Ecological and Water Resources
2115 Birchmont Beach Rd NE
Bemidji, MN 56601

May 4, 2021

Kevin Fellbaum
Ditch Inspector/Engineer
Otter Tail County
505 South Court Street
Fergus Falls, MN 56537

Commissioner's Preliminary Advisory Report: New Otter Tail Co Ditch 71

Kevin Fellbaum,

On behalf of the Commissioner of the Department of Natural Resources, I offer the following comments on the Preliminary Survey Report for the above-cited project, in accordance with Minnesota Statutes section 103E.255.

1) The Preliminary Engineer's Report appears to be adequate from DNR viewpoint, however addressing the comments in this letter within the detailed survey report will be necessary.
2) A soil survey is not needed.

General comment

The description as restoring the lake to historical ordinary high water levels (OHWL) creates confusion throughout the report. For clarity, we recommend describing the project as a lowering of the lake 18 inches below the ordinary high water level.

Private and public benefits

Information is lacking on the public and private benefits of the proposed project. Please provide the following in the detailed survey report:

- Frequency of road overtopping occurring on CSAH 6 and other roads with existing conditions.
- Frequency and acreage of agricultural lands flooded with existing conditions
- Map indicating where cropland or groundwater conditions are expected to improve.

Effects of the proposed drainage project on water quality

Both Nelson and Fish Lakes are impaired for nutrients, with phosphorous being the biggest concern. The Long Prairie River Watershed Pollutant Reduction Project Total Maximum Daily Load (TMDL) study dated February 2017 lists reducing the internal nutrient loads as the main strategy for reducing phosphorous in Fish and Nelson Lakes. DNR disagrees that the lowering of water levels on Nelson Lake would improve water quality by reducing shoreline erosion. This is because lowering the water levels in Nelson Lake may increase the stirring up of the lake bottom from wind and wave action, and re-suspend sediments and phosphorous into the water column. This would be inconsistent with the TMDL for Nelson Lake.

Further, decreasing water clarity can impact other things such as aquatic plant and algae growth and the makeup of the fish community, increasing rough-fish. The Long Prairie Watershed Restoration and Protection Strategies (WRAPS) document dated April 2017 identifies biomanipulation as a potential in-lake strategy for reducing suspended phosphorous loading in lakes. Biomanipulation strategies include the removal and discouragement of rough-fish, which suspend water bottom sediments through their bottom-feeding behavior.

DNR recommends the following be included in the detailed survey report:

- Assessment of this risk for increased phosphorous suspension prior to allow for an informed decision on potential environmental consequences of the project.
- Inclusion of strategies listed in the WRAPS such as vegetation establishment including reforestations, shelterbelts, riparian tree planting and lakeshore restoration with lakeshore owners. This work should occur beyond the minimum 50 foot shoreland buffer required under the buffer law. Increasing vegetative cover increases evapotranspiration and water and nutrient absorption while reducing erosion and run-off.
- Monitoring of turbidity and phosphorous prior to constructing and post-project. Monitoring could be conducted in coordination with the Otter Tail Coalition of Lakeshore Associations.

Effects of the proposed drainage project on wetlands

Water levels have been high since the early 1990's due to changes in hydrologic conditions, not because of a man-made obstruction or other factors. The wetland vegetation has adapted to over 30 years of these hydrologic conditions. A permanent lowering of Nelson Lake 18 inches below the OHWL may have drainage effects on adjacent wetlands and associated wildlife habitat.

DNR recommends investigating potential direct and indirect impacts to lakeshore fringe wetlands. If the Wetland Conservation Act Technical Evaluation Panel (TEP) is not able to concur with a no-loss determination, a replacement plan should be developed and described in the detailed survey report.

Effects of the proposed drainage project on fish and wildlife resources

The outlet design for Nelson Lake is a similar design used by Otter Tail County at the Sewell Lake outlet. The Sewell Lake outlet has had issues with fish stranding (northern pike, bass, and carp). Fish follow the current and get either impinged on the screen or they jump off onto the adjacent dry land and die. Accumulation of sediment and plant debris on the top of the structure, preventing water outflow is also an issue. DNR recommends placing the structure further out in the water to minimize these issues. Consideration of potential impacts from fish stranding and consideration of alternatives that prevent fish stranding will be required during the public water permitting process.

There appears to be a substantial fish population in Nelson Lake, we have concerns the project could promote a winterkill situation and harm the fishery. We recommend obtaining more accurate water bottom elevations on Nelson Lake to determine potential for winterkill. This information will also help estimate the potential for resuspension of bottom sediments.

DNR recommends a fish population assessment in Nelson Lake to develop a species list prior to project. DNR Fisheries does not actively manage Nelson Lake or know what kind of populations are currently present. Our fisheries staff would like to survey the fish population in Nelson Lake, however, there is no official public access. Please contact DNR Area Fisheries manager Jim Wolters at james.wolters@state.mn.us for additional coordination.

DNR fisheries have determined we are monitoring for Viral Hemorrhagic Septicemia (VHS) sufficiently at a watershed scale and a survey for this disease in Nelson Lake is not needed at this time.

Effects of the proposed drainage project on shallow groundwater

There is a high water table just to the west of Nelson Lake in the moraine area that is driving shallow groundwater towards Nelson Lake and the Parkers Prairie outwash area. This may affect the efficiency of the tile for the proposed project and should be taken into consideration.

Additional investigation and evaluation needed relating to public waters

A more robust alternatives analysis will be required in the public waters permit application process. DNR is unable to permit any action significantly affecting the environment so long as there is a feasible and prudent alternative. Economic considerations alone shall not justify a project. In addition to alternatives listed in the report, we recommend adding an alternative for an outlet at the existing OHWL elevation (rather than 18 inches lower).

Thank you for consideration of these comments. If you have any questions feel free to contact DNR Area Hydrologist Julie Aadland at Julie.aadland@state.mn.us for further discussion.

Sincerely,

Nathan Kestner

Regional Manager –Eco-Waters

Cc: Julie Aadland, Area Hydrologist
Jaime Thibodeaux, NW Environmental Assessment Ecologist
Emily Siira, Area Hydrologist
Jim Wolters, Area Fisheries Manager
Michele Walker, Groundwater Specialist

Equal Opportunity Employer