



Moody Capstone Projects





Moody Lake Watershed

Monitoring Data indicated nutrient impairment

Moody Lake exceeded State Water Quality Standards prior to 2020

Past CLFLWD efforts in the Moody Lake basin

Moody Wetland Project

Peterson Wetland Project

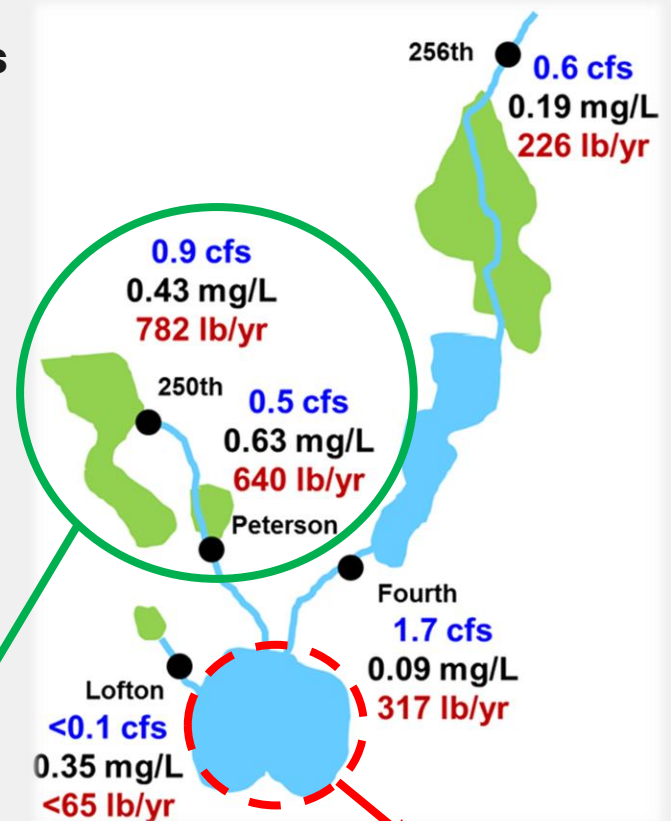
Moody Lake Alum Treatment

=80% of phosphorus load reduction needed

The Moody Capstone Projects will remove the remaining external load needed to ensure lasting water quality in Moody Lake.

Achieved **80%** of necessary watershed phosphorus load reductions by treating **25%** of the flow to the lake.

Moody Lake Subwatershed Diagnostic Results



Alum Treatment
Internal phosphorus loading reduction ²

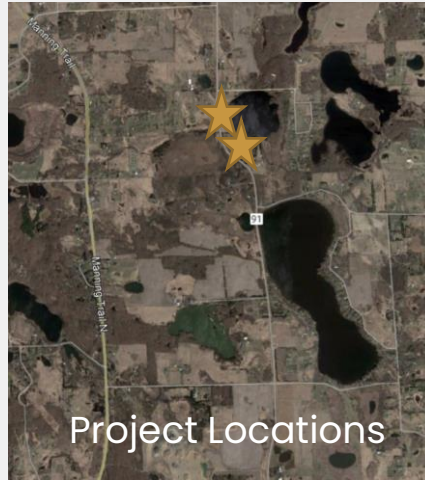


Moody Capstone Projects

Benefit: Est. 58 lbs/yr phosphorus reduction

Project Phase 4: implementation

Project Funding:
BWSR Clean Water
Fund grant received
spring 2022



Project Locations



Legacy Load Removal Area

Project: several small projects (wetland enhancements, shoreline stabilization, and legacy load removal) within the Moody Lake watershed that will ensure the lake maintains state water quality goals (achieved in 2020).



Moody Park / Round Barn Project Area



Moody Park & Round Barn Project Elements

Three project elements

Estimated 8 lbs/phosphorus reduction per year

1 lbs of phosphorus can fuel up to 500 lbs of algal growth

So...10 lbs phosphorus = ~4,000 lbs algae!

1) Rain gardens

- Treat runoff from parking lot
- Plant with native species

2) Shoreline Stabilization

- Stabilize the public access down to the lake
- Revegetation with native pollinator species

3) Legacy Load Soil Removal

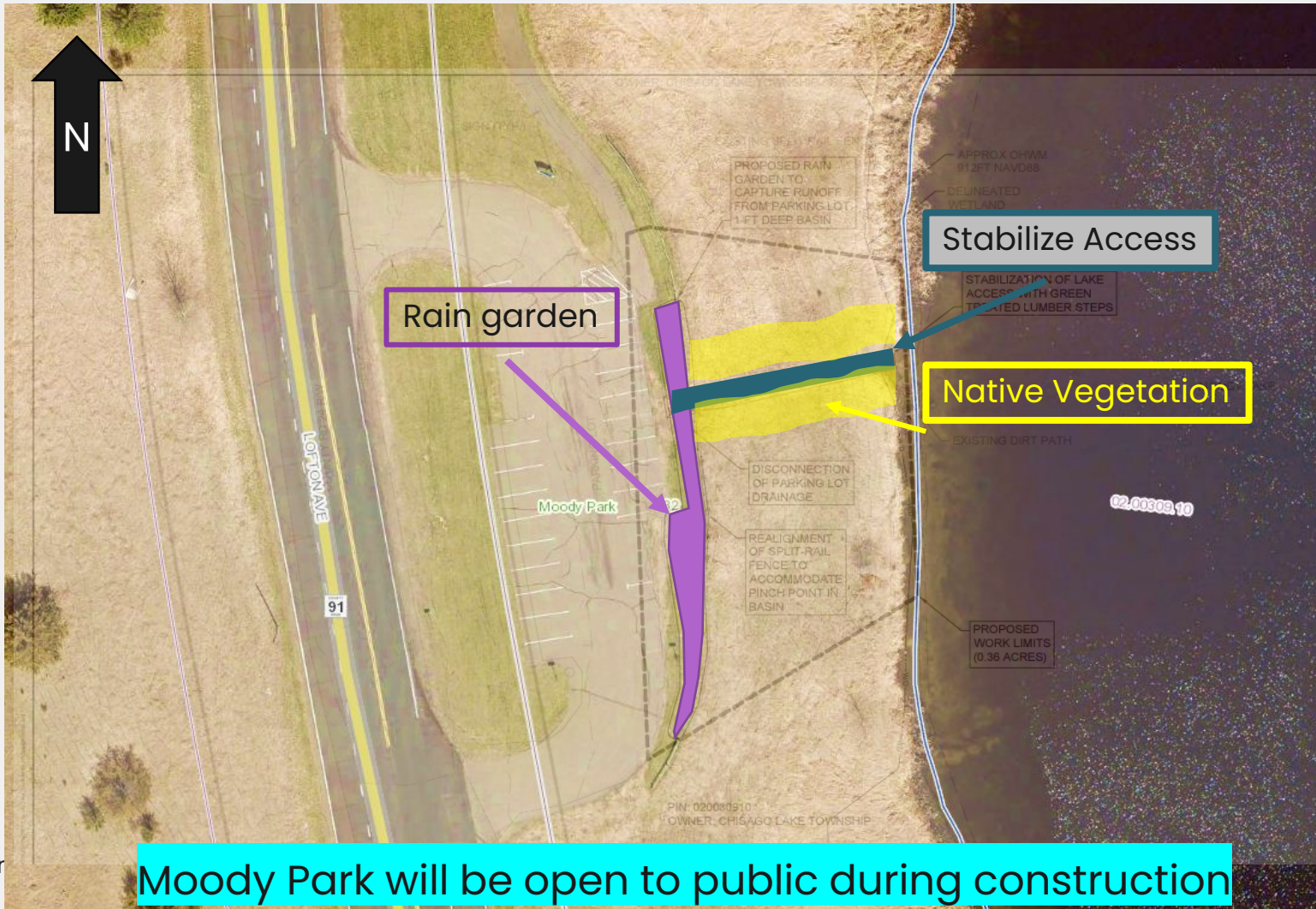
- Remove manure laden soils from historic land use around the barn
- Revegetation with native wetland and riparian species





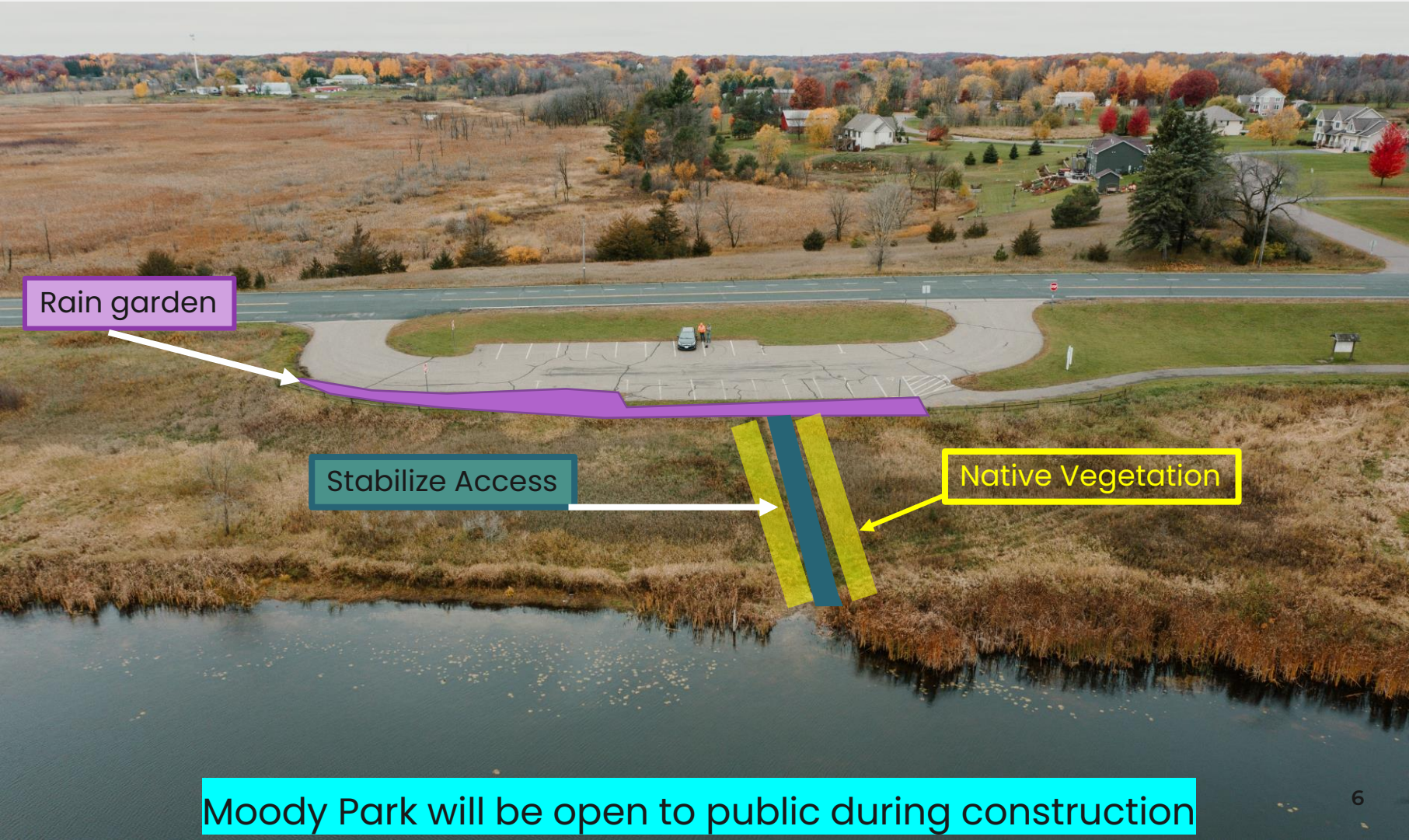
Moody Park Project Elements

Rain gardens and shoreline stabilization (Spring 2024)





Moody Park Project Elements





Moody Round Barn Project Elements

Legacy Load Soil Removal

Soil samples taken in 2020 and 2021 indicate elevated levels of nutrient in these areas - associated with past land management.

Sample ID	Composite Depth (in)	TP	%	TKN
		mg/kg dry	organic matter	mg/kg dry
RBW #21 0-8		580	52	
RBW #21 8-12		320	75	929
RBW #21 12-16		190	81	810
RBW #21 16-24		130	78	535
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RBW #22 0-3		3500	27	
RBW #22 3-18		3100	60	
RBW #22 18-24		850	73	2550
RBW #22 24-28		470	82	422
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RBW #1 0-16				
<hr/>				
RBW #2 0-2	0-20			
RBW #2 2-10		1650	52	N/A
RBW #2 12-14				
RBW #2 20-22				
RBW #2 28-30				





Moody Round Barn Project Elements

Legacy Load Soil Removal (winter 2023/24)





Moody Round Barn Project Elements



Wetland
Restoration

Upland
Restoration

Moody Park will be open to public during construction



Moody Wetland “legacy Load” Project

Project Benefit

Estimated 50 lbs/phosphorus reduction per year

1 lbs of phosphorus can fuel up to 500 lbs of algal growth

So...50 lbs phosphorus = ~25,000 lbs algae!



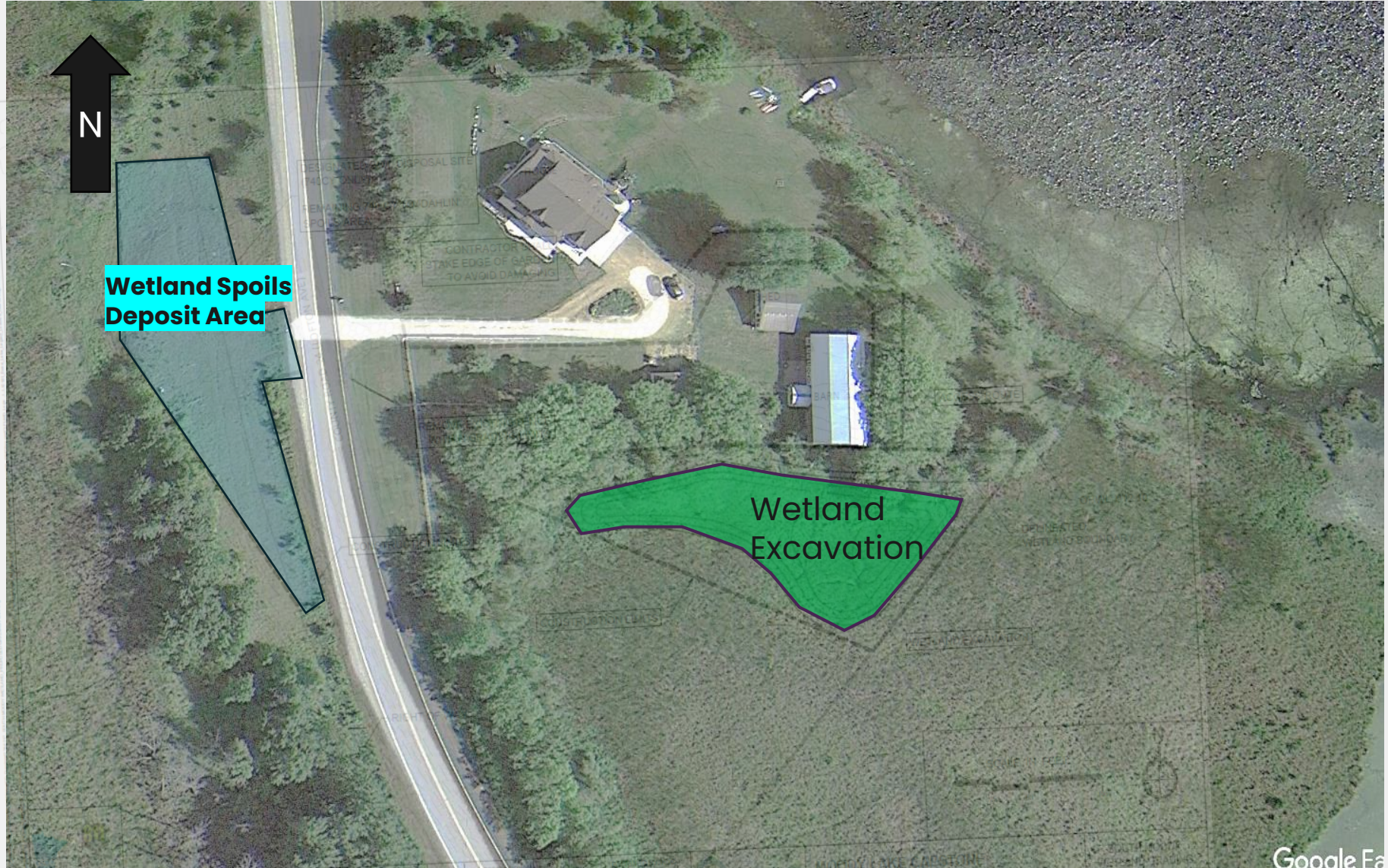
Wetland enhancement / Legacy Load Soil Removal

- Remove manure laden wetland soils from historic land use around the barn
- Revegetation with native wetland and riparian species





Moody Wetland "legacy load" Project





Moody Wetland "legacy load" Project





Washington Judicial Ditch 6 Wetland Enhancement

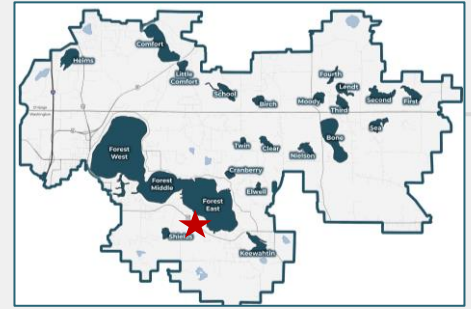




WJD6 Western Tributary Wetland Enhancement

Project:

Wetland enhancement / connectivity, hydrology restoration on a private tributary of the WJD 6 Ditch system that flows to Forest Lake's 3rd basin.



Project Phase 4: Implementation

Benefit to Forest Lake:

- ~20 lbs/yr phosphorus reduction
 - ~10,000 lbs of algae growth inhibited.
- ~3,200 lbs/yr TSS reduction

Lifetime cost per pound phosphorus reduction: \$1,043



View of wetland from Hwy 97



WJD6 Western Tributary Wetland Enhancement

Status:

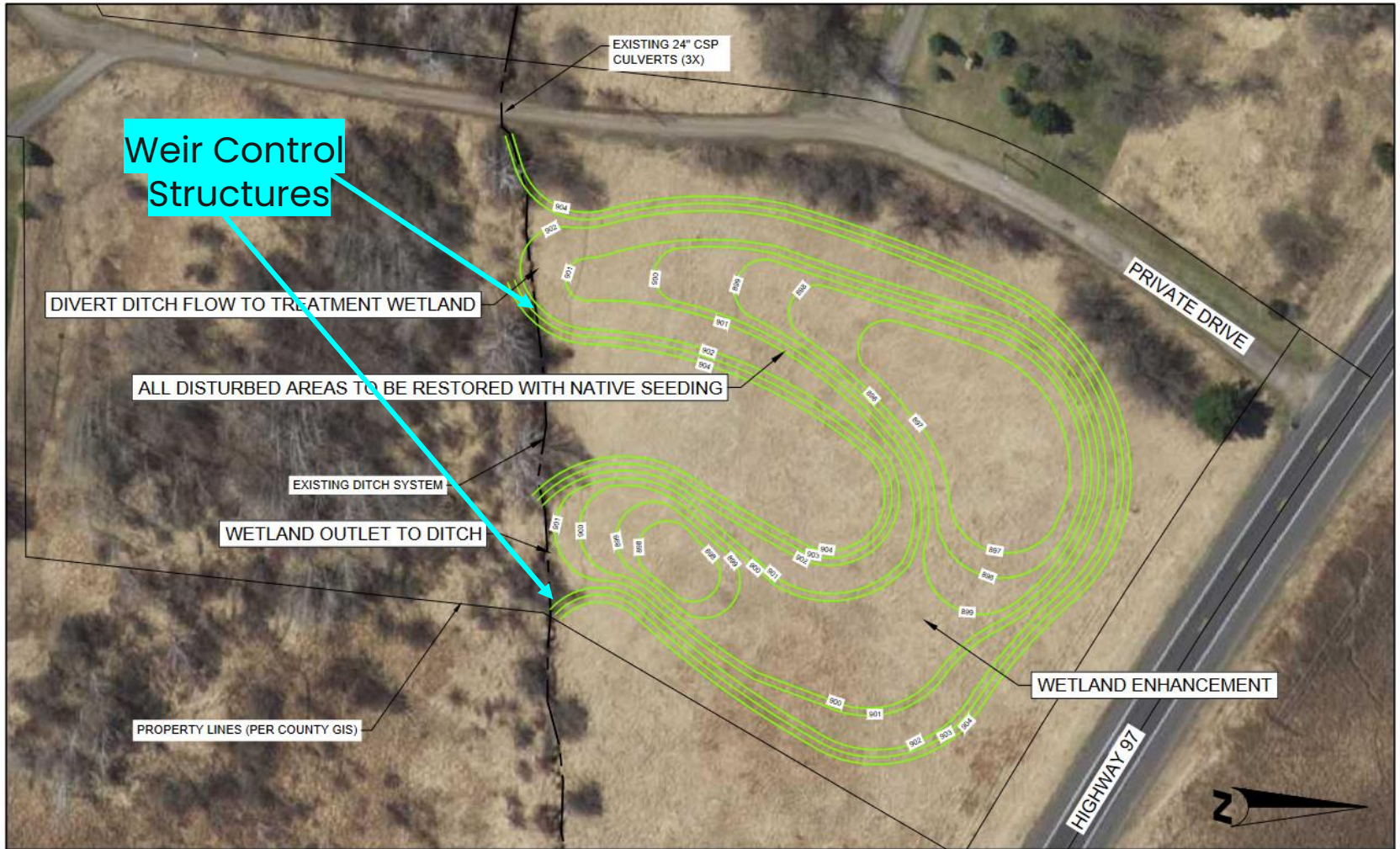
- Project Awarded at the Sept 28th board meeting to Peterson Companies, Inc (PCO).
- Construction Winter 2023/24



View of wetland from Hwy 97



WJD6 Western Tributary Wetland Enhancement

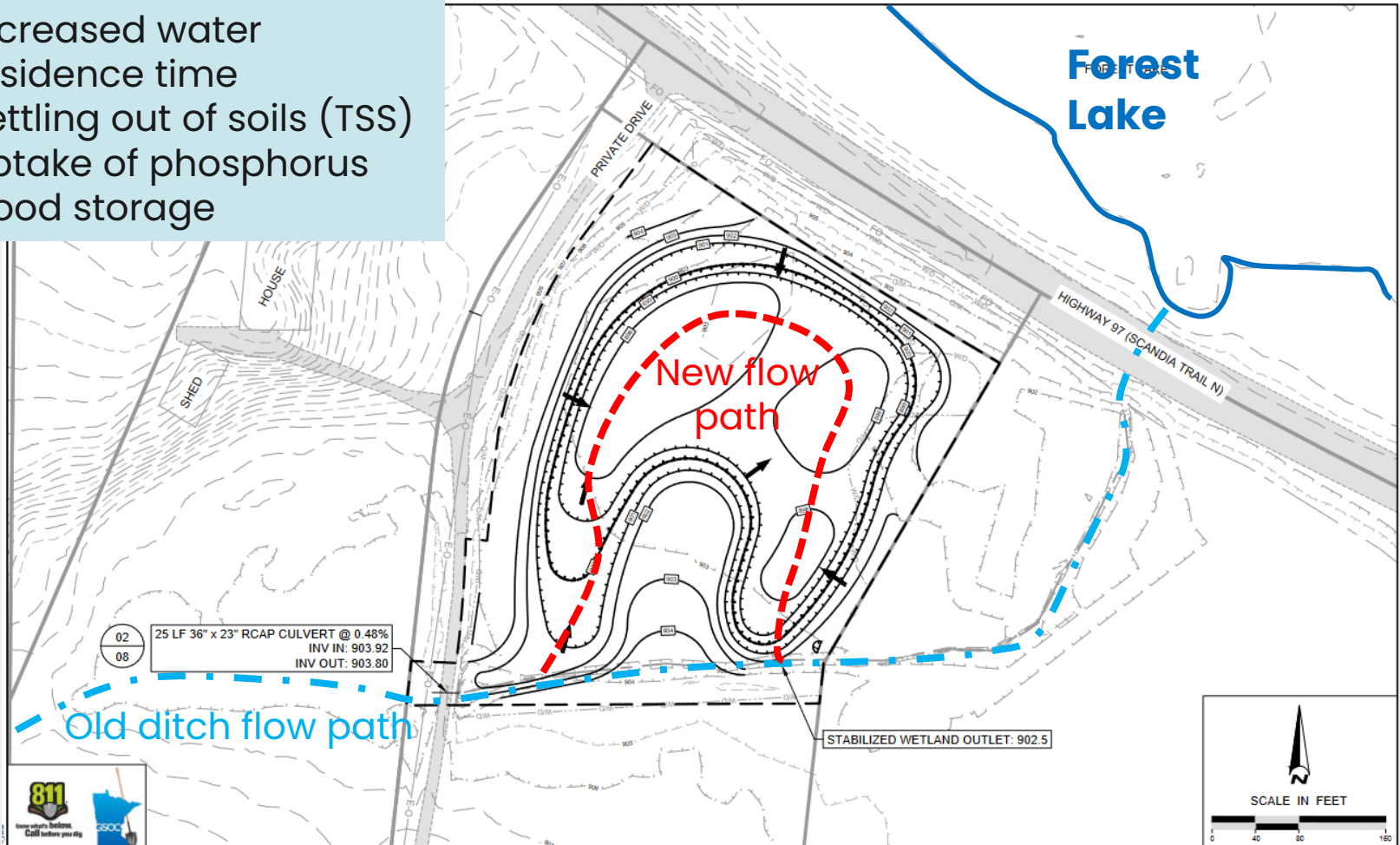


Project Rendering



WJD6 Western Tributary Wetland Enhancement

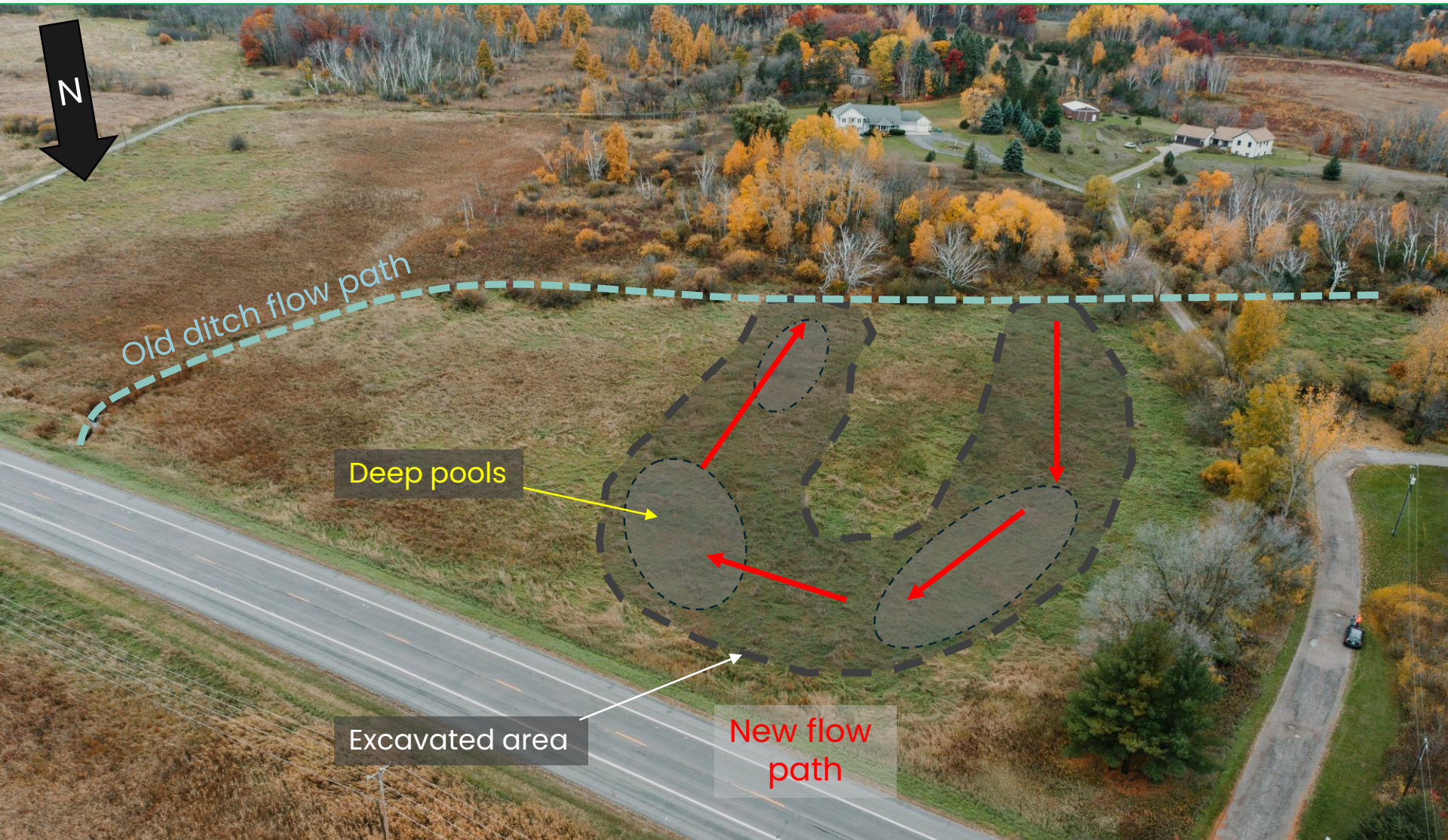
- Increased water residence time
- Settling out of soils (TSS)
- Uptake of phosphorus
- Flood storage



Project Design



WJD6 Western Tributary Wetland Enhancement



Old ditch flow path

Deep pools

Excavated area

New flow path



WJD6 Western Tributary Wetland Enhancement



Project Access / Private Driveway along Hwy 97

All excavated soils will be taken off site and become property of the contractor
Native planting and seeding will be used to restore all disturbed areas



CLFLWD
WATERSHED DISTRICT