



Sunrise River (Highway 61) Wetland Enhancement

A Chisago County Petition Project

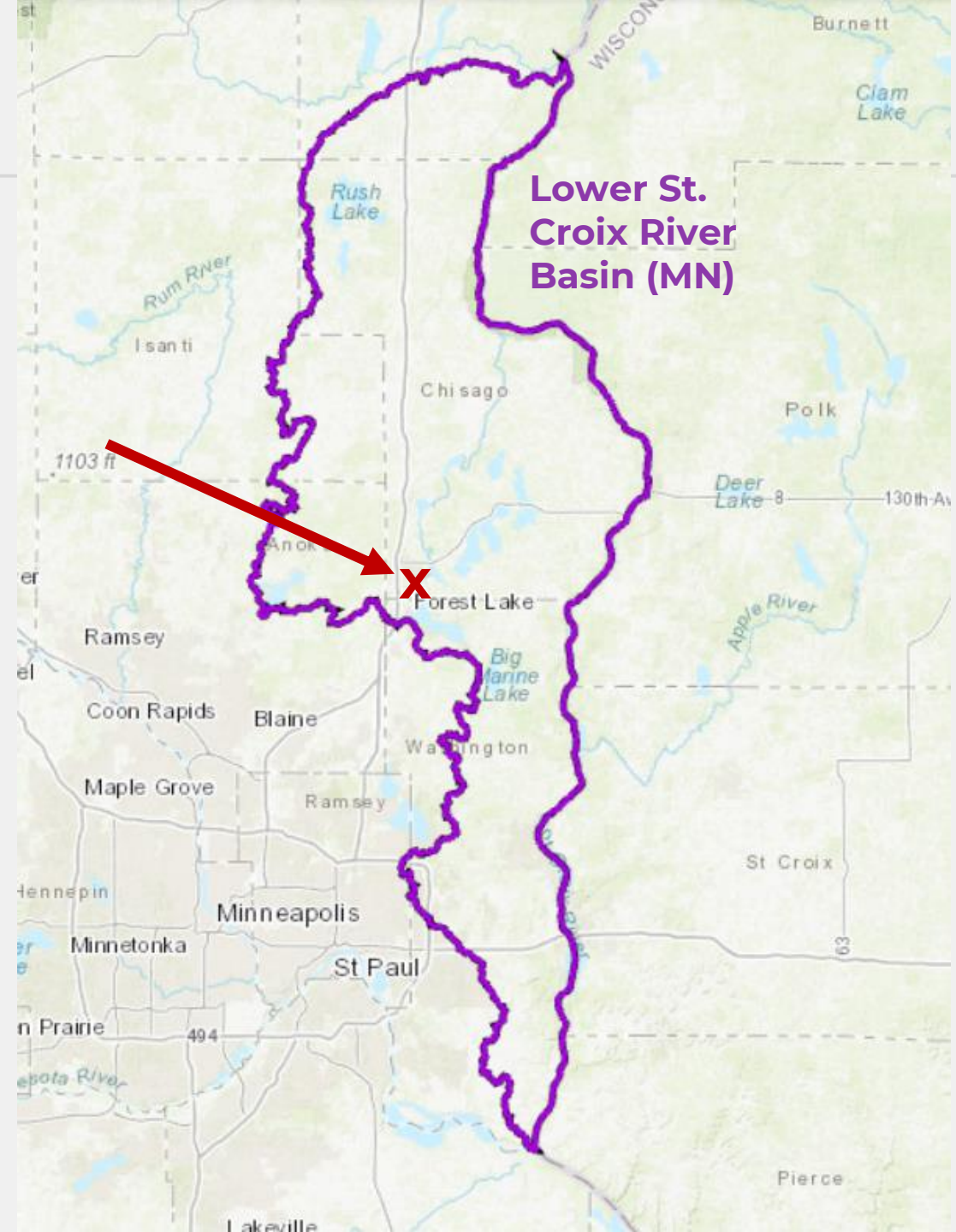
Comfort Lake-Forest Lake Watershed District





Project Location

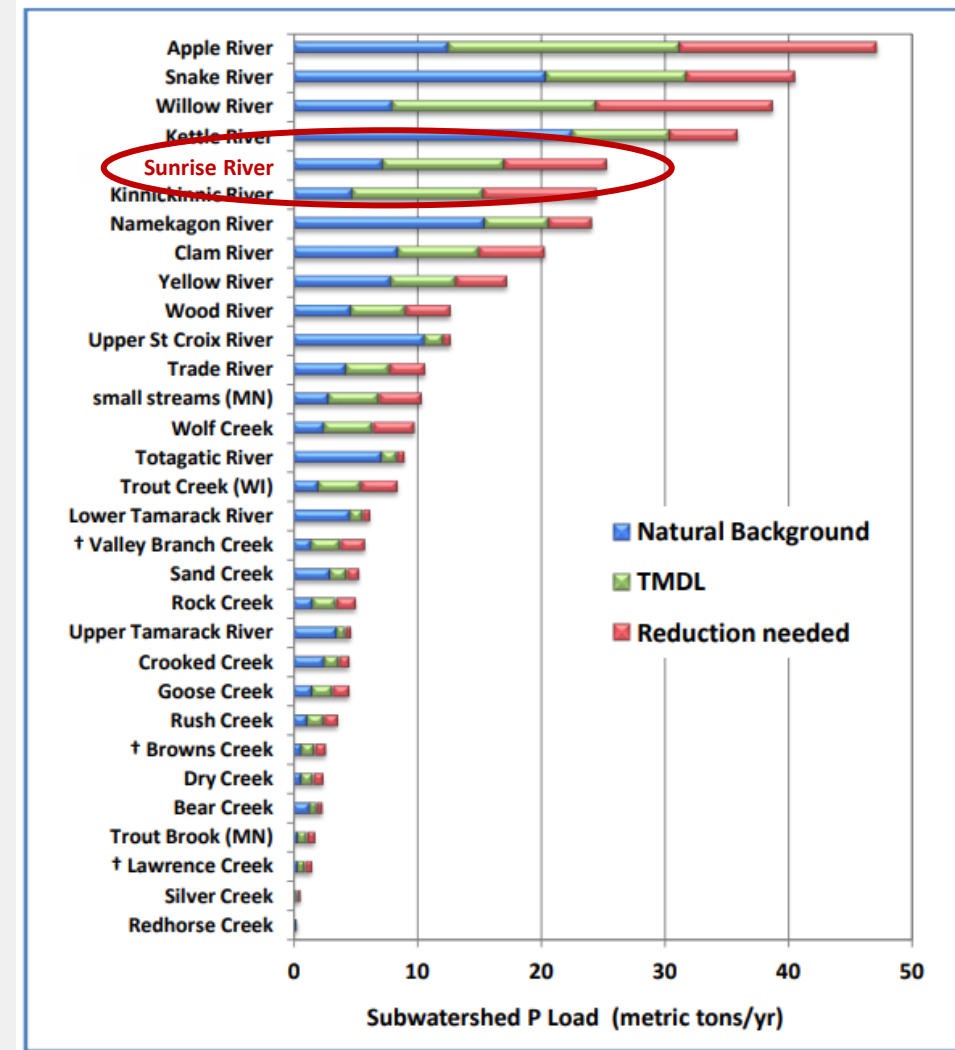
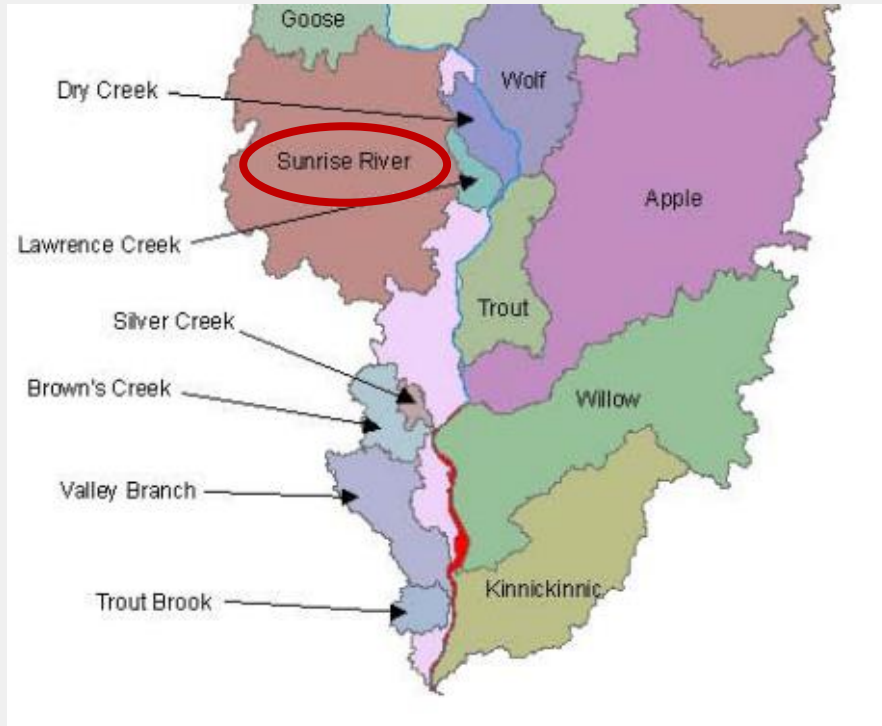
- Comfort Lake-Forest Lake Watershed District
- Southern Chisago County
- Adjacent to Sunrise River
- Downstream of Forest Lake, upstream of Comfort Lake
- Sunrise River ultimately flows to St. Croix River





Lake St. Croix TMDL

TMDL Phosphorus Load Reduction for Sunrise River = 8,303 lb/yr (33% reduction needed)





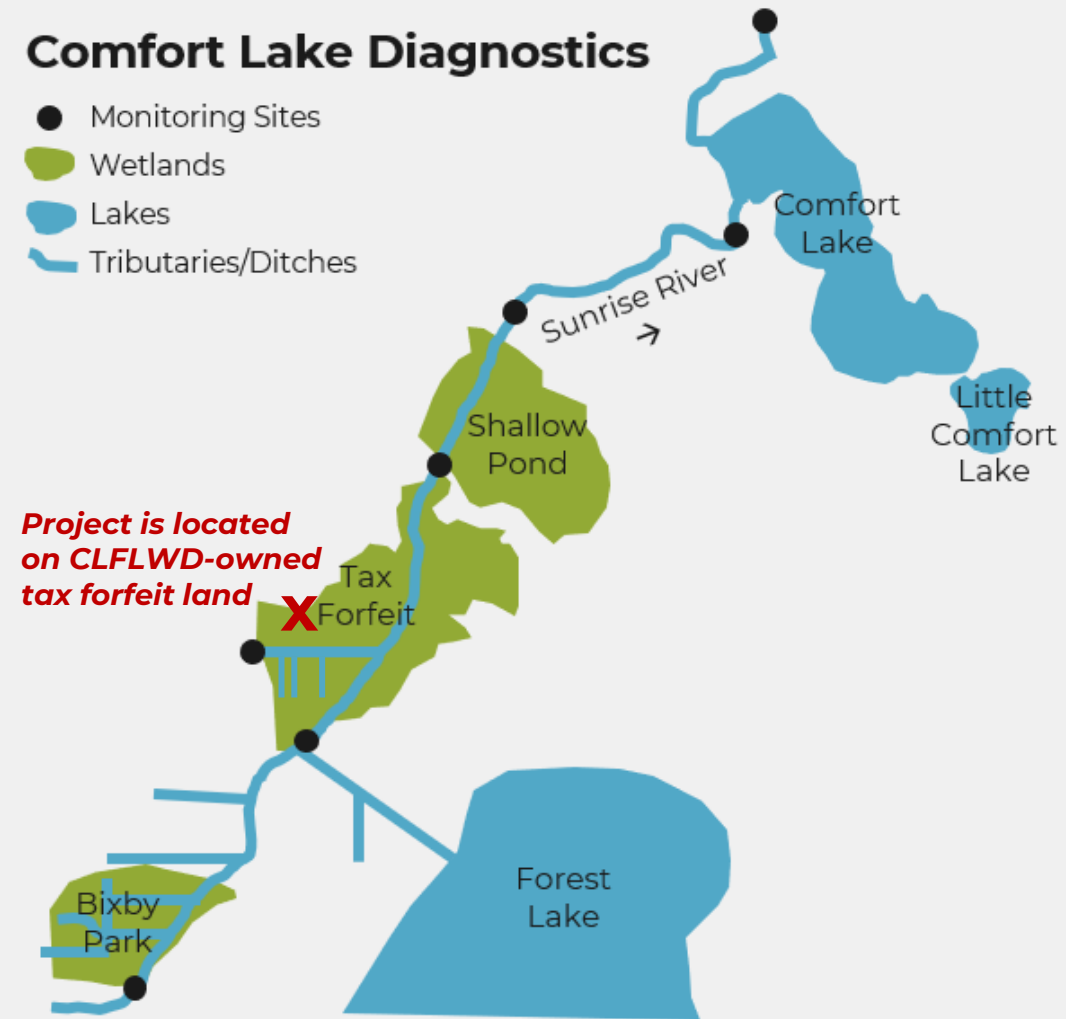
Comfort Lake Diagnostic Study

Complex Sunrise River corridor system

- Ditches
- Wetland complexes
 - Shallow Pond wetland complex is currently a major phosphorus sink, but not enough to fully protect downstream water resources
- Residential, commercial, and rural land uses

Comfort Lake Diagnostics

- Monitoring Sites
- Wetlands
- Lakes
- Tributaries/Ditches

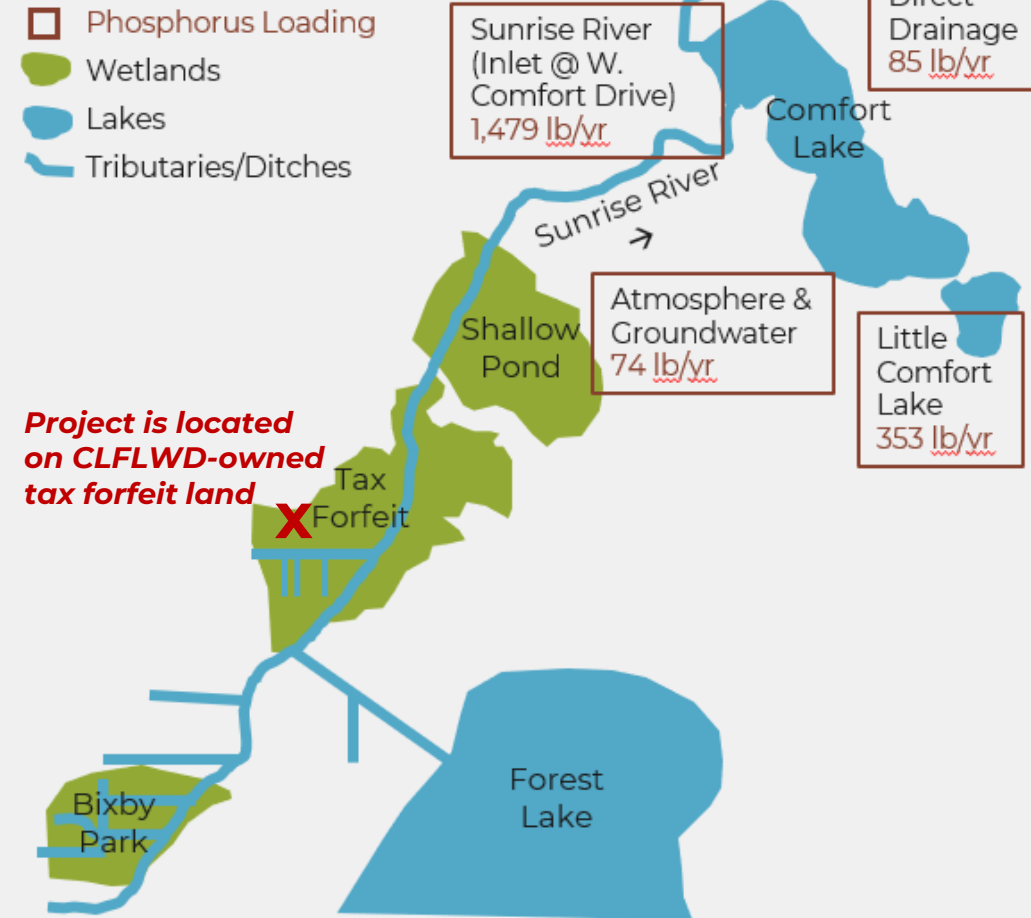




Comfort Lake Diagnostic Study

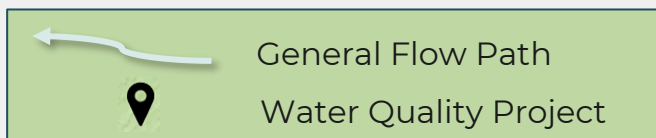
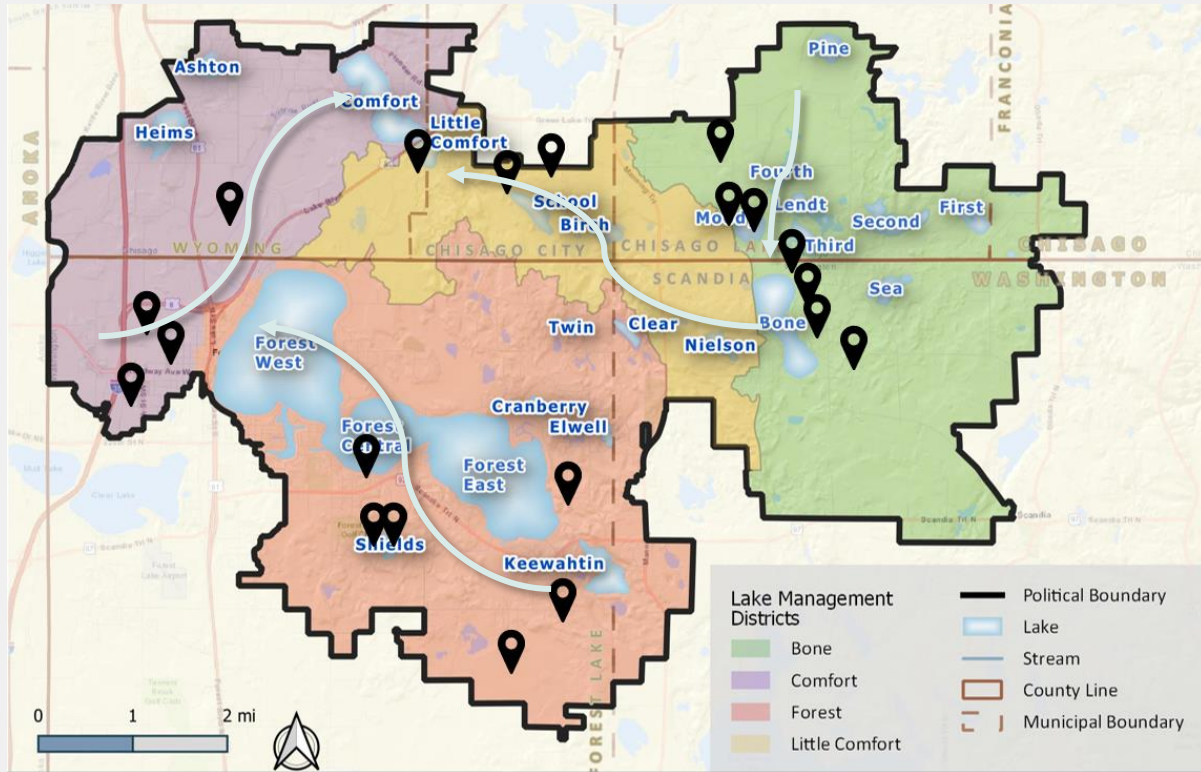
- Diagnostic Study identified phosphorus loading sources and targeted projects in the watershed
 - Forest Lake Urban Retrofits (75+ lb/yr P)
 - Bixby Park (206 lb/yr P)
 - Tax Forfeit Land (89 lb/yr P)
 - Shallow Pond (TBD)
- 2020 Total P Loading: ~2,000 lb/yr
- 2020 Goal P Reduction: ~200 lb/yr
- Goal P load: ~1,800 lb/yr

Comfort Lake Diagnostics





District-Wide Projects




District Wide Progress Toward Phosphorus Reduction Goals



State Standard Reduction Goal: 3,245lbs
 District Sustainable Reduction Goal: 5,802lbs



Impairment Delistings

Lakes from 2010 CLFLWD Six Lakes TMDL	Status
Bone Lake 	Recommended for delisting by MPCA and slated to be removed from EPA list in early 2024! Celebration in spring.
Comfort Lake	Currently qualifies for delisting, but CLFLWD will finish remaining upstream projects to ensure WQ is protected before requesting delisting
School Lake	Currently qualifies for delisting, but CLFLWD will implement upstream projects to ensure WQ is protected
Shields Lake	Currently qualifies for delisting, but CLFLWD will collect more years of data to confirm trend
Moody Lake	Very close to meeting standards, and significant WQ improvements achieved in recent years, but CLFLWD will implement more projects to ensure WQ is protected
Little Comfort Lake	Very close to meeting standards, and CLFLWD will implement more projects to ensure WQ is protected



Why this project?



Phosphorus

- ID'd in multiple targeting studies
- Treat large P load from urbanized Forest Lake and Heims Lake drainage ditch
- 89 lb/yr P reduction for Sunrise River



Multiple Benefits

- 51,000 lb/yr sediment reduction (73% decrease)
- Nitrogen (30% decrease)
- Heavy metals (70% decrease)
- Flood storage (18 ac-ft increase)
- Habitat improvement



Other Factors

- District-owned, tax forfeited property
- Sequential w/ Bixby Park and other projects
- Good cost-benefit - \$600/lb of P removed



Timeline Highlights

This project has evolved since its original conception in 2012, but remains true to the original spirit – address excess nutrient loading in this degraded system.



Sunrise River Flowage Study 2012

Chisago County petition occurred in 2010. Study ordered after CLFLWD received petition. Study ID's pollution hot spots and projects.

Sequential Process 2012-2017

Implemented projects upstream (e.g., Bixby Park, Target Store).

Clean Water Fund Grant App 2019

Successful grant application. Estimated project cost: \$600,000.

Feasibility Complete 2022

Evaluated design options. Estimated project cost: \$1.1 million. Applied for WBIF.

Contract Bidding 2022

Low bid: \$1.3 million; total cost increased to \$1.5 million.

Project Construction 2022-2023

Winter construction. Closeout October 2023.



Financial Highlights

Several funding and financing avenues were sought. The project budget changed drastically over time, but the cost-benefit remained very good.



Clean Water Fund Projects & Practices

\$492,000
(30%)

Lower St. Croix Partnership WBIF

\$300,449
(19%)

Section 319 Small Watershed Focus

\$100,000
(6%)

CLFLWD Levy

\$727,551
(45%)

(Most CLFLWD projects have a match = 20% of total project cost)

Clean Water Partnership Loan

Local share financed through loan and ultimately repaid w/ levy

Total Project Cost

\$1.62 million
Est. 30-yr lifetime cost: \$1.67 million
Lifetime cost-benefit: \$625/lb P

Concept Rendering

Multiple ponds in sequence to treat sediment loading



6		NOT FOR CONSTRUCTION		SUBMISSION DATE		 Emmons & Olivier Resources, Inc. 1919 University Ave W, St Paul, MN 55104 Tel: 651.779.6448 www.eorinc.com	 CENTROFT LAKE WATERSHED DISTRICT FOREST LAKE	TAX FORFEIT STORMWATER TREATMENT WETLAND		CONCEPT GRADING AND INFRASTRUCTURE	
5				SCALE IN FEET				WYOMING TOWNSHIP, CHISAGO COUNTY, MINNESOTA			
4				0 75 150 300				STATE PROJECT NO. — CITY PROJECT NO. #			
3				DESIGN BY				SHEET 02 OF 03 SHEETS			
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During and Post-Construction - Weir



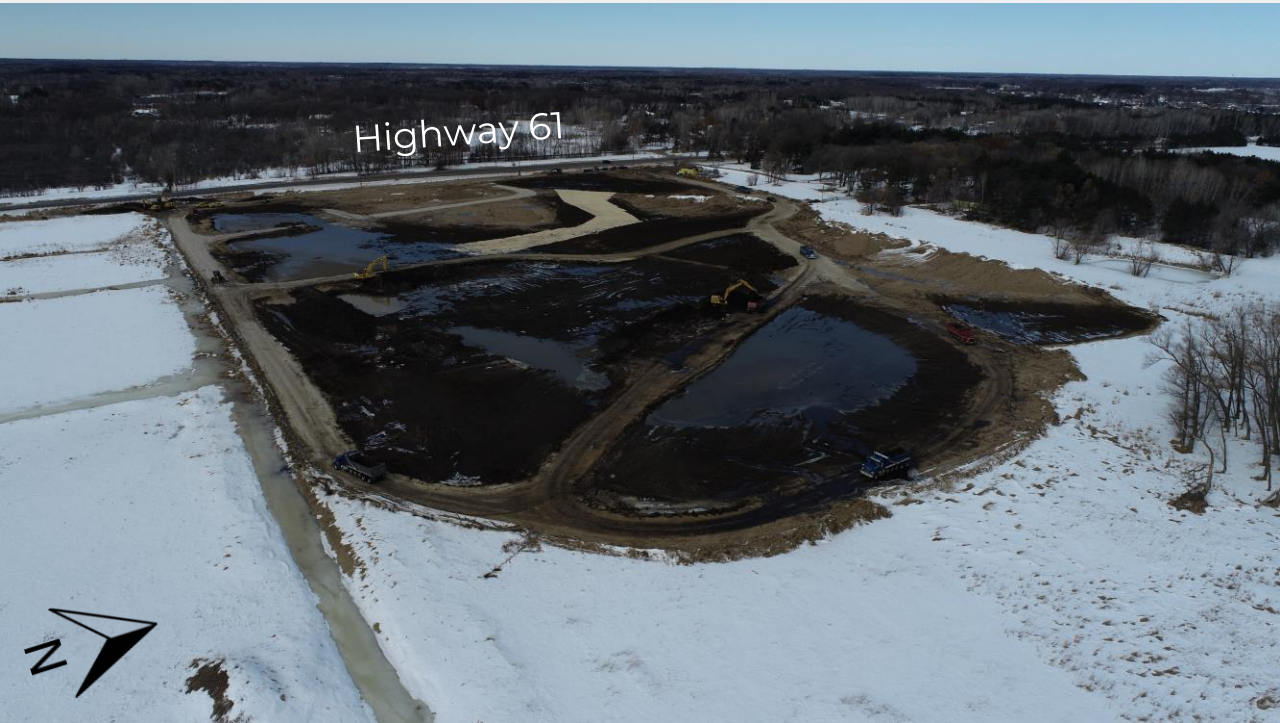
Construction – February 2023



Post-Construction – July 2023



During and Post-Construction - Aerial



Construction – February 2023



Post-Construction – September 2023





Post-Construction Video



Post-Construction Video



Questions?

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