CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: May 4, 2004 FILE REF: [Click **here** and type file ref.]

TO: Bethel Nursing Home File

FROM: Mark Hazuga - Wausau

SUBJECT: Field Investigation and Review of Current Proposed NR 104 Classifications for Bethel Nursing Home

Bethel Nursing Home discharges wastewater to a grassed wetland waterway, which eventually flows to Unnamed Creek 10-12. According to historic information, the effluent generally seeped into the grassed waterway before reaching Unnamed Creek 10-12. The outfall was moved farther down the waterway a few years ago in an effort to eliminate ground water contamination but is now approximately 100 yards from Unnamed Creek 10-12.

The proposed NR 104 classification of the grassed wetland waterway is Limited Aquatic Life, which is also the default wetland classification. Unnamed Creek 10-12 receives two proposed NR 104 classifications including Limited Aquatic Life from the confluence with the grassed wetland waterway downstream to Captains Lane and Limited Forage Fish from this point downstream to the confluence with the Yellow River.

On May 4, 2004, I visited the discharge location to determine the effluent flow path through the grassed wetland waterway. The effluent is discharged to the waterway approximately 20 yards upstream from Ward Blvd. The volume of wastewater was very small and has an annual average design flow of 18,000 gallons per day. The effluent flowed west and passed through a culvert under Ward Blvd. and entered a wetland area on the west side of the road. This area also receives precipitation runoff from the surrounding hillside. The wetland vegetation within the effluent path is dominated by reed canary grass with a couple of aspen and one elm tree. As the effluent emerged from the culvert, it mostly stagnated in a shallow pool and diffused into two separate flow paths. The flow path to the northwest seemed to end and seep into the ground within a few yards of the stagnant pool. The other drainage flowed southwest approximately 20 yards and split into three additional flow paths. Effluent flow in each path was minimal and water would alternate above and below the reed canary grass. Wastewater observed above the reed canary grass was generally confined to small puddles. The three flow paths traveled approximately 15 yards and emptied into a small runoff channel or ditch. The wastewater then traveled an additional 45 yards to Unnamed Creek 10-12. Average water width and depth in the ditch was 8 to 10 inches and < 2 inches, respectively. Stream velocity was barely noticeable and instream habitat was very limited.

Unnamed Creek 10-12 is a small stream with a relatively diverse habitat including small riffles, runs and shallow pools. Substrate consisted of sand, cobble and gravel. Several small minnows were observed in the stream channel. Estimated streamflow was around 0.5 cfs.

Reviewed by UBub Date 2/2004

Region WCR **County** Wood **Report Date** 9/1977 **Classification** LAL/LFF

Water Body: Yellow River, Trib to

Discharger: Bethel Convalescent

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

Historical Reports in file:

9/1977 - Bill Jaeger

Additional Comments/How to improve report:

OK - There is no data to justify class'n.
- Check w/ region on this class'n.

Mid American Nursing Home Bethel Convalescent Center - Wood County

Wastewater Receiving Stream Classification

Mid American Nursing Home Bethel Convalescent Center has a lagoon sewage treatment system which discharges to a drainageway that flows to an unnamed tributary to the Yellow River. The home owns most of the property surrounding the drainageway and it is unclear whether the discharge point should be the end of the pipe or the property line. The lagoons have a continuous discharge, but the flow often disappears in the one half mile distance to the unnamed tributary. Above the junction with the drainageway, the unnamed tributary has a drainage area of about two square miles, the tributary then flows about 5.5 miles before joining the Yellow River. In this location a stream with a two square mile drainage area should be intermittent, but during the survey I found caddis fly larvae which are an indication of continuous flow. It seems very unusual that a stream of such a small drainage area would have continous flow, but the same situation has been found in the headwaters of Hemlock Creek only three miles away. One explanation is that it may be fed by a spring, which is unusual in this area. A second possibility is tile drainage of the heavy soils found in the area. During July of 1977 a reconnaissance survey of the stream found no flow at CTH "A" which is just above the junction with the Yellow River. Apparently, there is a water source near the stream origin, but during dry periods evapotranspiration prevents water from reaching the lower stretch. This was also found in the Hemlock Creek case. Since the lower stretch of the stream is noncontinuous and the upper area is small, I feel the entire stream should be classified noncontinuous.

In the upper reaches the stream is very narrow and often hidden by grass and weeds. Below Bluff Drive it has wide areas and frequent large pools, beaver activity was also noted in this area. Much of the watershed is agricultural land, but about 30% is woodland. Most of the woodland is along the stream and very little of it is pastured which results in a fairly good quality stream, but its small size prevents a quality warmwater aquatic community.

Recommendation: The unnamed tributary should have the noncontinuous hydrologic classification. Down to the middle of Section 35 it should have the "marginal" water quality classification and the remainder should be classified "not supporting a balanced aquatic community".

Survey Dates: July 15, 1977, September 15, 1977 and September 22, 1977

Surveyed By: Jack Zimmermann - Area Fish Manager
Joe Keena - Fish Management Technician
Bob Derksen - District Engineer
William C. Jaeger - Water Pollution Biologist

Report Prepared by William C. Jaeger

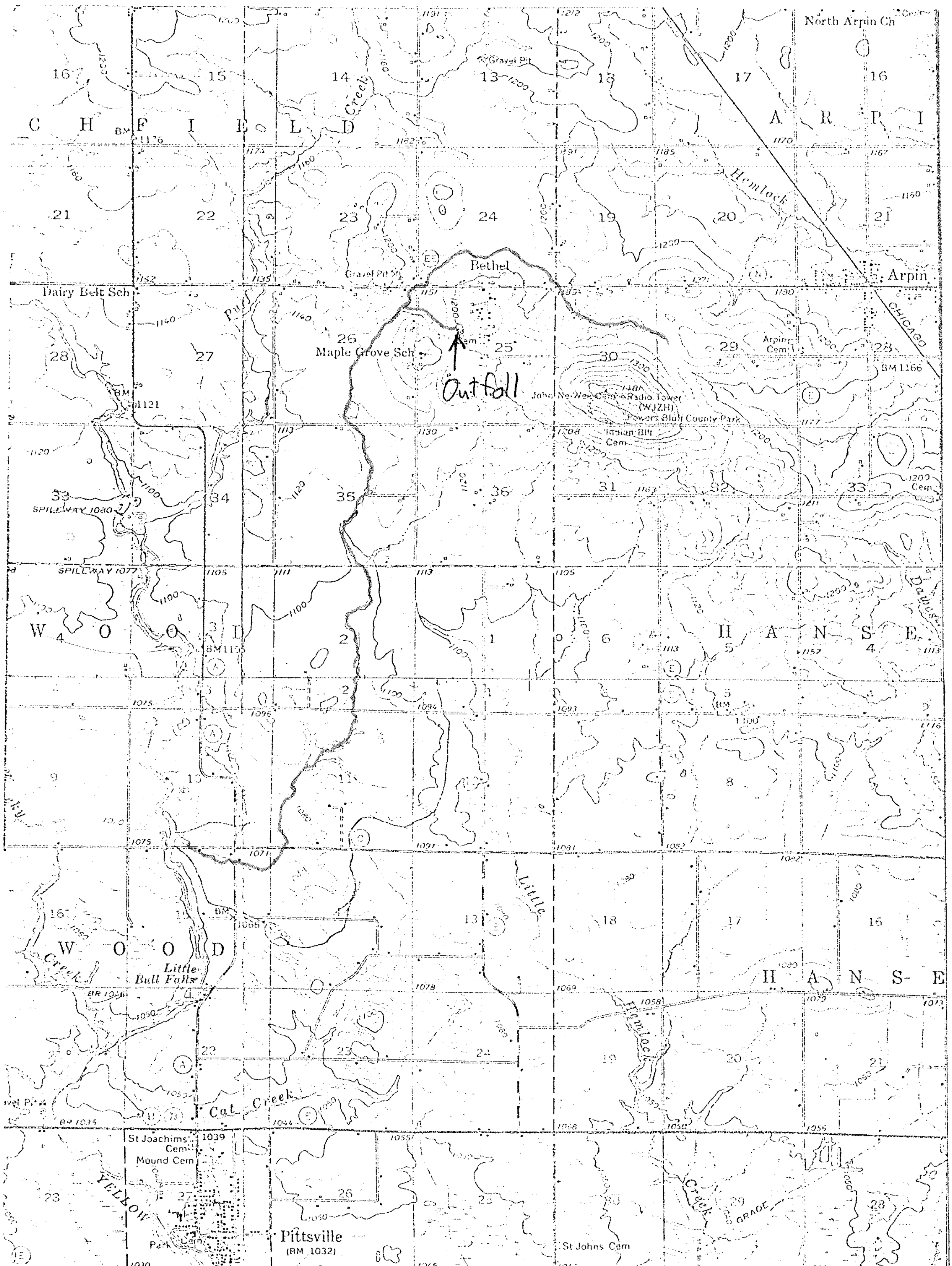
Drainage way just below lagoon outfall.

Bethel tributary above CTH "T".

Bethel tributary at Sections 2 and 35.

Bethel tributary just above CTH "C".

Bethel



North Arpin Ch
Gravel Pit
Creek
Hemlock
Arpin
CHICAGO
Bethel
Dairy Belt Sch
Maple Grove Sch
Outfall
Arpin Cem
BM 1166
John Ne-Wee Cem
Radio Tower (WJZH)
Powers Bluff County Park
Indian Bluff Cem
SPILLWAY 1080
SPILLWAY 1077
BM 1121
Little
Little Bull Falls
Cat Creek
St Joachims Cem
Mound Cem
Pittsville (BM 1032)
St Johns Cem
GRADE
Park