

March 27, 2023

Board of Managers  
Two Rivers Watershed District  
410 South 5<sup>th</sup> St, Suite 112  
Hallock, MN 56728

Re: BWSR Advisory Report – Kittson County Ditch 7

Dear Managers,

On behalf of the Minnesota Board of Soil and Water Resources, I offer this advisory report in accordance with Minnesota Statute Section 103D.711, Subdivision 5. To prepare this advisory report, I reviewed the *Engineer's Preliminary Survey Report, Kittson County Ditch No. 7 Improvement*, dated January 31, 2023, and the report's associated Appendices.

I have one, potentially significant, concern with this project that the managers may want to investigate with their engineer. The increased velocities at the transition from zero slope to 0.5% slope at approx. Sta. 133 could result in erosion and could eventually lead to head cutting of the ditch. Over time, this could expose the pipelines. I suggest that the HEC-RAS model be used to evaluate the velocities at this location, and additional protective measures be used (if necessary) to prevent erosion.

I have a few other minor comments that the watershed district may want to consider as they finalize their plans for this improvement.

- In the Present Situation section of the report (Page 2), it is difficult to follow the issues presented, especially those near Section 20. A figure that includes topography would be helpful to better understand where the ditch capacity is reached and where there is breakout flow.
- Survey Data from 2010 may be outdated, so the excavation quantity (and cost) may be more than expected.
- Maps showing the extent of flooding before and after the improvement may be helpful for the watershed district and the landowners to understand the benefits of the project.
- In the hydrology and hydraulics section of the report, the conclusion from the flow comparison evaluation (Pages 6-7) states that the proposed design would carry all but the largest events without overflow into adjacent fields. I suggest clarifying this statement to note which events would be expected to be conveyed by the updated system so there is a better understanding of risk.
- If the spoil overflow areas are not represented in the HEC-RAS model, I suggest including them, so the water surface elevations are accurately calculated for storm events that utilize the overflow areas.

- There are two locations along the profile that state: “Spoil Overflow North Side” or “Spoil Overflow North & South Side” (approx. Sta 133 and Sta. 186 respectively). Should this be spoil overflow to the *south* side? Otherwise how will these overflows be conveyed north of the road?
- Report states there will be no change in peak flows for the 2-year event, however with widening and steepening the channel, there will likely be a change in peak flows for all events (even if they are both contained by the ditch). It may not be important to quantify this change, but it should be noted there will likely be an increase in flows even during smaller events.

I agree that side water inlets (with alternative intakes if possible) should be considered with this project. I suggest that the watershed district consider the [Multipurpose Drainage Management grant](#) for funding support to include side water inlets or other agricultural BMPs. Please feel free to contact me at 651-539-2591 (email [rita.weaver@state.mn.us](mailto:rita.weaver@state.mn.us)) if you have questions regarding this advisory report.

Sincerely,



Rita Weaver, PE  
BWSR Chief Engineer

CC: John Jaschke, Director  
Ryan Hughes, Northern Region Supervisor  
Matthew Fischer, Board Conservationist  
Henry Van Offelen, Clean Water Specialist  
Dan Money, District Administrator  
Stephanie Klamm, DNR Area Hydrologist

*Equal Opportunity Employer*