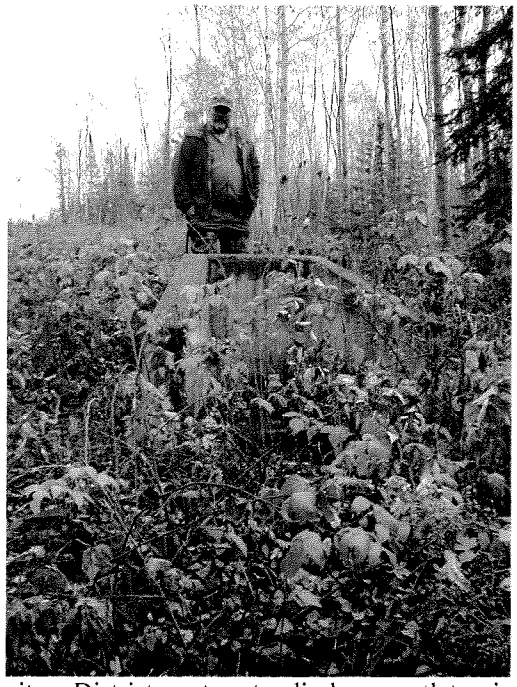
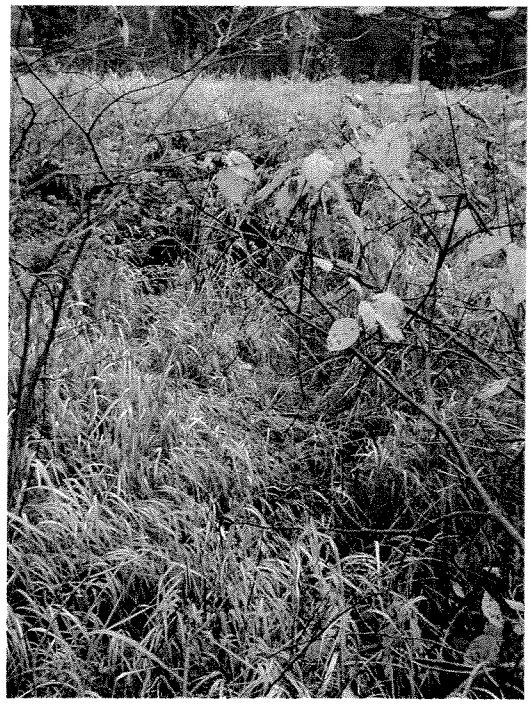
Cornucopia/Bell Sanitary District Steam Classification Review
Photo Documentation of Site Visit
October 29, 2002

On-Site: Pamela Stubbe, Bill Jaeger, and Chuck Olson



Cornucopia/Bell Sanitary District wastewater discharge outlet - view facing outlet.

Cornucpia/Bell S.D. wastewater discharge channel - view downstream from outlet.



Culvert below Sunset Road and channel that convey wastewater discharge from Bell S.D. Culvert is on west side of the road and approximately 300 m from Lake Superior.

Channel that conveys Bell S.D. wastewater discharge. Left to Right: facing downstream just below culvert; facing downstream approximately half-way between Sunset Road culvert and Lake Superior; facing upstream approximately 20 m before drop-off to Lake Superior.

End of channel facing Lake Superior. Note large rock obstructions and elevation drop.

Wastewater discharge channel ends on the left-hand side (by tree) and drops approximately 4 m over rock ledge and into Lake Superior.

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: November 11, 2002

FILE REF:

TO: Laura Bub – WT/2, Pam Stubbe – Superior

FROM: Craig Roesler - Hayward

SUBJECT: Bell SD No. 1 – Cornucopia: Use Designation of Receiving Waters

A June 14th, 1996 memo and map describing the above site is attached. Effluent from the Cornucopia lagoons flows a distance of about 0.4 miles down a high gradient drainage channel before dropping off a 15 foot high ledge into Lake Superior. The channel is normally dry except during lagoon discharges or runoff events. The drop at the lake prevents any temporary movement of fish into the channel.

Limited aquatic life (LAL) or very tolerant aquatic life (VTAL) is the appropriate use designation for this channel for the following reason:

- Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of a diverse fish and aquatic life community.

State of Wisconsin

CORRESPONDENCE/MEMORANDUM

DATE: June 14, 1996

FILE REF: 3329

TO: File

DRAFT

FROM: Craig Roesler

SUBJECT: Bell SD No. 1 - Cornucopia: Effluent Flow Path From Wastewater Treatment Lagoons

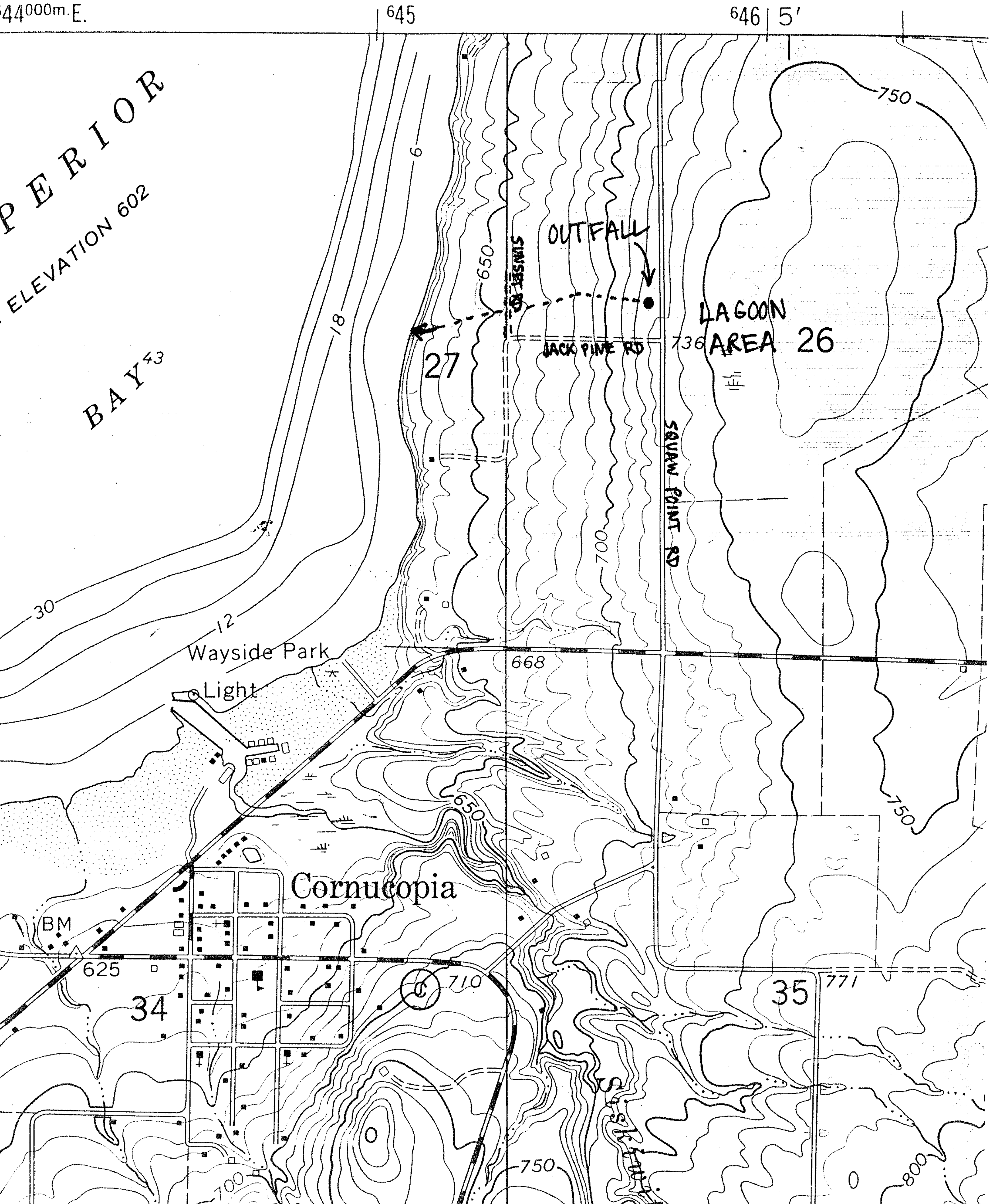
I visited the above facility on 06-06-96 to determine the location and characteristics of the effluent flow path. The outfall is located in the SW 1/4, NW 1/4, S26, T51N, R06W (46 52′ 09"N, 91 05′ 16"W). The outfall is a 9 inch diameter p.v.c. pipe with a concrete and rock splash pad. Discharge was occurring at the time. The flow followed a distinct channel with a high gradient and eventually dropped down a rocky ledge about 15 feet to a narrow rocky shoreline of Lake Superior in the SE 1/4, NE 1/4, S27, T51N, R06W (46 52′ 04"N, 91 05′ 45"W).

Based on the size of the drainage area, flows are likely to be limited to effluent discharges and runoff events, although some more extended flows may be supported near the channel mouth. The elevation drop at the stream mouth prevents periodic use of the channel by forage fish. The presence of effluent in the channel prevented checking for macroinvertebrates.

A lot is being developed adjacent to the channel mouth. A driveway has been constructed across the channel. A 9 inch diameter steel culvert was installed to conduct channel flows. This culvert could easily become obstructed and cause effluent to pool and wash out the driveway.

The recommended classification for the effluent flow path between the outfall and Lake Superior is limited aquatic life (LAL).

CORNUCOPIA WWTP T51N R06W



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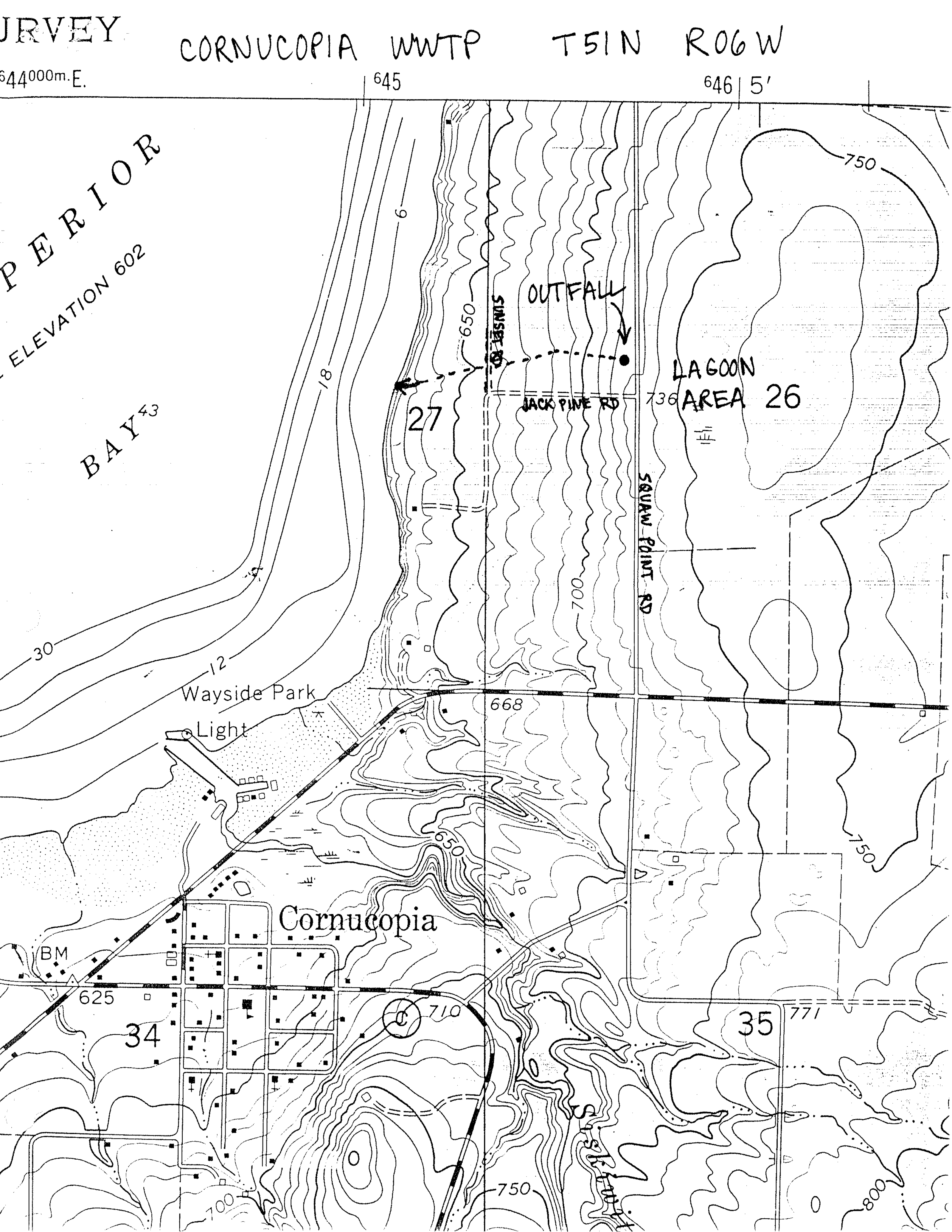

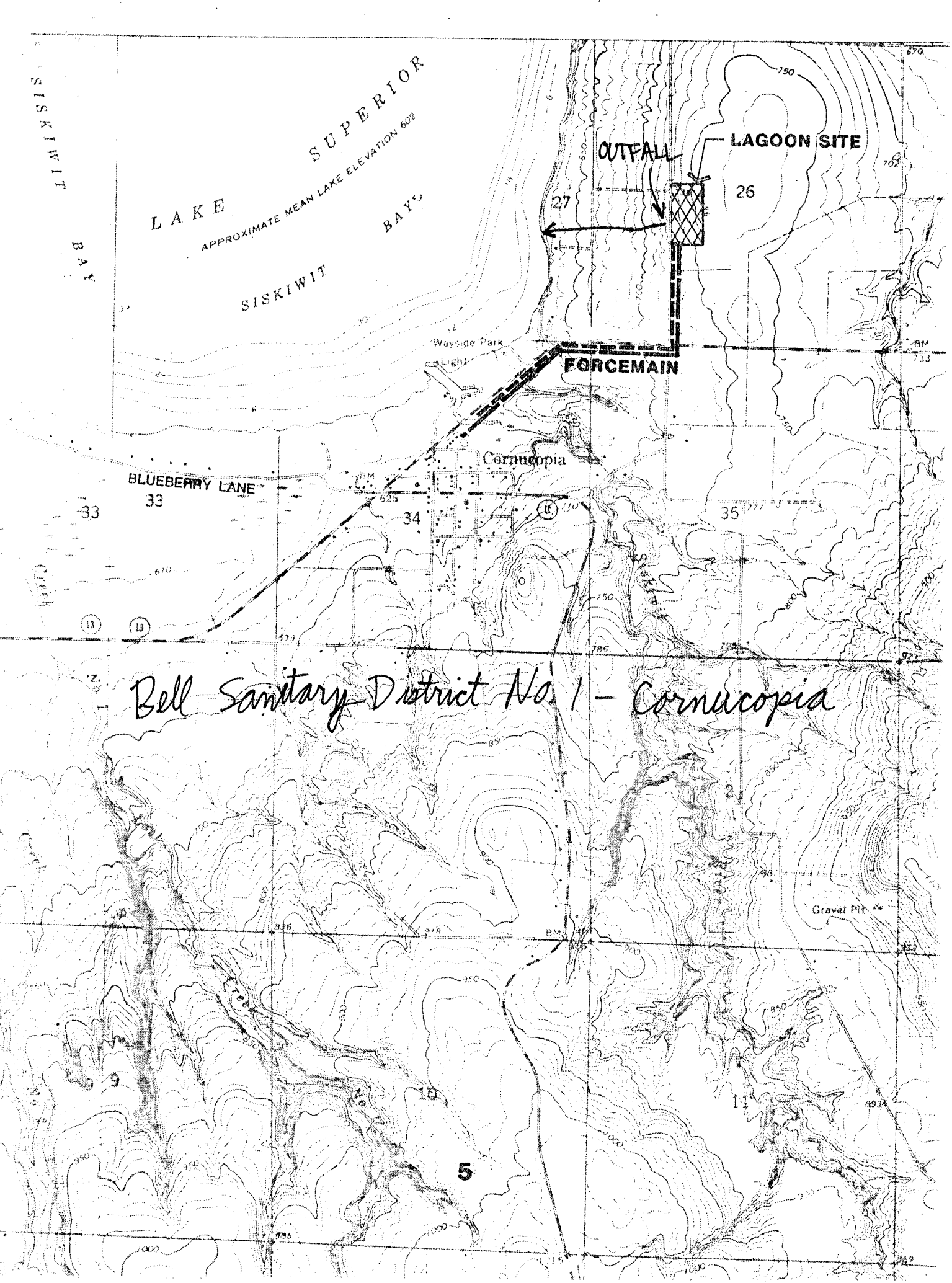

Bell Sanitary District No. 1 – Cornucopia

CORRESPONDENCE / MEMORANDUM — STATE OF WISCONSIN

Bell Sanitary District No. 1 – Cornucopia

DATE: December 27, 1985 File Ref: 3200

TO: Dan Peerenboom - WW/2

FROM: Duane Schuettpelz - WR/2

SUBJECT: Effluent Limitations for the Village of Cornucopia (Town of Bell)

This is in response to your recent telephone conversation with Jim Schmidt of this Bureau in which you requested a written summary of the effluent limitations for Cornucopia that were mutually agreed upon in a February 20, 1985 meeting involving Central Office and Northwest District Staff. During this meeting, three alternative outfall locations were discussed. The results of these discussions are listed below:

1) Direct discharge to Siskiwit River in Cornucopia:

This proposal was immediately rejected because of concerns over aesthetics, inadequate instream dilution, and potentially adverse effects such as oxygen depletion and nuisance conditions resulting from the probable collection of effluent in the marina area at the mouth of the Siskiwit.

2) Discharge to Lake Superior via outfall pipe:

This outfall would be routed south of the sandstone bluffs along Lake Superior and would extend into the lake to a depth of 25 to 30 feet, a distance of about 1/4 mile. Under this proposal, it was agreed that secondary effluent limits would apply as they appear in Chapter NR 210, Wis. Adm. Code.

3) Discharge to Lake Superior via dry run and sandstone bluff:

This is the existing arrangement. CR 2-23-96

This alternative involves discharging due west of the treatment lagoons to a dry run which leads to the edge of the sandstone bluffs along Lake Superior. The treated wastewater would then be allowed to flow naturally over the bluff's edge and into the lake. According to a USGS topographical map, the bluff is approximately 40 feet high while the dry run falls another 100 feet over the half-mile distance from the lagoons to the bluff. As the physical considerations here appear to preclude aquatic species from migrating up the dry run, effluent limitations for this alternative will be based primarily on protection of fish and aquatic life in Lake Superior even though aquatic life

standards will likely be met in the dry run itself. To provide protection to those aquatic species, discharge will be restricted to spring and fall months only. A seasonal discharge will provide greater dilution with the natural runoff typically occurring in those months as well as the increased aeration resulting from the effluent being directed over the edge of the bluff. Because of those considerations, secondary limits will be sufficient for this alternative along with the 4 mg/l minimum dissolved oxygen limit required for seasonal discharges from fill-and-draw lagoons in Section NR 104.02(4)(c), Wisconsin Administrative Code.

In summary, the effluent limitations for Alternatives 2 and 3 are identical except for the spring and fall discharge restriction and the dissolved oxygen limit on Alternative 3. The consensus reached during the February 20, 1985 meeting produced the following numerical limits:

Parameter	Effluent Limitation
BOD_5 & TSS	30 mg/l monthly ave., 45 mg/l weekly ave.
pH	6.0-9.0 range
Dissolved Oxygen (Alt. 3 only)	4 mg/l daily minimum

If you have any further questions, contact Jim Schmidt at 267-7658.

DHS:jsm
cc: Ted Smith, N.W. District, Spooner