



Division of Ecological & Water Resources
21371 Highway 15 South
New Ulm, MN 56073

September 5, 2017

Jan Voit
Heron Lake Watershed District
1008 3rd Avenue, P.O. Box 345
Heron Lake, MN 56137

Subject: Judicial Ditch 14 Improvements
Preliminary Engineering Report
Jackson County, MN

Dear Jan:

On behalf of the Director of the Division of Ecological and Water Resources of the Department of Natural Resources (MNDNR), I offer the following comments on the Preliminary Engineer's Report (PER) for the project referenced above, in accordance with Minnesota Statutes Section 103D.711.

Of general concern in all proposed ditch improvement is the cumulative effect that the project may have upon downstream water resources, natural resources, and property owners in terms of quantity and quality of water that is received. Project specific and cumulative impacts from ditch projects can result in downstream flooding, erosion, and a decrease in water quality. For these reasons, we urge careful evaluation of the project to ensure it is consistent with Priority Concerns identified in the Jackson County Local Water Management Plan (Water Plan). The Water Plan includes priorities for improved surface water quality, drainage management, and the protection of groundwater.

The Water Plan emphasizes the use of Best Management Practices to control erosion and reduce excess nutrients from entering surface waters. During peak flow periods (i.e. spring runoff) runoff from agricultural lands can be reduced through the use of cover crops. Cover crops help retain topsoil on the land, improve soil structure, aid in the infiltration and storage of soil moisture, and improve water quality. The retention and health of topsoil is vital to long-term agricultural production. The use of cover crops in the watershed would reduce the need to expand ditch systems, stabilize ditch and stream banks, and decrease the frequency of ditch cleanouts resulting in lower landowner costs for ditch maintenance.

The Agricultural BMP Handbook for Minnesota has been developed by the Minnesota Department of Agriculture to address water quality impairments. The document provides a review of 30 conservation practices that are designed to enhance agriculture's role in addressing water quality concerns in Minnesota. Engineer Reports should include the appropriate BMP's for the project and landowners should be encouraged to implement them. The Agricultural BMP Handbook for Minnesota contains valuable information that can be viewed at the following link: <http://www.mda.state.mn.us/protecting/cleanwaterfund/research/agbmphandbook.aspx>. Our agency encourages the use of as many of the BMP's indicated in the Multi-Purpose Drainage Management Plan as practicable.

Please be sure to review Minnesota Statutes Section 103F.48 concerning Riparian Protection and Water Quality Practices that was recently approved by the legislature. The new Statute requires a one-rod buffer on each side of public ditches or alternative water quality practices. Implementation of the Riparian Protection and Water Quality Practices will stabilize ditch banks, reduce the transport of sediment, remove excess nutrients, and increase water retention. Landowners should be encouraged to plant deep rooted native species that will improve the stability of the ditch banks. The Soil and Water Conservation District should be contacted for assistance with buffer implementation.

Controlled drainage involves placing water control structures along a drain tile system. Controlled drainage systems allow for the management of soil-water conditions that allows for drying out the fields in spring for planting and fall for harvest. During the summer the drainage is restricted to allow increased water retention in the soil profile that is available to plants during the summer growing season. The MNDNR supports the use of controlled drainage as it is beneficial to agricultural production by retaining moisture and nutrients in the soil while minimizing runoff and erosion. Portions of the project area may be conducive to controlled drainage. Landowners in the project area should be encouraged to consider the use of controlled drainage.

Table 3: Proposed Tile Capacities indicates that several branch tiles will be increased in size with a resulting increase in drainage coefficients that significantly exceed the NRCS recommended 0.50 in/day. The branch tiles should be sized to meet the NRCS recommended 0.50 in/day and not to significantly exceed it. Reducing the branch tile sizes will reduce project cost and reduce peak outlet flows from the system.

Page 11 indicates that up to 6 water and sediment control basins (WASCOB) shall be placed as shown in Appendix C, which are locations that see excessive erosion. Our agency supports the inclusion of the WASCOB and the drainage authority should direct the engineer to include them in the final design for the project.

Page 12 indicates a weir or dual culvert field crossing will be used for in channel storage as a mechanism to match or decrease flows out of the drainage system. Our agency supports the inclusion of the weir or dual culvert crossing as it will not only slow the release of water, but also reduce sediment and excess nutrients from going downstream. The drainage authority should direct the engineer to include them in the final design for the project.

The MNDNR requests that responses to our comments on the PER be included as part of the Final Engineer's Report in order to improve the coordination and understanding of decisions made on ditch projects.

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Please contact Kevin Mixon, Regional Environmental Assessment Ecologist, at (507-359-6073; email: kevin.mixon@state.mn.us) if you have any questions about this letter.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jim Sehl".

Jim Sehl
EWR Assistant Regional Manager

Ec: Chuck Brandel, ISG
Kevin Mixon, EWR REAE
Brian Nyborg, Area Hydrologist
ERDB#20180069