

**Crystal Lake
Watershed Fund**



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*"Protecting the integrity of
the Crystal Lake Watershed"*

February 25, 2004

State of Michigan Department of Environmental Quality
Geological and Land Management Division
120 West Chapin St.
Cadillac, MI 49601-2158

Attn: Mr. Barry Peterman. Re: File No. 03-10-0044-P.
Permit Application to Construct a Boat Launch (MDNR)
Comments by Dr. Stacy L. Daniels, Crystal Lake Watershed Fund, Inc.

Good evening. My name is Stacy Daniels. I am a professional environmental engineer with experience in developing and designed technologies for water/wastewater treatment and nutrient removal including alternative treatment systems. I also have vested interests in this Hearing as a local riparian property owner. Since 1960, I have been actively involved as an observer, participant, collaborator, or director, in many water quality studies impacting the Crystal Lake Watershed, that were sponsored by the Crystal Lake Watershed Fund, Inc., (CLWF) a local nonprofit organization (*), or done in collaboration with local, state, and Federal entities, including the Benzie-Leelanau District Health Department, the MDEQ, the USGS, and the U.S. EPA. I am a member of the Board of Directors of the CLWF and coordinate the Crystal Lake "Walkabout", an educational program for interpretation of our Watershed and guidance for its responsible stewardship and measured use by students, visitors, and watershed property owners.

I appreciate the opportunity to make formal comments on the boat launch facility being proposed by MDNR. Past public meetings concerning this facility were limited to informational presentations by MDNR and their consultant, M.C. Smith Associates and Architectural Group. Members of the public and special interest groups were allowed to express their views, but only on an informal nontechnical basis. Until recently, no detailed engineering design specifications have been available for technical review. Local environmental professionals, who have studied the water quality of Crystal Lake, offered to meet with MDNR as an advisory group to resolve design issues of concern but have received no formal response.

General concerns of the public have been previously summarized in Crystal Shorelines, the CLWF newsletter, posted at www.CLWF.org, and also provided to both MDNR and MDEQ by several parties. My specific concerns address the management of stormwater and wastewater at this facility. As proposed, I believe the engineering design to be incomplete, since alternative water management options that are more environmentally friendly and having less potential impact upon the pristine qualities of Crystal Lake and its shoreline wetlands have not been identified nor fully considered.

(*) "The Crystal Lake Watershed Fund, Inc. (CLWF) is a nonprofit organization of concerned citizens interested in protecting the integrity of Crystal Lake, Benzie County, MI, for the enjoyment of future generations. The CLWF, together with governmental, academic, and professional partners, develops and supports initiatives for water quality monitoring, septic system control, sustainable development, and land conservancy through education, for watershed management."

The permit application lists "dredging" of the Lake and "filling" of wetlands, and targets Parts 301 and 303 of PA 451. It is silent at Section 11 regarding a "stormwater detention basin" and a "wastewater basin". According to Section 12, a wetlands delineation has been conducted, but not a wetlands assessment. A "proposed mitigation area" and a "vault toilet" are identified. A "package" wastewater treatment plant (Vortech® system) to be operated by local government is precedent-setting. No package plant has ever been included in any MDNR boat launch facility. The Great Lakes Commission is on record that "small package wastewater treatment plants and lagoon systems must be well monitored by state and local environmental officials". Benzie County has a landmark ordinance governing on-site wastewater treatment systems and alternatives. The high quality of Crystal Lake merits greater protection than a vortex system to remove gross pollutants. Stormwater and wastewater quantities, contaminant concentrations, and treatment levels should be defined. Anti-degradation provisions for nutrient control should be specified. Discharges should not be pumped directly into Crystal Lake.

The abbreviated Plan describes certain engineering aspects, but little detail. A "Proposed 18" Stormwater Pipe and Outflow" flows by gravity directly into Crystal Lake. A discharge of this magnitude represents the only single point source ever submitted for permit review of 186 applications impacting Crystal Lake submitted to MDEQ over the past ten years. Direct discharge was apparently a easy option to avoid multijurisdictional concerns in pumping the entire flow away from the Lake. Any increased cost for offsite discharge is more than balanced by the increased level of protection afforded to Crystal Lake.

The most critical item to revise is the present location and design of the facility entrance that seriously conflicts with the most desirable location of a stormwater detention basin and a package wastewater treatment plant. Stormwater overflow and treated effluent if placed at this alternative location could then be diverted into the wetlands of the Betsie River Watershed and not into the open waters of Crystal Lake. There is considerable literature on the applicability of natural wetlands for wastewater polishing as witnessed by the successful project at Houghton Lake, MI. The greater potentially adverse impact of the direct water discharge into Crystal Lake apparently has been overridden by a lesser impact of a modified traffic pattern, i.e. a design to facilitate entrance and egress by modifying the intersection of Highway M115 and Mollineaux Road, and the perceived jurisdictional concerns involving multiple watersheds.

A review of the area topography on USGS quadrangle maps and the Site Plan done by Northern Ecological Services, Inc. for MDNR leads to a conclusion that the "Proposed Mitigation Area", now located at the SE corner of the Site, could be better situated in the SW corner. The Crystal Lake Watershed is separated from the Betsie River Watershed by the high ridge running across the Site near Mollineaux Road where the land contours. It is feasible to place both stormwater detention and wastewater treatment facilities at this location and divert the combined discharges away from the Lake.

Some years ago, the Village of Beulah had the foresight to divert its sewerage wastewater over the same hills and away from Crystal Lake to Sewage Disposal Ponds south of State Highway M115 about 4,554 feet with a net fall in elevation ~ 70 feet from Crystal Lake. The proposed Site is located about 5,113 feet with a net fall of ~ 100 feet from Crystal Lake to the mouth of Outlet Creek. The distance from the top of the ridge on the Site to the Lake on the north, and to neighboring wetlands on the south are both about 1,300 feet. The Village of Beulah also entered into an agreement with Benzonia Township in 1975 to construct and operate a Sediment Basin for flood prevention and land stabilization with the USDA to intercept runoff from Cold Creek before it enters Crystal Lake. The CLWF has just completed a biomonitoring study of Cold Creek and the Sediment Basin supported by a MDEQ grant.

The alternative of onsite treatment and offsite diversion might well be reflected by the MDNR. Additional details are provided in my written comments. My offer to work with the MDNR to explore this alternative remains open. If not adequately designed, carefully constructed, and properly maintained, this proposed facility has the potential to adversely impact the Crystal Lake Watershed. Thank you.

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February 25, 2004

State of Michigan Department of Environmental Quality
Geological and Land Management Division
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Attn: Mr. Barry Peterman.
Re: File No. 03-10-0044-P.
Permit Application to Construct a Boat Launch (MDNR)

Continuation of comments by Dr. Stacy L. Daniels, Crystal Lake Watershed Fund, Inc.

Background

The proposed MDNR Boat Launch Site includes parts of Government Lots 1 and 2, Section 21, T26N, R15W, Benzonia Township, Benzie County, MI. The 14.9 Acre Site runs along the north side of Mollineaux Road near the intersection of Highway M115 and Mollineaux Road, and extends to the shore of Crystal Lake where there is 280 lineal feet of frontage.

The "Project Description", received by MDEQ on December 4, 2003 from M.C. Smith Associates and Architectural Group, the MDNR consultants, includes these passages under "Existing site conditions": "Between the lake frontage, and the southern portion of the property, there is approximately 88 feet of topographic relief, which has a significant impact on the overall site design. Most of this relief occurs within a large ridge that separates the lake frontage from the remainder of the parcel." The description also states, "The majority of the site lies within the Crystal Lake watershed with only the southwestern corner draining toward the Betsie River. All proposed wetlands impacts and compensatory mitigation will be constructed within the Crystal Lake watershed (emphasis added)". This is an undue constraint.

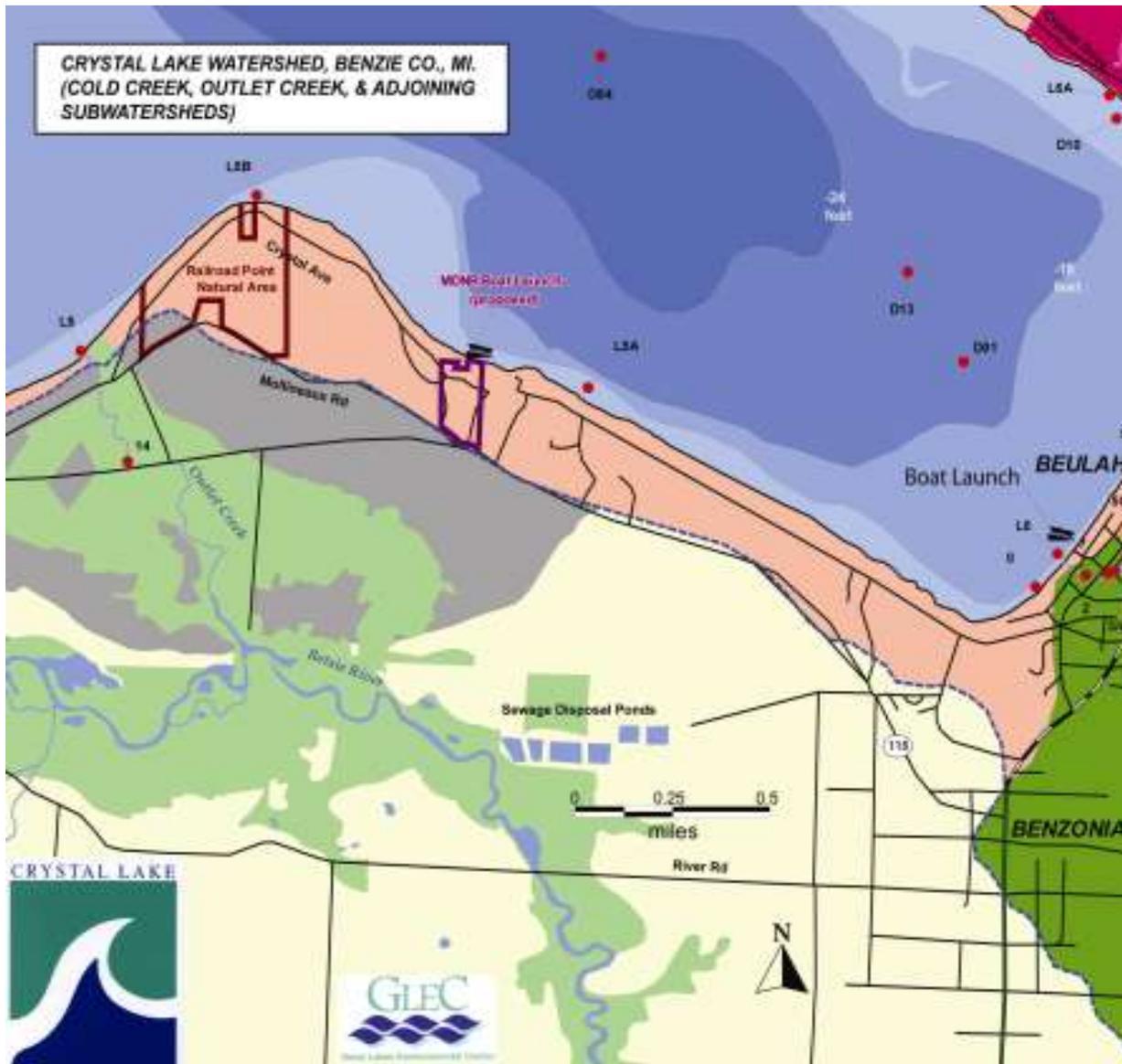
The consultant also describes attempts "to obtain feedback from the general public, and local and state officials", at two public hearings held "to discuss the preliminary design of the new facility" conducted on August 6, 2002, and October 22, 2002. According to the consultant, the hearings were "well attended, and resulted in multiple design changes to accommodate as many suggestions as possible from the interested parties". The suggestion made by this commenter that it might be feasible to divert all stormwater and treated wastewater completely offsite into the neighboring Betsie River Watershed was disregarded as "involving another watershed", and that this project was being designed solely within the Crystal Lake Watershed. The suggestion of placing the mitigation facilities for stormwater and wastewater more conveniently near Mollineaux Road to facilitate offsite diversion was disregarded as incompatible with the modification of the entrance road to the facility that took precedence. A third suggestion that the MDNR and the consultant meet with local environmental professionals never received the courtesy of a reply.

It is the considered opinion of this commenter that these public meetings were largely informational transfers of the preliminary design with no specifics offered from the MDNR and the consultant. While there were opportunities to offer opinions and informal suggestions, these "public meetings" did not constitute formal public hearings, and apparently no public record was kept of the discussions. Since no detailed engineering design or specifications were made available to the public to consider until the permit application was submitted in late 2003, and public notice was made on January 5, 2004, no substantive technical comments could be made until the public hearing of February 25, 2004. These comments are made in the hope that the final design of the facility will reflect sound environmental considerations, and that the construction and operation of the resulting facility will be done with a spirit of cooperation.

Description of Alternative

The description of the alternative of offsite diversion can be best illustrated using maps of the area.. A Geographic Information System (GIS) map of the area surrounding the Site of the MDNR Boat Launch (proposed) is contained in Figure 1. The proximity to the Site of the Railroad Point Natural Area, Outlet Creek, the Betsie River, neighboring wetlands; and the Village of Beulah, the existing public boat launch at Beulah, Cold Creek, and the Sewage Disposal Ponds for the Village are shown. The CLWF has identified several nearshore, tributary, and deepwater monitoring locations in the proximity of the Site.

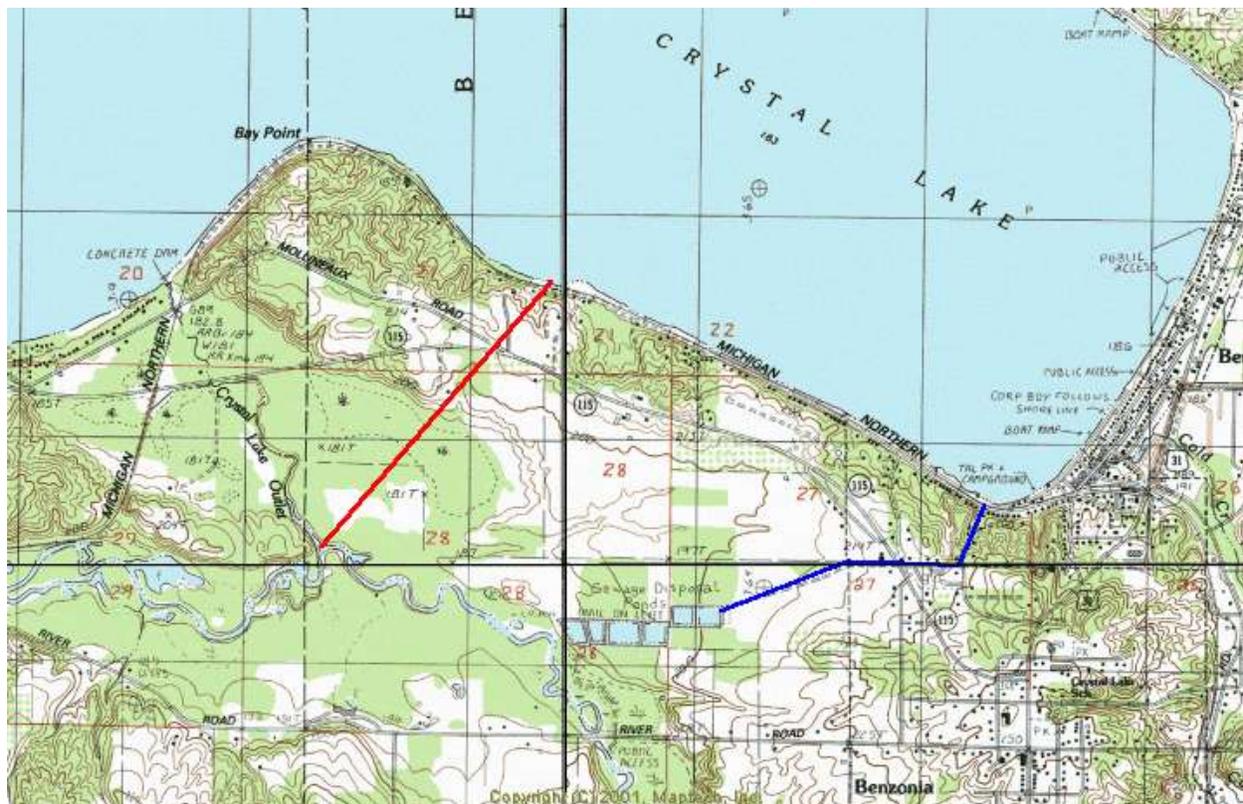
Figure 1. GIS Map of the Area Surrounding the MDNR Boat Launch (proposed).



The Site of the proposed boat launch is further outlined in Figure 2 (*). The track traced by the Red Line (left) begins on the Site at the shoreline of Crystal Lake and extends southwest to the mouth of Outlet Creek where it enters the Betsie River. Moving southwest, this track first rises steeply to the ridge separating the Crystal Lake Watershed (north) from the Betsie River Watershed (south). It next crosses Mollineaux Road, then falls to a large wetlands area currently owned by the Grand Traverse Regional Land Conservancy, and finally continues to the Outlet Creek/Betsie River fork. The total distance is about 5,113 feet with a net drop of ~ 100 feet. The distance northeast from the top of the ridge on the SW corner of the Site to the Lake and the proposed boat launch is about 1,300 feet. The distance southwest from the top of the ridge to the neighboring wetlands is also about 1,300 feet.

The Sewage Disposal Ponds for the Village of Beulah are located southwest of the Village, south of Highway M115, and north of River Road. The track traced by the Blue Line (right) begins at Crystal Lake and extends south and west following roads to the Ponds. This track first rises to the ridge between the Crystal Lake and Betsie River Watersheds, and then falls toward the Ponds near the Betsie River. The total road distance is about 4,554 feet with a net drop in elevation ~ 70 feet from Crystal Lake.

Figure 2. Topographic Map of Southwest Crystal Lake Watershed.

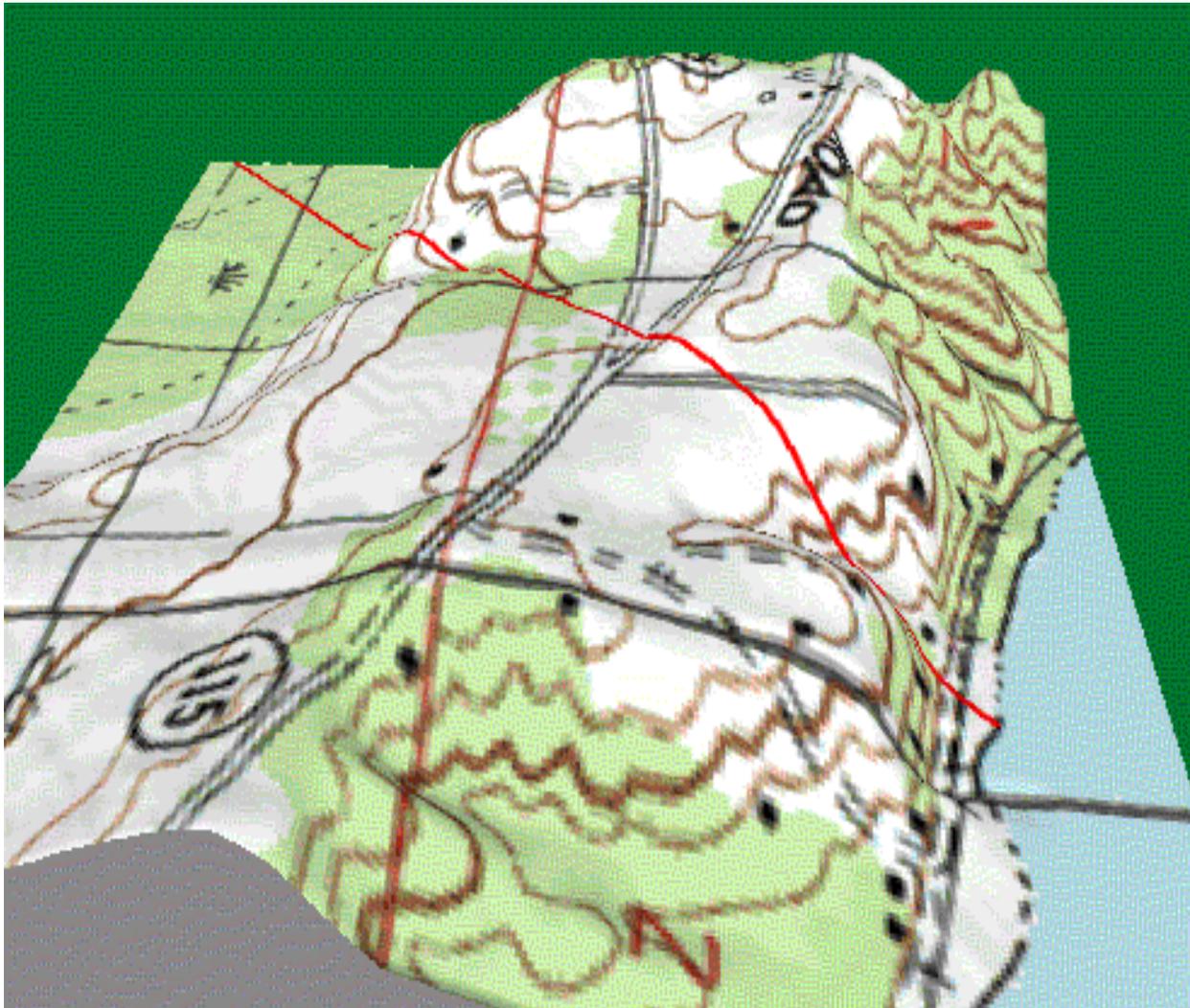


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(*) Figures 2 and 3 were derived from the USGS Beulah & Frankfort Quadrangles, Michigan – Benzie County 7.5 Minute Series (Topographic) maps using MAPTECH® Terrain Navigator software.

The rise and fall of the track between the shore of Crystal Lake, across the Site, and continuing to the Betsie River, is shown in a three-dimensional view in Figure 3. The ridge delineating the boundary between the Crystal Lake Watershed (north) and the Betsie River Watershed (south) is dramatically illustrated. The steep topographic relief indeed has a “significant impact on the overall site design”.

Figure 3. Three-Dimensional Map of Southwest Crystal Lake Watershed.



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Summary

The topography contiguous to the Site of the proposed MDNR Boat Launch is very conducive for collecting stormwater and treating wastewater, and then diverting the combined discharge down the hill to the southwest away from Crystal Lake. I urge further consideration of this alternative.

Respectfully submitted,

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