

# File Memo

**To:** NER Files  
**From:** Michael Reif-Wastewater Specialist for the Upper Fox River Basin  
**Date:** October 17, 2003  
**Re:** Preliminary Stream Reclass Evaluation of Black Creek Associated with the Brillion WWTP

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On October 7, 2003 I met with Bob Carey (920-756-2850) who is the person assigned to operating the Brillion WWTP. I explained to him that I was contacting several dischargers to surface waters in Calumet County to evaluate whether there is a need for more fieldwork on the stream classification associated with their dischargers. We walked out to the WWTP outfall to Black Creek which was located about ¼ mile north of the WWTP in the NW1/4, Sec. 35, T20N, R20E, Brillion TN, Calumet Co. According to the Brillion topographic map Black Creek originates in Grass Lake and an associated wetland complex in the NW1/4, Sec. 1, T19N-R20E, Rantoul TN. Prior to confluence with the Brillion WWTP Black Creek flows through a local golf course where it is dammed to create a pond. The dam of the pond appears to regulate the flow which becomes very low in dry years. We evaluated the outfall location of Black Cr. Black Cr. appeared to widen in the area of the outfall (above and below). See attached photos which help to visualize the stream and wetland conditions. There were many minnows at and in front of the base of the WWTP outfall pipe. The plant life was also well established at the base of the outfall. Black Creek and the effluent were very clear at that point. I also evaluated Black Creek immediately below HWY PP (which was within view of the golf course dam area). There was good flow in the Creek (see photos). I noticed a large amount of duckweed that was flowing downstream and piling up a short distance from HWY PP. The water was well stained there though I could see the stream bottom well. I turned over some rocks in the stream and noticed the rocks were dark and/or gray underneath and observed no macroinvertebrates other than snails. I also observed no fish. These observations indicate problems related to low flow and/or human induced flow modifications.

The final preliminary analysis is that Black Creek is by current NR104 standards a LFF stream. There was a defined channel through the wetland so the stream can be classified accordingly. However, the wetland conditions at and below the outfall require a more thorough analysis of the wetland. A recommended future stream reclass should also evaluate upstream flow modifications and wetland effects on Black Creek. I informed Bob Carey that the classification is likely LFF rather than the current LAL. I said we would possibly do a stream reclassification sometime in the next biennium.



Photo 1. Black Cr. above the WWTP outfall. October 7, 2003.



Photo 2. Black Creek at and below the Brillion WWTP outfall. The outfall location can be seen in the bottom left of the photo. Also note the surrounding wetland conditions. October 7, 2003.



Photo 3. Close-up of the stream conditions immediately below the Brillion WWTP outfall pipe. October 7, 2003.

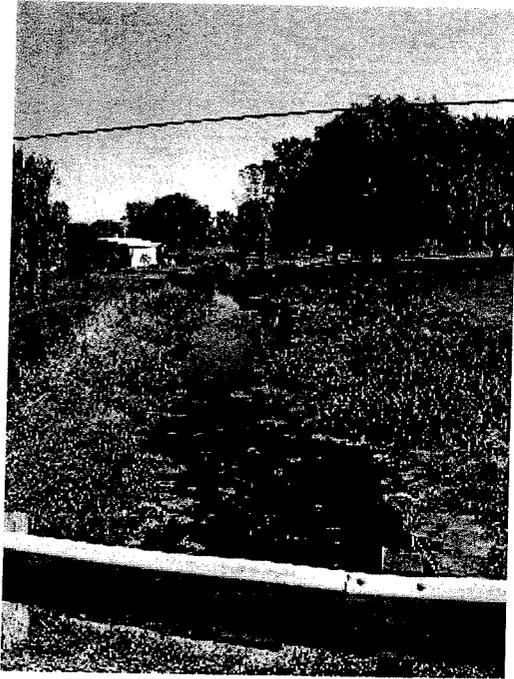


Photo 4. Black Creek above HWY PP. Note the golf course with the dam on Black Cr. can be seen on both side of the Creek. October 7, 2003.



Photo 5. Black Creek below HWY PP. Note the large amount of duckweed in the Creek. The eastern edges of the Brillion marsh can be seen in the background. October 7, 2003.

## CORRESPONDENCE/MEMORANDUM

DATE: February 24, 1999

FILE REF: 3420

TO: Files

FROM: Jeff Haack - Green Bay 

SUBJECT: Brillion WWTF Discharge

On Tuesday, February 9, 1999, Tim Rasman and I went out to the Brillion Marsh in the vicinity of the outfall from the City of Brillion Wastewater Treatment Facility (WWTF) to better acquaint ourselves with the nature of this area as the receiving water, and to evaluate the appropriateness of the current effluent limitations.

**BACKGROUND:** The Brillion WWTF discharges treated effluent to the Brillion Marsh via Black Creek in the NW ¼ of Section 35, T20N, R20E in Calumet County. Black Creek flows in a generally westerly direction from the outfall about one half mile before merging with Spring Creek. Spring Creek then flows in a southwesterly direction approximately two miles before merging with the North Branch of the Manitowoc River. Attached is a photocopy of part of the USGS topographic map of this area.

Effluent limitations contained in the current WPDES permit for conventional pollutants (i.e. BOD<sub>5</sub> and TSS) are based upon the Limited Aquatic Life classification described in NR 104.02(2)(b), Wisconsin Administrative Code. This code explicitly states that this classification, "shall be applied to all surface waters classified as effluent channel, wetland or diffuse surface water." It is not known if a formal stream classification was ever performed before this treatment facility was constructed in 1981. Before that time, the Brillion WWTF discharged to an effluent ditch tributary to Spring Creek. Deletion of that effluent ditch, and adding the "Limited Aquatic Life" designation for Black Creek, are included among the proposed revisions to Chapter NR 104, Wisconsin Administrative Code.

Effluent limitations for toxic substances have been derived based upon this classification and zero background flow. The permit criterion for Chronic Whole Effluent Toxicity testing is based upon the 4-Q<sub>3</sub> of the North Branch of the Manitowoc River at CTH PP, which is the nearest downstream reach classified for "Full Fish and Aquatic Life" uses. The USGS has estimated that 4-Q<sub>3</sub> to be zero cfs, so the calculated Instream Waste Concentration (IWC) is 100% effluent.

The City has requested re-evaluation of that IWC. This request was made with the knowledge that the USGS has estimated a 7-Q<sub>10</sub> of 0.17 cfs in Spring Creek within the City of Brillion. Response to this request is appropriately provided during the permit reissuance process. This site visit was conducted to prepare for that, as the permit expires on June 30, 1999.

**ACTIVITIES:** This site visit was strictly a qualitative assessment of this issue. I had obtained aerial photos of Sections 34 and 35 from Dick Nikolai, the DNR Wildlife Biologist who is the property manager for the Brillion Marsh State Wildlife Area. These are also attached. Dick warned against trying to get too close to the creeks because of soft soils and uncertain surface conditions.

Tim and I first walked north from the WWTF site and located the outfall. This was easily done because this discharge results in open water. From this point we walked in a generally westerly



direction for approximately ¼ of a mile.

We then returned to our vehicle after briefly touring the WWTF. The WWTF was performing very well at the time, producing a very clear effluent. The monthly Discharge Monitoring Reports from this permittee routinely report effluent quality in the single digits for BOD<sub>5</sub> and TSS, and my observations would corroborate that data.

We then drove to the Nature Area located near the center of Section 34. From this point we walked in a generally northeasterly direction, and then back in a westerly direction. At this time we were near the confluence of Black Creek with Spring Creek. Though based upon our uncertainty of the subsurface conditions we steered well clear of the creeks and the soft soils of the area.

Before leaving we did a “drive around” tour of Black Creek upstream of the outfall to Round Lake, in order to further familiarize ourselves with this sub-watershed. Of particular note is the potential for further development in the area, and the subsequent impacts on water quality and quantity due to increased impervious surface area.

**OBSERVATIONS & CONCLUSIONS:** From the outfall for the Brillion WWTF, Black Creek meanders and becomes much more diffuse. The stream channel is not at all well defined, with open pools interspersed with diffuse areas of emergent vegetation obscuring the channel completely. These same characteristics continue in Spring Creek downstream from its confluence with Black Creek.

Based on these observations, it seems quite likely that the Brillion Marsh acts like a giant sponge during dry weather conditions. Consequently, downstream from the outfall there are likely areas of little discernible flow. A 7-Q<sub>10</sub> of zero is quite possible, and in fact, considered likely. Consequently it is our opinion that the IWC should remain unchanged in the reissued permit, at 100%. Additionally, it appears as though the effluent limitations associated with the “Limited Aquatic Life” classification are adequately protective.

JJH

Cc: WT/2 Permit File (via Joe Ball & Tom Muga) - w/ attachments  
NER Wastewater Files - w/o attachments  
Ron Fassbender - w/o attachments

Region NER County Calumet Report Date Aug. 1975 and July 1977 Classification LAL  
 Water Body: Brillion Stream (listed as "unnamed" in 1977 report)  
 Discharger: Brillion 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
- 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
- Chemical Data (temp, D.O., etc.) None
- Physical Data (flow, depth, etc.) None
- Habitat Description None
- Site Description/Map Confusing
- Other: \_\_\_\_\_

**Historical Reports in file:**

- 1975 Stream Classification report for Brillion STP. 1/2 p. long., 2 maps, 6 photos.
- 1977 Stream Classification report for Brillion STP. 1/2 p. long., 2 maps.

**Additional Comments/How to improve report:**

It's not clear whether the STP currently discharges to the former Spring Creek channel (1975) or into a new unnamed channel (Spring Creek diversion) (1977)? The 1975 report says the STP effluent flows into an "effluent ditch," which would mean the limited use classification is appropriate. Too little info. to tell here. Where does the STP discharge now? Did it change?

DNR JUL 18 1977

Department of Natural Resources  
INTRA-DEPARTMENT  
MEMORANDUM

Green Bay

Station

Date July 15, 1977

IN REPLY REFER TO: 3200  
(J. McKersie)

TO: Central Office  
FROM: Dan Uhl  
SUBJECT: Brillion Stream Classification

The proposed Brillion WWTP will discharge into an un-named drainage course which discharges into Brillion Marsh. (See map)

The drainage course has a definite stream channel but is dry at this time. Therefore, the channel should be classified as non-continuous/marginal up to Brillion Marsh. Brillion Marsh should be classified as wetlands.



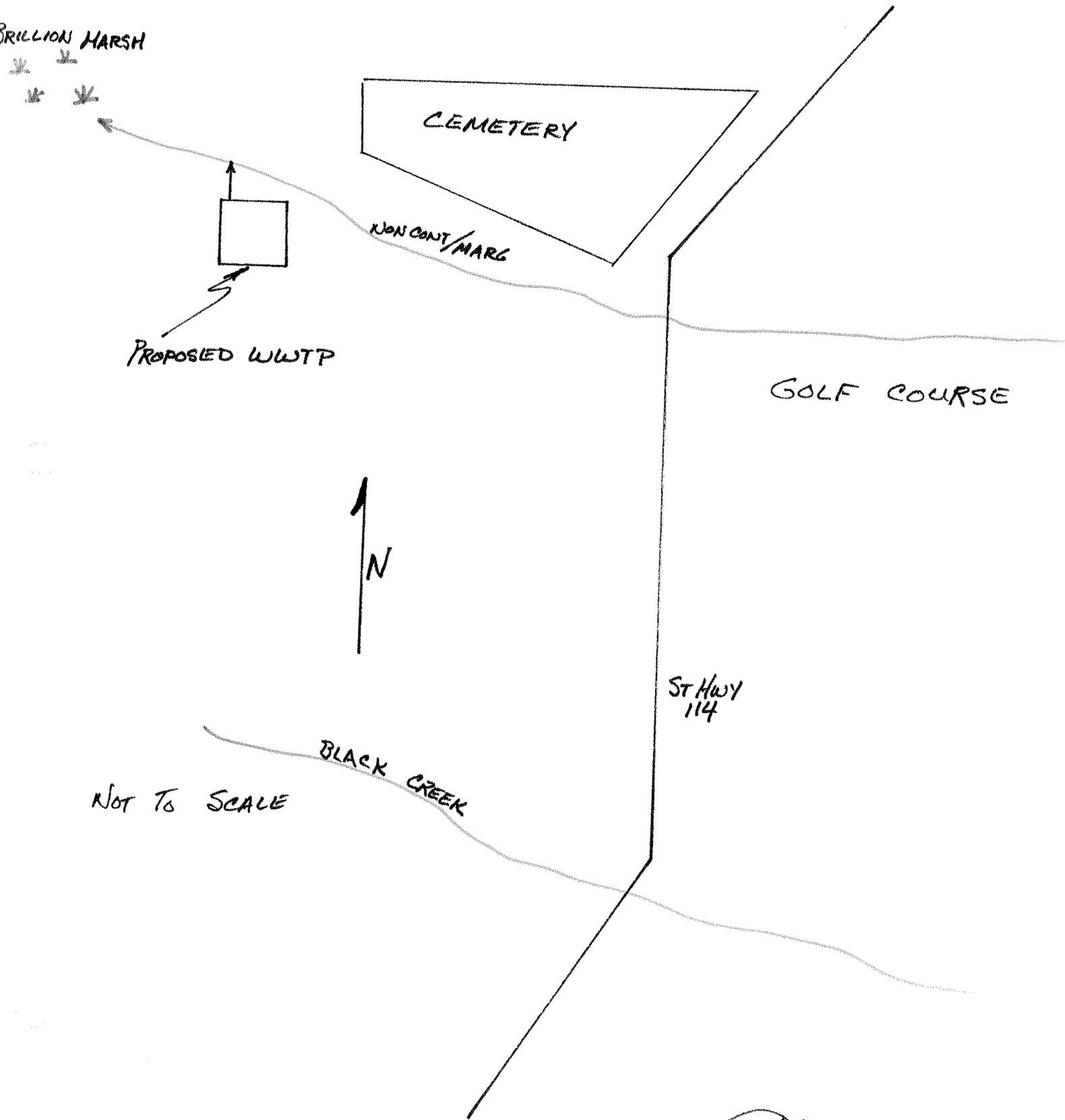
DU:jp

NOTED:

\_\_\_\_\_ Date

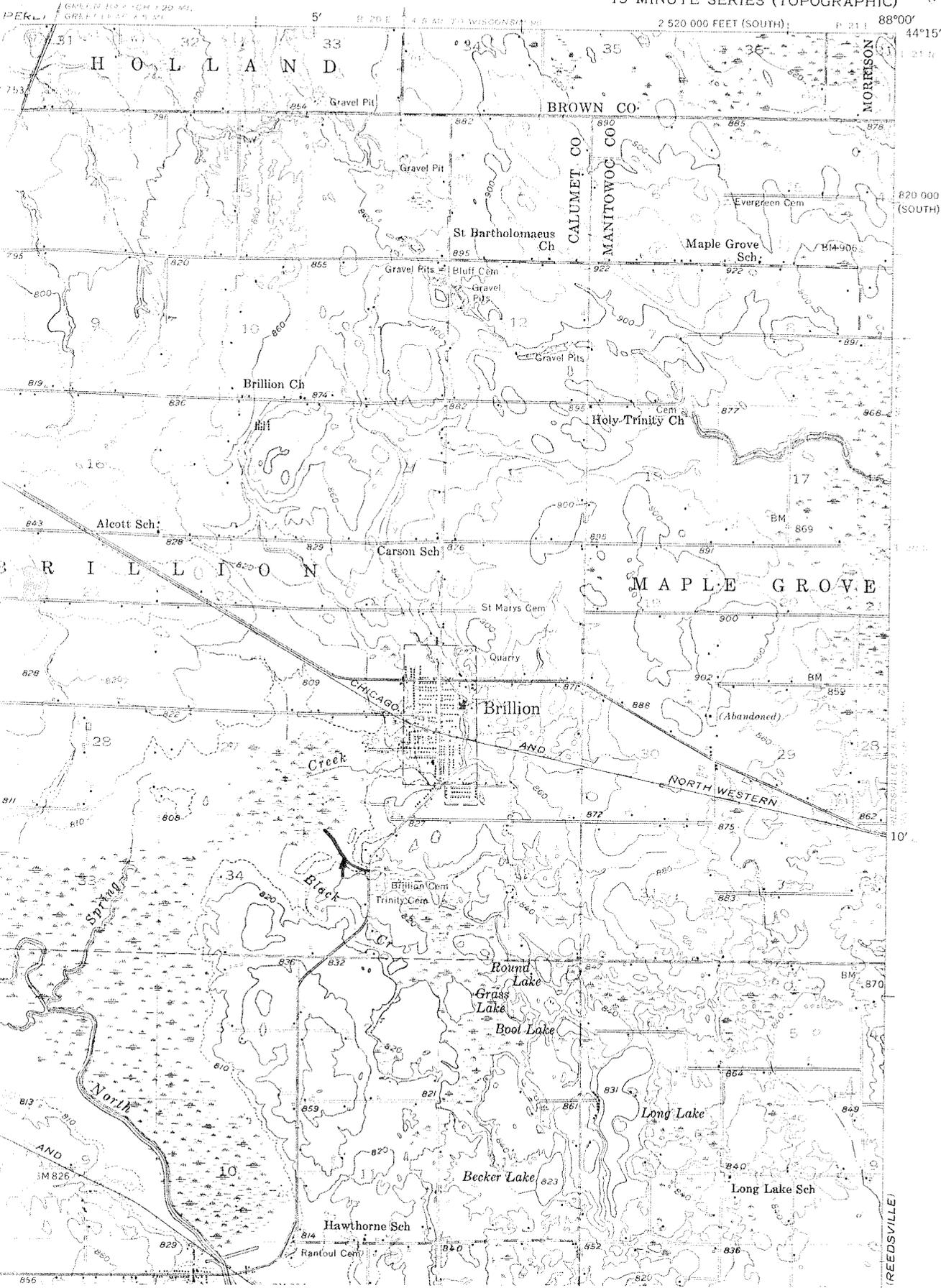
# BRILLION STREAM CLASSIFICATION

7-14-77



CHILTON QUADRANGLE  
WISCONSIN  
15 MINUTE SERIES (TOPOGRAPHIC)

DENMARK



820 000 FEET (SOUTH)

10'

(REDSVILLE)

BRILLION

CALUMET COUNTY

The STP discharges to the former Spring Creek channel. Effluent flows about 500 feet before entering the new, diverted channel. The spring creek diversion was completed in 1973. Spring Creek has a continuous flow and empties into a marsh which in turn feeds the North Branch of the Manitowoc River.

RECOMMENDATIONS

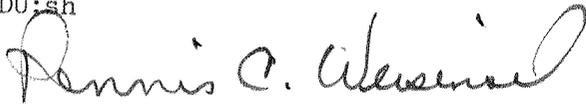
Spring Creek should be classified as continuous/ *FISH AND* aquatic life. The old stream bed which receives STP effluent should be classified as an effluent ditch. The marsh should be classified as wetlands.

*Drop  
delete  
  
See  
Black  
Creek*



Dan Uhl  
District Engineer

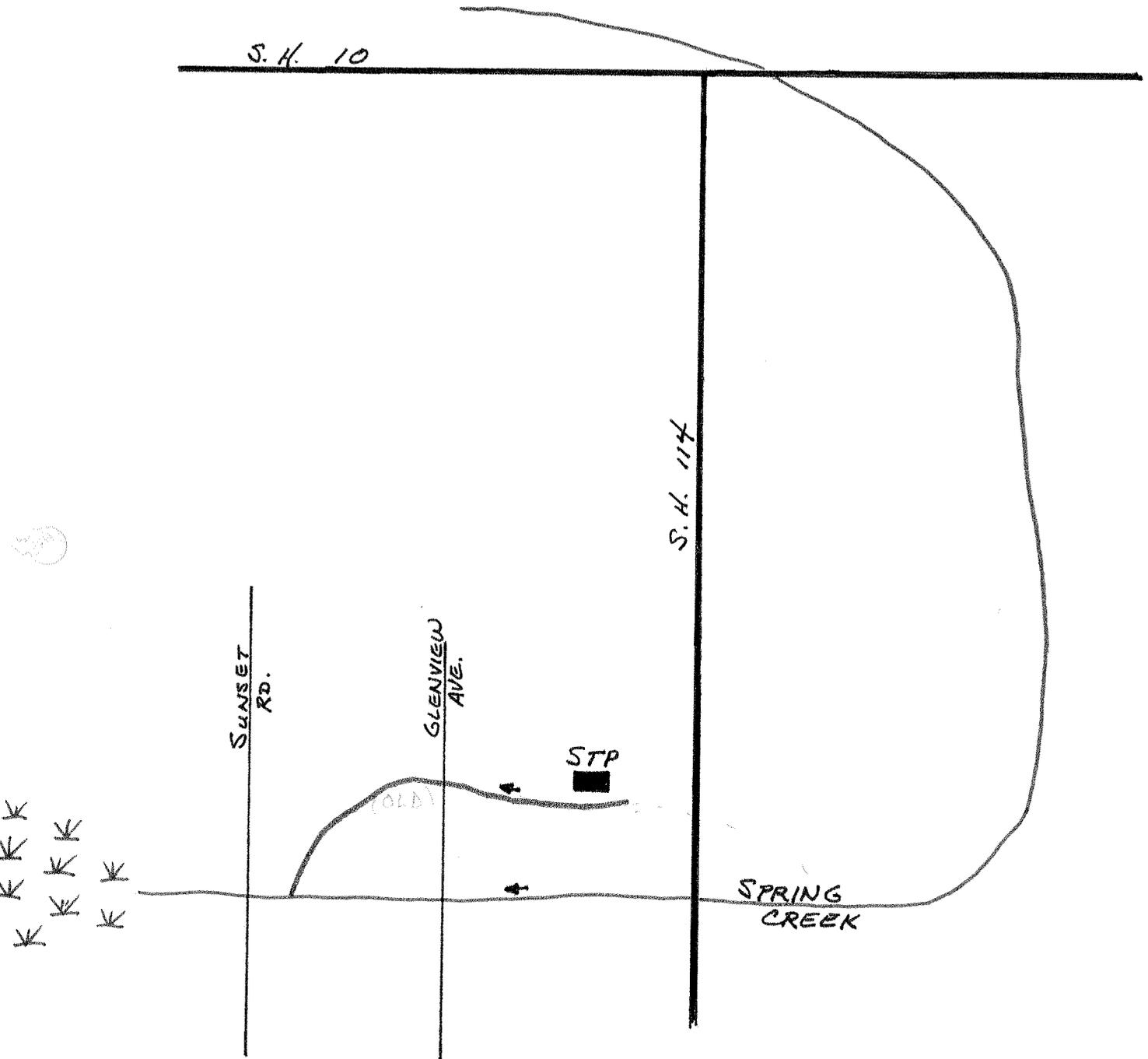
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Dennis C. Weisensel  
District Biologist

BRILLION

8-13-75



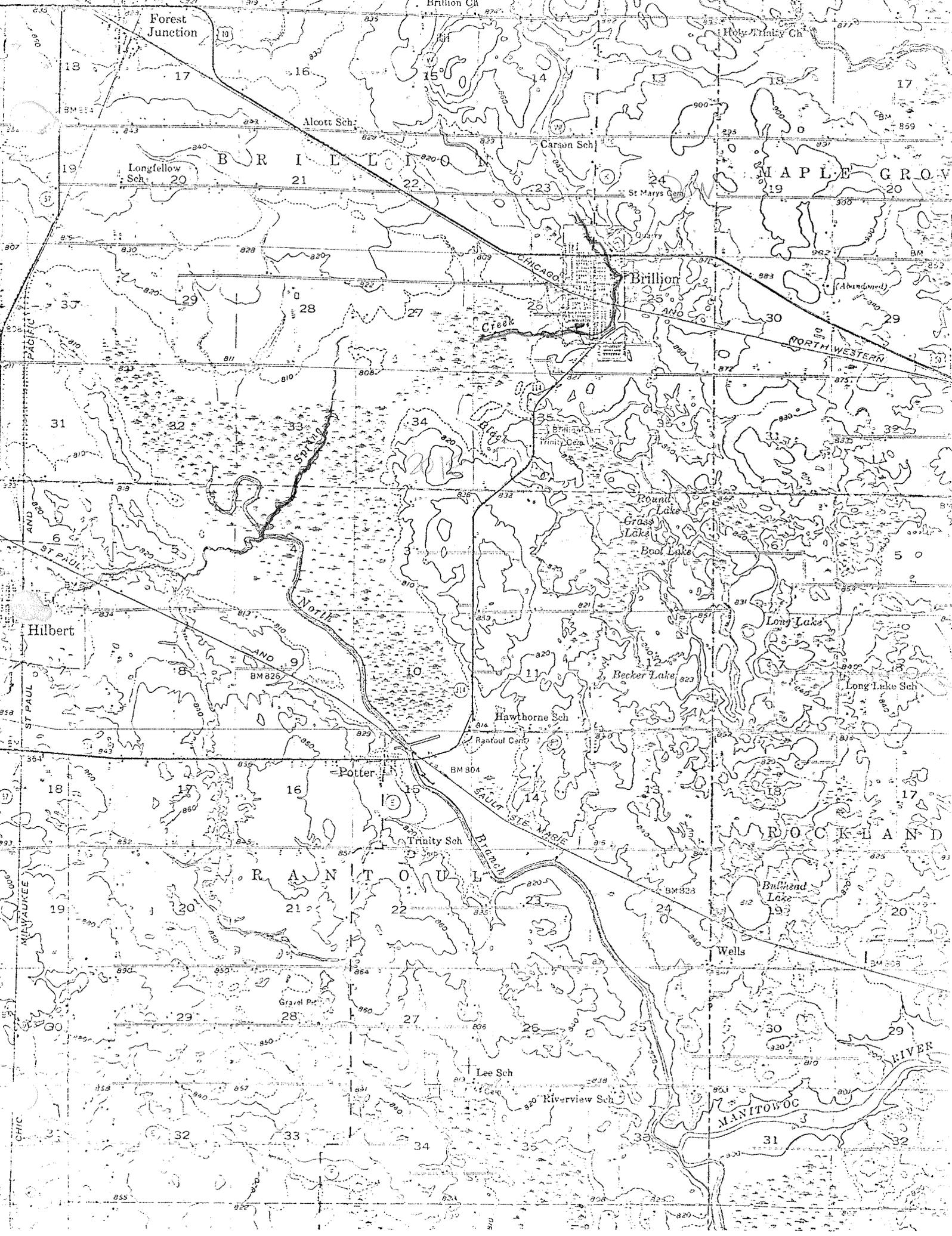
— CONTINUOUS/FISH & AQUAT. LIFE

— EFFLUENT DITCH

∨ WETLANDS

① PHOTO LOCATIONS

DU  
8-29-75



Forest Junction

Brillion CA

Holy Trinity Ch

Alcott Sch

Carson Sch

Longfellow Sch

BRILLION

MAPLE GROVE

Brillion

Chicago Creek

NORTH WESTERN

Notik

Hilbert

Round Lake  
Grass Lake  
Boal Lake

Long Lake

Becker Lake

Long Lake Sch

Hawthorne Sch

Potter

Trinity Sch

ROCKLAND

RANITOUL

Bullhead Lake

Wells

Lee Sch

Riverview Sch

MANITOWOC

RIVER



BRILLION AUG. 13, 1975  
CONFLUENCE OF  
STP EFFLUENT DITCH &  
SPRING CREEK LOOKING  
UPSTREAM AT SPRING  
CREEK

# 3

BRILLION AUG 13, 1975  
SPRING CREEK ABOVE  
STP OUTFALL LOOKING  
DOWNSTREAM

# 2

BRILLION AUG. 13, 1975  
SPRING CREEK ~~ABOVE~~  
STP OUTFALL LOOKING  
UPSTREAM

# 1

BRILLION AUG 13, 1975  
SPRING CREEK BELOW  
STP LOOKING DOWNSTREAM

# 6

BRILLION AUG 13, 1975  
STP EFFLUENT DITCH  
LOOKING UPSTREAM

# 5

BRILLION AUG 13, 1975  
CONFLUENCE OF  
STP EFFLUENT DITCH &  
SPRING CREEK LOOKING  
UPSTREAM AT EFFLUENT  
DITCH

# 4