



211 Ninth Street South, Box 2806, Fargo, ND 58108-2806
Phone 701-241-5600 Fax 701-241-5728

March 16, 2018

Ms. Julie Ekman
Conservation Assistance and Regulations Section Manager
Ecological and Water Resources Division
Minnesota Department of Natural Resources
500 Lafayette Road – Box 25
St. Paul, Minnesota 55155-4032

Re: Moorhead and Fargo Area Flood Diversion Project
Dam Safety and Public Waters Work Permit Applications

Dear Ms. Ekman,

The Diversion Authority is pleased to submit to the Minnesota Department of Natural Resources (MDNR) an application for a Dam Safety and a Public Waters Work Permit for the F-M Area Diversion Project. After years of successful partnership and support from the MDNR on numerous localized flood protection projects, please find the enclosed submittal of a new proposal for a comprehensive flood protection for our region.

As Mayor of Moorhead, it is with great honor that I also am able to serve as Chair of the Diversion Authority during this critical juncture in our region's history. For a Project of this magnitude and complexity, the collaborative and inclusive process that has taken place over the last several months has been essential. The Governors' Task Force and the subsequent iterative work with the MDNR, the U.S. Army Corps of Engineers, Diversion Authority representatives, and with those impacted by the project, has helped identify solutions and has led to major improvements to the proposed Project.

Please recognize that this preliminary report is not intended to be a complete application. Further design of many aspects of the Project are still underway and we appreciate the State of Minnesota's continued commitment to working with us as we finalize those aspects still requiring additional work. We have enclosed substantially updated information regarding our plans to fairly compensate those impacted, to create a representative Operations Committee to review the operations manual, and regarding our depth of financial resources that have been secured through public voter approval. We welcome your additional scrutiny of these items as you work through your permit review process.

Governor Dayton said it best, "Reliable and effective flood protection for the cities of Moorhead and Fargo and their surrounding regions is essential." We believe that providing "essential" public safety to our communities,

City of Fargo
Tim Mahoney
Dave Piepkorn
Tony Grindberg

City of Moorhead
Del Rae Williams, *Chair*
Chuck Hendrickson
Joel Paulsen

Cass County
Chad Peterson
Mary Scherling
Rick Steen
Mike Thorstad
(City of West Fargo)

Clay County
Kevin Campbell
Grant Weyland

**Cass County Joint
Water Resource District**
Rodger Olson

Ms. Julie Ekman

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Dam Safety and Public Waters Work Permit Application

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citizens, and businesses is not something that should linger through unnecessary bureaucracy if it can be avoided. We remain steadfast in our request that, on components or phases where we find agreement, we should act swiftly to move forward on approvals of this essential work.

The impacts from flooding and living in a flood prone area is common knowledge. We have learned through building over \$500 million in flood protection works in our communities that implementing flood protection is quite impactful. This is especially true on a flood risk reduction Project of this scale where you cannot avoid negative impacts on someone. These permit applications includes a number of significant changes and improvements that specifically address those impacts. These changes have better balanced the impacts between North Dakota and Minnesota to more closely align with the balance of benefits, substantially reduced the impacts in Richland and Wilkin County, removed the need for a ring levee around the City of Comstock, avoided complications on Highway 75 and on the BNSF railroad in southern Clay County, minimized the impact to organic farms, reduced the number of cemeteries impacted, and reduced the overall amount and frequency of upstream storage.

This Project and permit applications were not developed in a vacuum. Thanks is due to the thousands of individuals who have taken part in public meetings, public comment periods, individual meetings, phone calls, emails, to the Governors' Task Force, and yes even to the legal court system. All of this feedback is essential to the process, and while we know that complete consensus is not attainable, the Diversion Authority takes the responsibility seriously to take all of these views and recommendations and combine them into a permissible application.

Lastly, thank you to the MDNR for your hard work, patience, and continued communication throughout the remainder of the permitting process. The permit decision will be decided by the MDNR without interference. Thank you for your objective and appropriate application of State law as you review this essential Project.

Sincerely,



Mayor Del Rae Williams
City of Moorhead
Diversion Authority Chair



Public Waters/Dam Permit Application

Reference Number: 2018-0819

Date Submitted to DNR: March 16, 2018 at 3:48 PM

Application Reference Name: Fargo-Moorhead Metropolitan
Area Flood Risk Management Project

DNR Lead Hydrologist: Rodger Hemphill

Area: Detroit Lakes

Email: rodger.hemphill@state.mn.us

Phone: 218-846-8484

DNR Region: Northwest Region 1

Address: Minnesota Department of Natural Resources
14583 County Hwy 19
Detroit Lakes, MN, 56501

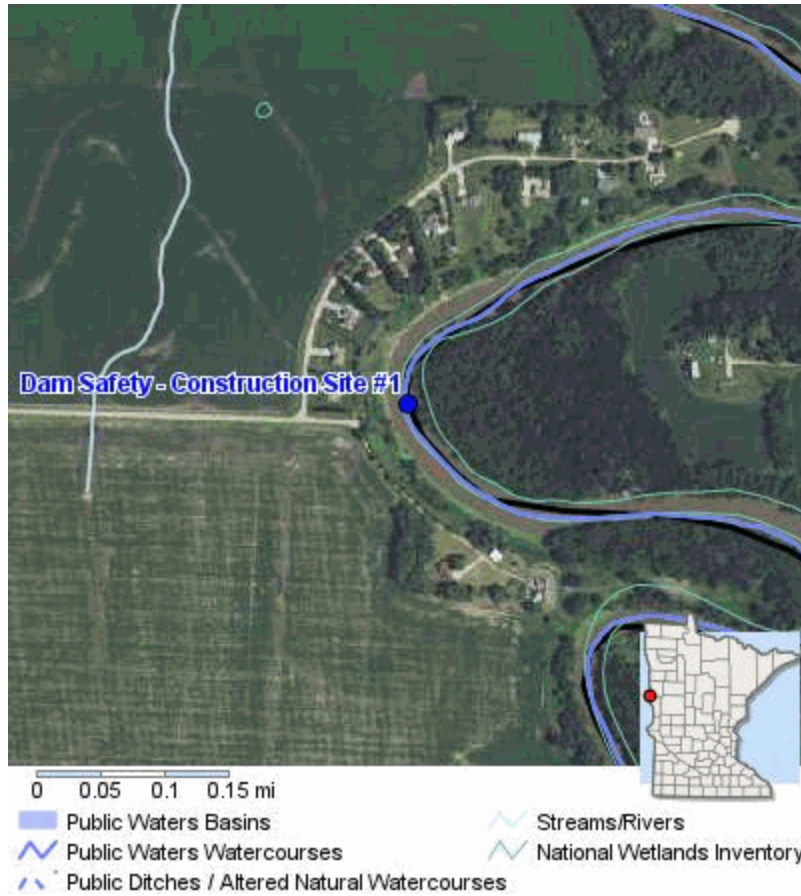
Parties *(Individuals and Organizations associated with the permit application)*

City of Fargo - Landowner or Government Unit	Address: 200 N. 3rd Street, Fargo, ND 58102 Phone: 701-241-1554
U.S. Army Corps of Engineers - Landowner or Government Unit	Address: 180 Fifth Street East, Suite 700, St. Paul, MN 55101 Phone: 651-290-5252
City of Moorhead - Landowner or Government Unit	Address: P.O.Box 779, Moorhead, MN 56561-0779 Phone: 218-299-5383
Metro Flood Diversion Authority - Landowner or Government Unit	Address: 211 Ninth Street South, Box 2806, Fargo, ND 56078 Phone: 701-282-4692
Emmy Baskerville - Contact <i>(representing Houston Engineering, Inc.)</i> <i>(submitted application)</i>	Address: 6901 East Fish Lake Road Ste 140, Maple Grove, MN 55369 Phone: 763-493-4522 Email: ebaskerville@houstoneng.com
Nathan Boerboom - Contact <i>(representing City of Fargo)</i>	Address: 200 N. 3rd Street, Fargo, ND 58102 Phone: 701-476-6743 Email: nboerboom@FargoND.gov
Terry Williams - Contact <i>(representing U.S. Army Corps of Engineers)</i>	Address: 180 5th Street E., #700, St. Paul, MN 55101 Phone: 651-590-5517 Email: Terry.I.williams@usace.army.mil
Robert Zimmerman - Contact <i>(representing City of Moorhead)</i>	Address: P.O.Box 779, Moorhead, MN 56561-0779 Phone: 218-299-5383 Email: bob.zimmerman@ci.moorhead.mn.us
John Glatzmaier - Contact <i>(representing Jacobs)</i>	Address: 64 4th Street N, Suite 300, Fargo, ND 58102 Phone: 651-253-5910 Email: John.glatzmaier@ch2m.com
Gregg Thielman - Contact <i>(representing Houston-Moore Group)</i>	Address: 1401 21st Avenue North, Fargo, ND 58102 Phone: 701-237-5065 Email: cgthielman@houstoneng.com
Redlinger Michael J. - Contact <i>(representing Metro Flood Diversion Authority)</i>	Address: 200 3rd Street North, Fargo, ND 58102 Phone: 701-476-4135 Email: mredlinger@FargoND.gov
Houston Engineering, Inc. - Agent	Address: 6901 East Fish Lake Road, Suite 140, Maple Grove, MN 55369 Phone: 763-493-4522
Jacobs - Agent	Address: 64 4th Street N, Suite 300, Fargo, ND 58102 Phone: 701-566-5470
Houston-Moore Group - Agent	Address: 925 10th Avenue East, West Fargo, ND 58078 Phone: 701-282-4692

Proposed Activity

Dam Safety - Construction

Location and Water Resources



Site Name: Dam Safety - Construction Site #1

(Dam Safety - Construction)

Counties: Clay

Watersheds: Upper Red River of the North

PLS: T137N-R48W-S6 SWSE, T137N-R48W-S7 NENE

UTM: X:210193 Y:5179182

Water Resources: Stream/River: Red River (H-026) -
Public Waters Watercourse, Stream/River: Red
River - Public Waters Watercourse

Public Waters/Dam Overview

1	Please assign a reference/project name to this application.	Fargo-Moorhead Metropolitan Area Flood Risk Management Project
2	What is the main type of work you are proposing to do?	Work in or near a lake, wetland, or river/stream (e.g., excavate, place fill, install a structure in a waterbody, modify a dam)
3	When is the anticipated start date for the project?	12/06/2016
4	When is the anticipated bid date for the project, if applicable? (optional)	07/11/2016
5	When is the expected completion date for the entire project?	07/01/2025

Public Waters/Dam Overview (Continued)

6	Briefly describe the overall project purpose and need.	The purpose of the Project is to reduce flood risk, flood damages, and flood protection costs related to flooding in the F-M Metropolitan area. To the extent technically and fiscally feasible, the Project will: 1. Reduce flood risk potential associated with a long history of frequent flooding on local streams including the Red River, Sheyenne, Wild Rice (North Dakota), Maple, Rush and Lower Rush Rivers passing through or into the F-M metropolitan area, 2. Qualify substantial portions of the F-M metropolitan area for 1-percent chance flood (i.e., 100-year flood) accreditation (i.e., meets the standard to be shown on Flood Insurance Rate Maps as providing protection) by the Federal Emergency Management Agency (FEMA) under the National Flood Insurance Program; and 3. Reduce flood risk for floods exceeding the 100-year flood or greater, given the importance of the F-M metropolitan area to the region and recent frequencies of potentially catastrophic flood events.
7	Has any portion of the proposed work in wetlands or water areas already started?	No
8	Is this a transportation project sponsored by a government unit?	No
9	Will the project require any dewatering (the deliberate removal of water through the use of a pump, ditch, etc. to lower water levels to allow work to be accomplished)?	Yes
10	Will the removed water remain within its original source at all times (e.g., only pumped over the side of a coffer dam and never pumped off site to a holding pond)?	Yes
11	Has an Environmental Assessment Worksheet (EAW) or Environmental Impact Statement (EIS) been completed for the project, or will it be required?	Yes
12	Has the project gone through a Natural Heritage (endangered species) review?	Yes
13	Have you developed any mitigation plans for the portion(s) of the project that will impact public waters?	Yes

Public Waters/Dam Overview (Continued)

<p>14 If yes, describe the plans:</p>	<p>Mitigation measures are being developed to offset the impacts to public waters with respect to connectivity and loss of riverine habitat. Preliminary options include modifying the Drayton Dam on the Red River of the North near Drayton, ND, to allow for fish passage, restoration of channelized portions of the Otter Tail River upstream of Breckenridge, MN, and restoration of channelized portions of the Bois de Sioux River upstream of Breckenridge, MN. The amount and type of mitigation for loss of connectivity caused by the dam will consider the frequency, duration, and timing of its operation. This includes the proposal for increased flows through town which may reduce the amount of mitigation necessary to compensate for expected connectivity impacts. A more detailed analysis of anticipated connectivity impacts caused by the dam is being prepared and will be coordinated with the MnDNR and other stakeholders. Once a final decision on mitigation for riverine impacts has been made, a mitigation plan will be prepared and shared with regulatory agencies.</p>
<p>15 Describe TWO alternatives to the proposed project that were considered that would avoid or minimize impacts to public waters. One option may be "no build" or "do nothing".</p>	<p>The Base No Action Alternative includes the flood risk reduction impacts of already completed and currently funded projects, such as temporary levee construction and property buyouts. No additional protection structures (ring levees, embankments, diversion channel) would be constructed. Flooding would continue within the project area, causing 160,000 acres of inundation and social disruptions to the cities of Fargo and Moorhead, and adjacent communities. The No Action with Emergency Measures Alternative, includes the flood risk reduction impacts of already completed and currently funded projects, and also assumes that emergency measures similar to those that have been historically implemented in the project area would continue to be implemented as necessary due to flooding. Section 3 of the Corps of Engineers Final Feasibility Report and Environmental Impact Statement, Section 3 of the Corps of Engineers Supplemental Environmental Assessment, and Section 2 of the Final Environmental Impact Statement prepared by the Minnesota Department of Natural Resources contain a thorough discussion of the alternatives analysis completed for the project.</p>

Public Waters/Dam Overview (Continued)

<p>16 Why did you choose to pursue the option proposed in this application over these alternatives?</p>	<p>The Corps conducted a feasibility study from 2008 through 2011 that considered a wide range of alternatives. Levees and floodwalls, flood storage, passive and active diversion channels and combinations of these measures were evaluated. The study showed that the concept that provided the best economic return on investment and the most robust level of flood risk reduction of all the conceptual alternatives while protecting the nation's environment was a diversion channel with upstream staging. Diversion channel alignments located primarily in North Dakota and Minnesota were evaluated. The alignment in North Dakota was selected because it reduced flood risk from not only the Red River and Wild Rice River, but also from the Sheyenne, Maple, Rush, and Lower Rush rivers. The North Dakota alignment reduced flood risk for a larger number of people and properties than the Minnesota alignment, and the Minnesota alignment was considered unimplementable. Hydraulic modeling showed that either of the diversion alignments would cause increased flood stages downstream, so an upstream staging area was added to the project in order to minimize downstream impacts. The plan formulation and selection of the locally preferred plan was approved by the Assistant Secretary of the Army for Civil Works in accordance with U.S. Army Corps of Engineers' policy. The alignment included in this permit application reflects changes recommended by the Task Force established by ND Governor Doug Burgum and MN Governor Mark Dayton, along with subsequent changes reviewed by the Technical Advisory Group (TAG) that was established to support the Task Force. These changes include allowing up to River Stage 37 feet through town during the 100-year flood event as well as alignment changes for the southern embankment / dam, that were developed by the TAG.</p>
<p>17 What is the project cost for the work that will be conducted in Public Waters? (estimate if unknown)</p>	<p>\$65,000,000.00</p>

Activity Detail

Activity: Dam Safety - Construction

How many different sites will have dam/weir construction work (i.e., the number of individual stream/river, ditch, lake, pond, pit, and/or wetland crossings or impact areas)? 1

Site Name: Dam Safety - Construction Site #1

<p>1 Provide the name for the owner of the dam.</p>	<p>Michael Redlinger, Co-Executive Director</p>
<p>2 Provide the mailing address for the owner of the dam.</p>	<p>Metro Flood Diversion Authority 211 Ninth Street South -- Box 2860 Fargo, ND 58108-2806</p>
<p>3 Provide the phone number for the owner of the dam.</p>	<p>(701) 476-4135</p>
<p>4 Provide the email address for the owner of the dam.</p>	<p>mredlinger@fargond.gov</p>
<p>5 Provide the name for the entity that maintains and/or operates the dam.</p>	<p>Metro Diversion Authority; Attn: Michael Redlinger</p>
<p>6 Provide the phone number for the entity that maintains and/or operates the dam.</p>	<p>(701) 476-4135</p>


Activity Detail (Continued)

7	Provide the email address for the entity that maintains and/or operates the dam.	mredlinger@fargond.gov
8	Provide the name of the professional engineer.	Michael Bart, Chief of Engineering and Construction
9	Provide the company name for the professional engineer.	U.S. Army Corps of Engineers -- St. Paul District
10	Provide the mailing address for the professional engineer.	180 5th Street E # 700 St. Paul, MN 55101
11	Provide the phone number for the professional engineer.	(651) 290-5303
12	Provide the email address for the professional engineer.	Michael.j.bart@usace.army.mil
13	What is the primary purpose of the dam?	Other
14	If Other, please specify:	Flood risk management
15	Indicate the type of the dam.	Other
16	If Other, please specify:	gated river structure and soil embankment
17	What is the estimated cost of the project in whole dollars?	\$750,000,000.00
18	What is the watershed area in square miles? (include one decimal point)	6,800 square miles
19	What is the elevation datum for the dam?	NAVD 1988
20	What is the elevation at the top of the dam in feet? (include one decimal point)	928.5 feet
21	What is the elevation at the principal spillway inlet/runout in feet? (include one decimal point)	874.0 feet
22	What is the elevation at the natural streambed at the downstream toe in feet? (include one decimal point)	874.0 feet
23	What is the reservoir area at the top of the dam in acres? (whole number only)	54,500 acres
24	What is the reservoir area at the principal spillway inlet/runout in acres? (whole number only)	0 acres
25	What is the storage volume at the top of the dam in acre-feet? (whole number only)	512,000 acre-feet
26	What is the storage volume at the principal spillway inlet/runout in acre-feet? (whole number only)	0 acre-feet
27	Do you have the financial capabilities to maintain and repair the dam?	Yes
28	Do you have all impoundment flowage easements to the top of the dam?	No
29	Do you have all access rights and easements to construct and maintain the dam?	No
30	Please upload the <u>design report</u> (including all information required in Rule 6115.0410).	Preliminary_Design_Report_20180316.pdf
31	Select the resource(s) below that describes the type of water bodies that could be impacted at this site.	stream/river
32	Counties	Clay
33	Watersheds	Upper Red River of the North
34	PLS	T137N-R48W-S6 SWSE, T137N-R48W-S7 NENE
35	UTMXY	X:210193 Y:5179182

Activity Detail *(Continued)*

36 Water resources

Stream/River: Red River (H-026) - Public Waters
Watercourse, Stream/River: Red River - Public Waters
Watercourse

 **Attachment(s):** Preliminary_Design_Report_20180316.pdf

Acknowledgment *(By the party who submitted the permit application)*



I attest that:

- I own or control (by lease, license, or other permission) the land that I propose to alter, AND
- There are no easements or other restrictions on the land that would prohibit the proposed activities from being authorized under a permit, AND
- I possess the authority to undertake the work described, or I am acting as a duly authorized agent, AND
- The information submitted and the statements made concerning this application are true and correct to the best of my knowledge.

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Application 2018-0819

Project Name: **Fargo-Moorhead Metropolitan Area Flood Risk Management Project**

Activity: **Channelization and Realignment Site Detail**

Briefly describe the impact to the water resource(s) at this particular site:

The Red River Structure would result in direct and indirect impacts to approximately 13.5 acres of aquatic (riverine) habitat. Direct impacts to the Red River resulting from filling and excavating total approximately 5.5 acres. Indirect impacts to the Red River resulting from channel abandonment total approximately 8 acres.

How many cubic yards of fill are proposed, if any?

140,000

If applicable, what is the size of the area to be filled?

Area: 3 **Units:** acres

If applicable, is the fill permanent or temporary?

Permanent

Temporary

Not applicable

How many cubic yards of material are proposed to be excavated, if any? 7,700 C.Y.

If applicable, what is the size of the area to be excavated?

Area: 2.5 **Units:** acres

If applicable, is the excavation permanent or temporary?

Permanent

Temporary

Not applicable

Will you be removing any vegetation from an aquatic resource that is not already associated with excavation/filling?

Yes

No

I'm not sure

Will work at this site result in the draining of any water resources?

Yes

No

I'm not sure

Please upload construction plans and photos of the project site showing existing and proposed conditions via MPARS – Communication

Questions? Contact State Dam Safety Engineer, Jason Boyle at jason.boyle@state.mn.us or (651) 259-5715, or Rodger Hemphill at rodger.hemphill@state.mn.us or 218-846-8484

Application 2018-0819

Project Name: **Fargo-Moorhead Metropolitan Area Flood Risk Management Project**

Activity: **Culvert Construction at a New Crossing – Wolverton Creek**

What is the bankfull width (in feet) of the watercourse at the location of the crossing, if known? (optional)

Bankfull width = The width of a river or stream channel between the highest banks on either side of a stream.

What is the headwater elevation (in feet), if known? (optional)

Headwater elevation = The water surface elevation upstream of an in-stream structure such as a bridge or culvert.

What is the estimated 100-year flood stage increase over the in-place condition (in feet), if known? (optional)

What is the mean velocity through structure during the 2-year flooding event (in feet/second), if known? (optional)

Describe the type of crossing.

Permanent new crossing Temporary new crossing

How many culverts (openings/barrels) are proposed for the site?

Will all of the culverts be installed at the same flow line elevation?

Yes No N/A - only 1 culvert will be at the site

What is the proposed culvert material? (choose all that apply)

Reinforced concrete pipe Corrugated metal pipe PVC (plastic)

Do any of the current culverts (if applicable), or will any of the proposed culverts, at this site function as a water level control structure?

Yes No Unknown

If yes, and you are modifying, removing, or installing a culvert at this site, then water level control structure needs to be listed as an activity on your permit application. Return to the Activity page, if necessary, to add it. If an existing culvert that acts as a water level control structure is at the site but it is not being replaced or modified, then you do not need to add that activity to your application.

Describe any change in the navigability of the waterbody due to the proposed work, if applicable.

Not applicable. The culverts were sized to ensure that the existing condition of Wolverton Creek remains the same in the post-project condition. The culverts will be constructed at the same bottom elevation as the existing condition.

How many cubic yards of fill are proposed, if any?

To calculate cubic yards, multiply length in feet by width in feet by depth in feet and divide by 27

If applicable, what is the size of the area to be filled?

Please choose units: Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Stream impacts should be reported in linear feet of impact along the flowline of the stream.

Is the fill permanent or temporary?

Permanent Temporary Not applicable

How many cubic yards of material are proposed to be excavated, if any?

To calculate cubic yards, multiply length in feet by width in feet by depth in feet and divide by 27

If applicable, what is the size of the area to be excavated?

Please choose units: Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Stream impacts should be reported in linear feet of impact along the flowline of the stream.

Is the excavation permanent or temporary?

Permanent Temporary Not applicable

Have you considered using *floodplain culverts* as part of the [Geomorphic Approach to the Design of Infrastructure at Road/River Intersections](#) in your design?

Yes No

If yes, please follow the guidance found on this webpage: <http://www.dnr.state.mn.us/eco/streamhab/geomorphology/mpars-culverts.html>

If you are using the Geomorphic Approach, please upload a Geomorphic Assessment form.

The assessment form will help us further refine this approach through site monitoring. (Maximum file size is 50 MB)

I already uploaded this document as part of another attachment.

Please upload construction plans depicting both the current structure(s), if applicable, and the proposed structure(s); the stream profile, if applicable, and any change in stream alignment. The following information is required for all culverts:

1. **Shape(s): box; round; elliptical; flat-bottomed; arch; bottomless; other (specify)**
2. **Length, width (span), height (rise), and/or diameter in inches**
3. **Inlet and outlet invert elevation in feet**
4. **Associated datum for the elevation numbers**
5. **Indication of any end sections, including maximum length in feet.**

You are required to provide this document before your application can be processed. For faster processing, upload the document before submitting your application. If this is not possible, please mail the document to the DNR upon finalizing your application (an address will be provided). Be advised that your application will not be considered complete and no action will be taken on your application until all required documents are received by the DNR. (Maximum file size is 50 MB)

I already uploaded this document as part of another attachment.

Please upload a hydraulics report showing existing and proposed conditions.

You are required to provide this document before your application can be processed. For faster processing, upload the document before submitting your application. If this is not possible, please mail the document to the DNR upon finalizing your application (an address will be provided). Be advised that your application will not be considered complete and no action will be taken on your application until all required documents are received by the DNR. (Maximum file size is 50 MB)

I already uploaded this document as part of another attachment.

Please upload construction plans and photos of the project site showing existing and proposed conditions via MPARS – Communication

Questions? Contact State Dam Safety Engineer, Jason Boyle at jason.boyle@state.mn.us or (651) 259-5715, or Rodger Hemphill at rodger.hemphill@state.mn.us or 218-846-8484