

Gaiter Lake Reroute Project

October 6, 2009



BOLTON & MENK, INC.
Consulting Engineers & Surveyors

Topics for Tonight

- Brief History - How did we get to this point
- Current Status
- Prepared Questions
- Council/Board Questions
- General Questions

History

- Bolton & Menk hired by WLA in the fall of 2002 (Blandin Foundation Grant)
- After 1-year of study, the final report was submitted in November of 2003
- Study included flow monitoring coupled with voluntary testing by WLA.
- Found or Proved the Smoking Gun (CD 15-1)

2003 Inflow Analysis Findings

- The Ditch 15-1 outlet by Barneys Restaurant adds approximately 677 lb of Phosphorus to the lake per year.
 - This single outlet adds 0.037 mg/l over the entire lake per year.
 - Assuming no original phosphorus, no outflow and uniform phosphorus distribution it will take only 8.4 years to reach 0.1 mg/l.
 - 0.1 mg/l is the maximum allowable *inflow* that assumes cleaner runoff and higher flushing rates will dilute it – not dominate the lake

CD 15 History

- CD 15-1 was created to serve the Gaiter Lake Area and drain across the Railroad to Clear Lake.
- Could not be drained toward the Le Sueur River though CD 15 to the southwest.
- Best record is a 1966 Engineering Report that said 15-2 was originally constructed about 45 years earlier (1921 ±).

CLEAR LAKE

CD 15-1

CD 15-1

GAITER LAKE

11th Avenue 42"
Storm Sewer (1970)

CD 15-1

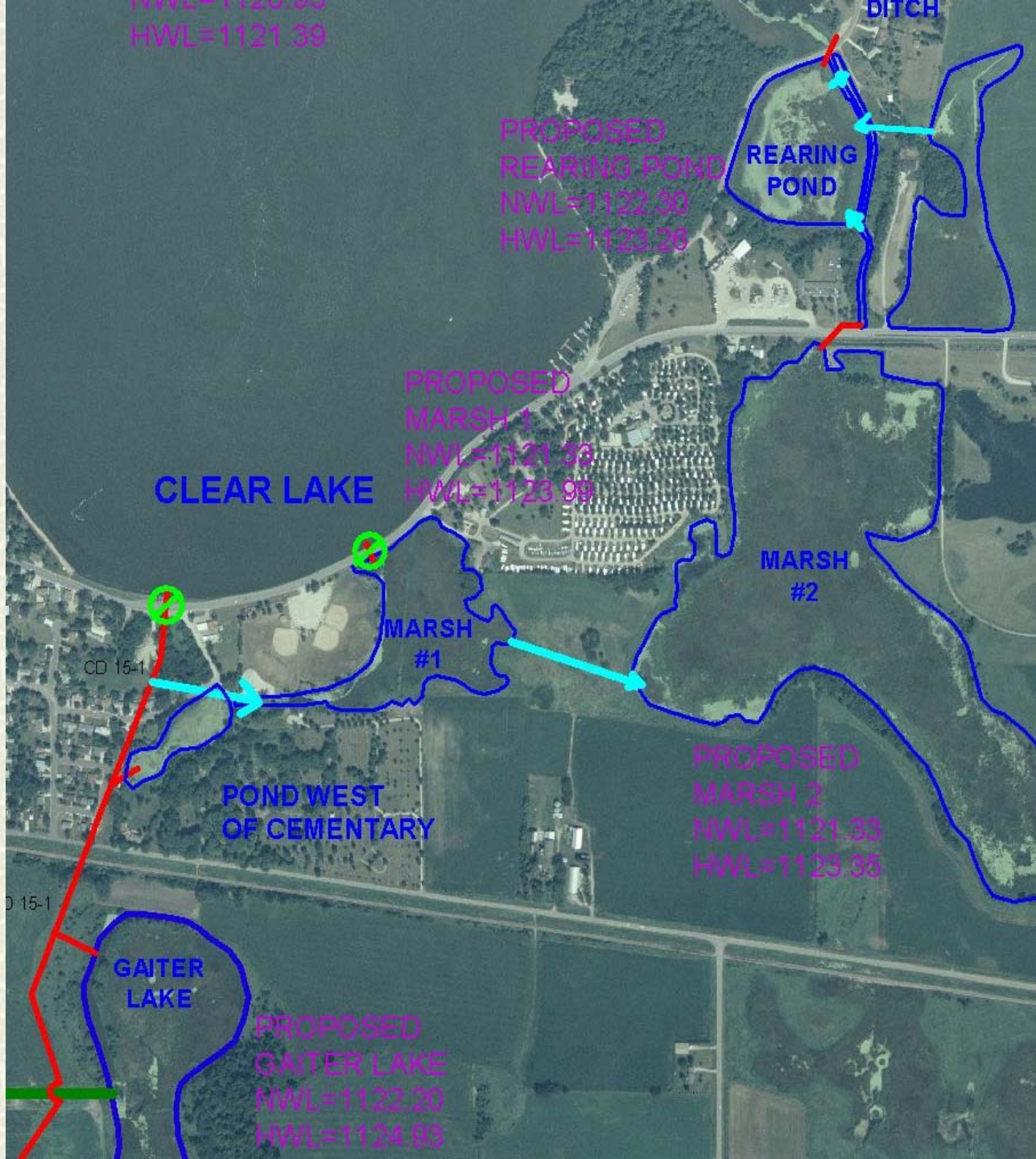
Industrial Park 48"
Storm Sewer (1983)

GAITER LAKE



2003 Recommendation:

Reroute CD 15-1
through Wetlands



November 2004

- Bolton & Menk was rehired in November of 2004 to reanalyze the hydrology based on new survey data gathered by SWCD and DNR staff.
- Refined Study produced the same results.

Design

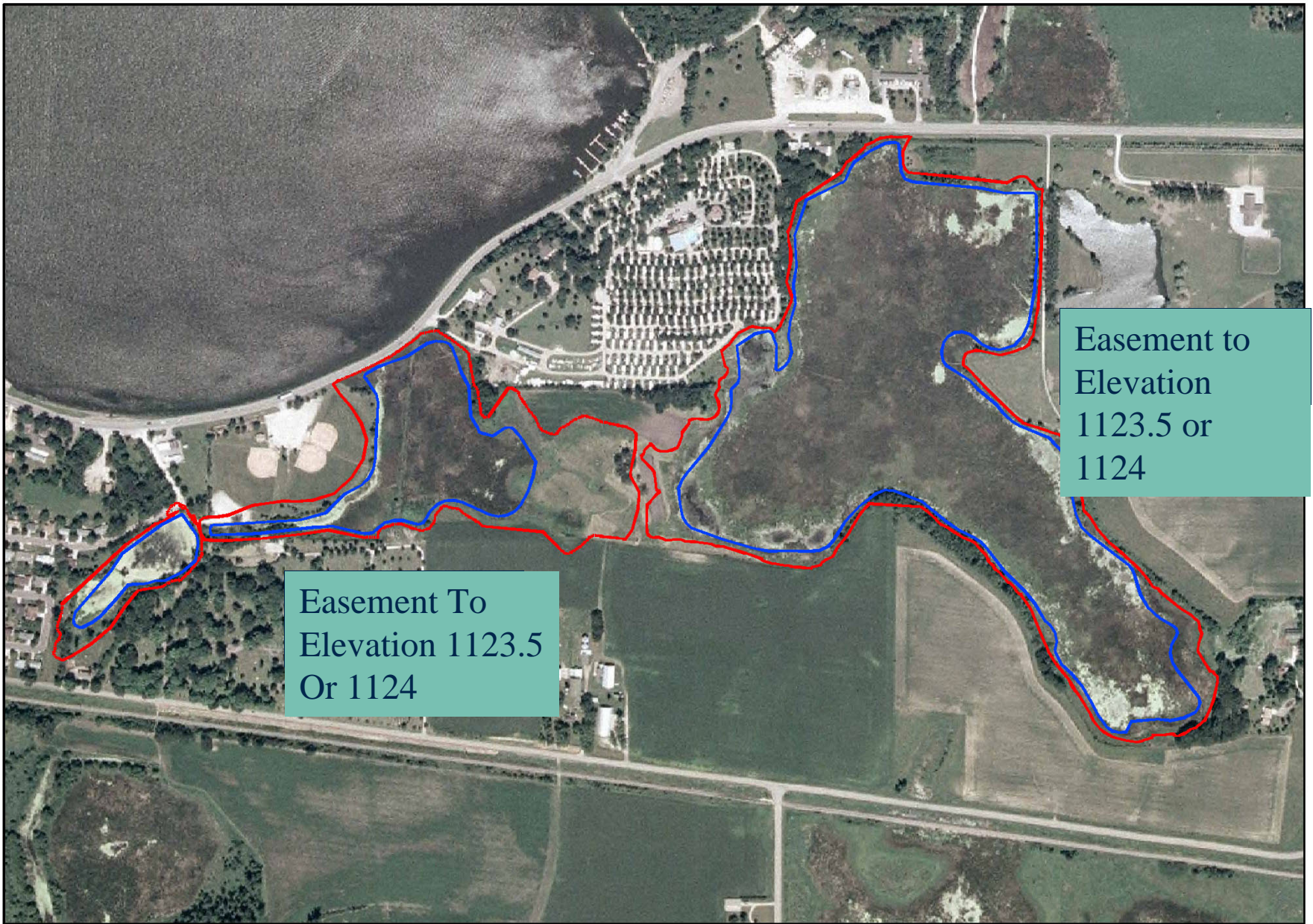
- City of Waseca and Waseca County entered a Joint Agreement to for Design in August of 2005.
- Bolton & Menk was hired to prepare Construction Plans in 2005.
- Plans and Specifications will be ready for bidding within 2 weeks of securing permits and easements.

Construction

- Construction is reliant on Easement Acquisition.
- City Engineer assumed the responsibility for Easement Acquisition.

Easement Acquisition

- City Engineer Fred Salsbury hires Rienke-Noonan (legal firm) to handle permitting and easements in 2005.
 - Primary Attorney got sent to Iraq War through 2006.
- Fred Salsbury Retired in 2007.
- 2 permanent and 2 interim City Engineers since then.
- Most progress has been under the interim engineers.



Easement To
Elevation 1123.5
Or 1124

Easement to
Elevation
1123.5 or
1124

Permitting

- Held multi-jurisdictional meetings
- Found that the wetland permitting would require additional ponding before outletting to the Cole Pond

Proposed CD 15-1 Treatment Pond

Probable
Treatment Pond
Cost:
\$140,000

Less if excavated
material can be
disposed nearby



Easements

- Coordinated by Rienke Noonan
- Appraisals by Warfield Messner & Dodd

Questions

1. Why are project costs so high?

A1. Outfall Ditch from TH 14 to Lake filled with sediment

A2. Permit related requirements:

- CD 15-1 Treatment Pond
- More than doubles construction costs

A3. Estimated Easement Costs

- Easement Acquisition
- Easement Descriptions

Questions

2. What are the alternatives?

A. Could do only CD 15-1 Treatment Pond

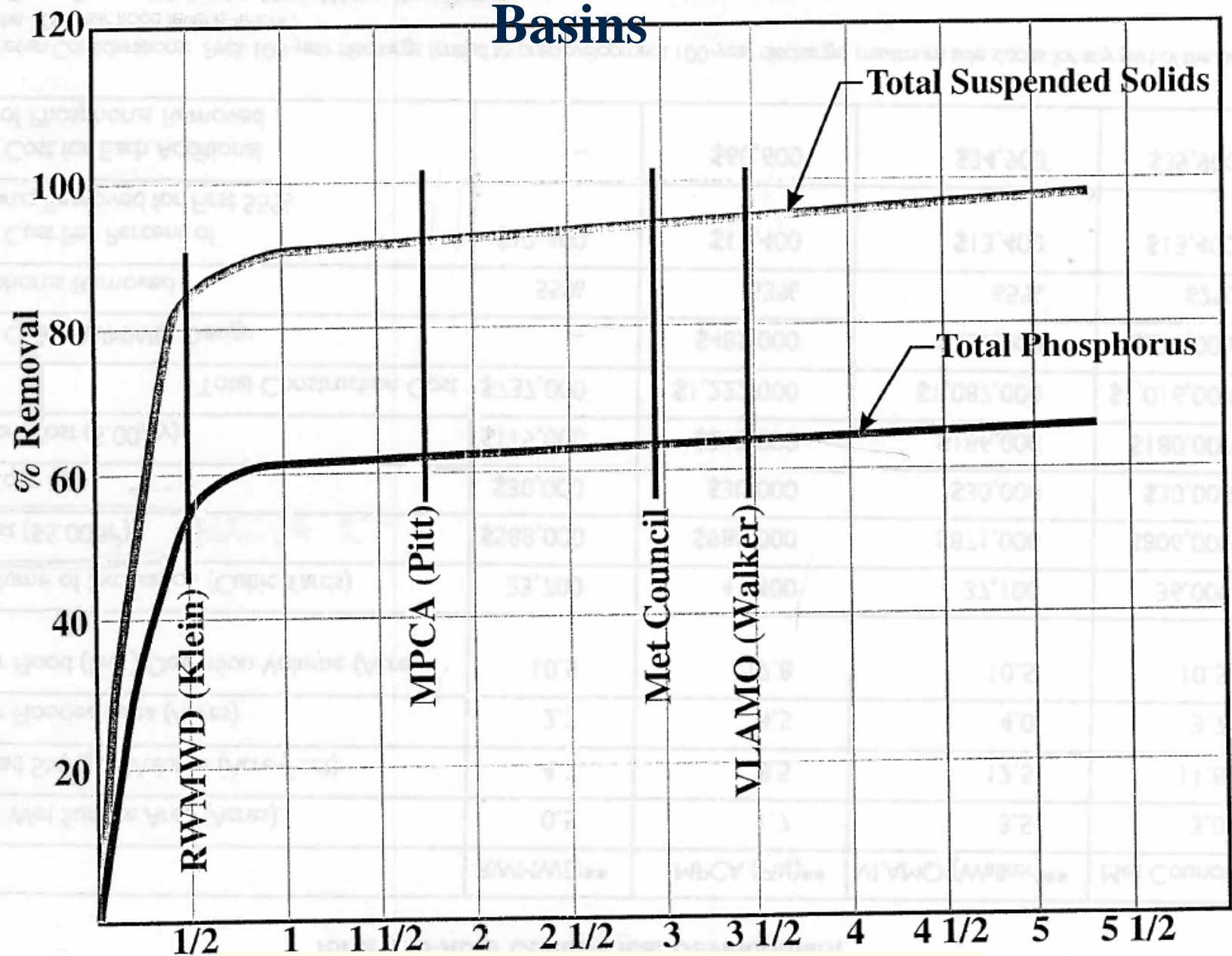
3. What is the Technical Basis for Phosphorus Removal?

A. Sediment Removal

- Removes the plume across from Barney's Restaurant



Long Term Average Performance of Wet Treatment Basins



Wet Basin Size as a percent of Drainage Area

Questions

- 4. What is the guarantee that the completed project will work as expected?**
- A. There is no guarantee.
 - B. The proposed project will remove the sediment load from Gaiter Lake, which carries a significant amount of phosphorus.
 - C. Adds flow to Maplewood (Mishek-DNR) Outlet, which lessens the anaerobic conditions there and decreases chances of becoming a phosphorus pump.
 - D. It combines the outlets in a deepened outfall ditch that can be used for alum treatments.



Questions

5. What is the source of the phosphorus in CD 15-1?

A. Unknown – it appears that it is sediment. It has been televised and it is too full of sediment to explore sources.

Questions

6. Shouldn't the County fix the CD 15-1 tile?
 - A. Under Minnesota Statute 103E, the County can fix the ditch, but the costs are spread among the benefitting property owners within the watershed.

Questions

7. Maintenance plans?

A. Maintenance plans still need to be addressed by the City/County.

Questions

8. Will the plan be designed to handle continued City growth?

A. The design is to treat the CD 15-1 outfall. Future growth must treat it's own runoff under MPCA permitting requirements. Compensating storage must also be created to prevent downstream flooding.

Questions

9. Why not divert the water to the Le Sueur River through CD 15-2?
 - A. Although there is record of petitioning the industrial park area out of CD 15-2, there is no record of Gaiter Lake being a beneficiary of CD 15-2. Logically, it flowed to the south, but CD 15-2 will need to be improved to the river to allow this diversion – approximately 3.5 miles at more than 3 times the cost.

Current Clear Lake Watershed

ABANDONED WATERSHED
AREA = 315 ACRES

GATOR LAKE DRAINAGE
AREA = 660 ACRES

CLEAR LAKE DRAINAGE
AREA = 2390 ACRES



BOLTON & MENK, INC
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FARMINGTON, MN SLEEPY EYE, MN WILLMAR, MN
BURNSVILLE, MN CHASKA, MN AMES, IA LIBERTY, MO

WASECA LAKES ASSOCIATION
CLEAR LAKE WATER STUDY
CLEAR LAKE WATERSHEDS

Clear Lake Data

- Approximate Lake Area = 636 Acres
- Current Watershed = 2,705 Acres
- Gaiter Lake Watershed = 975 acres
- If rerouted to the Le Sueur River, there will be only 1,760 acres of watershed remaining including the lake.
- This leaves a watershed/lake ratio of 2.8 and removes roughly 1/3 of the current lake watershed.

Council/Board Questions?

William R. Douglass
Bolton & Menk, Inc
Mankato, Minnesota
(507) 625-4171