



Ecological and Water Resources Division

**500 Lafayette Road,
St. Paul, MN 55155**

March 5, 2019

Becca Nash, Director

Legislative-Citizen Commission on Minnesota Resources

65 State Office Building

100 Reverend Dr. Martin Luther King Jr. Blvd.,

St. Paul, Minnesota 55155

Ms Nash,

I wanted to thank you for inviting the DNR's River Ecology Unit to provide additional technical context to the Sauk River Dam Removal and Rock Rapids Replacement proposal from the City of Melrose. As was indicated during the meeting, we are happy to continue to work with the City of Melrose and its engineers on the technical details: however, a successful project depends on constructive exchange.

In that light, I wanted to underscore the critical importance of the City developing, and us receiving, the dam site hydraulic data and associated analysis for rock arch rapids at a full range of elevations. This would include headwater/tailwater rating curves, shear stress/ discharge relationships developed from the rating curves, and rock size and amounts developed from the shear stress/ flow relationships.

It is this data and analysis that will determine the design height, slope, and therefore the cost (size and amount of rock), the risk (shear stress/discharge relationship), and the ecological benefit (sediment transport, water quality improvements, habitat improvement, degree and stability of connectivity) of the project. As I mentioned in the meeting, for optimal ecological benefit the elevation of rapids would be determined based on the elevation of the accumulated sediments in the reservoir, which is currently estimated at 7 feet below full pool.

I hope this clarifies the information we are seeking to make recommendations for the design of the rock arch rapids and the resulting ecological benefits. Again, thank you for the opportunity to provide input and feedback on this project.

Sincerely,

Ian Chisholm

River Ecology Unit, Supervisor

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