



April 27, 2020

Board of Managers
Heron Lake Watershed District
1008 3rd Avenue
PO Box 345
Heron Lake, MN 56137

Re: BWSR Advisory Report – Judicial Ditch #36 Improvement, Jackson County

Dear Managers,

On behalf of the Minnesota Board of Soil and Water Resources, I offer this advisory report in accordance with Minnesota Statutes, Section 103D.711, Subdivision 5. The focus of this advisory report includes:

- A statement about the completeness of the report in relation to statutory requirements;
- A statement as to whether or not the report presents a practical plan;
- Recommendations for changes, if considered advisable, and;
- A recommendation as to whether a soil survey appears advisable.

The *Preliminary Engineering Report: Judicial Ditch 36 Improvements, Jackson County, Minnesota* (dated March 23, 2020), was reviewed to prepare this advisory report.

Completeness of the Report

The report is complete in accordance with the Minnesota Statutes Section 103D.711, Subdivision 2 and Section 103E.015, Subdivision 1. However, clarity could be provided in several areas. I suggest that the following items be reviewed and clarified where possible:

- The basin elevations shown on Sheet 9 do not make sense with the tile elevation (should they be 1394 and 1397?).
- Plans did not appear to state which bedding detail should be used for which tile line. This should be clarified.

Practicality of the Plan

Overall, I believe that the plan as presented is practical. Under low flow conditions in Jack Creek, the proposed project should promote drainage in the watershed. However, depending on the elevation of Jack Creek under normal and flood conditions, the project may have less effect on the overall drainage of the watershed.

Recommendations for Changes

I have no specific suggestions for changes to the design, however I suggest that the engineer further review the variable water surface elevations of Jack Creek and the existing JD 36 outlet. Photos show a partially submerged JD36 outlet in late September 2019, however with the significant rainfall in the fall of 2019 this may not be the typical water surface elevation for the creek.

Please consider the following:

- Varied water surface elevations in Jack Creek may result in different percent-changes in flow rate at the outlet of JD36. The downstream boundary condition used in the model is not included in the preliminary engineering report, so it is not clear what elevation in Jack Creek is considered with the reported model results.
- Energy dissipation should be considered at the outlet of JD 36 to reduce the potential for erosion if the outlet is not submerged under low flow conditions in Jack Creek.

Recommendations for Soil Survey

I do not believe that a soil survey is necessary for this improvement project.

Please feel free to contact me at 651-297-2907 (email rita.weaver@state.mn.us) if you have questions regarding this advisory report.

Sincerely,



Rita Weaver, PE, CFM
Chief Engineer

CC: John Jaschke, Director
Ed Lenz, Southern Region Supervisor
Douglas Goodrich, Board Conservationist
Mark Hiles, Clean Water Specialist
John Hansel, Wetland Specialist
Tom Kresko, DNR Area Hydrologist
Jan Voit, HLWD Administrator
Chuck Brandel, PE, ISG

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