



# ST. LOUIS COUNTY BOARD OF ADJUSTMENT STAFF REPORT

**INSPECTION DATE:** 6/11/2024

**REPORT DATE:** 6/20/2024

**MEETING DATE:** 7/11/2024

## APPLICANT INFORMATION

**APPLICANT NAME:** Robert Kruse

**APPLICANT ADDRESS:** 7692 South Bay Drive, Bloomington, MN 55438

**OWNER NAME:**  
(IF DIFFERENT THAN ABOVE)

**SITE ADDRESS:** 4079 Norway Rd, Ely, MN 55731

**LEGAL DESCRIPTION:** LOT 11 of NORWAY BEACH TOWN OF EAGLES NEST, S34, T62N, R14W (Eagles Nest).

**PARCEL IDENTIFICATION NUMBER (PIN):** 317-0160-00110

**VARIANCE REQUEST:** The applicant is requesting relief from St. Louis County SSTS Ordinance 61 adopted Technical Standards 7080.2150, Subpart 2 (F), to allow a subsurface sewage treatment system installation at a reduced shoreline and structure setback.

**PROPOSAL DETAILS:** The applicant is proposing a replacement subsurface sewage treatment system at a reduced shoreline setback of 30 feet where 75 feet is required for a recreational development lake and a reduced structure setback of 5 feet where 10 feet is required. The system is replacing an Imminent Public Health Threat.

## PARCEL AND SITE INFORMATION

**ROAD ACCESS NAME/NUMBER:** Norway Rd.

**ROAD FUNCTIONAL CLASS:** Local road

**LAKE NAME:** Eagles Nest No. 2

**LAKE CLASSIFICATION:** RD

**RIVER NAME:** N/A

**RIVER CLASSIFICATION:** N/A

**DESCRIPTION OF DEVELOPMENT ON PARCEL:** The lot is developed with a dwelling and a failing septic system.

**ZONE DISTRICT:** SMU 7

**PARCEL ACREAGE:** Approx. 0.4 ACRES

**LOT WIDTH:** approx. 130 FEET

**FEET OF ROAD FRONTAGE:** approx. 130 FEET

**FEET OF SHORELINE FRONTAGE:** 155 FEET

## PARCEL AND SITE INFORMATION

**VEGETATIVE COVER/SCREENING:** Sufficient vegetative screening.

**TOPOGRAPHY:** Elevation change of 24ft with a steep slope towards the lake.

**FLOODPLAIN ISSUES:** N/A

**WETLAND ISSUES:** Low and wet area to the eastern portion of the property that may not be suited for development.

**ADDITIONAL COMMENTS ON PARCEL:** Areas of bedrock near the road with steep slopes down to dwelling and lake. Very limited options for septic placement due to setbacks and wet areas.

## FACTS AND FINDINGS

### A. Official Controls:

1. Ordinance 61 and technical standards states that septic systems shall meet setbacks as required in section 7080.2150, subpart 2, item F, table VII. The table requires a 75 foot setback to a recreational development lake and the applicant is requesting a 30 foot setback. The table requires a 10 foot setback from septic system and the applicant is requesting 5 feet.

### B. Practical Difficulty:

1. There are very limited options for septic placement due to lot size, existing development, required setbacks for right of way, property lines, structures, and shoreline, in addition to bedrock outcrops near the road, steep slope and wet areas near the eastern portion of the lot.
2. Replacement options are very limited. A holding tank only with no drain field may be permitted, however the shoreline setback variance would still be required.

### C. Essential Character of the Locality:

1. The area consists of developed lakeshore lots containing both conforming and nonconforming seasonal and year round homes.
2. There have been no similar septic variance requests in the area.

### D. Other Factor(s):

1. The proposed Septic system is replacing an Imminent Public Health Threat.

## BOARD OF ADJUSTMENT CRITERIA FOR APPROVAL OF A VARIANCE

1. Is the variance request in harmony with the general purpose and intent of official controls?
2. Has a practical difficulty been demonstrated in complying with the official controls?
3. Will the variance alter the essential character of the locality?
4. What, if any, other factors should be taken into consideration on this case?

## CONDITIONS

Conditions that may mitigate the variance for relief from St. Louis County SSTS Ordinance 61 adopted Technical Standards 7080.2150 Subpart 2 (F) to allow the replacement of a subsurface sewage treatment system at a reduced shoreline setback and reduced structure setback as proposed include, but are not limited to:

1. All other Onsite Wastewater SSTS standards shall be met.
2. Following system installation, an inspection shall be performed by a qualified inspector to ensure setbacks are met prior to issuing Certificate of Compliance.
3. All other local, county, state and federal regulations shall be met.



St. Louis County, MN

VARIANCE

# Variance Worksheet

## Subsurface Sewage Treatment System

Form

# 3090

Rev. 03-2021

### About SSTS Variances Pursuant to Ordinance 61, Article V, Section 3.0

A property owner may request a variance from the standards specified in the Ordinance pursuant to county policies and procedures. Variances shall only be permitted when they are in harmony with the general purposes and intent of this Ordinance where there are practical difficulties or particular hardship in meeting the strict letter of this Ordinance, excluding the technical standards. Certain deviations may require the approval of the MPCA or the MN Department of Health.

### Please Complete the Following Sections

Describe the specific provision or provisions in the ordinance from which the variance is requested.

**The existing septic tank and drain field at the property are failing and sewage is backing up into the home causing an imminent public health threat. The variance is requested to replace the existing septic tank and drain field with two 1,000-gallon holding tanks.**

**The existing septic system is located approximately 30 feet from the shoreline of Eagles Nest #2. This variance is requested to place two 1,000-gallon holding tanks in the location of the existing system. The requested setbacks are:**

1. Thirty (30) feet from the proposed holding tanks to the Ordinary High Water (OHW) level of Eagles Nest #2.
2. Five (5) feet from the structure (including attached deck) to SSTS components.

Describe the practical difficulty that prevents compliance with the rule.

**The property is approximately 0.4 acres, 115 feet in length from the shoreline of Eagles Nest #2 to the far property line, and has steep slopes from the dwelling to Norway Road. Therefore, there is very limited locations where it is feasible to install the tanks. Additionally, Norway Road, located south of the dwelling, has a right-of-way setback that overlaps with the setback from Eagles Nest #2.**

**The dwelling currently utilizes a gravity sewer to reach the existing septic tank and drain field.**

**If the proposed holding tanks were placed in any other location, the existing plumbing would need to be rerouted in the crawl space and/or a grinder pump would need to be installed.**

Describe the alternative measures that will be taken to achieve a comparable degree of compliance with the purposes and intent of the applicable provisions.

**By approving this variance, the owner will install holding tanks that will mitigate the imminent public health threat and allow the owner to use the cabin. The proposed holding tanks will have alarms that will notify the owner prior to any overflows or backups.**

Identify cost considerations preventing reasonable use of the property under the terms of this ordinance.

**As discussed above, if the holding tanks were placed in any other location on the property, the owner would be required to install a grinder pump in the crawl space and/or reroute all plumbing in the cabin. This would significantly increase the cost of replacing the system.**

**Additionally, the 5-foot setback to the structure will allow the installer some flexibility in placing the tanks. Therefore, if large boulders and/or bedrock are encountered, there may be room to adjust the tank locations slightly instead of blasting.**

### AGREEMENT

**By submitting this request for variance from the Ordinance and the Construction Standards, I certify and agree that no substantial health hazard is likely to occur therefrom and an unnecessary hardship might result in strict compliance with the Ordinance and Standards. I further agree to install a sewage treatment system in accordance with the permit application, plans, and specification that are made as part of this variance request, in addition to paying the Variance Fee associated with this request.**





St. Louis County, MN

PERMIT

# Residential Construction Application

## Subsurface Sewage Treatment System

Form

# 3000

Rev. 01-02-2024

### DESIGNER

Licensed Business Name **Northern GeoSeptic, Inc.**

License # **L4321**

Certification # **C10163**

Designer's Comments *(To Onsite Wastewater Staff)*

### STRUCTURE

Building Type and Water Uses Check all that apply		# of Bedrooms	Seasonal Use Only	Plumbing	Basement Plumbing	Garbage Disposal	Clothes Washer	Dishwasher	Water Conditioning Unit	Furnace w/Humidifier	Bathtub > 40 gal	Sewer Grinder Pump
<input checked="" type="checkbox"/> Dwelling	Home, mobile home, hunting shack, cabin, RV	<b>3</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Multi-Family	Multiple units		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Accessory Dwelling	Guest cottage, bunk house		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Accessory Structure	Garage, pole building, shed, sauna, gazebo screen-house	<b>0</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other information to be considered for this application

### AGREEMENT

By submitting this application, the entire contents of which are considered to be public data, I certify and agree that I am the owner or the authorized agent of the owner of the above property, and that all uses will conform to the provisions of St. Louis County. I further certify and agree that I will comply with all conditions imposed in connection with the approval of the application. Applicants may be required to submit additional property descriptions, property surveys, site plans, building plans and other information before the application is accepted or approved. **Intentional or unintentional falsification of this application or any attachments thereto will make the application, any approval of the application and any resulting permit invalid.** I authorize St. Louis County staff to inspect the property to review the application and for compliance inspections. Furthermore, by submitting this application, I release St. Louis County and its employees from any and all liability and claims for damages to person or property in any manner or form that may arise from the approval of the application or any related plans, the issuance of any resulting permit or the subsequent location, construction, alteration, repair, extension, operation or maintenance of the subject matter of the application.

### CONTACT Planning and Zoning (Onsite Wastewater Division)

Duluth Office		Virginia Office	
Government Services Center 320 W 2nd Street, Suite 301 Duluth, MN 55802	Phone (218) 725-5200 Toll Free (800) 450-9777 <a href="http://www.stlouiscountymn.gov/septic">www.stlouiscountymn.gov/septic</a>	Government Services Center 201 South 3rd Avenue West Virginia, MN 55792	Phone (218) 749-0625 Toll Free (800) 450-9777 <a href="http://www.stlouiscountymn.gov/septic">www.stlouiscountymn.gov/septic</a>

### OFFICE USE ONLY

Amount Paid	Paid by	Cash	Check #	Permit #
Revenue Code	Received By	<input type="checkbox"/> Mail <input type="checkbox"/> IP	Date RIO	



St. Louis County, MN

# PERMIT SSTS Design Summary Subsurface Sewage Treatment System

Form

# 3002

Rev. 01-02-2024

This form is used to complete a SSTS Design. Additional Information: [www.stlouiscountymn.gov/septic](http://www.stlouiscountymn.gov/septic)

### SITE INFORMATION

Site Address **4079 Norway Road** City **Ely** Zip **55731** Parcel ID **317-0160-00110**

### DESIGNER

Name **Michael Heiman** Date **6/6/2024**

Email **mheiman@northerngeoseptic.com** Phone **218-235-3491** Phone

### SYSTEM INFORMATION

MPCA Type  Type I  Type II  Type III  Type IV  Type V Dwelling Classification  I  II  III  IV

Residential  Commercial  Seasonal  Other Well Casing Depth

# Bedrooms **3** # Water using devices **1** Total Finished Sq ft **600** Sq ft / Bedroom **200**

Design Flow **300** Water Meter **Yes** Pressure Test **No** Grinder or Disposal **No**

CLR SLR Limiting Soil Type Limiting Layer Depth (in)

SSTS Flow Description

**3 bedroom class II cabin with gravity sewer to two 1,000-gallon holding tanks**

### TANK INFORMATION

Type (Septic, Pump, Holding etc.)	Size (gallons)	Status (New, Existing)	Material (Precast, Plastic)	Alarm (Yes, No)	Insulated (Yes, No)	Bedded (Yes, No)	Building Sewer (Gravity, Pressure, Both)
<b>Holding</b>	<b>1,000</b>	<b>New</b>	<b>Plastic</b>	<b>Yes</b>	<b>**</b>	<b>Yes</b>	<b>Gravity</b>
<b>Holding</b>	<b>1,000</b>	<b>New</b>	<b>Plastic</b>	<b>Yes</b>	<b>**</b>	<b>Yes</b>	<b>Gravity</b>

Gallons per inch of pump tank

Tank Installation & Pumping comments

**\*\*Tank should be buried at least 24 inches or insulated to an R-value of 10  
Pumping access route shown on attached sketch.**

### DISTRIBUTION INFORMATION

Gravity  Drop Box  Distribution Box

Pressure Gal/Min Ft Head Pump Model

Event Counter  ETM Time Dose Panel Timer On Timer Off

Max Dose Min. Dose Drainback Dose + Drainback Float Tether (in)

Manifold Laterals

Location  Center  End Number Length (ft)

Size (in) Size (in)

Insulated Orifices

Size (in) # Per lateral

Spacing (in) Shields



St. Louis County, MN

PERMIT

# SSTS Design Summary

## Subsurface Sewage Treatment System

Form

# 3002

Rev. 01-02-2024

DRAINFIELD INFORMATION				
<b>Trench</b>				
Number	Width (ft)	Length (ft)	Media Type	
Max Depth (in)	Rock (in)	Cover (in)	Sand Liner (in)	
<b>Bed</b>				
Number	Width (ft)	Length (ft)	Media Type	
Max Depth (in)	Rock (in)	Cover (in)	Sand Liner (in)	
<b>At-Grade</b>				
Width (ft)	Length (ft)	Number	Up Berm (ft)	Down Berm (ft)
<b>Mound</b>				
Number	Bed Width (ft)	Bed Length (ft)	Media Type	
Sand (in) to	Rock (in)	Cover (in)	Total Width (ft)	
Up Berm (ft)	Down Berm (ft)	Sand (yd <sup>3</sup> )	Total Length (ft)	
<b>Registered Filter Product</b>				
Filter Class	<input type="checkbox"/> Intermittent/Single Pass	<input type="checkbox"/> Recirculating	<input type="checkbox"/> Subsurface Flow	<input type="checkbox"/> Other
Media Type	<input type="checkbox"/> Sand	<input type="checkbox"/> Peat	<input type="checkbox"/> Textile/Synthetic	<input type="checkbox"/> Constructed Wetlands
No. of Filters	Rock Bed Dimensions (ft)	x	Bed Media Depth (in)	
Manufacturer				
<b>Registered Aerobic Treatment System</b>				
Type	<input type="checkbox"/> Suspended Growth	<input type="checkbox"/> Fixed Film	<input type="checkbox"/> Sequencing Batch	<input type="checkbox"/> Other
Gallons/day	No. of Units	Disinfection (yes or no)	If yes, chemical or UV	
Manufacturer				
<b>Designer Comments</b>				
<b>CONTACT</b> Planning and Zoning (Onsite Wastewater Division)				
<b>Duluth Office</b>			<b>Virginia Office</b>	
Government Services Center 320 W 2nd Street, Suite 301 Duluth, MN 55802	Phone (218) 725-5200 Toll Free (800) 450-9777 <a href="http://www.stlouiscountymn.gov/septic">www.stlouiscountymn.gov/septic</a>	Government Services Center 201 South 3rd Avenue West Virginia, MN 55792	Phone (218) 749-0625 Toll Free (800) 450-9777 <a href="http://www.stlouiscountymn.gov/septic">www.stlouiscountymn.gov/septic</a>	





### Legend

- Well
- Soil Pit
- Sewer Line
- 2-foot Contours
- Tank
- St. Louis County Tax
- Parcels

#### Notes:

- The property uses a lake water system and no wells were identified within 50 feet of the proposed tank.
- Property lines as shown were estimated using St. Louis County GIS data and are approximate. Property pins were identified during the site visit.

## Figure 1 Septic Design Sketch

Client: Bob Kruse

Parcel ID: 317-0160-00110

Address: 4079 Norway Road City: Ely

County: St. Louis



**NORTHERN GEOSEPTIC**  
ENGINEERING, SITE DEVELOPMENT, SEPTIC SERVICES.



St. Louis County, MN

PERMIT

# SSTS Dwelling Classification Worksheet

## Subsurface Sewage Treatment System

Form

# 3011

Rev. 12-28-2021

This form is used to complete a SSTS Design. Additional Information: [www.stlouiscountymn.gov/septic](http://www.stlouiscountymn.gov/septic)

### SITE INFORMATION

Site Address <b>4079 Norway Lane</b>	City <b>Ely</b>	Zip <b>55731</b>	Parcel ID <b>317-0160-00110</b>
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### DWELLING INFORMATION

Dwelling dimensions (ft) <b>20</b> x <b>30</b>	Finished Square Feet <b>600</b>
Number of Bedrooms <b>3</b>	Finished Square Feet per Bedroom <b>200</b>

Information provided by **Owner**

### WATER USING DEVICES (check all that apply)

<input checked="" type="checkbox"/> Clothes Washing Machine	<input type="checkbox"/> Bathtub > 40 gallons
<input type="checkbox"/> Dishwasher	<input type="checkbox"/> Garbage Disposal
<input type="checkbox"/> Water Conditioning Unit	<input type="checkbox"/> Self-cleaning Humidifier in Furnace

### CLASSIFICATION

<input type="checkbox"/> I	More than 800 finished square feet per bedroom and/or more than 2 water using devices
<input checked="" type="checkbox"/> II	Between 500 and 800 finished square feet per bedroom and not more than 2 water using devices
<input type="checkbox"/> III	Less than 500 finished square feet per bedroom and not more than 2 water using devices
<input type="checkbox"/> IV	Dwellings with wastewater systems designed under part 7080.2240

*Extracted from SLC Ordinance 61 Technical Standards*

### 7080.1860 DESIGN FLOW (GALLONS PER DAY).

TABLE IV  
Classification of dwelling

Number of bedrooms	I**	II	III	IV
	Gallons per day			
2 or less	300	225	180	*
3	450	300	218	*
4	600	375	256	*
5	750	450	294	*
6	900	525	332	*

\* Flows for Classification IV dwellings are 75 percent of the values as determined for Classification I, II, or III systems.

\*\* Design flows for Class I dwellings wastewater systems with design flows at a minimum 100 gallons per day per bedroom must meet the requirements of 7080.2300, Item I.

For more than six bedrooms, the design flow is determined by the following formulas:

**Classification I:** Classification I dwellings are those with more than 800 square feet per bedroom, when the dwelling's total finished floor area is divided by the number of bedrooms, or where more than two of the following water-use appliances are installed or anticipated: clothes washing machine, dishwasher, water conditioning unit, bathtub greater than 40 gallons, garbage disposal, or self-cleaning humidifier in furnace. The design flow for Classification I dwellings is determined by multiplying 150 gallons by the number of bedrooms.

**Classification II:** Classification II dwellings are those with 500 to 800 square feet per bedroom, when the dwelling's total finished floor area is divided by the number of bedrooms, and where no more than two of the water-use appliances listed in Classification I are installed or anticipated. The design flow for Classification II dwellings is determined by adding one to the number of bedrooms and multiplying this result by 75 gallons.

**Classification III:** Classification III dwellings are those with less than 500 square feet per bedroom, when the dwelling's total finished floor area is divided by the number of bedrooms, and where no more than two of the water-use appliances listed in Classification I are installed or anticipated. The design flow for Classification III dwellings is determined by adding one to the number of bedrooms, multiplying this result by 38 gallons, then adding 66 gallons.

**Classification IV:** Classification IV dwellings are dwellings with wastewater systems designed under part 7080.2240.

License # L4160  
 Bonded & Insured



7854 Hulltop R.  
 Embarrass, MN 55428

Property owner:	Robert Kruse	
Tank location:	4079 Norway Rd, Elk MN	55731
Billing address:	7692 South Elm Dr., Bloomington	MN 55428
Phone:	218-202-5471	
Terms:	This contract is between B.W.S.P. and Robert Kruse to use B.W.S.P. exclusively to pump this holding tank as needed, when called by customer, during our work season, NOT DURING FREEZE UP. This contract is good for 5 years from Date signed.	
Sign:	Raymond Hennitt	6/06/24
	Business Owner	Date
Sign:	Robert A. Kruse	6/06/24
	Tank/Property Owner ^	Date ^





## Septic System Management Plan for Holding Tank Systems

The goal of a septic system is to protect human health and the environment by properly treating wastewater before returning it to the environment. Your holding tank system is designed to store your used water before it is recycled back into our lakes, streams and groundwater.

This **management plan** will identify the operation and maintenance activities necessary to ensure compliance with applicable rules and regulations. Some of these activities must be performed by you, the homeowner. Other tasks must be performed by a licensed septic maintainer. However, it is YOUR responsibility to make sure all tasks get accomplished in a timely manner.

The University of Minnesota's *Septic System Owner's Guide* contains additional tips and recommendations designed to extend the effective life of your system and save you money over time.

***Proper septic system design, installation, operation and maintenance means safe and clean water!***

Property Owner: Robert Krause

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Property Address: 4079 Norway Road

Property ID: 317-0160-00110

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System Designer: Michael Heiman

License #: L4321

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System Installer:

License #:

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Service Provider/Maintainer: Boundary Waters Septic

Phone: 218-365-6142

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Permitting Authority: St. Louis County Planning & Zoning

Phone: 218-471-7103

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Permit #:

Date Inspected:

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Keep this Management Plan with your Septic System Owner's Guide. The Septic System Owner's Guide includes a folder to hold maintenance records including pumping, inspection and evaluation reports. Ask your septic professional to also:

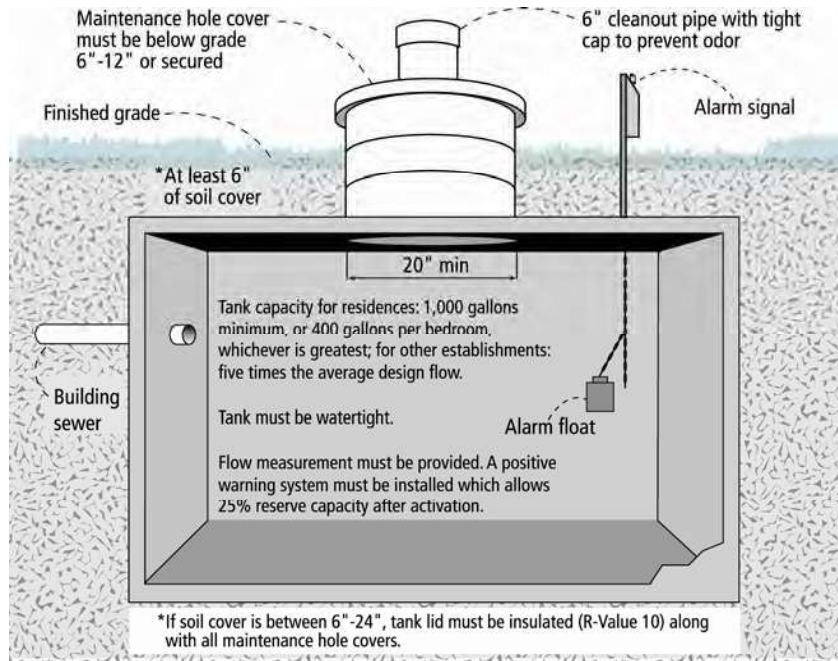
- Attach permit information, designer drawings and as-builts of your system, if they are available.
- Keep copies of all pumping records and other maintenance and repair invoices with this document.
- Review this document with your maintenance professional at each visit; discuss any changes in product use, activities, or water-use appliances.

For a copy of the *Septic System Owner's Guide*, call 1-800-876-8636 or go to <http://shop.extension.umn.edu/>

<http://septic.umn.edu>



### Your Holding Tank



Dwelling Type	Well Construction
Number of bedrooms: <u>2 3</u> System capacity/ design flow (gpd): <u>225 300</u> Anticipated average daily flow (gpd): <u>160 210</u> Comments _____ In-home business? <input type="checkbox"/> What type? _____ Number of occupants <u>2</u>	Well depth (ft): <u>Unknown</u> <del>Not Applicable</del> <input type="checkbox"/> Cased well Casing depth: <u>Unknown</u> <input type="checkbox"/> Other (specify): _____ Distance from septic (ft): _____ Is the well on the design drawing? <input type="radio"/> Y <input type="radio"/> N

Holding Tank	
<input checked="" type="radio"/> One tank: Tank volume: _____ gallons <input checked="" type="radio"/> Two tanks: Tank volume: <u>1,000</u> gallons <input type="checkbox"/> Tank is constructed of <u>Plastic</u>	<input type="checkbox"/> Flow measurement device: <u>Meter</u> <input type="checkbox"/> Location: <u>In Cabin</u> <input type="checkbox"/> Alarm <input checked="" type="checkbox"/> visual <input checked="" type="checkbox"/> audible <input type="checkbox"/> Reserve %: <u>30</u>
<input type="checkbox"/> Service contract held by: <u>Boundary Waters Septic</u> <input checked="" type="checkbox"/> Service contract is attached to this management plan	



## Homeowner Management Tasks

These *operation and maintenance* activities are your responsibility. Use the chart on page 6 to track your activities.

Identify the service intervals recommended by your system designer and your local government. The tank assessment for your system will be the **shortest interval of these three intervals**. Your pumper/maintainer will determine if your tank needs to be pumped.

Tank capacity ÷ (# of occupants X 50 Gallons/day) = # of days between cleaning

OR

Within 24 hours of alarm signal

System Designer: check every \_\_\_\_\_ days

Local Government: check every \_\_\_\_\_ days

My tank needs to be emptied  
every \_\_\_\_\_ days

### Seasonally

- Monitor alarm daily* – make sure the alarm has not signaled. Alarms signal when your holding tank is nearly full; contact your maintainer.
- Measure* and note your average daily water usage on page 5. Conserving water saves you money!
- Leaks*. Check (listen, look) for leaks in toilets and dripping faucets. Repair leaks promptly.

### Annually

- Establish a contract for tank cleaning services with a state licensed maintenance business.
- Caps*. Make sure that all caps and lids are intact and in place. Inspect for damaged caps at least every fall. Fix or replace damaged caps before winter to help prevent freezing issues.
- Water conditioning devices*. See Page 5 for a list of devices. When possible, discharge clear water sources to another location. Program the recharge frequency based on *water demand (gallons)* rather than *time (days)*. Recharging too frequently will result in increased pumping costs.
- Review your water usage rate*. Review the Water Use Appliance chart on Page 5. Discuss any major changes with your pumper/maintainer.

### During each visit by a pumper/maintainer

- Ask if your pumper/maintainer is licensed in Minnesota.
- Make sure that your pumper/maintainer has clear access to the holding tank and completely empties the tank
- Ask your pumper/maintainer to accomplish the tasks listed on the Professional Tasks on Page 4.



## Professional Management Tasks

These are the operation and maintenance activities that a pumper/maintainer performs to help ensure long-term performance of your system. Professionals should refer to the O/M Manual for detailed checklists for tanks, pumps, alarms and other components. Call 800-322-8642 for more details.

- Written record provided to homeowner after each visit.

### Plumbing/Source of Wastewater

- Review the Water Use Appliance Chart on Page 5 with homeowner. Discuss any changes in water use and the impact those changes may have on the frequency of maintenance.
- Review and document water usage rates with homeowner.

### Holding Tanks

- Maintenance hole lid.* A riser is recommended if the lid is not accessible from the ground surface. Insulate the riser cover for frost protection.
- Liquid level.* Check to make sure the tank is not leaking.
- Inspection pipes.* Replace damaged caps.
- Alarm.* Verify that the alarm works and that there is at least 25% reserve capacity.
- End of year seasonal property pumping.* Remind homeowner of most frequent causes of tank and building sewer freeze-ups. Ensure that there are no “micro-sources” of water such as a high efficiency furnace or other dripping devices. Determine a logical winter water use plan that will not result in need for emergency visit(s).

**All other components – inspect as listed here:**

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**Water-Use Appliances and Equipment in the Home**

Appliance	Impacts on Holding Tank	Management Tips
Garbage disposal	<ul style="list-style-type: none"> <li>• Uses water and increases pumping frequency and expense.</li> </ul>	<ul style="list-style-type: none"> <li>• Use of a garbage disposal is not recommended.</li> <li>• Minimize garbage disposal use. Compost instead.</li> </ul>
Washing machine	<ul style="list-style-type: none"> <li>• Uses water and increases pumping frequency and expense.</li> </ul>	<ul style="list-style-type: none"> <li>• Choose a front-loader or water-saving top-loader, these units use less water than older models.</li> <li>• Wash only full loads.</li> <li>• Do laundry off site.</li> </ul>
Dishwasher	<ul style="list-style-type: none"> <li>• Uses water and increases pumping frequency and expense.</li> </ul>	<ul style="list-style-type: none"> <li>• Wash only full loads.</li> </ul>
Large bathtub (whirlpool)	<ul style="list-style-type: none"> <li>• Uses water and increases pumping frequency and expense.</li> </ul>	<ul style="list-style-type: none"> <li>• Take short showers to conserve water.</li> </ul>
<b>Clear Water Uses</b>	<b>Impacts on Holding Tank</b>	<b>Management Tips</b>
High-efficiency furnace	<ul style="list-style-type: none"> <li>• Drip may result in frozen pipes during cold weather.</li> </ul>	<ul style="list-style-type: none"> <li>• Re-route water into a sump pump or directly out of the house. Do not route furnace recharge to your holding tank.</li> </ul>
Water softener Iron filter Reverse osmosis	<ul style="list-style-type: none"> <li>• Uses water and increases pumping frequency and expense.</li> </ul>	<ul style="list-style-type: none"> <li>• These sources produce water that is not sewage and should not go into your holding tank.</li> <li>• Reroute water from these sources to another outlet, such as a dry well, drain tile or old drainfield.</li> </ul>
Surface drainage Footing drains	<ul style="list-style-type: none"> <li>• Uses water and increases pumping frequency and expense.</li> </ul>	<ul style="list-style-type: none"> <li>• When replacing, consider using a demand-based recharge vs. a time-based recharge.</li> <li>• Check valves to ensure proper operation; have unit serviced per manufacturer directions</li> </ul>

**Maintenance Log**

Track maintenance activities here for easy reference. See list of management tasks on pages 3 and 4.

Activity	Date accomplished/measured water usage									
<b>Check daily for a period of time and weekly once average use is determined:</b>										
Water usage rate (gallons per day)										
Leaks: check for plumbing leaks										
<b>Annually:</b>										
Establish and maintain contract for holding tank pumping services										
Water use appliances – review use										





Eagles Nest Lake #2  
(Recreational Development)  
OWHI Level = 1492.3 feet



## Legend

- Well
- Soil Pit
- Sewer Line
- 2-foot Contours
- Tank
- St. Louis County Tax
- Parcels

### Notes:

- The property uses a lake water system and no wells were identified within 50 feet of the proposed tank.
- Property lines as shown were estimated using St. Louis County GIS data and are approximate. Property pins were identified during the site visit.

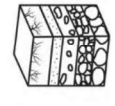
## Figure 1 Septic Design Sketch

Client: Bob Kruse

Parcel ID: 317-0160-00110

Address: 4079 Norway Road City: Ely

County: St. Louis



**NORTHERN GEOSEPTIC**  
ENGINEERING, SITE DEVELOPMENT, SEPTIC SERVICES

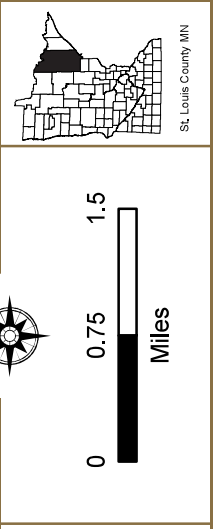
Date: 6/6/2024 1:50 PM

Drawn by: MTH

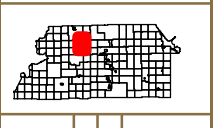


# St. Louis County

## July BOA Meeting



**Robert Kruse**  
**Location Map**  
**317-0160-00110**



Prepared By: **Planning & Zoning Department**  
 (218) 725-5000  
[www.stlouiscountymn.gov](http://www.stlouiscountymn.gov)

Source: **St. Louis County**

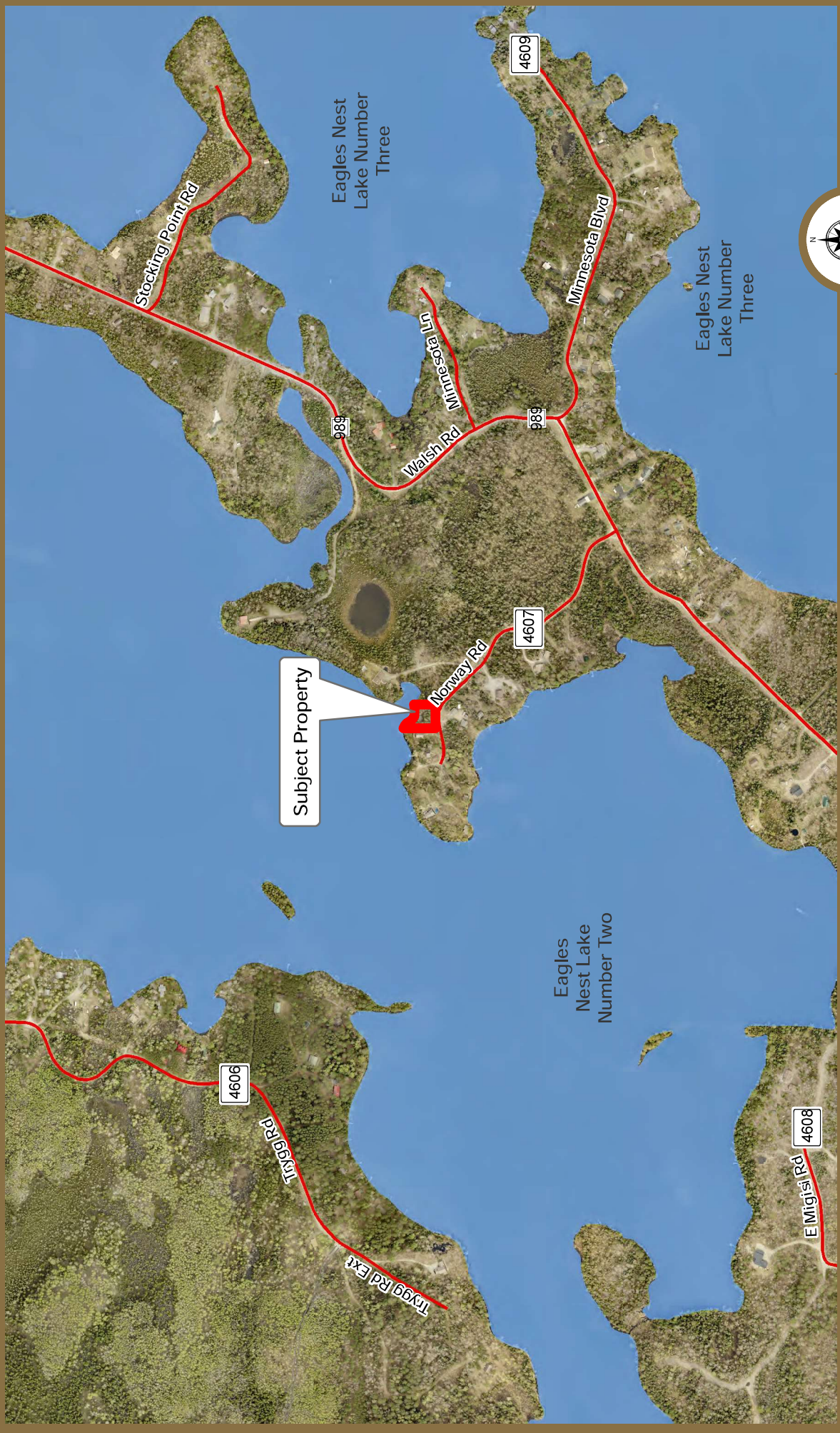
Map Created: **6/11/2024**

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# St. Louis County

July BOA Meeting



0 500 1,000  
Feet

**Robert Kruse**  
**Location Map**  
**317-0160-00110**

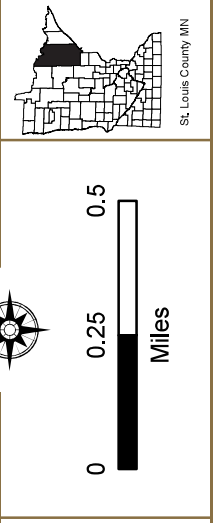
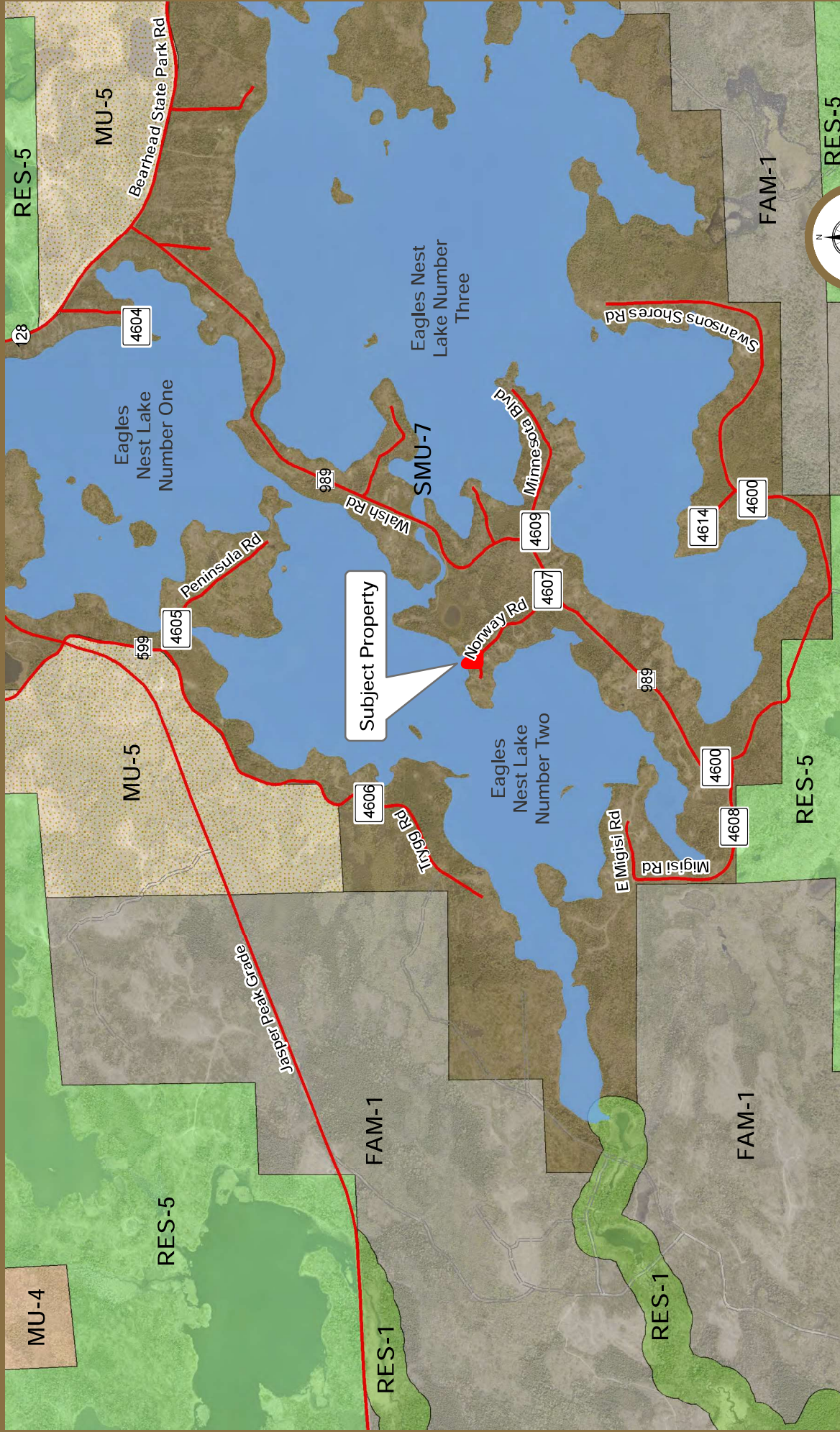
Prepared By: Planning & Zoning  
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# St. Louis County

July BOA Meeting



## Robert Kruse

### Zoning Map

317-0160-00110

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# St. Louis County

July BOA Meeting



Eagles  
Nest Lake  
Number Two

## Robert Kruse

### Site Map

317-0160-00110

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