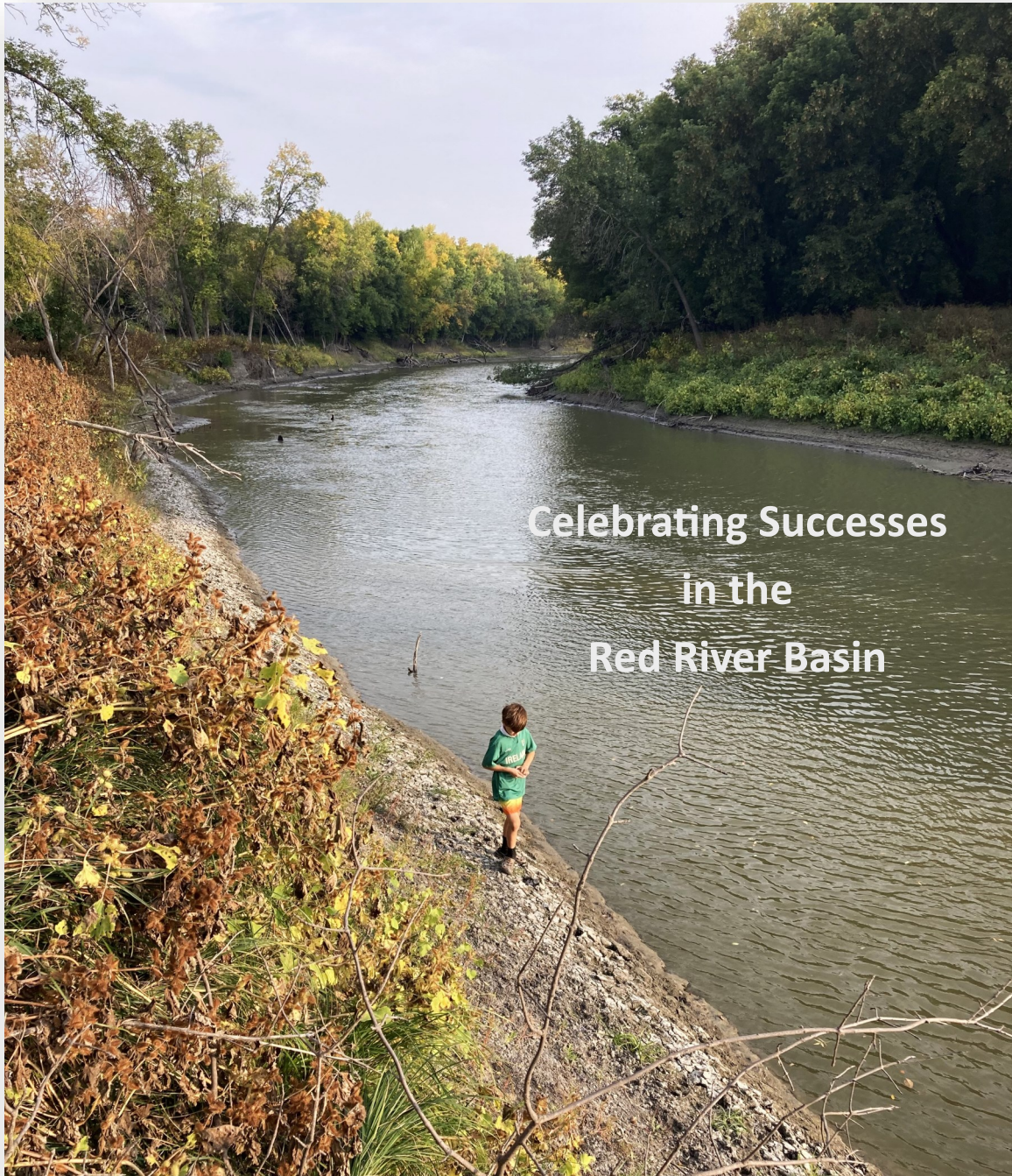


# Success Stories



**Contributions to the Red River Basin  
Natural Resources Framework Plan**

January 2024

# The Red River Basin Natural Resources Framework Plan (NRFP)

The complex nature of the Red River Basin (RRB) has resulted in challenges to effective, integrated land and water management. As such, the Red River Basin Commission (RRBC) developed the “Natural Resources Framework Plan” (NRFP) to assist in achieving a basin-wide approach to integrated natural resource management, and providing a framework for overcoming political barriers. The three main barriers identified were:

1. Solutions to local problems have unintended consequences in other areas of the basin; therefore, a basin-wide approach is needed.
2. There are diverse natural resource issues and challenges that are of concern to basin residents. Integrated natural resource management is a tool that will help address this issue.
3. The existence of multiple political jurisdictions at federal, provincial, state, and local levels complicates decision making and cross-boundary cooperation. Overcoming political barriers to water management will take continual work on the part of all stakeholders.

The plan was developed over a period of years, beginning with an intensive inventory of RRB resources. Numerous agencies provided personnel to accomplish this enormous task. The public was involved through a series of “face to face forums” around the RRB. In 1997, the board developed a set of “Guiding Principles” to enable its approach to pursuing its vision, mission and goals. The guiding principles, inventories, and public participation provided the back-ground material to develop the NRFP, its goals and its processes for action.

This plan is not a regulation to be enforced by the RRBC. It is a **GUIDE** to be used by *ALL* entities in their decision making processes. It is a guide to use when making choices for activities on the land, and in making decisions that have an impact on our water. It is a guide to move the RRB forward with a unified purpose and a unified voice. The NRFP is fully intended to be a living document that will remain relevant to the real needs and priorities of the citizens of the Basin and will serve as an effective guide to the application of the public’s resources to achieve ***comprehensive integrated watershed stewardship and management***.

The NRFP outlines thirteen goals and objectives for each goal relating to natural resources in the RRB. The thirteen goals are as follows:

1. Manage natural resources in the RRB by watershed boundaries rather than political boundaries
2. Integrate natural resource management
3. Increase applied research and data management to support decision-making
4. Improve stakeholder participation and awareness of land and water issues
5. Maintain state-of-the-art flood forecasting tools for the RRB
6. Reduce risk of flood damages for people, property and the environment in the main stem floodplain and in tributary waters
7. Ensure that flood (natural disaster) response and recovery programs meet the needs of all RRB residents
8. Manage urban and agricultural drainage systems to enhance productivity, while minimizing impacts to others
9. Maintain, protect and restore surface and ground water quality in the RRB
10. Ensure the appropriate use and sustainability of the RRB’s surface and groundwater
11. Increase soil conservation efforts within the RRB
12. Conserve, manage and restore diversity and viability of native fish and wildlife populations and their habitats
13. Enhance and develop recreational infrastructure and access to the RRB’s natural resources.



## The Celebrating Successes Initiative

The idea for the “Celebrating Successes in the Red River Basin: Contributions to the Red River Natural Resources Framework Plan” initiative stemmed from the RRBC’s great success in gathering Resolutions of Support from all over the RRB. The NRFP has garnered significant support over the past several years and the next step is to start understanding and celebrating the many initiatives that contribute to the thirteen NRFP goals.

The RRBC contacted local governments, water resource boards, water resource districts, soil and water conservation districts, watershed districts, conservation districts, non-profit organizations and many others to offer the opportunity for our local partners to tell us about a success that they had achieved related to the thirteen NRFP goals. The stories that are documented in this booklet are all examples of excellent projects in the RRB that were gathered through this initiative.



**The RRBC would like to congratulate all those whose stories have been recognized this year on their wonderful work! Congratulations! Thank you for sharing your stories with us.**

As you read through this booklet, we think you will find that each of these stories is an excellent example of the very important work that is underway in the RRB. We hope that you will find the stories interesting and that they will help you to make connections with others in the RRB who are working on similar issues. Where possible, we have provided a link to the relevant website and/or the proponent’s contact details, should you wish to find more information. RRBC staff would also be happy to facilitate connections should you wish to make further contact with a particular project proponent.

Please note that this initiative is ongoing. You are welcome to submit a story at any time. It is our goal to celebrate all contributions to the NRFP. Stories submitted during the year will be catalogued and recognized yearly at the RRBC Annual Land & Water International Summit Conference.

For more information on how to submit your success story, please see the back cover of this booklet.



## City of Halstad Flood Control Project

### **Project Proponents:**

Wild Rice Watershed District; Houston Engineering, Inc.; US Army Corps of Engineers (USACE); FEMA; Minnesota Department of Transportation; Halstad Municipal Utilities; and Norman County

### **NRFP Goal(s) related to the project:** 6

### **Project Summary:**

The USACE first built a levee for Halstad in the 1980s to provide flood protection from the Red River and inspected it annually. Over the years, the levee displayed deficiencies that needed to be corrected. FEMA also re-evaluated the floodplain in this region and determined that the levee would be de-certified, placing nearly 40% of the city into the 100-year floodplain.

It was determined that the levee needed to be upgraded to keep neighborhoods out of the floodplain. After the re-mapping, Houston Engineering, Inc. (HEI) began working with FEMA, the Minnesota Department of Transportation (MnDOT), Norman County, and the USACE to improve the levee system so flood insurance would no longer be required.

Once funding was secured from the State of Minnesota Flood Hazard Mitigation Program in 2013, design began on an earthen levee to reduce the risk of flooding. The construction contract was awarded in June 2018, and levee construction was completed in 2019. The existing operations and maintenance plan was also updated, and a new emergency action plan (EAP) was developed.

MnDOT was replacing the pavement of Highway 75 at this time. The Wild Rice Watershed District and MnDOT reached an agreement to raise the roads where they cross the levee as part of the MnDOT project. Both projects were constructed at the same time, requiring extensive coordination.

Additionally, Norman County hired HEI to complete a grade raise of County Road 147 in 2021. This project helped support pedestrian safety as well as enhance flood protection for the community. The roadway's elevation was raised so the installed embankment under the roadway could act as freeboard for the levee system.

The FEMA Letter of Map Revision was approved in 2021 and the city was officially declared out of the 100-year floodplain.

The overall project included the following:

- Earthen levees (2,300 feet)
- Internal and external stormwater conveyance improvements
- Cast-in-place concrete storm sewer lift station
- Cast-in-place concrete combined sanitary/storm sewer lift station
- Cast-in-place concrete gatewell
- Removal of existing, deficient storm and sanitary sewer pumping and gatewell structures

### **Further Information:**

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Houston Engineering, Inc  
[rengelstad@houstoneng.com](mailto:rengelstad@houstoneng.com)  
[www.houstoneng.com](http://www.houstoneng.com)

Tara Jensen, Administrator  
Wild Rice Watershed District  
[tara@wildricewatershed.org](mailto:tara@wildricewatershed.org)  
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Lucas Spaeth, Superintendent  
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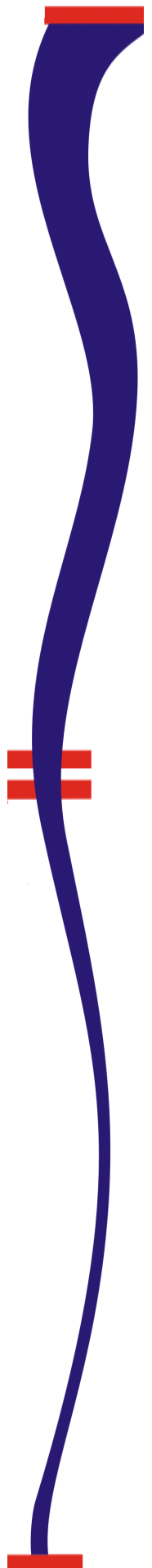


**Flooding in 2020.**



**Aerial view of the completed earthen levees in Halstad in 2021.**

**Completed Grade Raise of County Road 147 in 2021.**



## Red Lake Watershed District Ring Dikes

### **Project Proponents:**

Red Lake Watershed District; Houston Engineering, Inc.; Robert Fladeland; Terry and Sandra Beich; Daniel and Jami Payment; and Jason and Sabrina Cardinal

### **NRFP Goal(s) related to the project:**

**6. Reduce risk of flood damages for people, property and the environment in the mainstem floodplain and in tributary waters.** – These ring dikes were requested by private landowners to protect their property from flood damages. Spring runoff events are routinely a risk to flood their farmsteads, thus the landowners requested assistance from the Red Lake Watershed District (RLWD) to construct ring dikes around their properties.

### **Project Summary:**

Due to recent high water during spring runoff events, several landowners requested ring dikes on their properties for flood damage protection. The RLWD hired Houston Engineering, Inc. to design and assist in managing the ring dikes' construction.

The RLWD received 50% cost share from Minnesota's Environmental and Natural Resources Trust Fund to help build these projects. The dikes were designed to state design standards for protection of overland flooding. Design guidance was also used from NRCS Dike (356) standards. The RLWD and the Red River Watershed Management Board provided funding to match the 50% cost share from the state, leaving only 12.5% of the overall cost on the landowner.

The designs included features such as earthen embankments to completely encompass the residential sites while providing driveway access over the top of the dikes. These dikes will protect the residences from future floods as noted below.

Two of the four ring dikes have been constructed: the Robert Fladeland and Terry and Sandra Beich's properties. The Fladeland ring dike is approximately 1,091.8 feet long with a top elevation of 1091.5 feet. This will protect against flood levels that are 2 feet above the flood of record at that property. The Beich ring dike is approximately 3,800 feet long with a top elevation of 1,042.4 feet. This will protect against flood levels that are 2 feet above the flood record as well.

The remaining two dikes are on Daniel and Jami Payment and Jason and Sabrina Cardinal's properties, they are designed and will be constructed in 2024. The Payment dike is estimated to be 1,920 feet long with a top elevation of 1,073.75 feet. This height was chosen due to the flood of record and to not be higher than the adjacent State Highway 92 centerline. The Cardinal dike will be approximately 1,090 feet long with an elevation of 907 feet. This height was chosen due to a nearby residence dike of the same height that had previously pushed flood water onto the Cardinal property. These ring dikes will be tied together as part of this project.

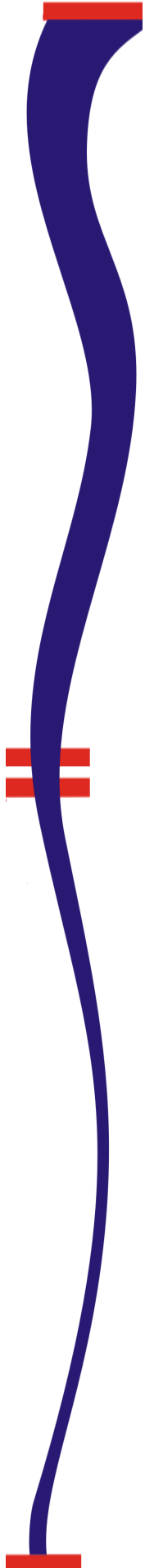
### **Further Information :**

Tammy Audette, RLWD Administrator  
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[www.redlakewatershed.org](http://www.redlakewatershed.org)

Tony Nordby, Civil Engineer  
Houston Engineering, Inc.  
[tnordby@houstoneng.com](mailto:tnordby@houstoneng.com)  
[www.houstoneng.com](http://www.houstoneng.com)



# Fladeland Ring Dike



# Whiskey Creek Enhancement Project, Wilkin County, Minnesota

**Project Proponents:** Buffalo-Red River Watershed District and Houston Engineering, Inc.

**NRFP Goal(s) related to the project:**

- 9. Maintain, protect and restore surface and ground water quality in the Red River Basin-** The Whiskey Creek Enhancement Project greatly improved water quality in Whiskey Creek. Before the project was completed, Whiskey Creek was experiencing poor water quality due to agricultural practices and channel bank erosion, which led to sediment build up and caused flooding. In 2016, Wilkin County and the Buffalo-Red River Watershed District (BRRWD) secured a Clean Water Fund Accelerated Implementation Grant (AIG) to study the creek and investigate how to stabilize the stream. This project ultimately improved water quality and reduced erosion, which resulted in less flooding.
  
- 12. Conserve, manage and restore diversity and viability of native fish and wildlife populations and their habitat-** Along with restoring water quality and reducing erosion, the Whiskey Creek Enhancement Project focused on restoring the channel, which positively impacts fish and wildlife habitat. The Whiskey Creek channel restoration included expanded buffer areas, side inlets and sediment best management practices (BMPs), a beaver management plan, and streambank stabilization. These alternatives are working to enhance water quality, reduce flood damage, and improve wildlife habitat. Wildlife thrive off of improved water quality, which is achieved through reduced erosion creating less sediment deposits in the water.
  
- 4. Improve stakeholder participation and awareness of land and water issues-** Houston Engineering, Inc. (HEI) and the BRRWD greatly values input from stakeholders and those impacted by projects in the Watershed District, which is why we do our best to take their suggestions and concerns into consideration. Once the modeling was completed, HEI and the BRRWD held an informational meeting with landowners to gain their insights into what areas needed attention. With technical and landowner information in hand, HEI was able to begin developing alternatives for the enhancement of Whiskey Creek. To determine which alternatives should be implemented in the area, the BRRWD held another public informational meeting to gain landowner feedback and opinions. This and previous meetings helped HEI and the project partners gauge landowner interest and determine which alternatives will best solve their pain points.

**Project Summary:**

Whiskey Creek, a tributary of the Red River of the North, is located in Wilkin County, MN. The creek is one of many natural waterways within the BRRWD. The creek was experiencing poor water quality due to agricultural practices and channel bank erosion, which led to sediment build up and flooding of adjacent agricultural land. In 2016, Wilkin County and the BRRWD secured a Clean Water Fund Accelerated Implementation Grant (AIG) to study the creek and investigate how to stabilize the stream.

The project partners tasked Houston Engineering, Inc. (HEI) with developing project alternatives to stabilize the stream. HEI evaluated the existing conditions of Whiskey Creek, identifying problem areas along the stream.

A hydraulic model of Whiskey Creek's existing conditions was completed to determine the watershed's flooding conditions for more common flood events.

Once the modeling was completed, HEI and the BRRWD held an informational meeting with landowners to gain their insights into what areas needed attention. The first informational meeting confirmed the findings of the hydraulic model.

With technical and landowner information in hand, HEI was able to develop alternatives for the Whiskey Creek stabilization. These alternatives were: channel restoration, expanded buffer areas, side inlets and sediment best management practices (BMPs), a beaver management plan, and streambank stabilization. These alternatives will enhance water quality and habitat as well as reduce flood damages.

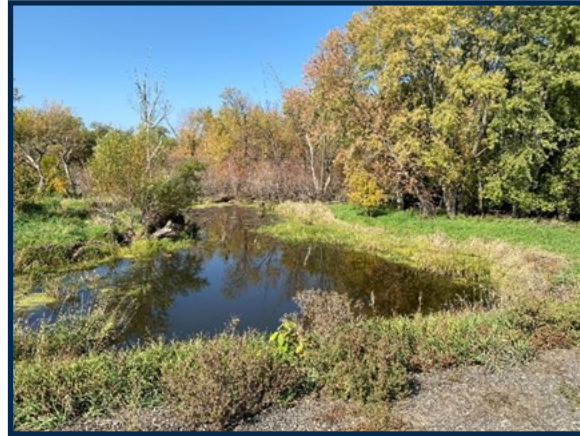
To determine alternatives for implementation, the BRRWD held another public meeting to gain landowner feedback and opinions. These meetings helped HEI and project partners gauge landowner interest and determine alternatives to solve their problems.

HEI helped the BRRWD through the process of project development using Minnesota Watershed Law. Project construction began in 2021, with the final phase scheduled for completion in 2024. Upon completion, more than 12 miles of channel will be restored, including more than 700 acres of riparian buffer.

The estimated construction cost for the project is \$6-7 million. HEI worked with the BRRWD to apply for and obtain grant funding from the following: National Water Quality Initiative, Clean Water Fund, Section 319, Outdoor Heritage Fund, and US Fish and Wildlife Service.



**Preconstruction images of Whiskey Creek Enhancement project in 2020.**

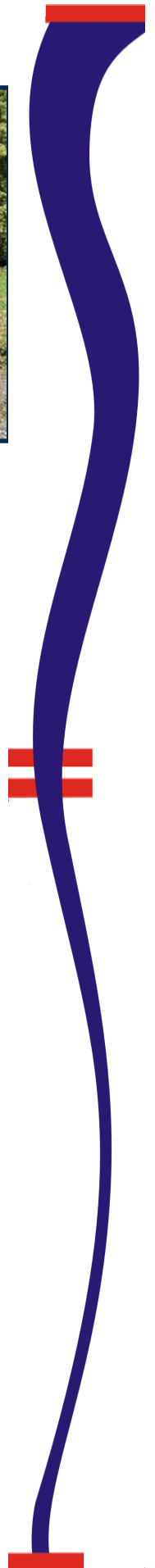


**Post construction images of Whiskey Creek Enhancement Project in 2023.**



**Further Information:**  
Kristine Altrichter  
Buffalo-Red River Watershed  
District  
[kaltrichter@brrwd.org](mailto:kaltrichter@brrwd.org)

Bennett Uhler, PE  
Houston Engineering, Inc.  
[buhler@houstoneng.com](mailto:buhler@houstoneng.com)



# Earth observations for the development of water, energy and food resources in the Basin of the Red River of the North

## **Project Proponents:**

Richard Lawford, Group on Earth Observations (Morgan State University – Retired)

Taufique Mahmood, University of North Dakota

Ted Preister, Red River Basin Commission

## **NRFP Goal(s) related to the project: 2,3,4,1**

This project addresses the following goals in the RRB Natural Resources Framework Plan:

Integrate natural resource management (Goal #2) and Goal 3 (increase applied research and data management to support decision making) and, potentially in the future, Goal 4 (improve stakeholder participation and awareness of land and water issues) and Goal 1 (Manage natural resources in the RRB by watershed boundaries rather than political boundaries).

In some parts of the world interest is growing in the use of data to plan access to water, energy and food resources in more integrated ways. Regionally, this approach could lead to increased efficiency and more effective responses to environmental issues.

On October 30 to November 1, 2023, a workshop at the University of North Dakota explored the data and information available to support the development of water, energy, and food resources in the Basin of the Red River of the North. The workshop was sponsored by GEO, the RRBC and UND. It featured talks by scientists working in and near the Basin, as well as experts from Europe, NASA, NOAA, USGS, DOE, NRCan, ECC, and Agriculture and Agri-Food Canada.

This workshop summary reviews highlights from the descriptions of data and data products relevant for planning water infrastructure, renewable energy production, and farming operations in the RRB. For example, NASA's new "Power" data set can be used for assessing the feasibility of solar installations in the Basin. Other data sets useful for describing the water cycle over the basin include IMERG precipitation products and SMOS soil moisture.

The LANDSAT system provides high-resolution information for monitoring land cover and can be used to derive estimates of evapotranspiration. Surface observations including ground-based radar as well as agrometeorological and water quality networks, mainly for North Dakota, were also presented. Many of these data sets are archived separately and supported by independent data systems.

To derive the maximum benefit from these data models and analysis tools need to be developed to make the information useful to non-experts. While operational services provided by government agencies are helpful, particularly when health and property are at risk, there is potential for more effective use of integrated data sets to address broader environmental issues. The benefits and challenges of integration were highlighted in talks given at the workshop.

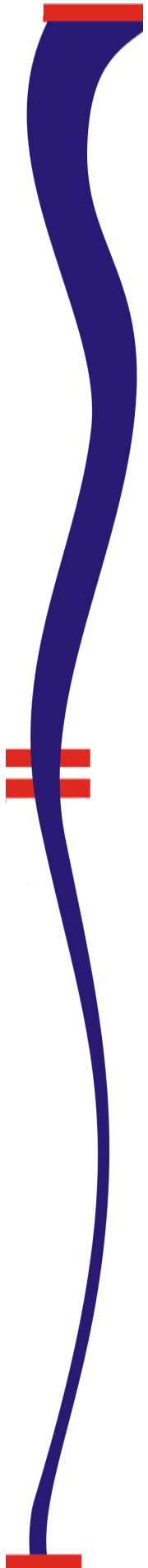
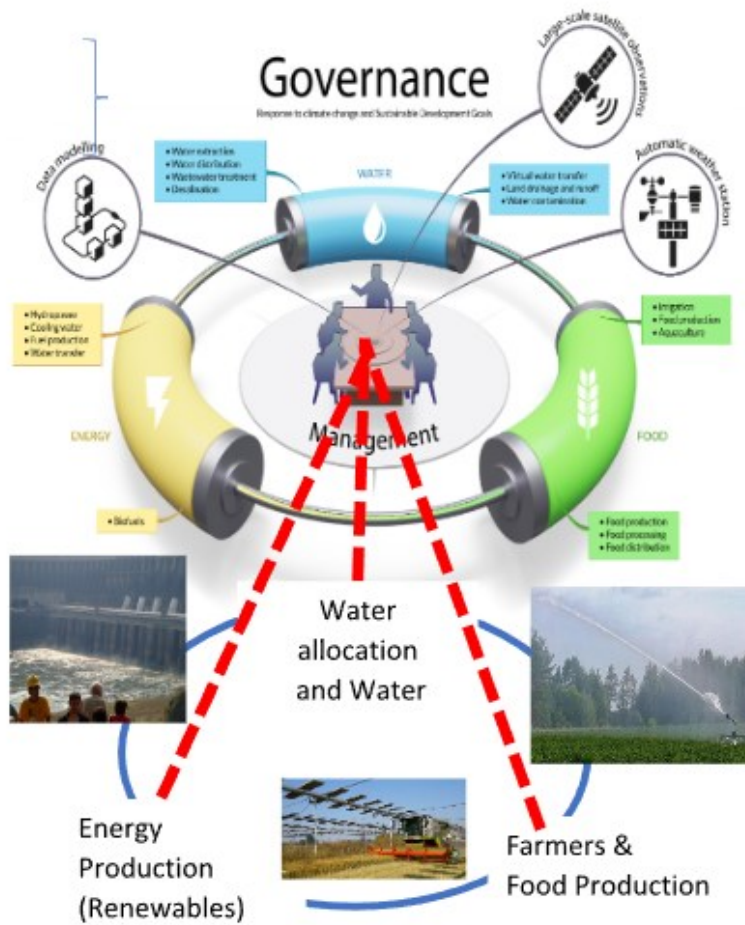
This summary will conclude with a brief overview of the workshop discussions and findings along with suggestions for ways in which some of the current products and data services could be incorporated into a prototype information system for the RRB.

## **Further Information:**

[www.EO4WEF.org](http://www.EO4WEF.org)



**Figure 1: The role of observations in integrated resource planning for water, energy, and food.**



# Headwater Storage Project in the Upper Pembina Watershed

**Project Proponents:** Pembina Valley Watershed District, Upper Pembina Sub-District

**NRFP Goal(s) related to the project :** 6,8,9,10,1,2,12

## **Project Summary:**

The Peter Dyck Dam, situated in the Pembina River headwaters, stands as a testament to the success of implementing a small dam network to address various environmental and agricultural challenges within the Red River Basin. Built in August 2023, this dam, serves a multifaceted purpose, aiming to maintain a permanent reservoir for wildlife and livestock, as well as temporary water storage to attenuate downstream flood peaks.

This project aligns with the broader benefits outlined in the Red River Basin's Natural Resource Framework Plan (NRFP) and includes impacts, such as flood mitigation, erosion control, improved water quality, sustainable agriculture, water conservation, reservoir functionality during dry periods, wildlife habitat improvement, and overall community resilience. This project is located high in the watershed and is not considered a detriment to fish movement.

District partners for this project included landowner Peter Dyck, TMCD, MAW, LWBP, GROW, PVWD RM's, and the MB Environment and Climate Change Department. The dam has a Full Supply Level (FSL) height of 3.5 meters and covers a drainage area of 5585 acres. The project has both temporary and permanent water storage, amounting to a total of 34 acre-feet.

With a cost of about \$120,000 and a cost metric of \$3,500 per acre-foot, the dam addresses flood mitigation goals with a NRFP inspired 20% reduction flood-peak target. This project is part of a scheme to install a network of structures.

Furthermore, scientific research, such as the South Tobacco Creek Pilot Project (1996), the article on farm ponds reducing agricultural water pollution (2012), and the Roseau River Watershed Distributed Retention Study (2017), underpins the efficacy of small dam networks in achieving these environmental and agricultural goals. These studies provide valuable insights into the positive outcomes observed when implementing water control structures, reinforcing the importance of such initiatives for sustainable development in the Red River Basin.

The success story of the Peter Dyck Dam is an example for others to contribute to the well-being of the basin and its communities.

## **Further Information :**

- [www.pvwd.ca](http://www.pvwd.ca)
- PVWD Manager Ryan Sheffield, 431-359-0202, [mgr@pvwd.ca](mailto:mgr@pvwd.ca)





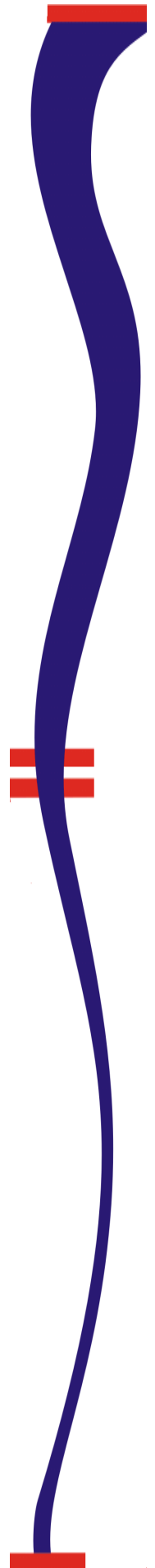
Looking upstream



Overview



Pipes Installed



# Lake Traverse Water Quality Improvement Project

## **Project Proponents:**

Main Support

• Bois de Sioux Watershed District • Local Landowners

Technical and Funding Support

• Minnesota Board of Water and Soil Resources • Traverse Soil and Water Conservation District • Red River Water Management Board • DNR - River Ecology

## **NRFP Goal(s) related to the project:**

3, 4, 8, 9, 12

## **Project Summary:**

Since its construction in 1951, Traverse County Ditch 52 had been a persistent problem for the local landowners, Traverse County, and the Bois de Sioux Watershed (BdSWD) and the ecological health of Lake Traverse. In 1984, the Wheaton Gazette called it “the worst ditch in a 23-county area in Minnesota.” Sediment transport was so significant it can be compared to a loss of 1 foot of soil across 70 football fields. The Bois de Sioux Watershed district invited Moore Engineering to bring a long-needed solution to the problem.

Led by BdSWD staff, board managers, and local land owners, Moore Engineering conducted multiple public engagement sessions to learn from community members most impacted by the project. Following the meetings, were multiple design reviews conducted in collaboration with numerous government agencies. Once the scope of the project and design were finalized, Moore Engineering Staff successfully helped the BdSWD and landowner overcome the biggest historical hurdle: funding. The team was successful in obtaining local and state funding via clean water grants to minimize the local cost to 10 percent of the total cost.

The Lake Traverse Water Quality Improvement Project was constructed in phases from 2020 to 2023 and is now complete. The project brought environmental relief to the lake, landowners, and surrounding communities.

This project is a clear example of the persistence and determination it takes to tackle watershed challenges and contribute positively to Minnesota’s natural beauty and health.

## **Further Information:**

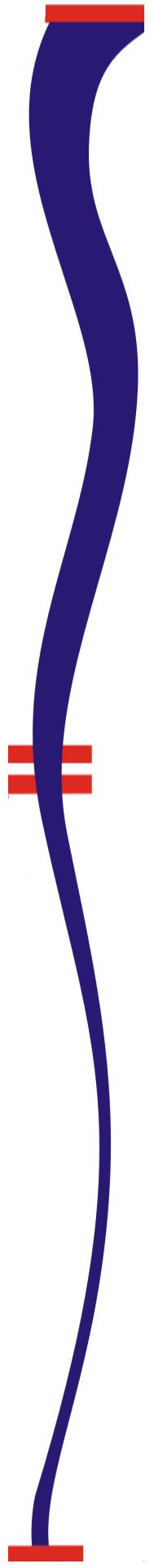
Blog: <https://www.mooreengineeringinc.com/lake-traverse-environmental-success/>

Website: <https://www.mooreengineeringinc.com/>

Video: <https://vimeo.com/886502639>







# Gardenton Community Pastures Water Retention

**Project Proponents:** Seine Rat Roseau Watershed District

**NRFP Goal(s) related to the Success Story:** 6,8, 9, 10

## **Project Summary:**

In the fall of 2020 SRRWD staff approached the Association of Manitoba Community Pastures (AMCP) to investigate the possibility of building a water retention structure on the Gardenton Community Pasture to help mitigate local water management issues. The Gardenton Community Pasture is located in the Roseau River sub-watershed southeast of Gardenton along the US border and covers almost 1,300 acres of land. The project was designed in-house by SRRWD staff using LiDAR data and hydrological modeling to meet the needs of both the AMCP and local community.

The Gardenton Community Pasture Water Retention consists of a 1250 meter (4,100 ft) long dike. The dike was built to make use of a naturally occurring, low-lying area of wet cattle pasture that was saddled by two higher ridges. It has a capacity to hold 90 acre feet of water over 153 acres of land.

Water levels in the retention back flood area are controlled by using two 750 mm (30 inch) culverts, with one of the culverts having an intake control gate on the upstream end. The control on the culvert is used to limit the volume of water that flows through the culvert. This allows for a slow draw down of the water stored in the retention over a period that usually lasts 3-7 days depending on weather and flow conditions. No water is permanently stored in the back flood area.

In addition to building the water retention, SRRWD was also able to fund fencing around the retention back flood area. In recognition of the restricted grazing in the back flood area, SRRWD provides the AMCP an annual land payments. Both the fencing and annual payments are funded through ALUS Canada's Grazing Forward Program.

With the water retention in place it has taken some pressure off the local infrastructure while reducing water levels downstream. Retention has helped AMCP be able to open up more acres for grazing downstream.

SRRWD is looking forward to working with AMCP to investigating and construct more water retention structures within the Gardenton Community Pasture in the future.

## **Further Information:**

Seine Rat Roseau Watershed District:  
[www.srrwd.ca](http://www.srrwd.ca)

**Culvert Control Structure**

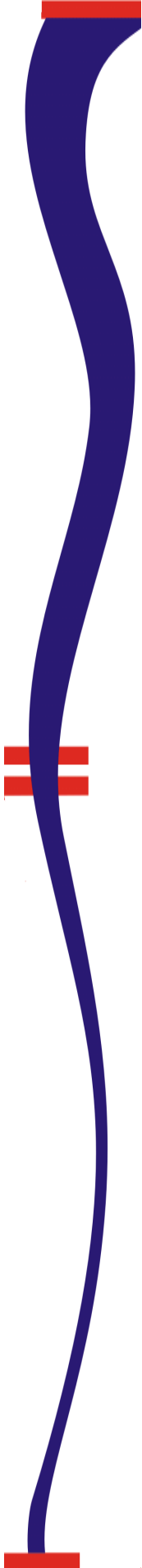




**Finished Berm**



**Finished Berm**



## Ag wetland mitigation banking

**Project Proponents:** North Dakota Corn Growers Association, North Dakota Farm Bureau, North Dakota Farmers Union, North Dakota Soybean Growers Association, North Dakota Grain Growers Association, U.S. Durum Growers Association

**NRFP Goal(s) related to the project:**

8. Manage urban and agricultural drainage systems to enhance productivity, while minimizing impacts to others
9. Maintain, protect and restore surface and ground water quality in the Red River Basin
10. Ensure the appropriate use and sustainability of the Basin's surface and groundwater
11. Increase soil conservation efforts within the Basin
4. Improve stakeholder participation and awareness of land and water issues
2. Integrate natural resource management

**Project Summary:**

The Ag Wetland Trade is a platform for USDA program participants to purchase wetland mitigating credits to offset Swampbuster wetland losses from drainage or other field improvements. NDAM seeks willing landowners with potential host wetland bank sites for mitigation credits. After identifying suitable sites, NDAM coordinates bank development and determine an estimate of credit yield from the property as well as approximate establishment costs. In exchange for allowing the development of an easement-protected wetland bank on their property, landowners receive 80% of revenue from the sale of the credits. NDAM collects the remaining 20% credit revenue to cover bank site management, maintenance and other associated program expenses.

- NRCS Certified Wetland Determination is required for all ag wetland trades.
  - Bank site hosts determine wetland credit sale asking prices, which can be negotiated with buyers, but NDAM retains authority for all Ag Wetland Trade credit transactions.
  - Bank site hosts may purchase up to 25% of credits from their bank site for their own use at NDAM's 20% fee, which is based off the average sale price of the bank site credits.
- Buyers have no liability and receive a new NRCS Certified Wetland Determination.  
Preferred sites suitable for wetland mitigation should have the following characteristics:

- Expiring Conservation Reserve Program (CRP) with drained or restored wetlands;
- Marginal crop ground with old, poorly functioning drains; or
- Non-wetland areas where water can be captured via embankments or excavations

NDAM holds a 99-year conservation easement, which means:

- Landowner reserves right to access, recreational uses, and mineral resources
- Haying and/or grazing allowed per bank site plan specifics
- Landowner continues to pay property taxes
- Wetland conditions, as outlined in the bank site plan, must be maintained.

Land enrolled in NDAM's Ag-Wetland Trade are not eligible for other USDA programs:

**Ineligible Programs**

- Conservation Reserve Program (CRP)
- Wetland Reserve Program (WRP) and Wetland Reserve Easement program (WRE)

**Eligible Programs**

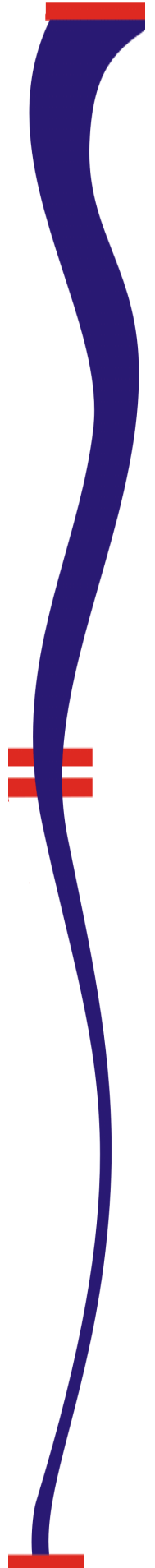
- North Dakota Game and Fish landowner programs
- Easement does not prohibit non-conflicting non-federal programs





**Further Information**

[www.ndagwetlandtrade.com](http://www.ndagwetlandtrade.com)



# Pelican Rapids Dam Removal and River Restoration Project

## Project Proponents:

City of Pelican Rapids, MN Department of Natural Resources

## NRFP Goal(s) related to the project:

2, 13, 6

## Project Summary:

Pelican Rapids is well known for its scenic and historical dam. The dam was constructed in the 1880s to provide power to a sawmill, which was later converted to a grain mill. Shortly after the turn of the century, a stone masonry wall was added. The dam is accompanied by Pelican Pete, the world's largest pelican.

A few years ago, a portion of the stone masonry wall collapsed. This collapse set off a chain of interrelated studies completed by Houston Engineering (funded in part by the Minnesota DNR) that helped determine the dam's future and replacement.

The first study focused solely on the wall and its cause of collapse. Problems with the wall were first observed in 2015 when a significant bulge was discovered. Eventually, a portion of the wall gave way. Seepage had been observed under the wall and is believed to have contributed to its collapse. The project team recommended two alternatives: (1) replacement of the existing wall with a gravity block wall or (2) removal of part of the wall and construction of a riprap extension of the downstream toe.

Additional funding was then acquired to complete an inspection on the concrete spillway. The spillway was originally constructed in 1914-1915 and underwent major rehabilitation in 1987-1988. The structure was dewatered and the on-site inspection revealed degradation of the concrete. The team provided an alternative on the feasibility of repairing or replacing the structure.

With these reports serving as guides, the City and other stakeholders weighed in their options and decided to remove the dam.

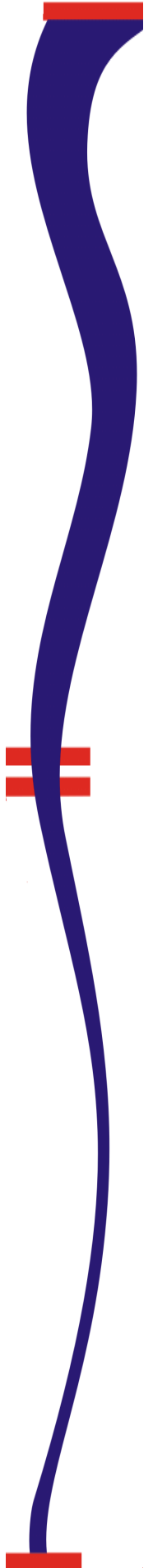
The City moved forward with the dam removal and the construction of a rock arch rapids to allow for fish passage improvements along with a new bridge over the rapids. The project began construction in 2022 and finished in 2023. Pelican Pete was restored and relocated to a nearby perch on the opposite side of the river. This scene is an area of pride for residents and a frequent stop-off point for passersby. Today, with the area's overall accessibility improved the project has greatly improved the public's recreational access to the river.

## Further Information :

<https://pelicanrapids.com/>







## Upper South Branch of the Buffalo River Restoration – Phase 1, Wilkin County, Minnesota

### Project Proponents:

Buffalo-Red River Watershed District and Houston Engineering, Inc.

### NRFP Goal(s) related to the project:

- 2. Integrate natural resource management-** This project integrates natural resource management in various ways including restoring the historic flow location of the river through Wilkin County Ditch (WCD) No. 44. Restoring the flow to its original source provides many natural resource benefits to the BRRWD including improved water quality and habitats for wildlife, reduced occurrence and magnitude of flooding to agricultural lands, increased stable stream conditions, and improved conveyance resulting from restoring the South Branch back to its natural flow path.
  
- 6. Reduce risk of flood damages for people, property, and the environment in the mainstem flood-plain and in tributary waters-** This project reduced the flood risk in the Buffalo-Red River Watershed District (BRRWD) through a river restoration complete with rerouting the county ditch to the historic river channel alignment. The rerouting helped reduce the occurrence and magnitude of flood damages to agricultural fields, while also improving water quality and habitat within the stream by reducing sediment and nutrient loadings into the channel.
  
- 8. Manage urban and agricultural drainage systems to enhance productivity, while minimizing impacts to others-** This project managed agricultural drainage systems by improving the conveyance of WCD No. 44, while also ensuring no impacts downstream. This was completed by restoring WCD No. 44 to its historic river alignment, allowing better access to its floodplain for flood storage. Houston Engineering, Inc. (HEI) worked with the BRRWD to identify the steps in the project development process to address the requirements of Minnesota Drainage Law.

### Project Summary:

In the early 1910s, what is today known as Wilkin County Ditch (WCD) No. 44 was constructed, cutting off the drainage area to the natural stream at the headwaters of the South Branch of the Buffalo River. WCD No. 44 ditch system was originally constructed as branches of Judicial Ditch No. 3, which shortened 4.6 miles of natural channel to 2.7 miles of ditch.

The overall goal of the South Branch Buffalo River Restoration Project – Phase 1 is to improve conveyance and habitat by restoring the South Branch back to its natural channel alignment. The project will help reduce the occurrence and magnitude of flood damage to agricultural fields, while also improving water quality and habitat within the stream by reducing sediment and nutrient loadings to the channel. In addition, the goal will be to provide and foster stable stream conditions.

Before rerouting WCD No. 44 and restoring the South Branch back to its historic flow location in accordance with Minnesota Statute 103E.227 and the partial abandonment of WCD No. 44 in accordance with Minnesota Statute 103E.806, the BRRWD with HEI's assistance went through the proper proceedings as described in Minnesota Public Drainage Law.

The project involved the design of a natural river corridor by rerouting the county ditch to the restored South Branch Buffalo River alignment. Beyond doing the design work for the project, HEI worked with the BRRWD to identify steps in the project development process to address the requirements of Minnesota Drainage Law. This included developing the Engineer's Findings report regarding rerouting and the partial abandonment of the WCD No. 44 system.

The Engineer's Findings report was presented at the project ditch hearing held in February 2022 as required by Drainage Law. The project began construction in the fall of 2022 and is expected to be completed in 2024. This project is the first phase of a multi-phase project, which will ultimately restore 22 miles of the South Branch Buffalo River to the Clay/Wilkin County line.



**Aerial view of the project site pre-construction in 2022.**



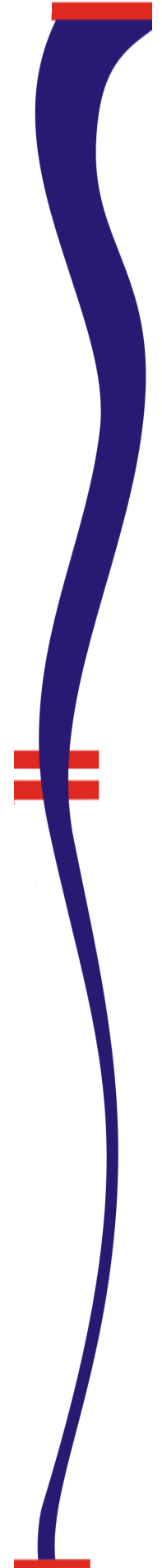
**Aerial view of the project site during construction in 2022.**



**Further Information:**

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Bennett Uhler, PE  
Houston Engineering, Inc.  
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# Bourbanis Dam Partial Decommission Project

## **Project Proponents:**

Pembina County Water Resource District (Sponsor/Owner)  
Natural Resources Conservation Service  
ND Department of Water Resources  
Red River Joint Water Resource District

## **NRFP Goal(s) related to the project:**

- 6. Reduce risk of flood damages for people, property and the environment in the mainstem flood-plain and in tributary waters-** The spring of 2022 highlighted the deficiencies with the Bourbanis Dam structure. The failing auxiliary spillway created a significant public safety risk, and the Project successfully mitigated future risks. On-going planning efforts suggested that the economic viability of the project may not longer exist, and the Sponsor will evaluate modifications to the remaining watershed dams to optimize flood protection for the region.
- 4. Improve stakeholder participation and awareness of land and water issues-** Public outreach was paramount during the emergency response of 2022, and in making decisions on how to best mitigate future risk. Coordination with multiple state, local, and federal entities was successfully achieved throughout the project.

## **Project Summary:**

The spring flood of 2022 came seemingly out of nowhere. By early April, an uneventful spring runoff season was already beginning to subside in the Tongue River Watershed. Conditions rapidly changed when much of North Dakota received a late season snowstorm in mid-April with snowfall accumulations anywhere from 12 inches to upwards of 30 inches within the Tongue River Watershed. Snow rapidly melted in late April/early May due to spring rains, causing 10 flood control dams within the watershed to nearly reach, and in some cases exceed, storage capacity.

One such dam that exceeded capacity was Bourbanis Dam, located in eastern Cavalier County, ND. The dam is owned and operated by the Pembina County Water Resource District (PCWRD). The flood pool quickly rose to the auxiliary spillway, resulting in a partial failure of the earthen grass-lined spillway. Bourbanis Dam is considered a high-hazard structure, meaning that failure has potential to result in loss of life downstream. Also compounding concern were downstream dams already at capacity as well as severe flooding occurring further downstream along the Tongue River including the community of Cavalier, ND. Rapid, emergency response was undertaken to reduce risk of a full dam failure. Luckily, the efforts were successful.

While the immediate risk was resolved, the PCWRD was then faced with the questions of “what’s next?”. This resulted in the decision to partially decommission Bourbanis Dam to reduce the risk of another emergency. The decommission project included partial embankment removal, installation of a riprap grade stabilization chute, and improved access. All this work was completed in a very tight timeline to reduce risks for the 2023 spring flood event. The project was substantially completed by the end of 2022, and successfully operated during moderate flooding in the spring of 2023. The project was partially funded by the NRCS, NDDWR, RRJWRD, and local tax levies.

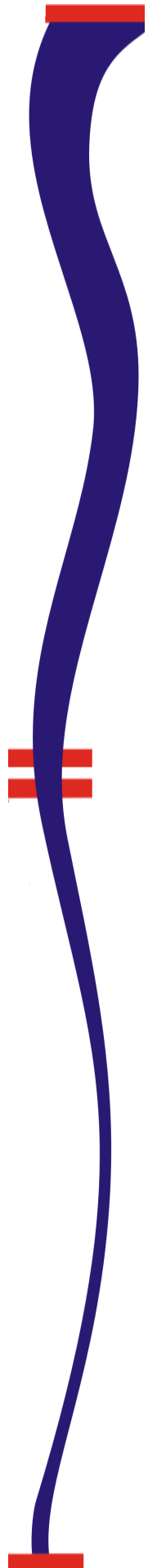
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Zach Herrmann, PE  
Houston Engineering, Inc.  
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## Do you have a Success Story?

### We would love to hear from you!

- Choose a project or program you'd like to share with us.
- Tell us in 350 words or less about the project or program.
- Identify which of the 13 goals it contributes to.
- Send it in to either RRBC. Don't forget to include your contact information so that we can make sure you are properly recognized!

#### RRBC US Office

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(701) 356 3183

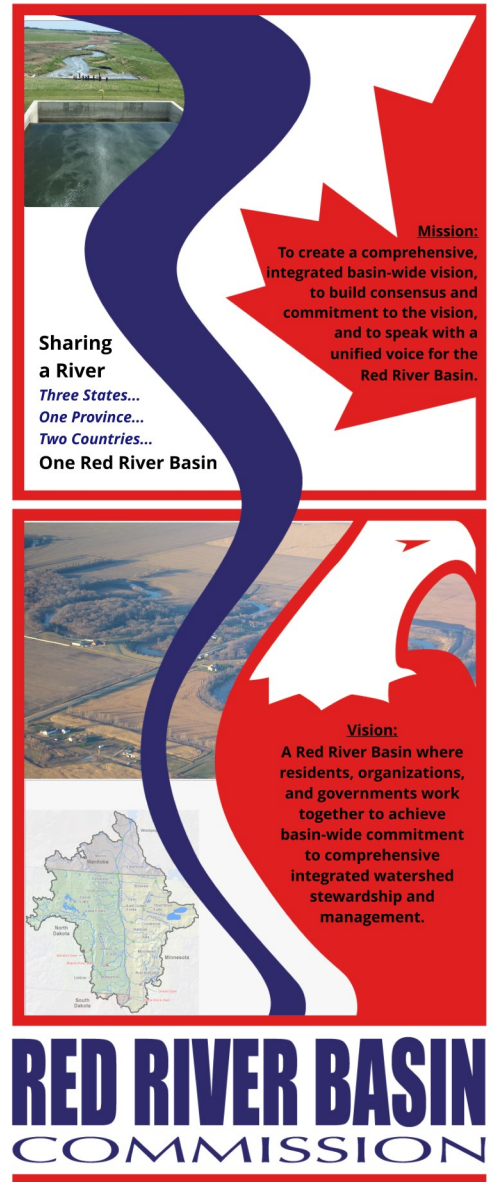
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Two Countries...  
One Red River Basin

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To create a comprehensive, integrated basin-wide vision, to build consensus and commitment to the vision, and to speak with a unified voice for the Red River Basin.

**Vision:**  
A Red River Basin where residents, organizations, and governments work together to achieve basin-wide commitment to comprehensive integrated watershed stewardship and management.

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