

**Lake Shamineau Lake Improvement District (LSLID)  
High-Water Project Informational Meeting  
July 6, 2019 at 9:30 a.m.  
Lincoln Evangelical Free Church**



**HOSTED BY:** Board of Directors of the Lake Improvement District (LID) –  
Bob Koll, Rick Rosar, Cindy Kevern, Fred Comb, Don Ogilvie  
Widseth Smith Nolting (WSN) – Brian Ross, Project Manager

**ATTENDEES:** Lake Shamineau Property Owners

**MEETING PURPOSE:** To provide information regarding the High-Water Project and to answer property owner questions

**PROJECT GOAL:** To determine a solution to the high water problem that is the most feasible, cost-effective and timely, and will minimize ongoing maintenance and future operating costs

**AGENDA:**

1. Welcome and Introductions – Bob Koll
  - Meeting Agenda
  - Code of Conduct
2. High-Water Project Background - Cindy Kevern
  - Meeting Handouts
3. Preliminary Engineering Report – Brian Ross, WSN
  - Background and Project Description
  - Recommendations for Reducing High Water
  - Review of Route and Feasibility of Solution
  - Next Steps – Preliminary Design, Updated Costs, Confirming Route
4. Project Steps and Estimated Timeframe for Completion
5. DNR Grant
6. Questions
7. Next Steps –
  - Completion of Preliminary Design and Updated Cost Estimates
  - Letter out to property owners in late July
  - Annual meeting on August 24<sup>th</sup> including vote on High Water Project
  - Pass on information to your neighbors. Contact us with questions.

*Meeting Code of Conduct –*

- *Participants should speak one at a time, waiting to be recognized.*
- *Be respectful and wait your turn to speak. Be brief and please keep your questions to the High-Water project topic.*
- *When asking questions, participants will need to state their name and their property address on Lake Shamineau.*

# **Lake Shamineau Lake Improvement District (LSLID) High-Water Project Informational Meeting July 6, 2019**

## **Goal of the High-Water Project:**

**To determine a solution to the high water problem that is the most feasible, cost-effective and timely,  
And will minimize ongoing maintenance and future operating costs**

### **1. High Water Project Background:**

*Note that an all-time high water reading was taken in June (1277.0), which is 1.9 feet above OHWM.*

- On October 9, 2018 the Morrison County Board of Commissioners approved the LID budget including \$100,000 for the High Water Project and taken with the \$65,000 DNR grant, provides \$165,000 for 2019.
- In January 2019 the LSLID issued a Request for Engineering Services. After reviewing proposals, checking references, and conducting interviews, the LSLID Board of Directors approved an agreement with Wiseth Smith Nolting (WSN) on April 15, 2019 to develop a high-water solution which includes 3 steps:
  - Step 1** - Complete a route analysis in the NE area with emphasis on infiltration and update the feasibility study with an Engineers Report to be completed by May 31, 2019;
  - Step 2** - Complete a preliminary design and provide an estimate of project costs for the High Water solution to be completed by August 1, 2019; and
  - Step 3** - Complete plans and permitting with an anticipated completion date of Nov 19, 2019.
- WSN has concluded Step 1 with a recommended route to the NE and a completed Preliminary Engineering Report which includes testing information, high level detail, and costs for a proposed solution that includes pumping water from the lake and to infiltrate to a gravel pit NE of the lake across Bugle Road.

### **2. The Preliminary Engineering Report has been submitted by WSN and approved by the Board of Directors.**

**Please note the following regarding the report:**

- Borings, observation wells, surveys, and infiltration testing has provided preliminary data with positive findings for infiltration at a gravel pit at the NE part of lake across Bugle Road.
- The map included in the report indicates a route to the gravel pit from the lake, which is for illustrative purposes only. During the next step of the project, we will be working with property owners to determine the exact route.
- The costs in the report are preliminary. During the next step of the project WSN will be looking at alternatives and refining the cost estimates.

### **3. Following is a direct excerpt from the WSN Report, “Preliminary Engineering Report Lake Shamineau High Water Project, prepared for the Lake Shamineau Lake Improvement District, dated June 3, 2019”:**

#### **A. Background**

The water level of Lake Shamineau has been rising in recent years causing problems for riparian landowners. In addition, high water causes shoreline erosion, destruction of wildlife habitat, loss of trees and native vegetation, as well as potential reduction of water quality, and additional boat wake damage. The lake does not have a natural surface water outlet.

A review of four alternatives was conducted and is presented in the Engineer’s Feasibility Report dated January 23, 2018, by Houston Engineering, Inc. The four alternatives considered were:

1. Do Nothing
2. Northeast Bound Outlet
3. Southwest Bound Outlet
4. Property Buyout

This report considers another alternative; withdrawing water from the Northeast area of the lake via a pump station and discharging it to an infiltration basin that provides groundwater flow away from Lake Shamineau.

This alternative is described as pumped infiltration in this report. This report is to identify an outlet for the high water on Lake Shamineau to meet Minnesota Department of Natural Resources (MNDNR) funding and permitting requirements.

## B. Project Description

A water intake screen would be installed in the lake in water deep enough to remain submerged even at lower lake levels. The screen proposed is a cylindrical shape installed horizontally. The screen will be sized so that the intake flow velocity is low enough so that swimmers, fish, or objects do not get pulled into it. There will also be a barrier to keep people and boats away.

The intake pipe will extend to a pump station on land near the lake shore. The pump station will contain one or two vertical turbine pumps. Two pumps provide more flexibility of operation and are proposed at this time. The pump structure will be underground except for the pump motors which will be located above the concrete structure slab. The water will be pumped through a buried pipeline to the infiltration basins (see Figure 2). The pipeline would likely be 18inch diameter for the proposed pumping rate. The velocity would be about 5.6 feet per second. The proposed infiltration basin will be divided into two cells and flow can be equally split between them or can be directed to either cell. Detailed design might dictate use of more smaller cells to fit site topography.

## C. Hydrologic and Hydraulic Data

The Lake Shamineau water surface area is 1,434 acres according to the MNDNR. To lower the lake level one foot would require removal of 1,434 acre-feet of water. This does not include water that is present in the wetlands and sediments around the lake that will drain to the lake as the lake level is lowered.

WSN completed dual-ring infiltrometer and percolation testing at the proposed infiltration site. The site is a gravel pit located to the northeast of Lake Shamineau as shown on Figure 1. Testing indicates that the site is suitable for infiltration and can be loaded with at least 3.63 feet of water per day. More information related to infiltration rates and analysis is available in WSN's Memo titled "North-Northeast Outlet Corridors" dated May 24, 2019 (attached as Appendix B), and the Hydrogeologic Investigation Report dated May 28, 2019. This technical information has been shared with MNDNR staff.

## II. PROJECT SIZING ANALYSIS

Infiltration of water can only take place when soil is not frozen. Generally, the season for operation will be mid-May through about the end of October, or approximately 150 to 180 days.

Recent DNR records of lake water level records for Lake Shamineau show the lake rising as much as 1.7 feet in a year (2014). MNDNR recorded water levels for the past ten years is attached as Appendix A. The volume of water for 1.7 feet is 2,438 acre-feet. The lake ordinary high water level (OHW) is 1275.1 feet elevation, and the current water (May 2019) level is 1276.84 or approximately 1.7 feet above the OHW.

Removal of 2,438 acre-feet in 150 days requires a continuous pump rate of 8.2 cubic feet per second (cfs), or 3,680 gallons per minute (gpm). Some down time for maintenance at the pump station and infiltration site should be allowed. Assuming the system will have some down time for maintenance, we increased the pumping rate to account for this time (pump rate times 1.2); this requires about 10 cfs rate or 4,500 gpm. The

proposed pump station would have two pumps with a maximum capacity of 4,500 gpm with both pumps running full speed.

### III. PROJECT ECONOMIC ANALYSIS

A preliminary opinion of construction and total project costs have been developed. The estimated construction amount is approximately \$1,500,000 and the total project cost is nearly \$1,900,000. Detailed estimated cost breakdowns are attached. The costs do not take into account likely possible MNDNR Flood Hazard Mitigation Grant assistance.

### IV. FEASIBILITY

The project is feasible and can be constructed by normal construction methods. The project is necessary to control lake levels and reduce property losses, shoreline erosion, destruction of wildlife habitat, loss of trees and native vegetation. The project is cost effective when compared to other alternatives.

This project, as proposed, is feasible, necessary, and cost effective.

### V. NEXT STEPS

The next step in the project, surveying and detailed design, will include the development of operations and maintenance plans, preliminary engineering plan sets, an updated implementation schedule and more detailed cost estimate for construction and plan implementation. After the detailed design is completed, permit applications will be applied for. Once the permits are in place, final design plans and specifications will be completed and the project bid out. Based on bids and qualifications, the contractor will be selected and construction can commence.

-----*END of Excerpt from WSN Preliminary Engineering Report*-----

#### **4. DNR Grant: *Good News – Grant funding has been approved!***

On June 3, 2019 the LSLID Board of Directors accepted the Preliminary Engineering Report completed by WSN. This documentation has been submitted to the DNR and a grant agreement was approved on June 21, 2019. With this agreement, the LID can submit expenses for DNR grant reimbursement up to \$65,000 for this phase of the project. The DNR has also given promising information regarding possible future grant funds for the High-Water Project. Grant dollars through the DNR Flood Damage Reduction grant program can only be awarded to local government units, such as the Lake Shamineau Lake Improvement District and cannot be awarded to individuals or independent organizations.

#### **5. Next Steps for High-Water Project:**

The engineering firm, WSN, will continue design work on the solution in July; to further establish the route; and to work with agencies including the DNR, Soil and Water, and the County to ensure the solution is feasible for permitting. By August 1, detail on the solution including cost information will be available for review by property owners. At the August annual meeting, property owners will vote on a 2020 budget which will include costs for the next steps for a high-water solution, and to establish the project. Plans and permitting tasks (included in the 2019 high water budget) will continue in the fall of 2019. The schedule for future steps including final design, construction plans, construction and operational plans will be announced as they become available.

#### ***DNR High-Water Project Permitting-***

The DNR has informed us that moving forward, permitting for a permanent high water solution must be sponsored by a local governmental unit, such as the Lake Shamineau Lake Improvement District.

**Lake Shamineau Lake Improvement District**  
**High Water Project**  
***Project Tasks, Timeline, and Costs***  
**July 6, 2019**

**Shaded cells indicate completed steps. *Italics* indicate estimated timeline.**

<b>Task</b>	<b>Description</b>	<b>Timeline (<i>Estimated</i>)</b>	<b>Cost</b>
1. 2018 Annual Meeting	Membership approved 2019 Budget, including High Water Project	August 25, 2018	
2. Morrison County Board approval of 2019 budget	County Board approved LID 2019 budget; including High Water Project amount of \$100,000 (LID Project Budget); taken with DNR grant amount of \$65,000 provides for a total budget of \$165,000 for the High-Water project	October 9, 2018	
3. Step 1 - Route Alternative Analysis	<ul style="list-style-type: none"> <li>• Determine most feasible, cost-effective and timely NE alternative which includes infiltration, gravity, or pumping for the NE corridor.</li> <li>• Data review and hydrogeology analysis</li> <li>• Provide Preliminary Engineering Report</li> </ul>	Completed June 3, 2019	\$35,000
4. Step 2 - Surveying and Preliminary Design Tasks – for the NE corridor	<ul style="list-style-type: none"> <li>• Hydrogeological Modeling</li> <li>• Long term plans and Operation Plan, including cost estimate for long term solution</li> <li>• Complete Borings and observation wells as required by the DNR</li> <li>• Complete design for NE corridor, wetland delineation (if required) and engineering design for solution</li> </ul>	August 1, 2019	\$103,714 (per Agreement with WSN)
5. Step 3 - Plans and Permitting	<ul style="list-style-type: none"> <li>• EAW (if required)</li> <li>• Permitting and Utilities Agreement</li> <li>• Right of Way and Easement Acquisitions</li> </ul>	November 19, 2019	\$26,286 (per Agreement with WSN)
6. Final Design, Pre-Construction, and Construction Eng.	<ul style="list-style-type: none"> <li>• Finalize Construction Plans and Specifications</li> <li>• Completion of Bidding documents, Process and Construction Schedule</li> </ul>	<i>Estimated Early 2020</i>	<i>Preliminary Estimate \$190,000*</i>
7. Construction	<ul style="list-style-type: none"> <li>• Includes Construction of Solution</li> <li>• Project Administration (Legal, RW Processing, Fiscal and Administrative, and Land)</li> </ul>	<i>Estimated 2020</i>	<i>Preliminary Estimate \$1,600,000*</i>

***The final timeline for the construction of the solution will depend on timeframe for receipt of funds, permitting, right of way easements, weather, etc. An estimated schedule will be provided prior to the Annual Meeting.***

***\*The Preliminary Engineering Report dated June 3, 2019 included estimated costs for the high-water project. These cost estimates will be revised and updated in July as the Preliminary Design is completed. Updated cost information will be provided prior to the Annual Meeting. These cost estimates do not reflect any possible DNR Grant funds, which could provide up to 50% reimbursement.***