



## **JOINT WASTEWATER MANAGEMENT BOARD AGENDA**

BPU Service Center, 8027 Highland Scenic Rd, Commission Room

Thursday, December 11, 2025 @ 5:30 PM

The public is invited to attend these meetings in person

1. **Call To Order**

2. **Roll Call**

\_\_\_ Cross \_\_\_ Czczok \_\_\_ O'Day \_\_\_ Tabatt \_\_\_ Angland

3. **Approval Of Agenda - Voice Vote**

4. **Unfinished Business**

A. **Approval of Past Minutes**

B. **Bolton & Menk Presentation - Update on Wastewater Facility Plan**

5. **New Business**

6. **Adjourn**



# BRAINERD PUBLIC UTILITIES

8027 Highland Scenic Rd • P.O. Box 373 • Brainerd, Minnesota 56401  
**Business Office:** 218.829.8726 ■ **Repair Service:** 218.829.2193  
www.bpu.org

The meeting of the Joint Wastewater Management Board was held at 5:30 PM on March 13, 2025.

Brainerd Public Utilities (BPU) Commission President Angland called the meeting to order.

### **Board Member Roll Call**

Zach Tabatt (Baxter City Council) – Present  
Mark Cross (Baxter City Council) - Present  
Jeff Czczok (Brainerd City Council) – Present  
Mike O’Day (Brainerd City Council) – Present  
Mike Angland (BPU Commission) – Present

### **Public Utilities Commission:**

D. Matten and M. Angland were present, M. Higgin and Mark O’Day were absent.

### **Utility Staff Present**

BPU Water/Wastewater Manager	Charlie Gammon
BPU Finance Manager	Danny Loch
BPU Operations Manager	Trent Hawkinson

### **Others in Attendance**

Brainerd City Administrator	Nick Broyles
Baxter City Administrator	Brad Chapulis
BPU Commissioner	Dolly Matten
City of Brainerd Public Works Director	Mike Habighorst
Baxter Public Works Director/City Engineer	Trevor Walter
Bolton & Menk	Morgan Salo, PE
Bolton & Menk	Mac Graupmann
Bolton & Menk	Paul Saffert, PE
Public	Jack Kristopherson

### **Approval of Consent Items**

**Motion by J. Czczok and seconded by Mike O’Day to approve the agenda. There was a unanimous vote in favor of the motion. Motion carried.**

## JOINT WASTEWATER MANAGEMENT BOARD MEETING

March 11, 2025

### Unfinished Business

- Approve minutes of the April 11, 2024, Meeting

**Motion by J. Czczok and seconded by Mike O'Day to approve the minutes from April 11, 2024, joint wastewater management board meeting. There was a unanimous vote in favor of the motion. Motion carried.**

- Discuss Bolton & Menk Ink. Proposal related to 20-year Wastewater Assessment.

Morgan Salo, PE, and Paul Saffert, PE, presented the results of the 20-year wastewater assessment and the upcoming needs and next steps leading to a facility plan for the wastewater treatment plant. Various items were discussed: Brainerd public utilities cash reserves, Baxter's desire to not bond, the availability of land for land application and future rules and regulations from the Environmental Protection Agency that is implemented by MN Protection Agency that are on the horizon. Recommended next step recommended by Bolton & Menk Inc. is to move forward with a facility plan to determine the next steps which will help determine responses to upcoming legislation. It was noted that there is budget dollars for the facility plan in BPU's budgeted capital improvement plan which has been typically allocated via depreciation expense the last few years with Baxter but Finance Manager Loch will discuss with Baxter Finance Director and finalize via review of contract.

**Motion by Cross and seconded by Czczok to recommend moving forward with a facility plan quote from Bolton & Menk Inc. to be presented at the March 25<sup>th</sup> meeting.**

### New Business

- Discuss Project Priority List Funding and Next Steps

Bolton and Menk presented the funding cycle and had a discussion on what the cycles mean. It was noted that the deadline for Wastewater projects is the first Friday in March for the Project Priority List. It was noted that funding is not typically received on the first request, and it might be multiple funding cycles. The goals of the funding and the next steps will be presented as they are determined.

Members of council were going to ask the associated Council's what they prefer related to the presentation of finding of Bolton & Menk Inc. but the discussion that occurred the findings will go on Consent Calendar until final project.

A discussion occurred about City of Brainerd's \$5,000 grant approval process that will occur at the Council meeting.

- Schedule Quarterly Meetings

Bolton and Menk Inc. recommend meeting August, December and February to fit the funding schedule.

**JOINT WASTEWATER MANAGEMENT BOARD MEETING**

**March 11, 2025**

**Motion by Czezok and seconded by Cross to hold future meetings as of August, December and February date. There was a unanimous vote in favor of the motion. Motion carried.**

**Adjournment**

**Motion by O'Day and seconded by Czezok to adjourn the meeting, there was a unanimous vote in favor of the motion. Motion carried at 7:01pm.**



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The meeting of the Joint Wastewater Management Board was held at 5:30 PM on August 28, 2025.

Brainerd City Council President O'Day called the meeting to order.

### **Joint Board Member Roll Call**

Zach Tabatt (Baxter City Council) – Present  
Mark Cross (Baxter City Council) - Present  
Jeff Czczok (Brainerd City Council) – Present  
Mike O'Day (Brainerd City Council) – Present  
Mike Angland (BPU Commission) – Absent

### **Utility Staff Present**

BPU Water/Wastewater Manager	Charlie Gammon
BPU Finance Manager	Danny Loch
BPU Operations Manager	Trent Hawkinson

### **Others in Attendance**

BPU Commissioner	Dolly Matten
Brainerd City Administrator	Nick Broyles
Baxter Public Works Director/City Engineer	Trevor Walter
City of Brainerd City Engineer	Jessie Dehn
City of Brainerd Public Works Direct	Mike Habighorst

Bolton & Menk	Morgan Salo, PE
Bolton & Menk	Robin Cauffman
Bolton & Menk	Paul Saffert, PE
Bolton & Menk	Danny Jaeger

**Motion by Cross and seconded by Czczok to approve the agenda. There was a unanimous vote in favor of the motion. Motion carried.**

## JOINT WASTEWATER MANAGEMENT BOARD MEETING

August 28, 2025

### Discuss Bolton & Menk Ink. Proposal related to 50-year Wastewater Facility Plan

Morgan Salo, PE, Robin Caufman, and Paul Saffert, PE, presented the results of the 50-year wastewater facility plan to date and the work prepared by staff of both cities. Various items were discussed: Brainerd's growth is expected to be 0.92% per year with a population of 18,607 in 2050. Baxter's growth is expected to be 1.72% per year with a population of 14,325 by 2050. Bolton and Menk answered various questions related to the presentation on flows and loadings, inflow and infiltration effects and how the effects of new customers that are unknown may influence the plan going forward. Bolton and Menk did note that the plans have mechanisms built into them to take on unknown customers.

The next steps in preparation of the facility plan to be submitted by March of 2026, is to complete the technical memos with follow-up meetings with staff from both cities. After that meeting a preliminary effluent request will go to MN Pollution Control Agency (MPCA) at the end of September with follow up to occur after the MPCA responds.

### **Adjournment**

**Motion by Czczok and seconded by Tabatt to adjourn the meeting, to the next scheduled Joint wastewater management board meeting, the second Tuesday in December, December 11, 2025, 5:30 pm at Brainerd Public Utilities Service Center, there was a unanimous vote in favor of the motion. Motion was carried at 6:15pm.**



# Joint Wastewater Management Board Agenda Request

**MEETING DATE:** December 11, 2025

**TITLE OF ITEM:** Bolton & Menk Presentation - Update on Wastewater Facility Plan

**ACTION REQUESTED:** Discussion Item

**ESTIMATED TIME (MIN):** 45 Minutes

**SUBMITTED BY:** Paul Sandy, Public Utilities  
Director, Danny Loch, Finance Manager

**PRESENTER:** Morgan Salo, PE - Bolton and Menk

**SUMMARY OF ISSUE:** Morgan Salo from Bolton and Menk will be at the meeting to present an update on the Brainerd WWTF 2050 Facility Plan.

**ALTERNATIVE, OPTIONS, EFFECTS ON OTHERS/COMMENTS:** At the meeting, staff will be looking for discussion on the presentation materials and alternatives presented to the Board.

**RECOMMENDED ACTION/MOTION:** No action, discussion topic only.

**FINANCIAL IMPACT:** N/A



# Brainerd WWTF 2050 Facility Plan Discussion – Liquid Treatment

December 11, 2025 5:30 pm

Brainerd Public Utilities

Morgan Salo



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# Today's Topics

- Project Overview and Status
- Current Treatment Process
- Liquid Stream Treatment Alternatives
- Draft Recommendation
- Next Steps

# Flows and Loadings

## Total Historic and Projected Loadings

Parameter	2020-2024 Average	2050 Total Projection
CBOD <sub>5</sub> (lb/d)	3,357	4,446
TSS (lb/d)	4,716	6,455
TP (lb/d)	97	132
TKN (lb/d)	661	987

## WWTF Existing and Future Flows

Parameter	2020-2024 Flows (MGD)	2050 Design Flows (MGD)
Average Dry Weather Flow	1.62	2.39
Average Annual Flow	1.94	2.77
Average Wet Weather Flow	2.13	3.06
Peak Flow	3.32	4.04
Peak Hourly Wet Weather Flow	4.71	6.54
Peak Instantaneous Wet Weather Flow	5.89	8.24

Assumes no significant industrial growth or users through 2050. Current production rates used to project future demands.



# NPDES Permit Effluent Limits

## BPU WWTF Limit Scenarios

Parameter	Current Limits (mg/L)	Future Limits (mg/L)
BOD <sub>5</sub>	25	10
TSS	30	10
TN	N/A	10
TP*	1	1

\*The current limit is a 12-month moving average. The future limit is assumed to be a 1 mg/L per month

### Current Limits

- Listed in NPDES permit
- No current Nitrogen Limit or Ammonia Limit

### Future Limits

- Considered for future improvements
- Assumes with a requirement to meet a 10 mg/L Total Nitrogen, the facility will receive limits of 10 mg/L for BOD and TSS
- Implementation of treatment will consider future limits
- Used to develop a decision matrix on how to address future improvement requirements



# Current Treatment Process

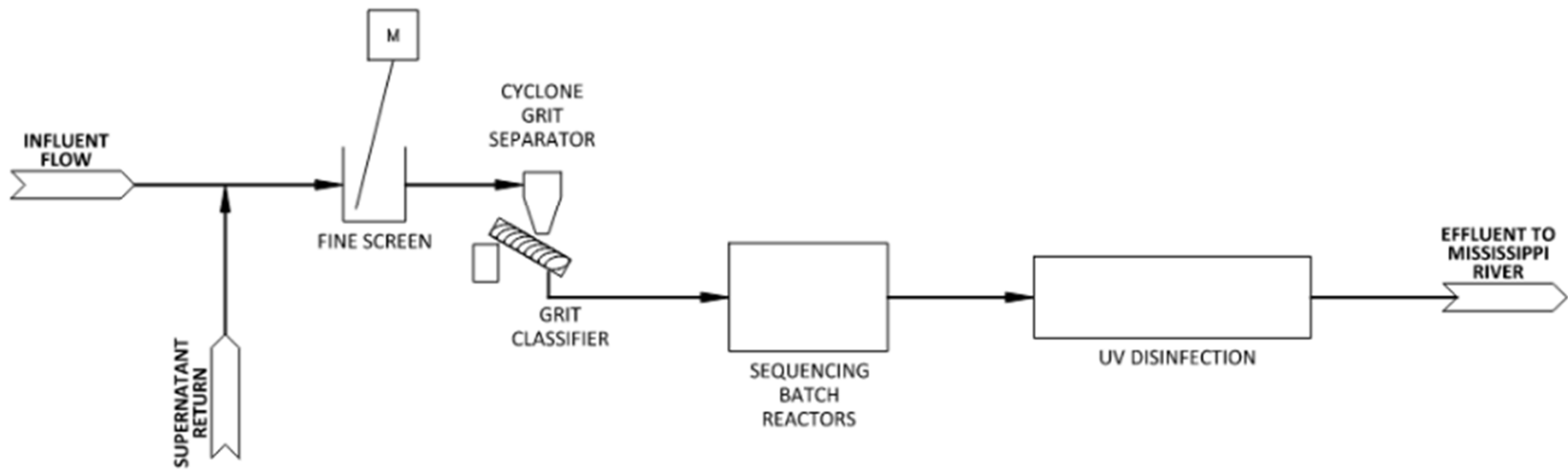
## Sequencing Batch Reactors

WWTF FACILITY PLAN

BRainerd PUBLIC UTILITIES

Figure 1: LIQUID PHASE BLOCK FLOW DIAGRAM

NOVEMBER 2025



Bolton-Menk.com



# Liquid Stream Treatment

## GOALS

- Biological Treatment and Nutrient Removal
- TSS Removal

## Treatment Alternatives Evaluated

- Sequencing Batch Reactor (SBR) – existing
- Activated Sludge – Traditional Biological Nutrient Removal (AS-BNR)
- Integrated Fixed – Film Activated Sludge (IFAS)
- Membrane Bioreactor (MBR)
- Biologically Aerated Filters (BAF)

# Sequencing Batch Reactor

- Treats wastewater in batches
- Used for both biological removal and solids removal in one process
- Meets Current NPDES Limits
- Not suited for flow and pollutant load variation
- Viability for future limits to be evaluated

## Pros

- Biological and solids removal is achieved
- Existing infrastructure requires minimal tank modifications

## Cons

- Less process control for operational changes
- Not suited for variable high flow and loading events
- Requires large pre-EQ basin
- Requires tertiary treatment to meet future limits
- Need for chemical addition to control P



# Sequencing Batch Reactor

## BPU SBR Facility Capital Cost Opinion

Item	Cost	
	<i>Existing Limits</i>	<i>Future Limits</i>
General Conditions	\$2,450,000	\$3,650,000
Earthwork	\$500,000	\$3,000,000
Chemical Feed Systems	\$700,000	\$1,000,000
Tertiary Treatment	--	\$4,100,000
Flow EQ and Equipment	--	\$3,200,000
Process Equipment	\$9,300,000	\$9,300,000
Piping, Valves, Utilities	\$2,100,000	\$4,100,000
Electrical and HVAC	\$7,600,000	\$12,150,000
	<b>Subtotal</b>	
	\$22,200,000	\$40,550,000
Contingency	20%	
	\$4,400,000	\$8,100,000
	<b>Total Construction Cost</b>	
	\$26,600,000	\$48,650,000
Engineering, Legal, and Administrative Costs	20%	
	\$5,300,000	\$9,725,000
	<b>Total Project Cost</b>	
	<b>\$31,900,000</b>	<b>\$58,400,000</b>
	<b>Estimated Range (+/- 20%)</b>	
	<b>\$26M – 38M</b>	<b>\$47M - \$70M</b>



# Activated Sludge - BNR

- Treats biological components in one process tank
- Secondary Clarifiers for solids removals
- Allows for easy addition of tertiary treatment
- Most common process – operational familiarity and flexibility
- Meets current and future limits

## Pros

- Operational flexibility
- Meets current and future limits
- Chemical addition flexibility
- More process control of biological parameters

## Cons

- Capital Cost
- Process conversion from current setup
- Significant tank modifications required
- Work with MPCA on permit modifications (lengthy timeline)



# Activated Sludge - BNR

## BPU Activated Sludge Capital Cost Opinion

Item		Cost
General Conditions		\$3,800,000
Earthwork		\$3,800,000
Biological Tank Conversions & Equipment		\$4,800,000
Secondary Clarifiers		\$10,950,000
Chemical Feed Systems		\$700,000
Effluent Lift Station		\$1,100,000
Pipes, Valves, Utilities		\$4,300,000
Electrical & HVAC		\$12,200,000
	<b>Subtotal</b>	<b>\$41,650,000</b>
Contingency	20%	\$8,350,000
	<b>Total Construction Cost</b>	<b>\$50,000,000</b>
Engineering, Legal, and Administrative Costs	20%	\$10,000,000
	<b>Total Project Cost</b>	<b>\$60,000,000</b>
	<b>Estimated Range (+/- 20%)</b>	<b>\$50M - \$70M</b>



# Integrated Fixed-Film Activated Sludge

- Similar to activated sludge – adds a media for biological growth and removal
  - Can be added to Activated Sludge process in the future
- Treats biological components in one process tank (with media addition)
- Secondary clarifiers for solids removals
- Better ability to handle variation on flow and loading with the media
- Meets current and future limits

## Pros

- Smaller tank footprint required
- Meets current and future limits
- Can be retrofitted into an AS process
- Robust Nitrogen removal
- Can provide Bio-P removal

## Cons

- Higher Capital Cost
- Higher equipment cost
- Process conversion required. Typically used with rehab of activated sludge systems, not SBR's
- Newer technology with limited installations



# Membrane Bioreactor

- Treats biological components in one process tank – same as activated sludge
- Membrane filtration for solids removals
- Limited ability to handle load variation
- More operationally intensive
- Meets current and future limits

## Pros

- Smaller tank footprint (Can run a higher MLSS and longer SRT)
- Meets current and future limits
- Effective at solids removal
- Maintains biomass in the biological system

## Cons

- Operations intensive
- Ability to handle load variation
- High O&M cost
- Susceptible to membrane fouling



# Membrane Bioreactor

## BPU MBR Capital Cost Opinion

Item	Cost
General Conditions	\$3,380,000
Earthwork	\$2,100,000
Biological Tank Conversions and Equipment	\$7,400,000
MBR Tanks and Equipment	\$7,400,000
Chemical Feed Systems	\$850,000
Piping, Valves, Utilities	\$3,500,000
Electrical & HVAC	\$12,550,000
<b>Subtotal</b>	<b>\$37,200,000</b>
Contingency 20%	\$7,450,000
<b>Total Construction Cost</b>	<b>\$44,650,000</b>
Engineering, Legal, and Administrative Costs 20%	\$8,950,000
<b>Total Project Cost</b>	<b>\$53,600,000</b>
<b>Estimated Range (+/- 20%)</b>	<b>\$43M - \$64M</b>



# Biologically Aerated Filter (BAF)

- Solids removal first – opposite of normal
- Aerated upflow filtration for biological removal
  - BOD, phosphorus, nitrogen (first stage for nitrification)
- Second set of filters needed for total nitrogen limit (future limit)
- Operationally intensive

## Pros

- Smaller tank footprint
- Operational control of treatment process
- Effective treatment
- Can be inside a building (code review required)

## Cons

- Operations intensive
- High Capital and O&M cost
- Requires biosolids process to treat primary sludge (i.e. anaerobic digestion)
- Requires taller buildings if placed inside



# Biologically Aerated Filter

## BPU BAF Capital Cost Opinion

Item		Cost	
		Existing Limits	Future Limits
General Conditions		\$2,200,000	\$4,000,000
Earthwork		\$3,000,000	\$3,000,000
Solids Removal Tank and Equipment		\$3,200,000	\$3,800,000
Biological Treatment Tank and Equipment		\$14,750,000	\$21,750,000
Chemical Feed Systems		\$900,000	\$900,000
Piping, Valves, Utilities		\$4,400,000	\$5,900,000
Electrical & HVAC		\$13,200,000	\$17,800,000
	<b>Subtotal</b>	<b>\$41,650,000</b>	<b>\$57,150,000</b>
Contingency	20%	\$8,300,000	\$11,400,000
	<b>Total Construction Cost</b>	<b>\$49,950,000</b>	<b>\$68,550,000</b>
Engineering, Legal, and Administrative Costs	20%	\$10,000,000	\$13,700,000
	<b>Total Project Cost</b>	<b>\$59,950,000</b>	<b>\$82,250,000</b>
	<b>Estimated Range (+/- 20%)</b>	<b>\$48M – 72M</b>	<b>\$66M - \$100M</b>



# Liquid Treatment Summary

- SBR's meet current limits
- SBR's will require modifications to meet future limits
- Future limits with more stringent discharge requirements will require major changes to the biological process
- Liquids treatment will provide framework for biosolids treatment (volume and type of biosolids)
- All technologies reviewed can meet future limits with various modifications and capital investment in equipment and tanks

# Liquid Treatment Recommendation

- Continue to use the SBRs until a nitrogen or more stringent phosphorus limit is added to the permit.
- Perform the following SBR upgrades to meet limits and extend life of the SBR's
  1. Controls upgrades – install all new process controls and equipment
  2. Pump/Mixing upgrades – install new pumps, piping, and recirculation lines for chemical feed and mixing of the SBR tanks
  3. Install a new chemical feed system or chlorine and coagulant
- At the time of a new limit – re-evaluate the performance of the SBR's
- Determine if SBRs or Activated Sludge (BNR, MBR, or IFAS) is the right path forward at the time of a new limit
- Develop a decision matrix for the determining the best treatment method when a driving factor requires biological changes for treatment.



# Next Steps

- Biosolids Treatment Alternatives – December - January
- Public Hearing - January Commission Meeting
- Council Presentations – February 2026
- Report Submission – End of February 2026
- Facility Plan Due: March 6, 2025

# Thank You

## Questions?

Morgan Salo

Water/Wastewater Project Manger | Principal

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