



Barr Engineering Company  
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Minneapolis, MN • Hibbing, MN • Duluth, MN • Ann Arbor, MI • Jefferson City, MO

August 28, 2007

Robert Williams, P.E.  
805 Des Moines Drive  
Windom MN 56101

**Re: Dam Removal, Repair and Restoration**

Dear Mr. Williams:

We appreciated the opportunity to discuss the Windom dam and learn more about the conditions the City is facing regarding the future of the Des Moines River in Windom. Barr has extensive experience in study, planning, and design for dam construction, repair, reconfiguration, and removal projects. You have asked us to provide you with our opinion on engineering issues that should be addressed in developing a plan for the future of the river in Windom. We offer these opinions without the benefit of detailed knowledge of the site conditions at Windom. We also take no position on whether a dam removal, repair, or reconfiguration would be the best solution for the City of Windom. That decision will be made by the City, and should be based on a robust public information and input process, sound engineering and environmental information, and a cooperative process involving representatives of the City, the public, and the Minnesota DNR.

In order for the City to develop a recommendation on the future of the Des Moines River, it will be important to understand the impacts that any choice will have on the future of the river and riverfront for the public, the City, and the environment. Making a decision without adequate information may result in surprises or un-foreseen conditions that could increase project costs or result in outcomes that are different than were expected. Engineering issues that should be addressed in assessing alternatives for the Des Moines River include the following:

- Public safety, including minimizing or eliminating spillway hydraulics that cause a “drowning machine” affect
- Impact on utilities and infrastructure, including scour or erosion at utility crossings, bridge piers, and bridge abutments, as well as impact on water supply from river sources
- Impact on adjacent structures and embankments, including bank, embankment, and foundation instability that may be caused by changes in surface water and groundwater levels, and could affect buildings, roads, or utilities in proximity to the river
- Impact on flood levels and flood damage, including inundation from flood waters or erosion from flood flows
- Impact on river channel, and understanding of local and regional river mechanics, including expected erosion, stream meander, bank stability, shoreline vegetation, and how these might impact the landscape and infrastructure near the current river alignment
- Impact on recreational opportunities, including fishing, canoeing, snowmobiling, biking and hiking

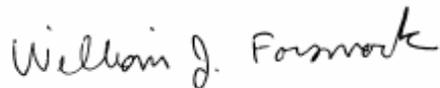
- Impact on aesthetics, including views of the river water surface and shorelines from public and private vantage points
- Impact on historic features, especially potential candidates for National Historic Register, but also those that might have local or regional significance
- Impact on environmental and ecosystem, including upstream passage of fish and other aquatic species, aquatic and shoreline habitats, and water quality
- Costs associated with potential alternatives
- Funding sources available for each potential alternative

We strongly encourage a decision making and implementation process that provides ample opportunity for public input and consensus building; active dialog throughout the process between the City, the Public, and DNR staff; and a design process that addresses the above-mentioned engineering concerns. We also encourage the City and Public to review other similar low head dam sites in Minnesota where dam removal, reconfiguration, or repairs have been studied or implemented.

Your DNR regional hydrologist should be able to provide you with contacts for these communities. If you would like, we can provide you with contacts as well for a variety of recent projects.

If you have any further questions, please contact me.

Sincerely,



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