn
ARTHROPODA-CRUSTACEA			
AMPHIPODA			
TALITRIDAE			
<u>Hyallela azteca</u>	4	19	76
ARTHROPODA-INSECTA			
COLEOPTERA			
DYTISCIDAE			
<u>Agabus</u> sp. (adult)	-	1	---
GYRINIDAE			
<u>Gyrinus</u> sp. (adult)	-	1	---
HALIPLIDAE			
-	-	1	---
PSEPHENIDAE			
<u>Ectropria</u> sp.	2	8	16
DIPTERA			
CHIRONOMIDAE			
<u>Ablabesmyia</u> sp.	3	1	3
<u>Epoicladius</u> sp.	2	1	2
<u>Cricotopus</u> sp.	4	1	4
<u>Larsia</u> sp.	3	1	3
<u>Nilotanypus</u> sp.	3	1	3
<u>Paratanytarsus</u> sp.	3	2	6
<u>Procladius</u> sp.	3	2	6
<u>Psectrocladius</u> sp.	2	1	2
<u>Rheotanytarsus</u> sp.	3	1	3
<u>Thienemannimyia</u> complex	3	10	30
TIPULIDAE			
<u>Tipula</u> sp.	2	1	2
EPHEMEROPTERA			
BAETIDAE			
<u>Callibaetis</u> sp.	3	33	99
HEMIPTERA			
BELOSTOMATIDAE			
-	-	2	---
CORIXIDAE			
-	-	11	---
ODONATA			
AESHNIDAE			
<u>Aeshna</u> sp.	3	16	48
CALOPTERYGIDAE			
<u>Enallagma</u> sp.	3	4	12
TRICHOPTERA			
HYDROPSYCHIDAE			
<u>Cheumatopsyche</u> sp.	3	1	3
ANNELIDA-HIRUDINEA			
ERPOBDELLIDAE			
<u>Erpobdella</u> sp.	-	2	---
ANNELIDA-OLIGOCHAETA			
LUMBRICULIDAE			
-	-	1	---
TOTALS*		103	318
BIOTIC INDEX = 308			
TOTAL IDENTIFIED = 122			

*Totals include only those taxa with biotic index values.

Taxonomic List of Macroinvertebrates for Site MS2
 Fall, 1982
 Baldwin
 ID by Vanessa Eigenbrodt

	a	n	axn
ARTHROPODA-INSECTA			
COLEOPTERA			
DYTISCIDAE	-	2	--
<u>Agabus</u> sp. (adult)	-	5	--
<u>Ilybius</u> sp.	-	3	--
ELMIDAE			
<u>Macronychus glabratus</u> (larvae)	2	1	2
GYRINIDAE			
<u>Gyrinus</u> sp. (adult)	-	1	--
HALIPLIDAE	-	2	--
HYDROPHILIDAE	-	1	--
DIPTERA			
CHIRONOMIDAE			
<u>Chironomus</u> sp.	5	3	15
<u>Procladius</u> sp.	3	1	3
<u>Psectrotanypus</u> sp.	3	24	72
TIPULIDAE			
<u>Tipula</u> sp.	2	1	2
EPHEMEROPTERA			
BAETIDAE			
<u>Callibaetis</u> sp.	3	2	6
HEMIPTERA			
CORIXIDAE	-	8	--
ANNELEIDA-OLIGOCHAETA			
PROSOPORA			
LUMBRICULIDAE	-	1	--
TOTALS*		32	100

BIOTIC INDEX = 3.12

TOTAL IDENTIFIED = 55

*Totals include only those taxa with biotic index values.

VET027

Fish and Aquatic Life Use

On 6/18/74, a marked DO sag down to <1.0 mg/l was documented in the segment of the Rush River below the Baldwin Tributary. At the time, the POTW effluent DO was 9.7 mg/l and the BOD₅ was 20 mg/l. Factors contributing to the sag were low flow, warm water temperatures, stagnant pool environments, abundant aquatic macrophytes, sediment oxygen demand originating from nonpoint sources, and POTW effluent BOD. Due to natural limitations, this segment of the Rush River would probably experience water quality problems even if the POTW discharged an extremely high quality effluent.

The macroinvertebrate community in the continuous portion of the Baldwin Tributary (above the POTW) consists primarily of Diptera and Amphipoda with some Ephemeroptera, Trichoptera, and Odonata. Qualitative invertebrate samples collected on 5/3/79, 11/3/82, and 4/6/83 indicate that this segment has a Hilsenhoff Biotic Index indicative of "good to fair" water quality and "some to significant organic pollution." The Baldwin Tributary maintains a forage fishery of about five different species, with the majority being those considered "tolerant." Green sunfish have been observed on occasion. Efforts to stock trout have been unsuccessful due to poor winter survival.

The segment of the Baldwin Tributary in the vicinity of the outfall and the adjacent segment of the Rush River supports a variable macroinvertebrate community. In years when sufficient flow was present in the segments (1978-1979), communities with a biotic indices indicating "fair" water quality and "significant organic pollution" were found. In years when insufficient flow was present (1982-1983), macroinvertebrates were very scarce. Schools of minnows were observed in the pools of the Rush River on 7/28/82, even though no flow was present at the time.

Based on the observed stream conditions, the following fish and aquatic life use classifications are recommended (the segments are indicated on the attached maps):

- A. In the absence of effluent.
 - A1. Noncontinuous marginal (Class E) for the Baldwin Tributary upstream from the wetlands in SW, SW, T29N, R16W, Sec. 29 - flow is present only seasonally.
 - A2. Continuous intermediate (Class D) for the Baldwin Tributary from the wetland origin to the downstream extent of flow during representative low flow conditions (probably somewhere in the village limits) - low flow is the primary factor limiting use.

CORRESPONDENCE/MEMORANDUM

SEP 11 1981

STATE OF WISCONSIN

Date: September 9, 1981
To: Central Office - Madison

File Ref: 3400
(Mulazim Nasir - WW/2)

From: Sam Spanel

Subject: Baldwin Creek

Bert Apelgren, Area Fish Manager, and Terry Moe, District Biologist, concur that Baldwin Creek is classified as a trout stream but only above the discharge point from Baldwin's treatment plant.

SS/js
cc: Bert Apelgren
Terry Moe
→ Mark Tusler - WQM/2

[Handwritten notes and signatures]

BALDWIN, ST. CROIX COUNTY

WASTEWATER RECEIVING STREAM CLASSIFICATION - AMENDED

RE-EVALUATION: September 22, 1976

At the time of re-inspection, the Rush River was dry. The Baldwin WWTP polishing pond level was three feet low and water from the pond was being used to irrigate a cornfield.

As a result of re-inspection the Rush River hydrologic classification shall be changed from continuous to noncontinuous. Applicable criteria and effluent limitations as appearing in table 7 of Wisconsin Water Quality Standards are correct.

PERSONNEL:

Terry A. Moe - Water Pollution Biologist - WCD

BALDWIN, ST. CROIX COUNTY

Wastewater Receiving Stream Classifications

The Baldwin WWTP discharges to a polishing pond which empties into Baldwin Creek about 150 yards before its confluence with the Rush River. Baldwin Creek flow upstream from the pond effluent is maintained by a industrial cooling water discharge without which the creek would be dry. The Balsam Creek water shed is not severely degraded by existent land use.

The Rush River flows continuously near the mouth of Baldwin Creek and maintains its flow for 1 - 1.5 miles where, at about I-94, it dries up and goes underground. Depending upon the information source, Rush River reemerges either at CTH "N" (1.5 miles downstream from I-94) or near the St. Croix/Pierce county line.

The Baldwin Creek and Rush River stream banks are protected with vegetation and the bottoms are of gravel capable of supporting aquatic macrobenthos.

Baldwin Creek near WWTP
looking upstream (east)

Rush River before Confluence
with Baldwin Creek

Recommendations:

Baldwin Creek at the Baldwin WWTP point of discharge and 150 yards downstream to the Rush River shall be classified as a noncontinuous, intermediate aquatic stream.

The Rush River shall be classified as continuous, intermediate aquatic life from the mouth of Baldwin Creek to about I-94 and noncontinuous, intermediate aquatic life from I-94 to the St. Croix/Pierce county line. From the St. Croix/Pierce county line to Lake Pepin, the Rush River shall be classified a continuous flow, fish and aquatic life stream.

The Rush River should be reevaluated upstream from I-94 during the summer of 1975 to confirm the classification presented above. Heavy rain just prior to August 25, 1975, made accurate evaluation of this site difficult. A change in aquatic life status is not likely, however.

Date of Field Evaluation: August 25, 1975

Personnel:

Lewis A. Seymour - Environmental Engineer - WCD
Terry A. Moe - Water Pollution Biologist - WCD
Bert J. Apelgren - Area Fish Manager - Menomonie Area
Richard E. Wedepohl - Engineer - Water Quality Evaluation - Madison
Ron Martin - Biologist - Water Quality Evaluation - Madison



Baldwin - Baldwin Creek near WWTP
looking downstream



Baldwin - Rush River above confluence
with Baldwin Creek



R. 17 W. 25 9.6 MI. TO WISCONSIN 64 20'



Hammond Central Sch

Happy Valley Ch

Hammond

Lincoln Sch

Sunnyside Sch

Elm Grove Sch

Baldwin

Oak Grove Sch

North Valley Sch

Woodside Sch

Riverside Sch

PLEASANT VALLEY BUSBY RIVER EAU CLAIRE

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Palmer

Pleasant Grove

Willow Hill Sch

North Centerville Sch

Tydalen Sch

ST OROIX CO
PIERCE CO

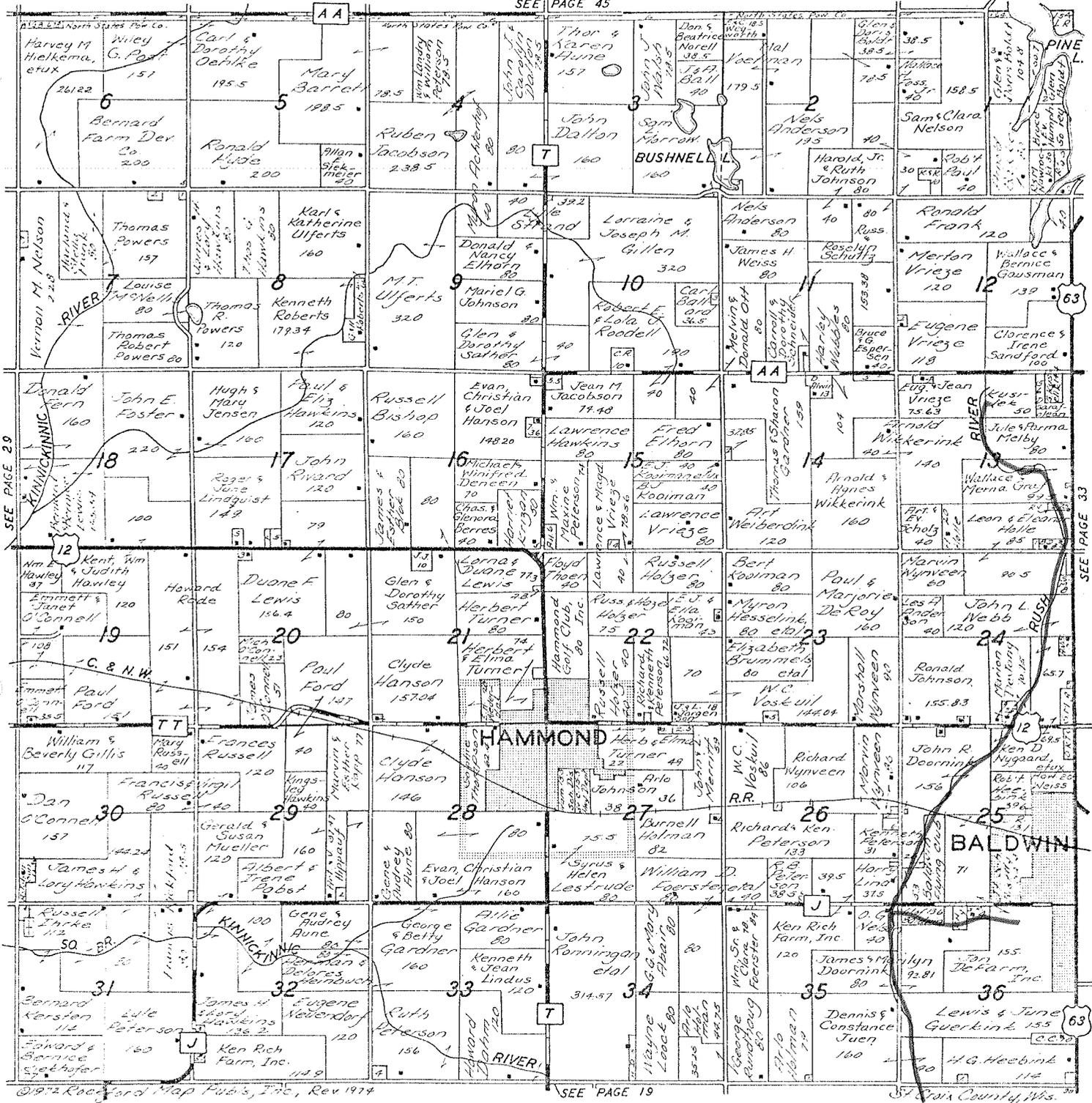
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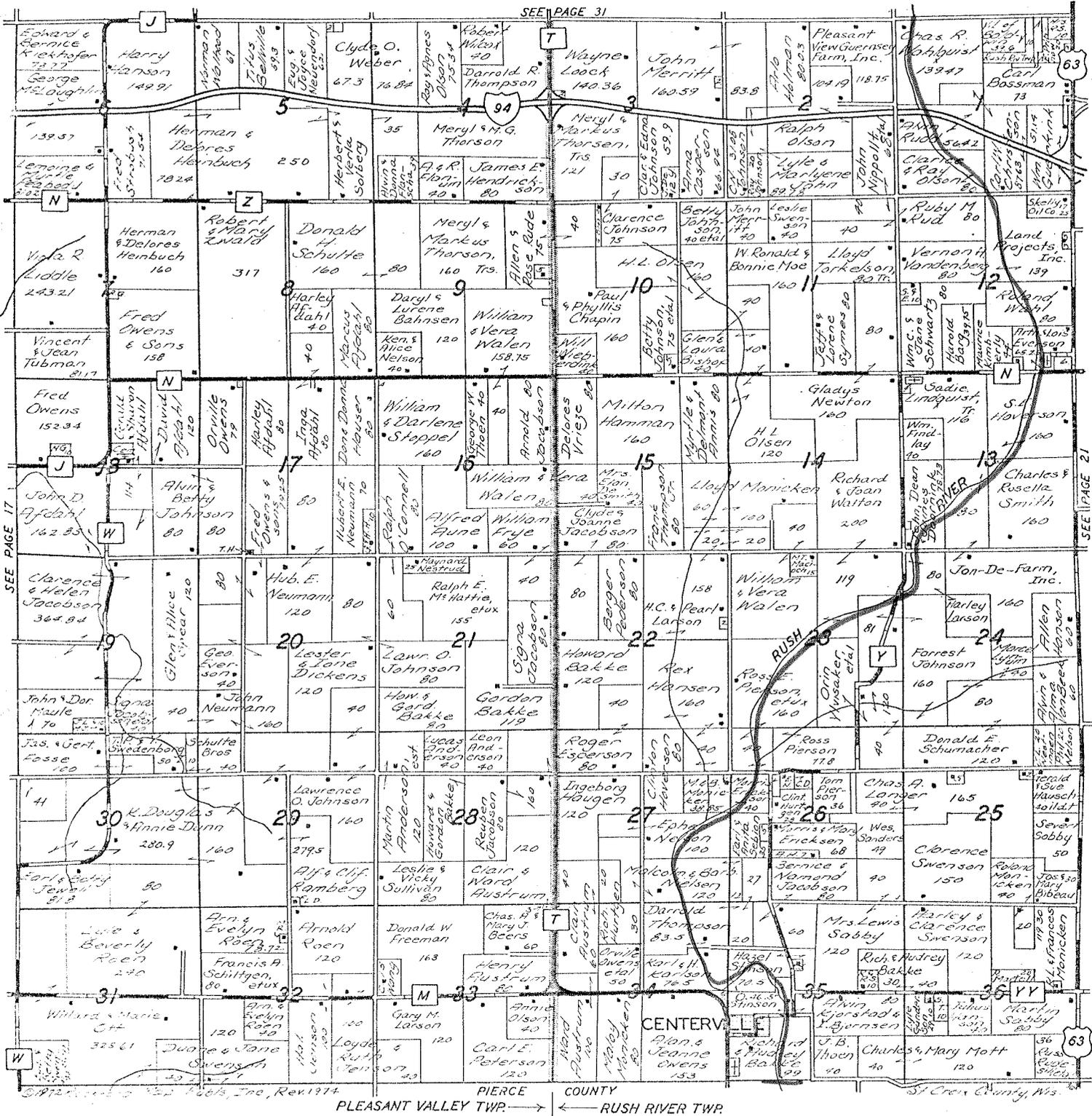
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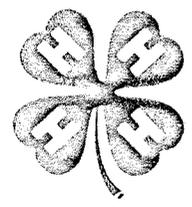
PIERCE COUNTY PLEASANT VALLEY TWP. ← → RUSH RIVER TWP. ST. CROIX COUNTY, WIS.

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