

CARTHEL ENGINEERING, LLC

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December 4, 2002

Mr. Dale Olson
Sawyer County Land & Water Conservation Dept.
P.O. Box 89
Hayward, WI 54843

Re: Round Lake and Little Round Lake Water Levels

Dear Mr. Olson:

The purpose of this letter is to present my professional opinion of the causes of high water conditions on the referenced lakes and to suggest courses of action to relieve the County of further controversies in that regard. These opinions and suggestions are based on field observations, surveys and review of historical documents. Historical documents were obtained from Sawyer County, the Spooner office of the Department of Natural Resources, and documents provided from Michael Best & Freidrich, attorneys for Mr. Jim Hausman.

The Wisconsin Public Service Commission's order in docket 2-WP-513 of September 29, 1941 established the minimum level in the lakes at elevation of 77.0 feet and the maximum level at elevation 77.25 feet. The water level was to be regulated by a control structure at the outlet of Little Round Lake. However, with all of the stoplogs removed the structure cannot effect the discharge from the Round Lakes nor the water levels. This is because of the low water-surface slope between Little Round Lake and Osprey Lake (a.k.a. Squaw Lake). It would be necessary to lower the level of Osprey Lake to effect a significant lowering of the Round Lakes. The level of Osprey Lake is currently controlled by a beaver dam and a debris dam both located within the outlet channel between Osprey Lake and County Trunk Highway NN. On October 19, 2001 the following levels were recorded:

<u>Location</u>	<u>Water Surface Elevation, ft.</u>	
	<u>NAVD 88</u>	<u>PSC datum @ BM 1127-C</u>
Little Round Lake	1345.39	77.64
Immediately downstream of Little Round Lake Dam	1345.39	77.64
Osprey Lake	1345.16	77.41
Immediately upstream of CTH NN	1343.57	75.82
Immediately downstream of CTH NN	1343.04	75.29
153 feet downstream of CTH NN	1342.89	75.14

As shown there was no drop through the dam. Osprey Lake was only 0.23 feet lower than Little Round Lake and was above the ordered maximum for the Round Lakes. There was 1.59 feet of drop between Osprey Lake and the upstream side of the CTH NN culverts. The beaver dam located between Osprey Lake and CTH NN was estimated to

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have a 0.5-foot hydraulic drop and the debris dam located about 500 feet upstream of CTH NN was estimated to have a 1.0-foot drop. The total hydraulic drop over these naturally occurring dams was thus estimated at 1.5 feet, close to the measured difference of 1.59 feet between Osprey Lake and the CTH NN headwater.

It is my opinion that improvements made to the Little Round Lake Dam and/or the stream between Little Round Lake and Osprey Lake will have little or no effect on the Round Lake high water levels until the naturally occurring dams between Osprey Lake and CTH NN are removed. This was essentially the opinion of the state agencies in the past.

After an investigation W.H. Cartwright of the Wisconsin Public Service Commission reported the following on October 6, 1961:

The Commission's order in docket 2-WP-513 established the minimum level in the lakes at elevation of 77.0 feet and the maximum level at elevation 77.25 feet. However, the physical circumstances are such that proper operation of the outlet gate cannot effect discharge of sufficient water without raising Round Lake levels above the maximum established level when excess runoff occurs. This is because there is little slope from the Round Lakes to Squaw Lake which is a natural condition and cannot be changed.

On June 7, 1961 an inspection indicated that Little Round Lake was at elevation 77.6 feet. All of the stoplogs were out of the dam and the water level below the dam was at practically the same level as the water in the lake above to show that flow from Round Lake to Squaw Lake had filled the basin below Round Lake.

With these circumstances, the control section in the outlet of Little Round Lake is adequate and the operation is proper. The only improvement would be to operate the control section to hold the established level of Round Lake at elevation 77.0 feet and to have all of the gates out of the dam when Round Lake levels exceed elevation 77.25 feet. With this operation it is expected that the raise in Round Lake levels from heavy precipitation would be normal variation.

On December 15, 1967, Gerald Wallin, Wisconsin Department of Natural Resources, after complaint of high water wrote:

It is our opinion that the county has operated the dam satisfactorily and that they have kept the gates removed to allow for the maximum runoff and also to keep the outlet channel free of weeds and debris.

It would not appear at this time that there could be any legal method of lowering the levels of Squaw Lake, as this would severely affect the property owners on Squaw Lake.

On April 30, 1968 Dick Knitter, Wisconsin DNR wrote:

It is my opinion that the only way to obtain a solution to the problems of high water is to create a better flow condition in the outlet stream which will require the complete clean-out of the stream.

In 1969 Sawyer County with the consent of the Tribal Council obtained a permit to remove (dredge) materials from the bed of Squaw Creek upstream of CTH NN. A condition of the permit was that the removal be completed by December 1, 1970. There were no provisions for maintenance beyond this date.

Beginning in 1974, residents on Osprey (Squaw Lake) complained of low water. The DNR directed Sawyer County to place steel plates in front of the CTH NN culverts to raise Osprey Lake. However, the records indicate that this was never done and on December 7, 1976, the DNR rescinded their direction to Sawyer County and wrote to a complainant:

County Trunk Highway "NN" and most of the lands upstream from County Trunk Highway "NN" which were dredged, are a part of the Lac court Oreilles Indian reservation. Therefore, authority is required from the Bureau of Indian Affairs or the Lac court Oreilles Band, before any modification of the culverts or other water control structure is installed to regulate the levels of Squaw Lake. Furthermore, a maintenance and operation agreement will be required to clearly define responsibility and authority in operating and maintaining a water level control structure. Our most recent elevation for Squaw Lake indicated that the level was below the 76.52 elevation identified by the then Conservation Department. Investigators noted that no water was flowing from Little Round Lake into Squaw Lake at that time.

As you know, on October 8, 2002 the Lac Courte Oreilles Tribal Governing Board resolved that they strongly oppose any dredging or other disturbance of Osprey Creek. If they could be persuaded to reverse their position and consent to removal of the debris dam, experience shows that a permit to do so would also need to address regulation of Osprey Lake. This would involve a determination of lawful levels for Osprey Lake, a permit for a control structure (dam) at CTH NN, and a maintenance and operation agreement for a CTH NN dam and upstream channel.

In regards to Sawyer County's obligations to maintain the drainage way I have already said that the dredging permit only allowed removal up to December 1, 1970 and contained no provisions for maintenance. Further, on August 27, 1984 DNR Water Management Specialist, Roger Jasinski, stated in a letter responding to questions by Mr. Ken Carlson:

PSC Order 2-WP-513 does not require continued maintenance of the drainage system and there are no statutory requirements for such maintenance except for maintenance of the dam itself. Since maintenance is not required there is no enforcement authority. I discussed these enforcement questions with our Bureau of Legal Services. They had the following comments:

- a) *We could not enforce the 1941 PSC Order requiring construction of an outlet ditch because the order was not issued by this agency, the statutory criterion have changed and the facts have undoubtedly changed.*
- b) *We cannot enforce the existing levels order since all gates have been out of the dam for two years. The county is doing all they can under present circumstances to comply with the order.*
- c) *The PSC action in 1949 probably constitutes plan approval.*
- d) *If property owners wish to pursue a solution it would be necessary to submit a new proposal and application for approval.*

I suggest that Sawyer County has the following options:

- 1) **Do Nothing.** Continue to operate the Little Round Lake Dam as suggested by W.H. Cartwright, PSC, in 1961, that is, operate the dam to hold the established levels of 77.0 and 77.25 and to have all the stoplogs removed when levels exceed 77.25 whereupon levels will be according to normal variation. In addition, per the original 1941 order, prevent diversion of water from the Tiger Cat Flowage when the Round Lakes are above 76.0 feet.
- 2) **Establish revised lawful levels.** Sawyer County petitions the Wisconsin Department of Natural Resources to establish lawful levels based on number 1 above.
- 3) **Improve the Osprey Lake Outlet Stream.** This option would likely involve the establishment of lawful levels for Osprey Lake, the installation of a control structure (dam) at CTH NN, and an operation and maintenance agreement for the dam and the Osprey Lake outlet stream. This option would require a permit from the Wisconsin Department of Natural Resources and the prior consent of the Lac Courte Oreilles Tribal Government. It would likely require an engineering feasibility study, a formal hearing and engineering plans and specifications. Coordination with other agencies may be required such as the U.S. Army Corps of Engineers, U.S. Fish and Wildlife, and the Bureau of Indian Affairs.
- 4) **Abandon the Little Round Lake Dam and the Lake Placid Diversion Dam.** This option would involve petitioning the DNR for abandonment of these dams on the grounds that Sawyer County, by owning and operating these dams is exposed to potential lawsuits for which the costs are not in the best interests of Sawyer County. If granted, the Little Round Lake Dam stoplogs would likely be permanently removed and the Round Lake water levels would vary normally. Also, the Lake Placid Diversion canal would likely be plugged and the control structure removed. Under the recent conditions of high water this scenario would have no affect on Round Lake levels. However, during drought conditions there

would be no authority to dam water at the Little Round Lake outlet or divert water from the Tiger Cat Flowage unless another sponsor was willing to step forward and assume ownership of these dams.

An informal public informational meeting may be appropriate to present the options and obtain public comment.

If I can be of further assistance please call me.

Respectfully Submitted,


Daniel Carthel, P.E.

