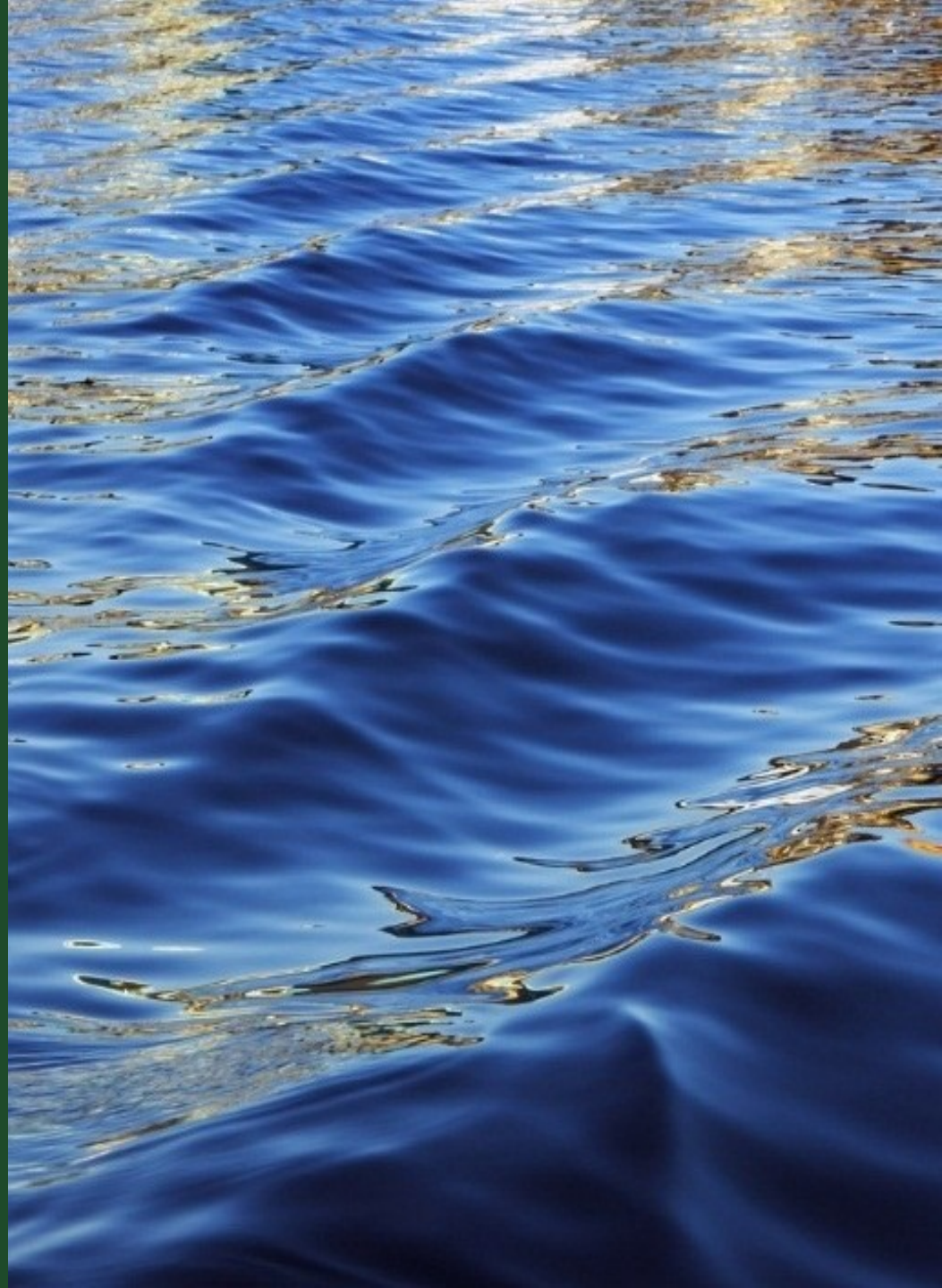
NORTHERN TOWNSHIP

Northern Township Wastewater Project

Public Hearing on the Proposed Improvement

October 26, 2026

Northern Township Board of Supervisors



Why We Are Holding This Hearing

Background

- The first public hearing was held December 9, 2024, and the Board ordered the project.
- More than a year has passed since that hearing.
- The treatment plant type and site changed in 2026 after MPCA review.

Tonight's Agenda

1. Why the project is needed
2. Decades of studies and history
3. Updated treatment plant and site
4. Cost, funding, and schedule
5. Benefits to residents
6. Public comment

01

Why the Project Is Needed

The General Need for the Project

Known system failures

Septic failures have already occurred around the lake.

Aging infrastructure

Over 63% of current septic systems are more than 25 years old, and possibly up to 70%, since many properties have no septic records.

Better for the environment

Small, densely packed parcels with poor soils and a high water table limit nutrient filtration and hinder wastewater management.

Better land use

Removing septic systems frees buildable space on small lots, reduces variances, and brings most homes into compliance with lakeside setbacks.

Current Septic Ages in the Phase 1 Project Area

63%

of known systems are over 25 years old

- 30 properties have no septic records with the Township or County
- Potentially 70% are over 25 years old

System Age	Count of Systems
Over 25 years	**76**
20 – 25 years	10
15 – 20 years	11
10 – 15 years	11
Under 10 years	12
Total	120

Substandard Lot Sizes in the Phase 1 Project Area

72%

of Phase 1 properties are substandard for lot size

Lots	Count
Substandard lots	170
Total properties	235
Percent substandard	**72%**

- 30,000 sq. ft. is the shoreland lot minimum for Lake Bemidji
- The vast majority of lots are substandard for both area and lot width
- Lake Bemidji has been densely developed for over 100 years
- Most homes sit inside the required 100-foot setback; the 50-foot sewered setback would bring most of them into compliance

02

Decades in the Making

Residents and local officials have discussed sewer service around Lake Bemidji since the 1960s.

Centralization Has Been the Consistent Recommendation

- Sewer service has been discussed by residents and local government since the 1960s
- Multiple options have been studied, and centralization has usually been recommended as the best path forward

Why centralize?



One managed system instead of hundreds of individual systems



Moves wastewater treatment farther from the lake

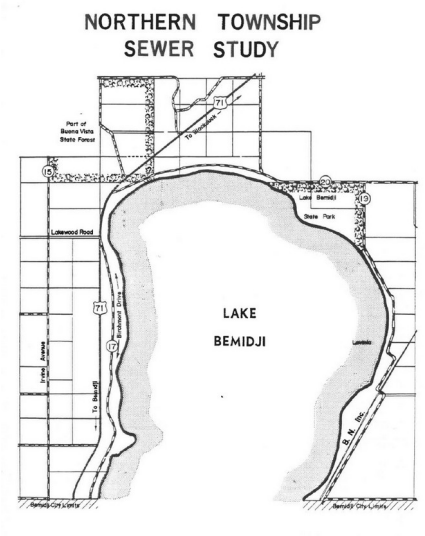


Treats wastewater to a higher standard than individual systems



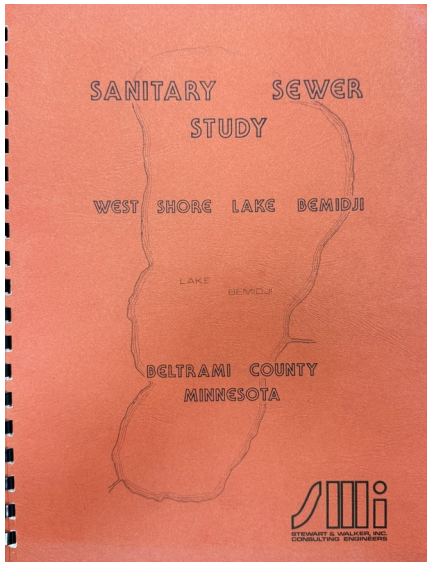
Creates better land use conditions with more buildable space

Fifty Years of Wastewater Studies



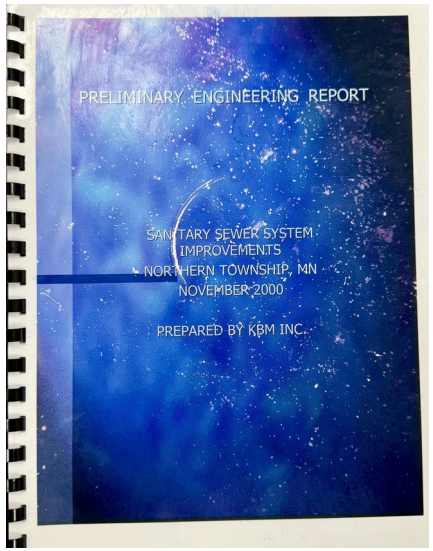
1975

Northern Township Sewer Study



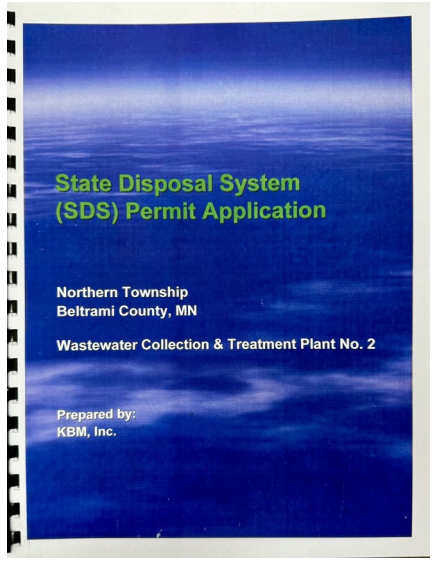
1976

Beltrami County Sewer Study



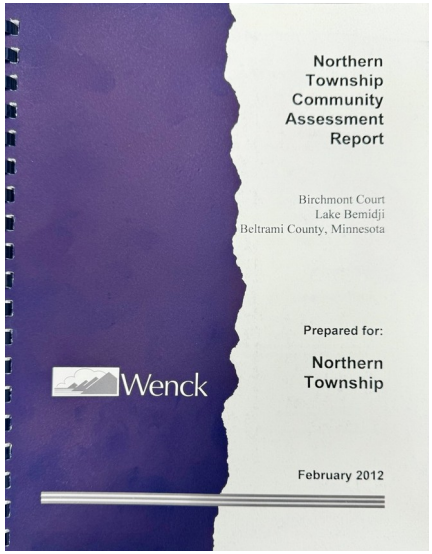
2000

KBM report on cluster systems



2005

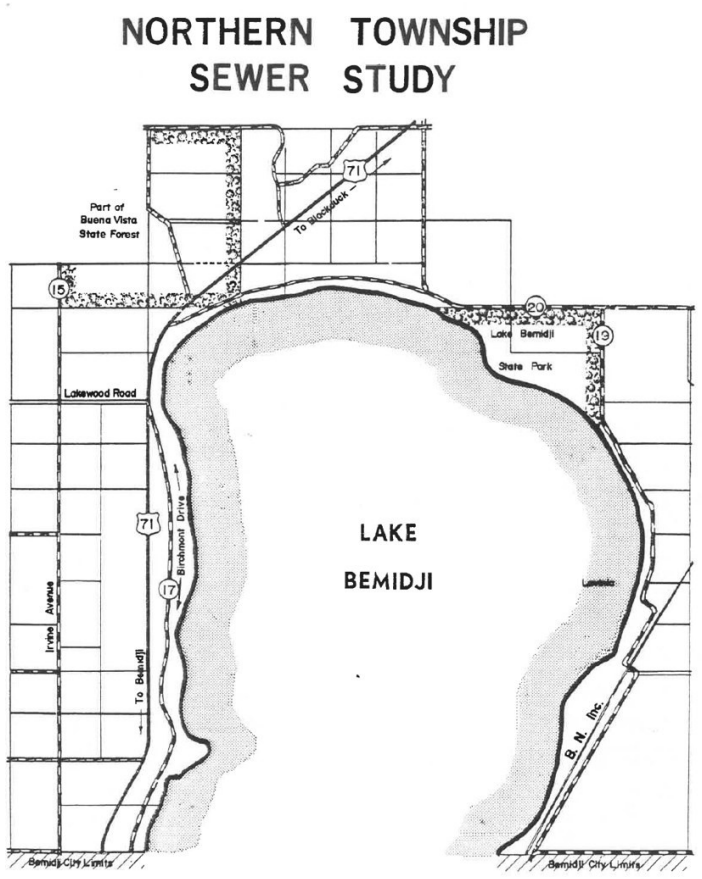
KBM application to MPCA



2012

Community Action Report

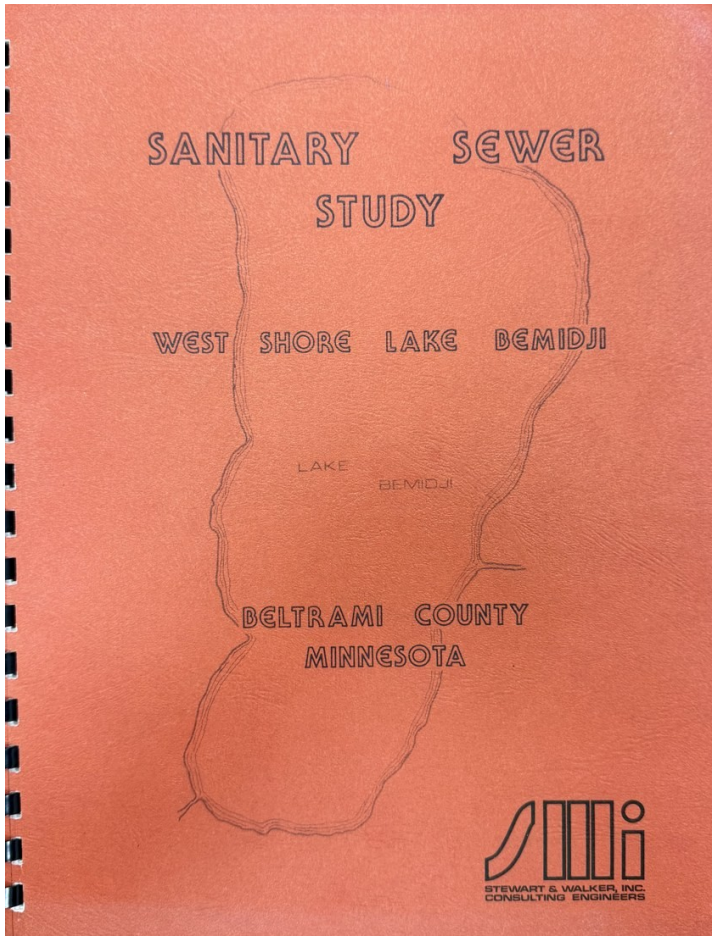
1975 Northern Township Sewer Study



Headwaters Regional Development Commission, 1975

- Requested by the Northern Township Board and prepared by the Headwaters Regional Development Commission (October 28, 1975)
- Surveyed 602 households; 352 (58.5%) responded
- Support was strongest near the lakeshore; four lakeshore neighborhoods favored public sewer
- Identified low-lying, high water table areas unsuitable for on-site systems
- Recommended forming a sewer district for those neighborhoods and coordinating with Beltrami County and the City of Bemidji

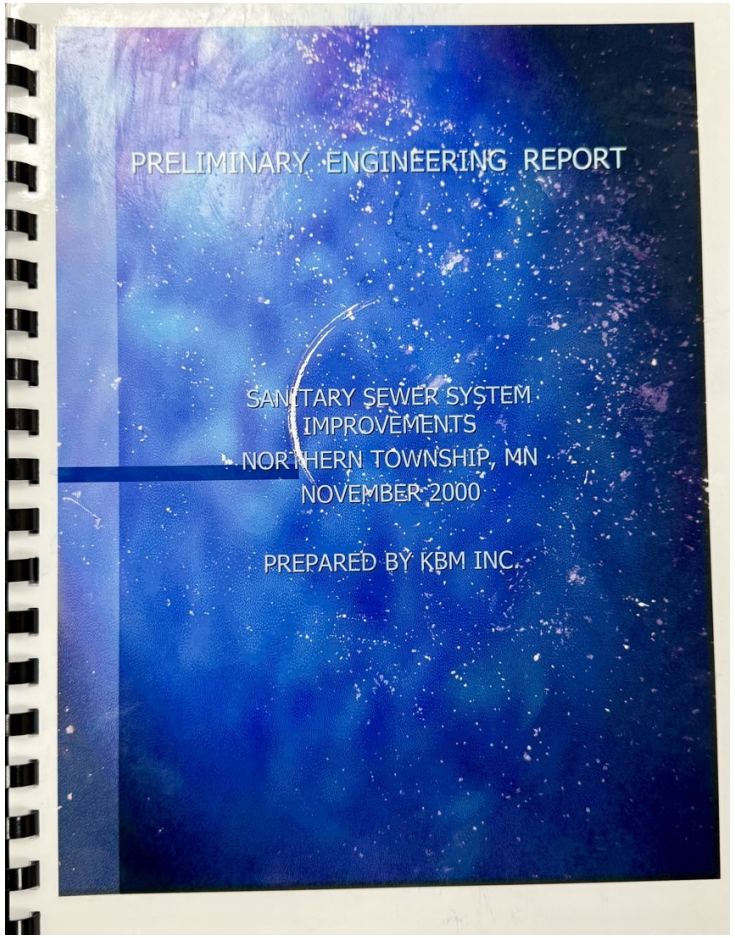
1975 Beltrami County Report



Sanitary Sewer Study, Beltrami County, 1976

- Recommended connection to the City of Bemidji system

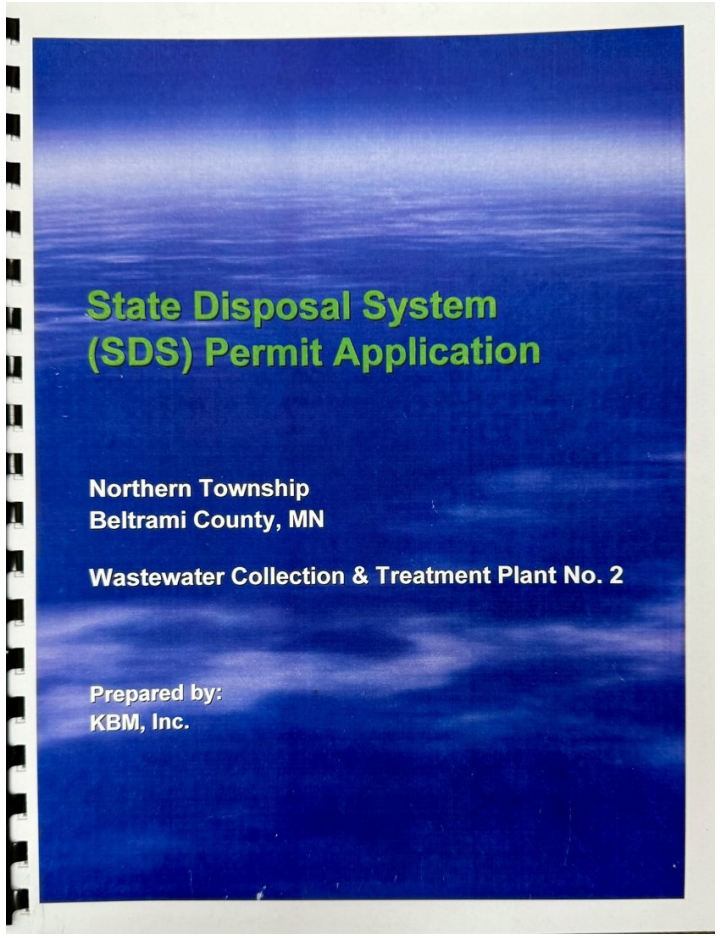
2000 KBM Report on Cluster Systems



KBM, 2000

- Waville cluster system installed in 1999
- KBM reported on installing more cluster systems around the lake
- **Biggest challenges**
  - Cost
  - Management
  - Locations for systems

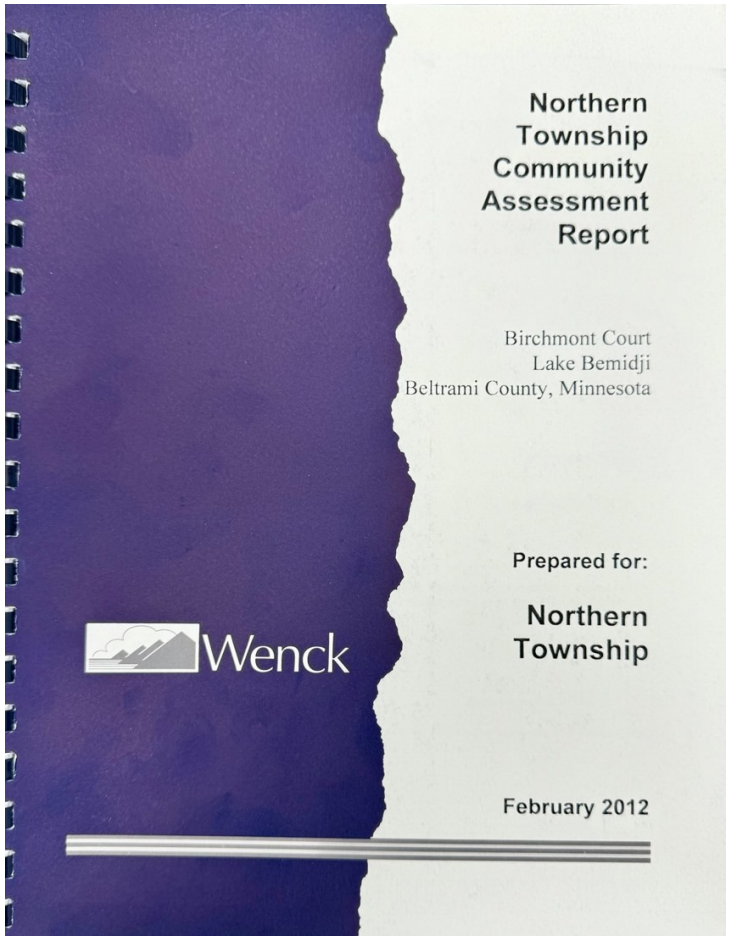
2005 KBM Application to MPCA



KBM, 2005

- Northern Township applied to the MPCA for a cluster system on the northwest side of Lake Bemidji
- The application was put on hold when discussions began about connecting to the City system
- Residents were assessed 100% of that project
- Those residents were also annexed into the City

2012 Community Action Report



Community Action Report, 2012

- A septic failure in Birchmont Court led to a grant-funded Community Action Report on wastewater options:
  - Township-managed septic systems
  - Cluster systems
  - Centralization by connecting to the City system
- Local leaders, the GBAJPB, and septic professionals recommended connecting to the City system for better long-term land use and wastewater management

Recent History



2021

Ruttger's requests City service; CSAH 20 reconstruction announced. City offers service with annexation; residents say no.

2022

Township and City agree to a customer connection without annexation. First federal grant ($5M) awarded.

2023

Second federal grant ($1M). City rescinds its offer. Pond option explored; no site available.

2024

Mechanical plant option found viable. First public hearing held December 9; Board orders the project.

2025

Third federal grant ($750k). Plans submitted to the MPCA for review.

2026

MPCA feedback leads to a redesigned plant and new site. New hearing scheduled.

Alternatives Considered

Previously reviewed options

Cluster systems and Township-managed septic systems

- Don't solve land use problems; many lots have no room for a system
- Keep septic systems on the lake
- Require securing multiple treatment sites
- Cost is similar or more expensive over longer time horizons

Options evaluated since 2021

1. **Connect to the City system as paying customers**
   Offer rescinded by the City (2023)
2. **Orderly annexation; City installs the system**
   Rejected by residents
3. **City's merger proposal**
   Rejected by residents
4. **Township collection system with pond treatment**
   No site available
5. **Do nothing**
   Septic risk remains; federal grants lost

03

The Updated Project

Project area, revised treatment plant and site, cost, and schedule

Project Area



- Phase 1: about 5.8 miles of sewer from the Northwoods Access, along CSAH 20 and through Lake Bemidji State Park, to the Lavinia area
- Serves Ruttger's Birchmont Lodge, the DNR Regional Headquarters, the Country Club, and Lake Bemidji State Park
- Phase 2 would extend service south through the Waville area
- The treatment plant sits northeast of the lake near Whitetail Road NE, west of the Paul Bunyan Trail

Base map: Freeberg & Grund, August 2024. Plant label updated October 2026.

Why the Treatment Site Changed

MPCA review

The MPCA required the drain field separation to be measured from relict redox features, evidence of water tables likely more than 10,000 years old, rather than from today's water table.

Impact on the old design

The original drain field already had more than 12 feet of separation from the current water table in most locations. Meeting the new standard would have meant building it up into what was effectively an approximately 12-acre mound system.

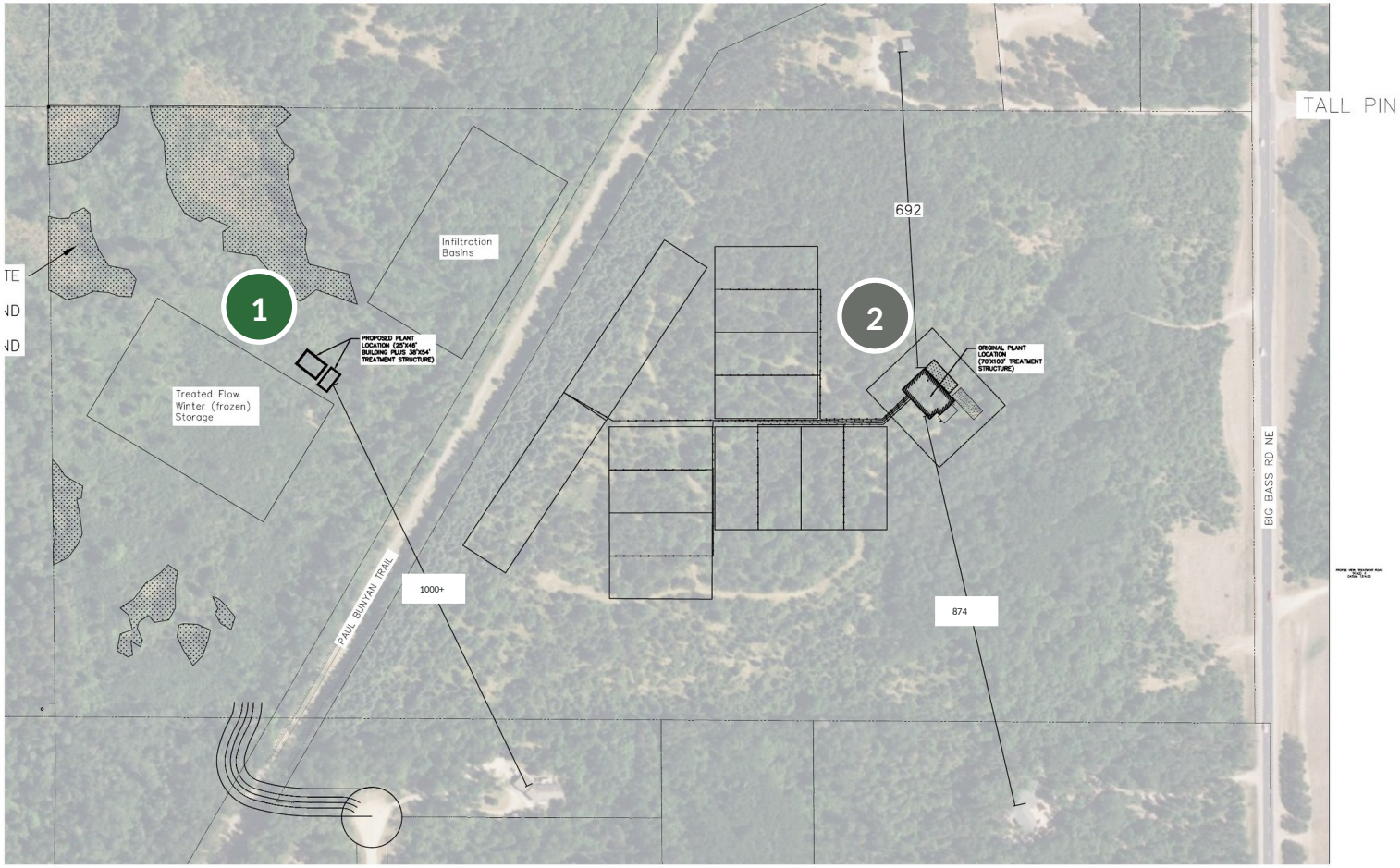
A better alternative

The Township reviewed alternatives again, including with other engineering firms, and selected a Sequox treatment plant with rapid infiltration basins at a new site.

What the change means

- Much smaller footprint: 26 acres to buy instead of 52
- Land cost of $225,000, down from about $500,000
- Plant moved to the west side of the Paul Bunyan Trail
- Farther from the nearest neighbor, more than 1,000 feet away
- Land east of the trail stays open for future residential or commercial development

Original and Revised Plant Locations



Freeberg & Grund comparison map, June 2026. Distances shown in feet.

1 Revised site (2026)
West of the Paul Bunyan Trail. 25' x 46' building plus the process tank, a winter effluent storage pond, and infiltration basins.

2 Original site
East of the trail. A 70' x 100' treatment structure with drain field cells that would have needed to be built up into a mound.

Revised Plant and Dispersal Area



Map: Freeberg & Grund, Lift Area 5, 2026

130,000
gallons per day design flow phase 1 & 2

36' x 54'
preliminary process tank

26 acres
site purchase, $225,000

- Treatment plant and dispersal area sit west of the Paul Bunyan Trail
- A new access road connects the site to Whitetail Road NE
- A force main carries wastewater from the collection system to the plant
- Three rapid infiltration basins return treated water to the ground
- The Township will buy 26 acres for $225,000 before construction, about half the earlier 52-acre, $500,000 plan

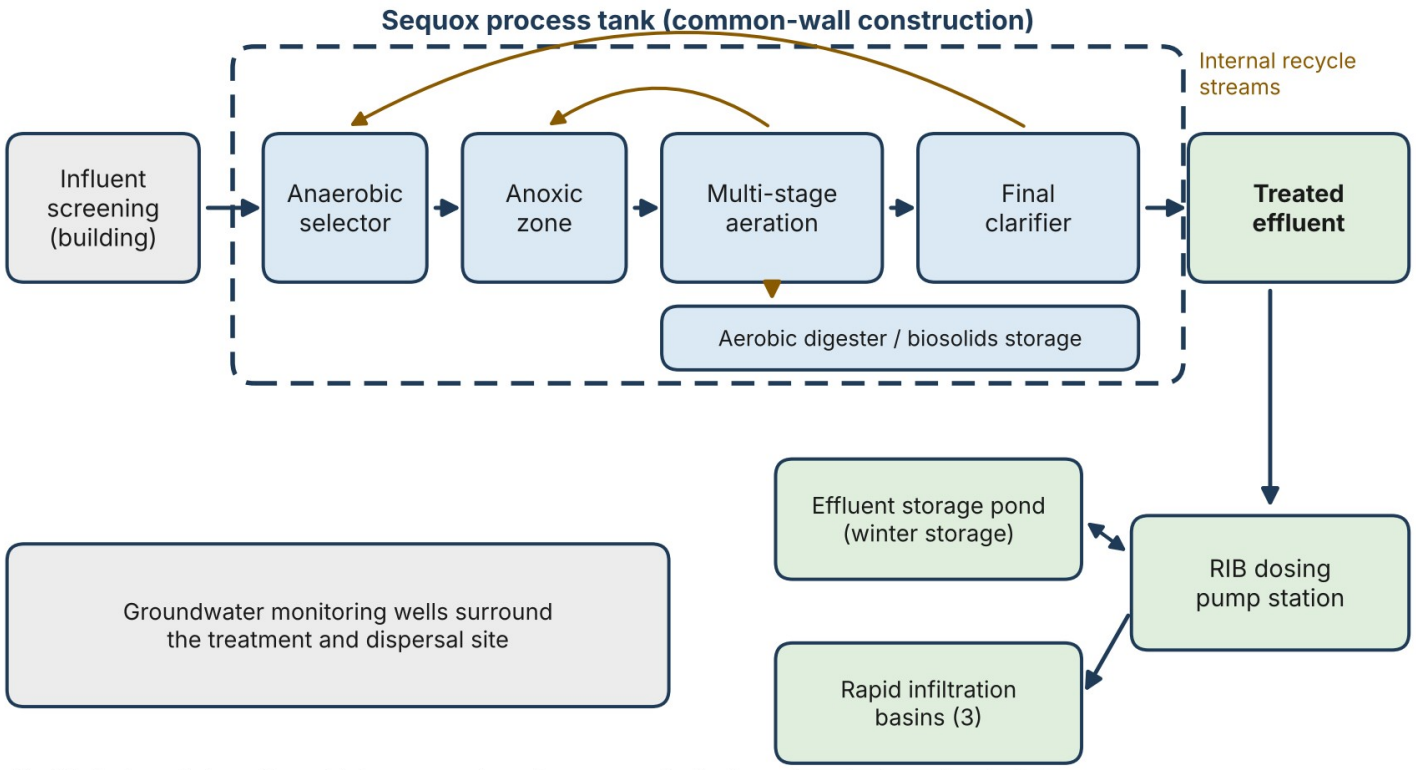
Treatment Technology: Sequox by Aero-Mod



Example Sequox plant: Quincy, CA (1.1 MGD, much larger than Northern's)

- Extended aeration activated sludge process with biological nutrient removal
- One common-wall tank holds the anaerobic selector, anoxic zone, multi-stage aeration, final clarifiers, and aerobic digester
- Removes BOD and ammonia, plus biological phosphorus removal and denitrification to meet a total nitrogen limit
- Recycle and wasting streams are internal and automatically controlled, which simplifies operation
- Lowest capital cost of the mechanical plant options; O&M similar to other activated sludge plants
- Building space needed only for screening, blowers, electrical, and controls

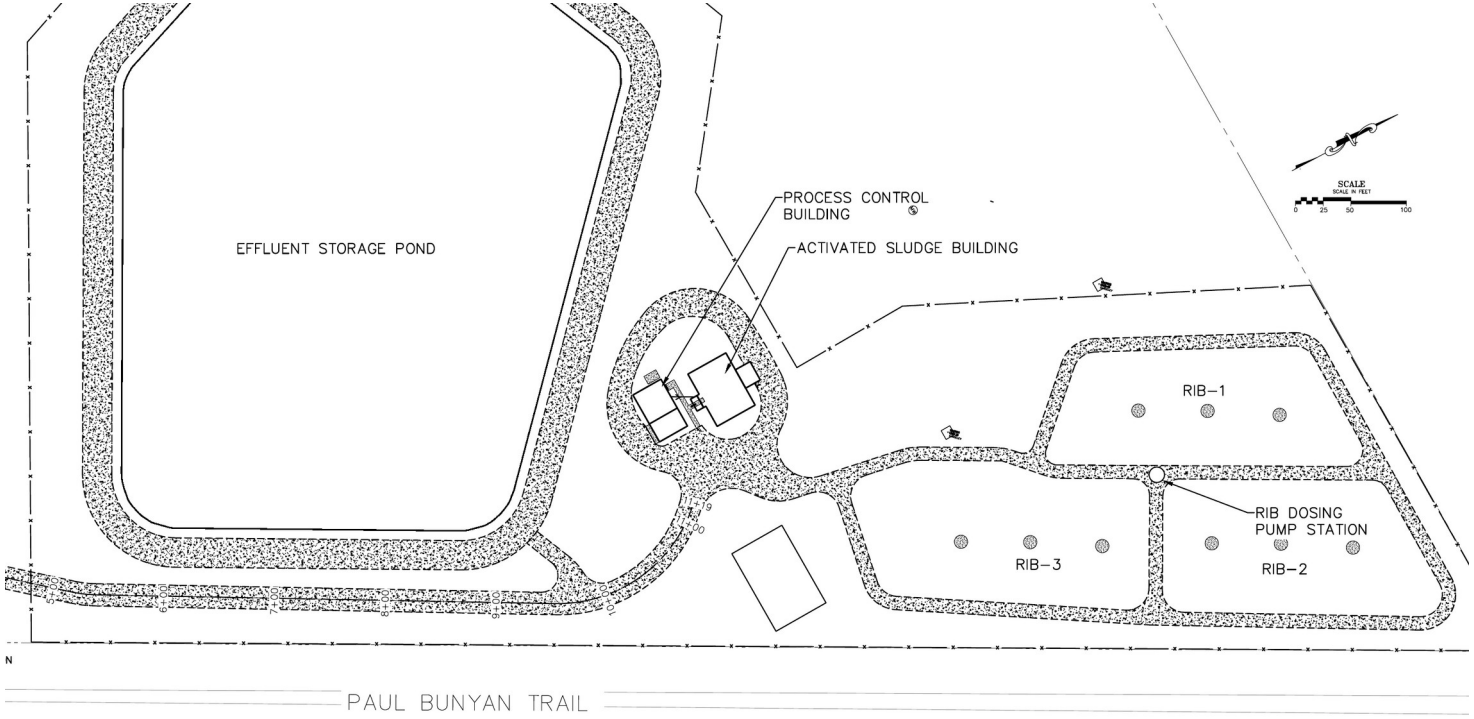
How the Treatment Process Works



Simplified schematic for residents. Tank zones are shown in sequence; the final layout is set by the engineer's design.

1. **Screening**
   removes large solids
2. **Anaerobic selector**
   sets up phosphorus removal
3. **Anoxic zone**
   converts nitrate to nitrogen gas
4. **Aeration**
   breaks down organics and ammonia
5. **Clarifier**
   settles solids; clear water leaves
6. **Dispersal**
   basins return treated water to the ground

Treatment Site Layout



Plant buildings

Activated sludge building and process control building, with backup power

Rapid infiltration basins

Three basins, fed by a dosing pump station

Winter storage pond

About 8.6 million gallons, used when the basins are frozen

Groundwater monitoring

Five existing wells, two more proposed

Project Cost and Funding

$14.6M

Phase 1 estimated cost

$14,587,987.50

$7.95M

Grants and road funds

Covers 54.5% of Phase 1 costs

$22M

Total project, both phases

Phase 2 estimated at about $8M

Phase 1 funding source	Amount
Congressionally Directed Spending, FY2023 (Dec 2022)	$5,000,000
Congressionally Directed Spending, FY2024 (Feb 2024)	$1,000,000
Congressionally Directed Spending, FY2026	$750,000
Township road funds pledged	$1,200,000

More funding pursued

The Township is applying for a state Point Source Implementation Grant (PSIG) and other sources to reduce assessments.

What It Means for Property Owners

Average residential assessment (85 EBF)

~$18,000

Current projection from updated cost estimates

~$14,000

Township goal, matching the 2024 estimate

- Assessed by Equivalent Benefited Frontage (EBF)
- Additional grants and competitive bids may lower assessments
- Final amounts depend on funding secured and actual construction costs

$65

per month, per Equivalent Residential Unit (ERU), after connection

$157,000

estimated annual operating cost, rising about 3.5% per year

- User charges cover operations and build a reserve for future infrastructure needs
- Option to pay assessments over 15 to 20 years
- Connection required within 5 to 15 years, depending on the age of the current septic system

Target Schedule



Dates are targets from the FY2026 grant work plan and depend on MPCA approval, bids, and coordination with Beltrami County's CSAH 20 reconstruction.

04

Benefits to Residents

Summary of Benefits

Environmental protection

Protects groundwater, improves water quality in Lake Bemidji, and protects the Mississippi River watershed over the long term.

Flexibility in land use

Easier to add garages, sheds, or living space without septic constraints, under more favorable zoning requirements.

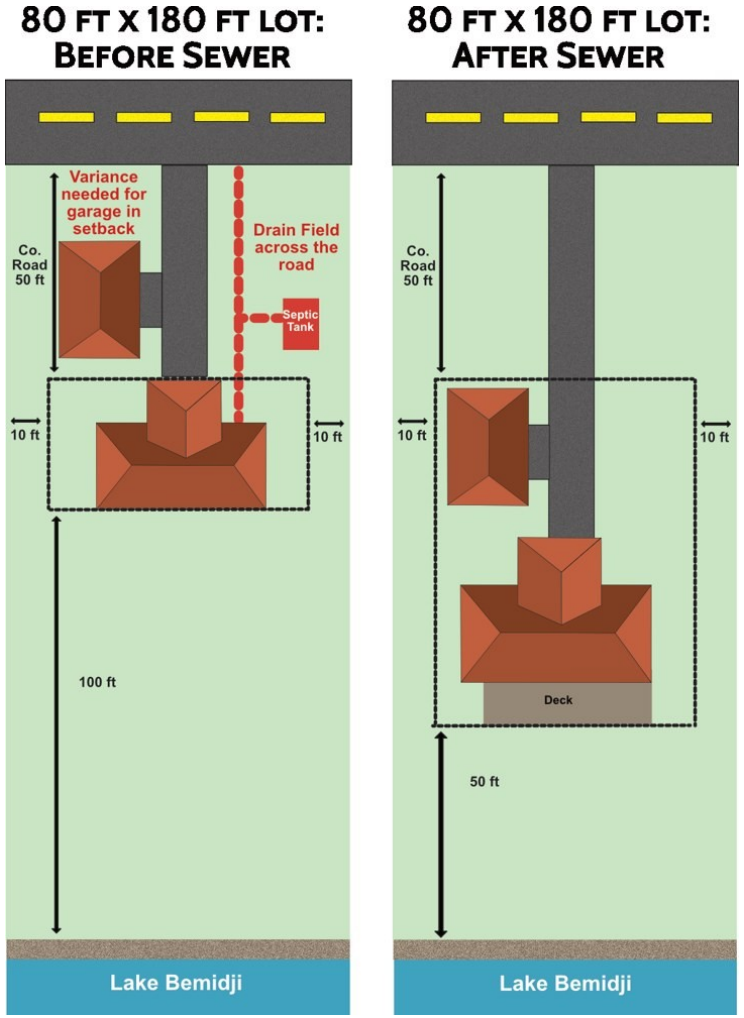
Enhanced property value

Properties served by municipal sewer are generally more valuable and marketable.

Community and economic benefits

Improved infrastructure attracts residents and businesses, and higher property values benefit the whole community.

Land Use Benefits Example



- Eliminates long septic lines across the road
- More space on the main lot for building or landscaping
- No variances: the property meets all setback requirements
- Potential for more bedrooms, since septic capacity no longer limits the home
- Better marketability, with lower maintenance costs and more flexibility for buyers

Why This Solution, and Why Now

Annexation was not an option

Residents have been clear. Incorporation was granted February 2026.

$6.75 million in federal grants

Together with $1.2 million in Township road funds, grants cover 54.5% of Phase 1 costs.

Assessments compare well

2008 sewer-only assessments were $14K, about $24K today at 3% inflation. This project's average is projected at about $18K, with a goal of about $14K.

CSAH 20 coordination

Building with the County's road reconstruction saves the project over $1 million.

Public Comment

Please state your name and address for the record.

Questions after tonight

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