MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Federal Clean Water Act Section 319

Project workplan

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Project title: Wilkinson, Tamarack, and Birch Lakes: Wilkinson Lake Stormwater Spine Phase I

1. Project Summary:

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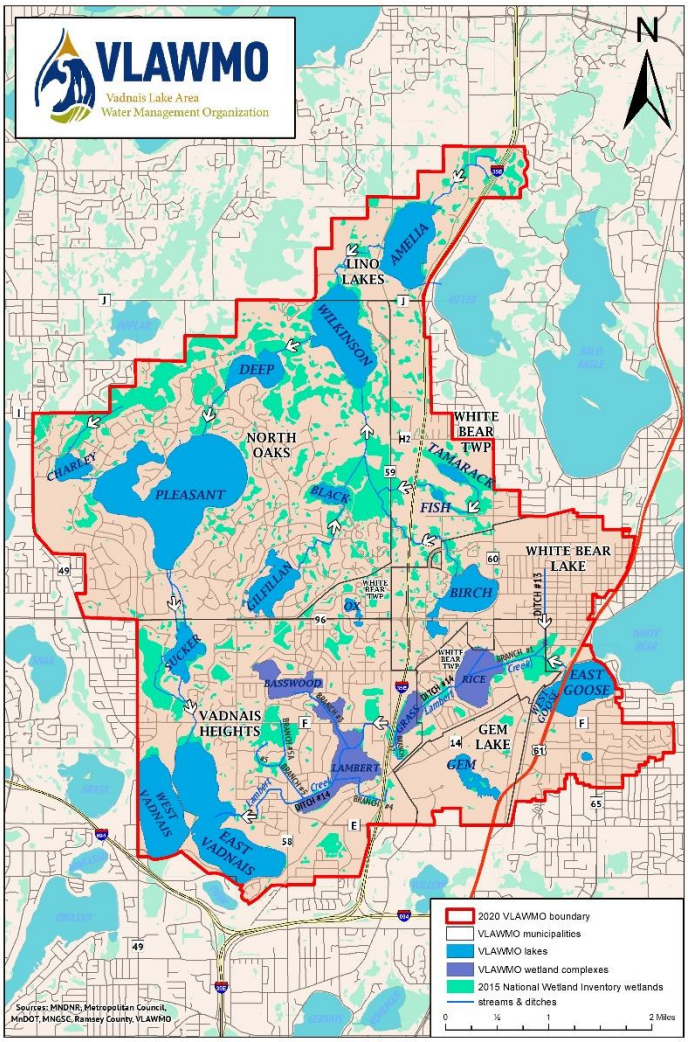
Project Cost: Grant: $320,705.50, Match: $213,804, Total: $534,509.50

2. Project information

A detailed, Nine Key Element document was developed for Wilkinson, Birch, and Tamarack Lakes, and approved for funding by the U.S. Environmental Protection Agency. This project was identified as a priority concern to address critical phosphorus loading to Wilkinson Lake.

Wilkinson and Tamarack Lakes are impaired waterbodies that are listed for nutrients. Wilkinson Lake has an approved Total Maximum Daily Load (TMDL) and completed feasibility studies to identify Best Management Practices (BMPs) to improve water quality. Tamarack Lake is slated for TMDL development in 2024; studies have been completed to inform TMDL development and prepare for BMP implementation. Birch Lake has good water quality and a designation of “protect” in the Vadnais Lake Area Watershed. Birch and Tamarack Lakes flow into Wilkinson Lake. See Watershed Figure (Figure 1) for locations and context of the first phase project site and longer-term comprehensive plan (Figure 2).

Figure 1: Vadnais Lake Area Watershed. Note the locations of Wilkinson, Tamarack, and Birch Lakes.

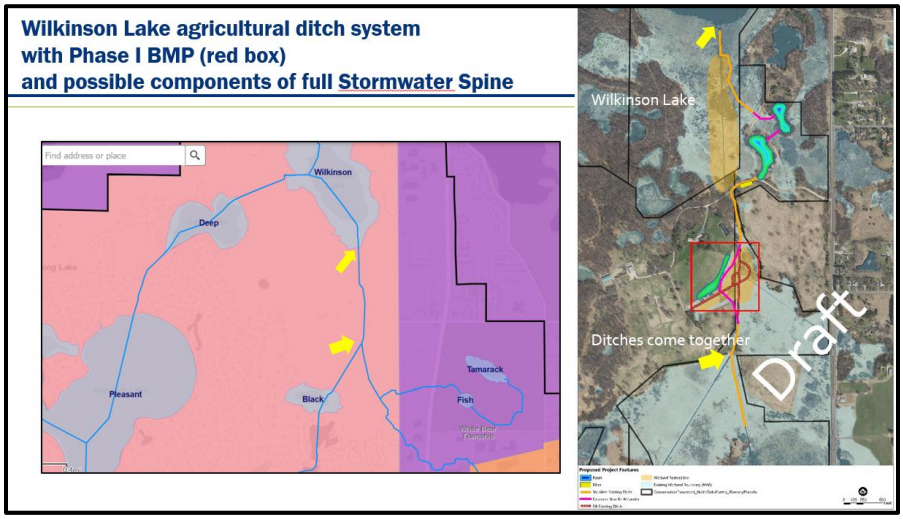


The project that is the focus of this grant round is a component in a connected network of BMPs. The collection of projects is referred to as the Wilkinson Lake Stormwater Spine. Phase I of the spine includes: ponding /treatment BMP area prior to treat regional drainage before discharge into Wilkinson Lake. The overall goal of the Stormwater Spine is to improve water quality in Wilkinson Lake by reducing loading of nutrients and sediment.

The location of the Wilkinson Lake Stormwater Spine has been selected as regionally important to strategically treat water prior to entering Wilkinson Lake; Wilkinson Lake receives water from Tamarack and Birch Lakes through an extensively channelized system. Target areas are important in a largely developed watershed and provide key locations, where the majority of subwatershed runoff flows through an agricultural ditch system prior to entering Wilkinson Lake.

As identified in the Wilkinson Lake TMDL, the communities of North Oaks, White Bear Township, the City of White Bear Lake, Lino Lakes, and Ramsey and Anoka County all contribute stormwater to Wilkinson Lake. North Oaks Company/North Oaks Farms (NOC/NOF) is a major landowner in North Oaks. NOC/NOF has taken on a leadership role in working closely with VLAWMO to develop the concept plans for the Wilkinson Stormwater Spine. The company has also initially committed to being a financial partner in the cash match portion of the project and partnering on ongoing maintenance following project construction with VLAWMO. St. Paul Regional Water Services (SPRWS) uses the chain of lakes that receives water from Wilkinson as part of their drinking water supply, in addition to Mississippi River Water that is pumped through the system.

Figure 2: Location of Phase I and anticipated Stormwater Spine project.

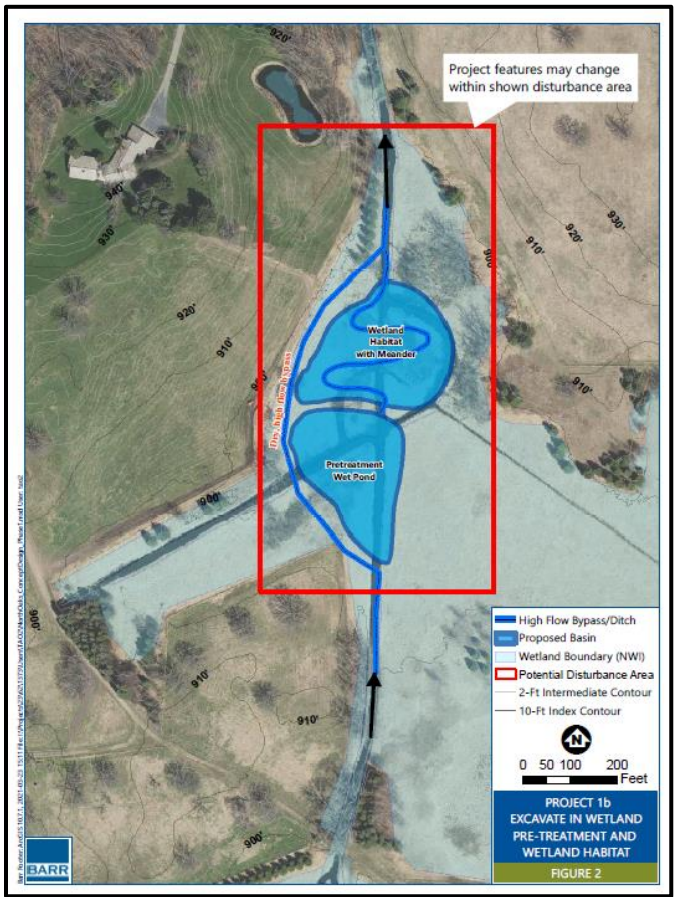


As part of project collaboration, NOC/NOF hired Barr Engineering to create conceptual designs for BMPs to be implemented on company property, including land with conservation easements held through the Minnesota Land Trust (MLT). Work with NOC/NOF, VLAWMO, Barr Engineering, and MLT began in 2020 and continues to date.

Water quality monitoring (conducted by VLAWMO) shows that runoff in the agricultural ditch system that empties into Wilkinson Lake has high total phosphorus (TP) concentrations and makes up a significant portion of the loading to Wilkinson Lake. Monitoring data also suggest that the high pollutant concentration in the ditch is driven by loading from areas east of Centerville Road in the Birch and Tamarack Lake subwatersheds. Barr worked with NOC and VLAWMO to create conceptual designs that met several shared goals and would help improve the water quality in Wilkinson Lake. The focus of these efforts is on the agricultural ditch that runs through NOC property and within the MLT's agricultural and conservation easements. Centralizing the treatment along the ditch also provides an opportunity to restore degraded areas in the easements and increase recreational use through added trails and interactive design features. These additional design and restoration efforts are outside of this current grant, but are also part of a longer-term vision with planned incorporation by NOC/NOF. Designs are in the conceptual stage at the time of workplan preparation and will be updated based on survey and soil testing, permitting, stakeholder engagement, and final design considerations.

Phase I of the Stormwater Spine is located in an upstream wetland in the MLT agricultural easement. Currently, there are several agricultural ditches that intersect in this location and drain the surrounding wetlands. These ditches also convey flow from eastern subwatersheds (Tamarack and Birch Lakes) to Wilkinson Lake. There are three alternative concept level configurations for the upstream pond area that are being considered at this time. One of the possible configuration is shown below. Final design will depend upon results of summer technical analysis and testing and incorporation of agency feedback as part of permitting. In this possible configuration, a pre-treatment basin would be excavated in-line with the ditch to treat baseflow and small-event flow. A high-flow bypass would be constructed to the west of the basin to reduce the impact of high flows in the basin (scour, sediment resuspension, etc.). The pre-treatment basin would discharge into an excavated wetland basin with a meandering flow path to add improved wetland habitat and a meandering path to allow natural fluctuation and stream elements within the system.

Figure 3: A possible concept level configuration for the Phase I project depending upon results of upcoming technical design work including survey, soil testing, and continued input from permitting authorities.



3. Goals, objectives, tasks, and subtasks

Goal: Restore water quality as part of Phase I of the Wilkinson Lake Stormwater Spine, as identified in the Wilkinson, Birch, and Tamarack Lakes Nine Key Element document.

Objective 1: Engineering to complete design, permitting, and go out for bid

Task A: Complete any remaining survey, soil testing, and project design

Task B: Preliminary plan/spec development

Task C: Complete design to 90%

Task D: Receive and incorporate feedback from permitting authorities, make any necessary changes, and prepare final designs and specs

Task E: Develop contract between owner and contractor and facilitate bid process

Objective 1 Timeline: 2/2022 – 8/31/2023
Objective 1 Cost: Grant: $77,120, Match: $19,746, Total: $96,866
Objective 1 Deliverables: Permits in place, final plans and specs, signed construction contract

Objective 2: BMP implementation/construction

Task A: Construction

Task B: Engineering oversight and inspection

Objective 2 Timeline: 8/2022 – 7/1/2024
Objective 2 Cost: Grant: $232,728, Match: $155,153, Total: $387,881
Objective 2 Deliverables: BMP implementation completed

Objective 3: Monitoring for the effectiveness of BMP and maintenance

Task A: Monitoring with the intent of determining the effectiveness of the BMP, with the additional benefit of recommendations for maintenance. Monitoring will be conducted annually until the end of the grant timeframe with recommendations provided by contractor for following year implementation

Task B: Maintenance to be carried out as needed and in partnership between VLAWMO and NOC and possible other partners

Task C: Vegetation additions, structural monitoring, and minor remediation as needed until the new structures are stabilized

Objective 3 Timeline: 7/2023 – 8/31/2025
Objective 3 Cost: Grant: $10,857.50, Match: $7,238, Total: $18,095.50
Objective 3 Deliverables: Ongoing maintenance needs identified, reported, and implemented

Objective 4: Project Management

Task A: Administration and Reporting:

- Facilitate project management and partner interactions
- Work with engineering firm to obtain permits, make changes, and communicate with stakeholders
- Participate in finalization of specs, bid process, and construction as owner
- Track project activities according to project work plan and budget
- Complete e-LINK reporting requirements
- Track grant budget, matching funds, and expenditures for grant
- Compile, organize, and submit invoices according to grant requirements
- Authorize payment of bills for grant expenses
- Obtain matching funds documentation
- Prepare and submit semi-annual and final reports according to the grant agreement

Objective 4 Timeline: 2/2022 – 8/31/2025
Objective 4 Cost: Grant: $0, Match: $31,667, Total: $31,667
Objective 4 Deliverables: Report BMP accomplishments and pollutant reductions in e-LINK program. Submit invoices and reports according to the grant agreement

4. **Project budget** (attached)