

Sturgeon Lake High Water Feasibility Study

Background

Sturgeon lake is located in Northern Pine County Minnesota, approximately 2 miles East of the town of Sturgeon Lake. The lake has a current surface area of approximately 1,700 acres, 9.5 miles of shoreline, a maximum depth of 40 feet, and a mean depth of 22 feet. It is located within the Kettle River watershed area.

After several years of increasingly highwater levels on Sturgeon Lake, a large number of lakeshore owners reported increased damage to property. The concerns were brought to the Windemere Township Lakes Association (WTLA). Then established an ad hoc committee to further research the highwater situation on Sturgeon Lake and report back to the Association with their findings and any recommendations. From that report, the committee recommended, and the Association endorsed, an engineering study be completed regarding the highwater level of Sturgeon Lake to include potential future water levels and mitigating strategies.

The WTLA approached the Pine County Board of Commissioners and the Windemere Township Board seeking a local government entity to sponsor and fund a feasibility study. The Pine County Board approved a grant of up to \$25,000.00 to Windemere Township and, the township agreed to administer the contract.

Project Scope

Conduct research regarding the high-water level of Sturgeon Lake and create a preliminary feasibility study report identifying potential solutions to high water levels of the lake.

Deliverables:

- Feasibility Report Documenting
 - System Sizing Analysis
 - Cursory review of inflows to the lake from surface water and ground water sources
 - Water balance calculations (i.e., average annual runoff, evaporation, groundwater inflows, etc.) to estimate magnitude of outlet capacity needed to address the high-water problem
 - Provide a summary of estimated lake level drawdown scenarios covering a range of system discharges (i.e., pumping rates, open channel flow rates etc.)

- Provide potential ranges of drawdown periods (i.e., months, years)
- Preliminary Alternatives Analysis
 - Review alternatives previously identified
 - Review existing LIDAR topographic surface information
 - Survey locations to further investigate and/or confirm viability of alternatives
 - Review potential Aquatic Invasive Species (AIS) filtration options (i.e., natural, mechanical, etc.)
 - Review of downstream water bodies for capacity to accept water
 - Identify and document, at a minimum, two pumping options
 - Identify and document, at a minimum, one non-pumping option
 - Provide exhibits showing general route alignments and key project features
- Document Alternatives
 - In light of regulatory, political and engineering issues, identify the pros, cons, and other obstacles for recommended options
 - Identify anticipated required permits and approvals
 - Review and identify potential environmental issues
 - Identify potential features and issues that could present risks in terms of cost
 - Assuming that in some, or all, of the options that water relocated will be transferred over or onto the property of others, identify potential eminent domain, or other taking considerations, in terms of time and cost
- Preliminary cost estimates
 - Prepare cost estimates at a high level that will provide stakeholders with general ideas on expected costs for a basis to compare alternatives
 - Estimates should focus on “big ticket” considerations and should be based on similar projects or in consultation with suppliers and or contractors
 - Provide general assumptions and estimates of costs associated with downstream improvements that may be necessary
 - Estimates may include ranges of costs to account for uncertain or unknown factors
 - Identify potential features and issues that could present potential cost risks (i.e., environmental issues, volatile markets, compensation for taking condemnation, etc.)

- Report and Meeting
 - Contractor will provide a report that will document the components described in this study including but not limited to maps/exhibits, cost estimates and brief explanations on each key component.
 - Contractor will provide written or meeting updates to the designated township supervisor on a biweekly basis
 - Upon completion of the report, the contractor will provide a digital copy of the report as well as ten printed copies to the Clerk of Windemere Township
 - Subsequent the township board receiving and reviewing the completed report, a representative of the contractor knowledgeable about the project will present the report in person or virtually at a public meeting of the Windemere Township Board
 - As part of the reporting process, the contractor agrees to respond to follow-on questions, if any, regarding clarifications of the report for a period of 30 days after the formal presentation.

- Assumptions
 - The township acknowledges that the preliminary feasibility study does not involve a high level of detail and is intended to help guide stakeholders in making decisions about future actions regarding the highwater level
 - In order to keep costs minimal, the township acknowledges much of the research and analysis with information that is in the public domain such as aerial imagery, LIDAR surface information, wetland maps, soil information, Minnesota Department of Natural Resources resources, etc. with limited on-site survey work.
 - The requested anticipated environmental impact information may be completed through information gathering and analysis without environmental fieldwork
 - The township acknowledges that while cursory reviews of downstream waterbodies will be conducted, no hydraulic analysis of downstream bodies is required for this preliminary feasibility study.
 - The township acknowledges that in the scope of this feasibility project the contractor will complete its analysis and recommendations using sound engineering judgement and prior experience. The contractor is not obligated to meet, discuss, or provide submittals on behalf of the

township with other agencies, and assumes that all necessary approvals and permits can be obtained for a future project

- Statement of Qualifications and Quote (To be included with bid)
 - Resumes of key personnel to participate in the project including educational background
 - Contractor shall provide evidence of familiarity with this type of project and provide descriptions of other lake/river water related projects completed
 - Contractor will provide a brief description on proposed implementation and schedule of the project
 - Complete the quote sheet (Appendix A) and submit with the above listed documents. Quotes must be received no later than 5:00 p.m. May 6, 2022. The anticipated awarding of the contract will be during the scheduled Windemere Township meeting on May 12, 2022. Please send to:

clerk@windemeretownship.com

or by mail to

Clerk, Windemere Township
91546 Military Road
Sturgeon Lake, Minnesota 55783:

- Questions regarding this project or bid should be direct to:

Mark Dunaski
Supervisor, Windemere Township
mark.dunaski@windemeretownship.com
612-867-3515

Appendix A

Windemere Township
Sturgeon Lake High-Water Feasibility Study
Quote Sheet

Company Name:

Company Address:

Name of Company Contact:

Telephone of Company Contact:

E mail of Company Contact:

Quote for work and deliverables described in the Sturgeon Lake High-Water preliminary feasibility study:

\$

The following must accompany your bid proposal:

- Resumes of key personnel to participate in the project including educational background
- Evidence of familiarity with this type of project and provide descriptions of other lake/river water related projects completed
- Description on proposed implementation and schedule of the project

Please submit no later than 5:00 p.m. May 6, 2022 to:

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Windemere Township reserves the right to accept or reject any and all bids