



Septic System Management Plan for Above Grade 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 septic system is designed to kill harmful organisms and remove pollutants before the water is recycled back into our lakes, streams and groundwater.

This **management plan** will identify the operation and maintenance activities necessary to ensure long-term performance of your septic system. Some of these activities must be performed by you, the homeowner. Other tasks must be performed by a licensed septic maintainer or service provider. 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	Duane & Denise Dahlheimer	Email
Property Address	300th Place, Lakeside Township	Property ID 16-0-032600
System Designer	Eric Beutler	Contact Info 612-356-7242
System Installer	TW Hauling & Excavating, Inc.	Contact Info 763-286-2232
Service Provider/Maintainer		Contact Info
Permitting Authority	Aitkin County	Contact Info
Permit #		Date Inspected

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:

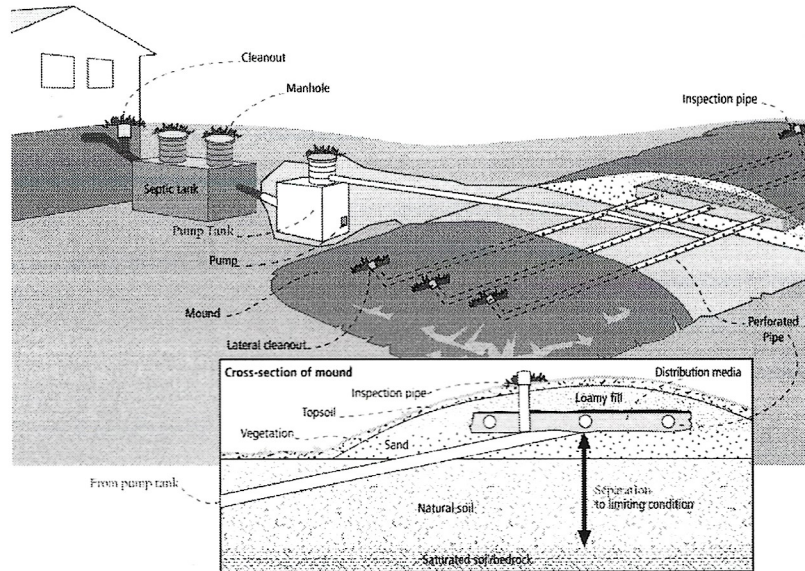
- Attach permit information, designer drawings and as-built of your system, if they are available.
- Keep copies of all pumping records and other maintenance and repair invoices with this document.
- Review this document with your maintenance professional at each visit; discuss any changes in product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

For a copy of the *Septic System Owner's Guide*, visit www.bookstores.umn.edu and search for the word "septic" or call 800-322-8642.

For more information see <http://septic.umn.edu>



Your Septic System



Septic System Specifics	
System Type: <input type="radio"/> I <input type="radio"/> II <input checked="" type="radio"/> III <input type="radio"/> IV* <input type="radio"/> V* (Based on MN Rules Chapter 7080.2200 – 2400) *Additional Management Plan required	<input checked="" type="checkbox"/> System is subject to operating permit* <input type="checkbox"/> System uses UV disinfection unit* Type of advanced treatment unit _____

Dwelling Type	Well Construction
Number of bedrooms: <u>3</u> System capacity/ design flow (gpd): _____ Anticipated average daily flow (gpd): <u>450</u> Comments _____ Business? : <input type="radio"/> Y <input checked="" type="radio"/> N What type? _____	Well depth (ft): <u>No Well yet</u> <input type="checkbox"/> Cased well Casing depth: _____ <input type="checkbox"/> Other (specify): _____ Distance from septic (ft): <u>Over 50'</u> Is the well on the design drawing? <input checked="" type="radio"/> Y <input type="radio"/> N

Septic Tank	
<input type="checkbox"/> First tank Tank volume: <u>1,500</u> gallons Does tank have two compartments? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="checkbox"/> Second tank Tank volume: _____ gallons <input type="checkbox"/> Tank is constructed of <u>Concrete</u> <input type="checkbox"/> Effluent screen: <input type="radio"/> Y <input checked="" type="radio"/> N Alarm <input type="radio"/> Y <input checked="" type="radio"/> N	<input type="checkbox"/> Pump Tank <u>500 Side</u> gallons <input type="checkbox"/> Effluent Pump make/model: _____ Pump capacity <u>27</u> GPM TDH <u>14</u> Feet of head <input type="checkbox"/> Alarm location <u>In House</u>

Soil Treatment Area (STA)	
Mound/At-Grade area (width x length): <u>48</u> ft x <u>78</u> ft Rock bed size (width x length): <u>10</u> ft x <u>37.5</u> ft Location of additional STA: _____ Type of distribution media: <u>Rock</u>	<input type="checkbox"/> Inspection ports <input checked="" type="checkbox"/> Cleanouts <input type="checkbox"/> Surface water diversions <input type="checkbox"/> Additional STA not available



Homeowner Management Tasks

These *operation and maintenance* activities are your responsibility. *Chart on page 6 can help track your activities.*

Your toilet is not a garbage can. Do not flush anything besides human waste and toilet paper. No wet wipes, cigarette butts, disposal diapers, used medicine, feminine products or other trash!

The system and septic tanks needs to be checked every <u>36</u> months
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Your service provider or pumper/maintainer should evaluate if your tank needs to be pumped more or less often.

Seasonally or several times per year

- *Leaks.* Check (listen, look) for leaks in toilets and dripping faucets. Repair leaks promptly.
- *Soil treatment area.* Regularly check for wet or spongy soil around your soil treatment area. If surfaced sewage or strong odors are not corrected by pumping the tank or fixing broken caps and leaks, call your service professional. *Untreated sewage may make humans and animals sick.* Keep bikes, snowmobiles and other traffic off and control borrowing animals.
- *Alarms.* Alarms signal when there is a problem; contact your service professional any time the alarm signals.
- *Lint filter.* If you have a lint filter, check for lint buildup and clean when necessary. If you do not have one, consider adding one after washing machine.
- *Effluent screen.* If you do not have one, consider having one installed the next time the tank is cleaned along with an alarm.

Annually

- *Water usage rate.* A water meter or another device can be used to monitor your average daily water use. Compare your water usage rate to the design flow of your system (listed on the next page). Contact your septic professional if your average daily flow over the course of a month exceeds 70% of the design flow for your system.
- *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, program the recharge frequency based on *water demand (gallons)* rather than *time (days)*. Recharging too frequently may negatively impact your septic system. Consider updating to demand operation if your system currently uses time,
- *Review your water usage rate.* Review the Water Use Appliance chart on Page 5. Discuss any major changes with your service provider or pumper/maintainer.

During each visit by a service provider or pumper/maintainer

- Make sure that your service professional services the tank through the manhole. (NOT through a 4" or 6" diameter inspection port.)
- Ask how full your tank was with sludge and scum to determine if your service interval is appropriate.
- 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. At each visit a written report/record must be provided to homeowner.

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 septic system.
- Review water usage rates (if available) with homeowner.

Septic Tank/Pump Tanks

- *Manhole 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. The liquid level should be level with the bottom of the outlet pipe. (If the water level is below the bottom of the outlet pipe, the tank may not be watertight. If the water level is higher than the bottom of the outlet pipe of the tank, the effluent screen may need cleaning, or there may be ponding in the soil treatment area.)
- *Inspection pipes.* Replace damaged or missing pipes and caps.
- *Baffles.* Check to make sure they are in place and attached, and that inlet/outlet baffles are clear of buildup or obstructions.
- *Effluent screen.* Check to make sure it is in place; clean per manufacturer recommendation. Recommend retrofitted installation if one is not present.
- *Alarm.* Verify that the alarm works.
- *Scum and sludge.* Measure scum and sludge in each compartment of each septic and pump tank, pump if needed.

Pump

- *Pump and controls.* Check to make sure the pump and controls are operating correctly.
- *Pump vault.* Check to make sure it is in place; clean per manufacturer recommendations.
- *Alarm.* Verify that the alarm works.
- *Drainback.* Check to make sure it is draining properly.
- *Event counter or elapsed time meter.* Check to see if there is an event counter or elapsed time meter for the pump. If there is one or both, calculate the water usage rate and compare to the anticipated use listed on Design and Page 2. Dose Volume: $\frac{116}{4.3}$ gallons: Pump run time: _____ Minutes

Soil Treatment Area

- *Inspection pipes.* Check to make sure they are properly capped. Replace caps and pipes that are damaged.
- *Surfacing of effluent.* Check for surfacing effluent or other signs of problems.
- *Lateral flushing.* Check lateral distribution; if cleanouts exist, flush and clean at recommended frequency.
- *Vegetation* - Check to see that a good growth of vegetation is covering the system.

All other components – evaluate as listed here:



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

Appliance	Impacts on System	Management Tips
Garbage disposal	<ul style="list-style-type: none"> • Uses additional water. • Adds solids to the tank. • Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area. 	<ul style="list-style-type: none"> • Use of a garbage disposal is not recommended. • Minimize garbage disposal use. Compost instead. • To prevent solids from exiting the tank, have your tank pumped more frequently. • Add an effluent screen to your tank.
Washing machine	<ul style="list-style-type: none"> • Washing several loads on one day uses a lot of water and may overload your system. • Overloading your system may prevent solids from settling out in the tank. Unsettled solids can exit the tank and enter the soil treatment area. 	<ul style="list-style-type: none"> • Choose a front-loader or water-saving top-loader, these units use less water than older models. • Limit the addition of extra solids to your tank by using liquid or easily biodegradable detergents. Limit use of bleach-based detergents and fabric softeners. • Install a lint filter after the washer and an effluent screen to your tank • Wash only full loads and think even – spread your laundry loads throughout the week.
Dishwasher	<ul style="list-style-type: none"> • Powdered and/or high-phosphorus detergents can negatively impact the performance of your tank and soil treatment area. • New models promote “no scraping”. They have a garbage disposal inside. 	<ul style="list-style-type: none"> • Use gel detergents. Powdered detergents may add solids to the tank. • Use detergents that are low or no-phosphorus. • Wash only full loads. • Scrape your dishes anyways to keep undigested solids out of your septic system.
Grinder pump (in home)	<ul style="list-style-type: none"> • Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area. 	<ul style="list-style-type: none"> • Expand septic tank capacity by a factor of 1.5. • Include pump monitoring in your maintenance schedule to ensure that it is working properly. • Add an effluent screen.
Large bathtub (whirlpool)	<ul style="list-style-type: none"> • Large volume of water may overload your system. • Heavy use of bath oils and soaps can impact biological activity in your tank and soil treatment area. 	<ul style="list-style-type: none"> • Avoid using other water-use appliances at the same time. For example, don’t wash clothes and take a bath at the same time. • Use oils, soaps, and cleaners in the bath or shower sparingly.
Clean Water Uses	Impacts on System	Management Tips
High-efficiency furnace	<ul style="list-style-type: none"> • Drip may result in frozen pipes during cold weather. 	<ul style="list-style-type: none"> • Re-route water directly out of the house. Do not route furnace discharge to your septic system.
Water softener Iron filter Reverse osmosis	<ul style="list-style-type: none"> • Salt in recharge water may affect system performance. • Recharge water may hydraulically overload the system. 	<ul style="list-style-type: none"> • These sources produce water that is not sewage and should not go into your septic system. • Reroute water from these sources to another outlet, such as a dry well, draitile or old drainfield.
Surface drainage Footing drains	<ul style="list-style-type: none"> • Water from these sources will overload the system and is prohibited from entering septic system. 	<ul style="list-style-type: none"> • When replacing, consider using a demand-based recharge vs. a time-based recharge. • Check valves to ensure proper operation; have unit serviced per manufacturer directions



Homeowner Maintenance Log

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

Activity	Date accomplished									
Check frequently:										
Leaks: check for plumbing leaks*										
Soil treatment area check for surfacing**										
Lint filter: check, clean if needed*										
Effluent screen (if owner-maintained)***										
Alarm**										
Check annually:										
Water usage rate (maximum gpd _____)										
Caps: inspect, replace if needed										
Water use appliances – review use										
Other:										

*Monthly

**Quarterly

***Bi-Annually

Notes:

"As the owner of this SSTS, I understand it is my responsibility to properly operate and maintain the sewage treatment system on this property, utilizing the Management Plan. If requirements in this Management Plan are not met, I will promptly notify the permitting authority and take necessary corrective actions. If I have a new system, I agree to adequately protect the reserve area for future use as a soil treatment system."

Property Owner Signature: _____ Date _____

Management Plan Prepared By: Eric Beutler Certification # 6524

Permitting Authority: Aitkin County

Mound Design

Property Owner: Duane & Denise Dahlheimer Date: 5/24/2024
 Site Address: 300th Place, Lakeside Township PID: 16-0-032600
 Comments: _____

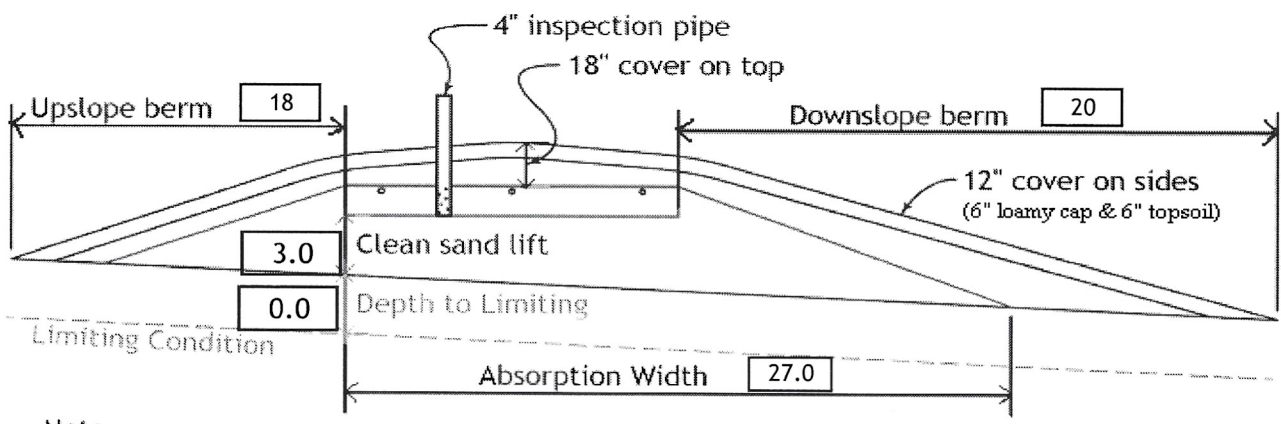
instructions: = enter data = adjust if desired = computer calculated - DO NOT CHANGE!

- 1) bedroom Type Residential System
- 2) GPD design flow
- 3) Garbage disposal or pumped to septic
- 4) Gal Septic tank (code minimum) Gal Septic tank (design size / LUG req'd)
 Tank options: none
- 5) GPD/ft² mound sand loading rate contour loading rate of req's a min ft. long rockbed
- 6) ft rockbed width ft rockbed length
- 7) ft lateral spacing ft perforation spacing (maximum of 3 for both)
 manifold connection
- 8) laterals feet long perfs / lateral perfs total
 (1/2 a perf means the first perf starts at the middle feed manifold)
- 9) inch perfs at feet residual head gives gpm flow rate per perforation
 for this perf size & spacing, & pipe size on line 12, max perfs/lateral = , line #8 must be less --> OK
- 10) doses per day (4 minimum)
- 11) gallons per dose (treatment volume)
- 12) inch diameter laterals must be used to meet "4x pipe volume" requirement
- 13) feet of inch supply line leads to gallons of drainback volume
 (Tip: "top feed" manifold to control the drainback)
- 14) gallons TOTAL pump out volume (treatment + drainback)
- 15) feet vertical lift from pump to mound laterals, leads to a:
- 16) GPM @ feet of head, Pump requirement (note: >50gpm may require an extra 3-6' of head)
- 17) gal Dose tank (code minimum) gal Dose tank (design size / LUG req'd) at gpi
 leads to a: **Optional Time dosing of:**
- 18) inch swing on Demand float, (this delivers Average flow, =70% of Peak design flow)

<input type="text" value="4.3"/>	min ON
<input type="text" value="8.5"/>	hrs OFF
- 19) inches from bottom of tank to "Pump OFF" float
- 20) inches from bottom of tank to "Pump ON" float
- 21) inches from bottom of tank to "Hi Level" float

<input type="text" value="12"/>	inches to "Timer ON" float
<input type="text" value="30"/>	inches to "Hi Level" float
- 22) gallons reserve capacity (after High Level Alarm is activated-demand dosed)

- 23) which gives a mound ratio of (minimum)
 (this must match the soil boring log) desired mound ratio
- 24) percent site slope (0-20% range) (% downslope site slope, if different than upslope)
- 25) inches, or ft. to Redox or other limiting condition (need at least 12" to be a Type I)
 Treatment zone contains inches of 0% soil credit, and inches of 50% soil credit. Giving a:
- 26) inch, or ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**
- 27) ft. Total ABSORPTION width (with sand beyond rockbed as follows:)
- 28) ft. upslope and sideslope
 ft. Downslope
- Individual slope ratios give BERM widths (topsoil beyond rockbed) of:
- 29) upslope ratio ft. upslope berm
- 30) sideslope ft. sideslope berms
- 31) downslope ft. downslope berm
- 32) Overall Dimensions: ft. wide by ft. long Rock bed
 ft. wide by ft. long Mound footprint



Note:
 For 0 to 1% slopes, *Absorption Width* is measured from the *Bed* equally in both directions.
 For slopes >1%, *Absorption Width* is measured downhill from the upslope edge of the *Bed*.

- 33) Rock Bed:
 ft. by ft. by inches under pipe, plus 20% gives yd³ or *1.4= ton
- 34) Mound Sand: (note: volume is based on 3:1/4:1 slope from top of rockbed, Exchange sand for loamy cap if desired)
 up + downslope + ends + under rock = yd³ or *1.4= ton
 plus 20%
- 35) Loamy Cap:
 ft. by ft. 6" deep, plus 20% gives yd³ or *1.4= ton
- 36) Topsoil:
 ft. by ft. 6" deep, plus 20% gives yd³ or *1.4= ton

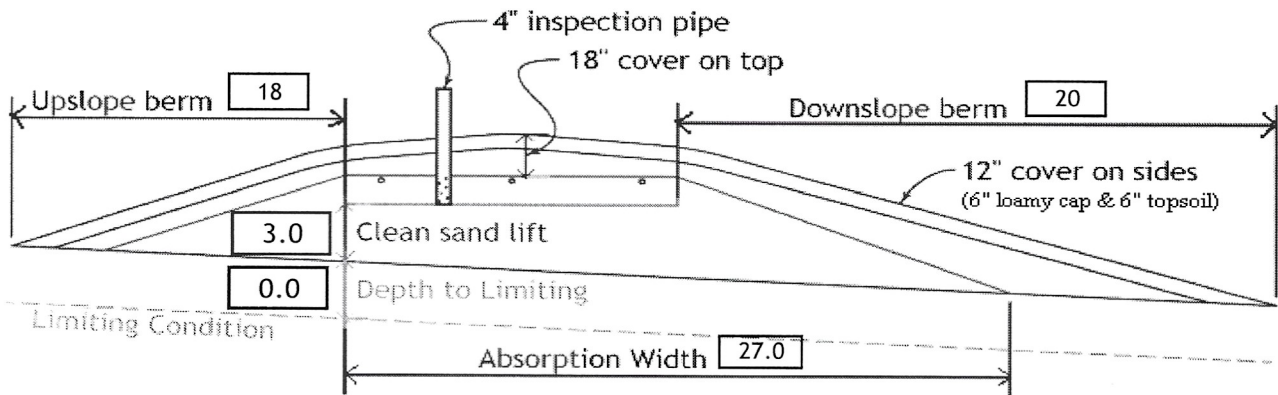
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

<u>Eric Beutler</u>	<u>TW Hauling & Excavating, Inc.</u>	<u>L2420/C6524</u>	<u>5/24/2024</u>
Designer Signature	Company	License#	Date

Installer Summary

- 1000 gallon Septic tank (minimum) Tank options: none
- 500 gallon Dose tank (minimum) at 25.00 gpi
- 27 GPM @ 14 ft. of head, Pump required
- 4.6 inch swing on Demand float which translates to roughly 3.3 inches of float tether length
- Optional Time dosing of:
 - 4.3 minutes ON
 - 8.5 hours OFF
 - 12 inches to "timer ON" float
 - 30 inches to "Hi level" float
- 17 inches from bottom of tank to "pump ON" float, or
- 20 inches from bottom of tank to "Hi Level Alarm" or
- 20 ft. of 2.0 inch supply line with end feed manifold connection
(Tip: "top feed" manifold to control drainback)
- 36 inch, or 3.0 ft. Sand Lift Mound
- 10.0 ft. wide by 37.5 ft. long Rock bed
- 3 laterals 2.00 inch diameter 35.5 ft. long 3.0 ft. lateral spacing
- 1/4" inch perfs 3.0 ft. perforation spacing
- No Effluent filter & alarm
- 3 clean out & valve box assemblies
- 27.0 ft. Total sand ABSORPTION width (minimum)
 - 8.5 ft. upslope and sideslope (sand beyond rockbed, minimum)
 - 8.5 ft. Downslope (sand beyond rockbed, minimum)
- Specific slope ratios give BERM widths (topsoil beyond rockbed) of:

4:1 upslope ratio	18 ft. upslope berm
4:1 sideslope	20 ft. sideslope berms
4:1 downslope	20 ft. downslope berm



Note:
 For 0 to 1% slopes, *Absorption Width* is measured from the *Bed* equally in both directions.
 For slopes >1%, *Absorption Width* is measured downhill from the upslope edge of the *Bed*.

Rock Bed:	13.0 yd ³ or *1.4=	18 ton	6 inches under pipe
Mound Sand:	284 yd ³ or *1.4=	398 ton	calculation based on 3:1/4:1 slope from top of rockbed
Loamy Cap:	72 yd ³ or *1.4=	101 ton	6" deep
Topsoil:	83 yd ³ or *1.4=	116 ton	6" deep

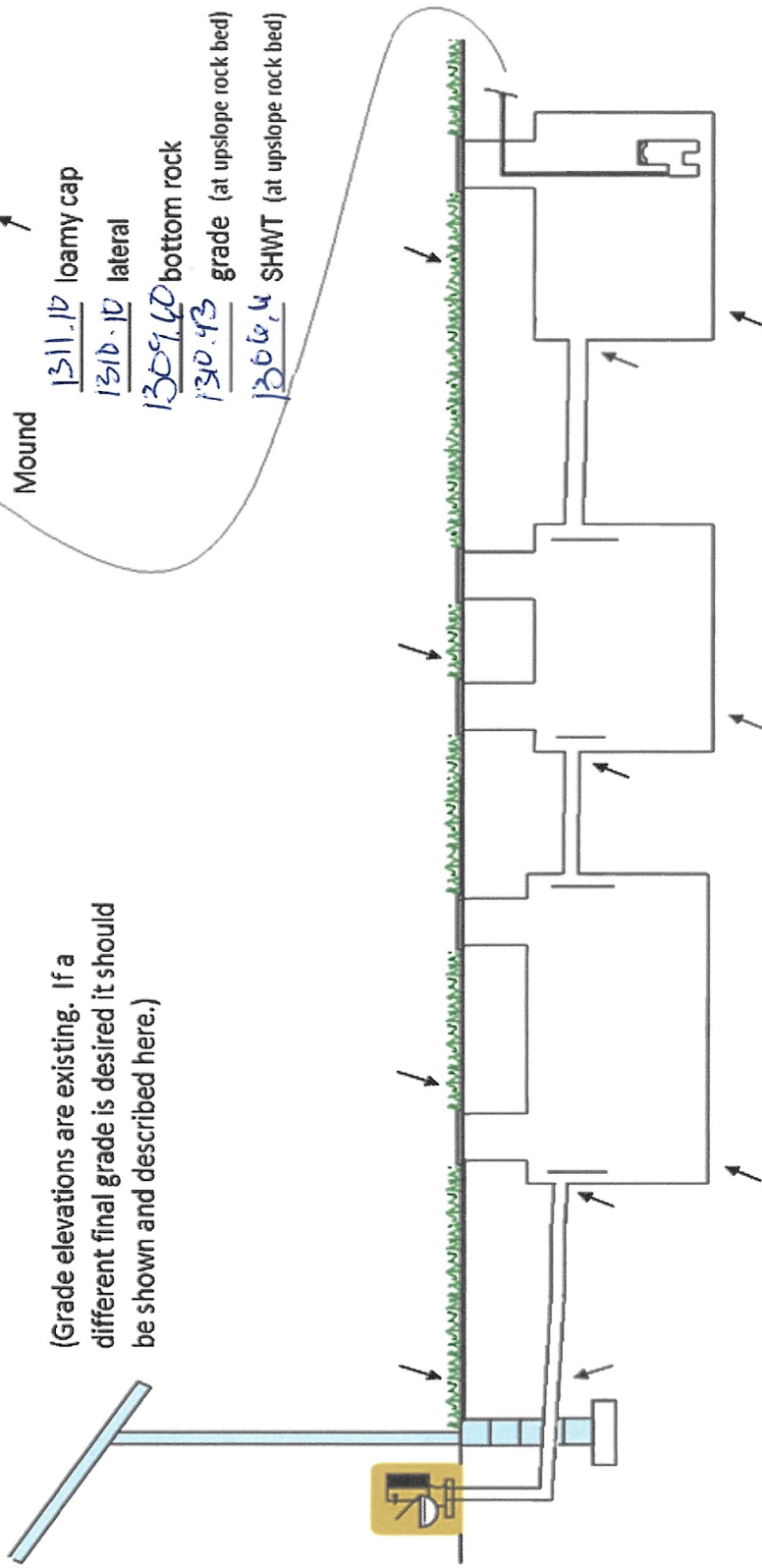
INSPECTOR CHECKLIST - mound

- 300th Place, Lakeside Township
- WELL setbacks: 20'- 50' to sewer line req's MDH pressure test form (5 psi for 15 min)
50' to everything 100' to drainfield with shallow well
- PROPERTY LINES setback: 10' to everything
- Road setback: platted: 10' prop line. Metes & bounds: out of road easement, or outer ditch.
- LAKE / BLUFF setback: 20' for bluff. Lakes: GD ____, RD ____, NE ____ Protected wetland ____.
- Building setbacks: 10' for everything, 20' for dispersal area.
- WATER LINE under pressure 10' to bed, tank & sewer line. (else sewer line > 12" below)
- Sewer line & tank connection (no hard 90's, long sweep 90 or 2-45's, slope minimum 1" in 8' = 1%)
(no depth req's, clean out every 100', Sch 40 pipe)
- Septic tank and risers (water tight risers, baffles, insulated, proper depth, existing verified by pumping)
mfg__ Knife River 1000 gallons none
- Riser over outlet, riser over inlet or center, and 6"+ inspection pipe over any remaining baffles.
- No effluent filter & alarm
- Dose tank, risers and piping (water tight risers, insulated, proper depth, drainback)
mfg__ Knife River 500 gallons
- Optional Time dosing of:
4.3 min ON 8.5 hr OFF
- dose pump _____ 27 gpm 14 head VERIFY PUMP CURVE
- verify that installed "vertical lift from pump to laterals" is no more than design value of 8 feet
- float setting drop 4.6 inches at 25.0 gpi "DESIGNED" 3.3 inches approx float tether length
116.0 gal dose divided by _____ gpi "INSTALLED" = _____ inches float drop (field corrected)
- LABEL pump requirements and drawdown on riser or panel
- Cam lock reachable from grade - 30" max. J-hook weep hole. Supply line access (no hard 90's)
2.0 inch supply pipe: Sch40, sloped 1/8"+, supported by 4" sch40 sleeve or compacted, and buried 6"+.
- splice box / control panel / electrical connections / Hi Level Alarm
- flow measurement: CT, ETM, time dosed, home water meter
- mound absorption area rough up
- mound rock dimensions 10.0 X 37.5
- Sand lift depth 36 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)
- Absorption Sand beyond rock 8.5 upslope 8.5 downslope
- Bermed topsoil beyond rockbed 18 upslope 20 sideslope 20 downslope
- cover depth of 12-18"+ VERIFY
- 3 laterals (1-2' from edge of rock)
- 2.00 inch pipe size (Sch40 pipe & fittings)
- 3.0 ft lateral spacing
- 1/4" inch perforations
- 3.0 ft perforation spacing
- Air inlet at end of laterals, and at top feed manifold if necessary. VERIFY
- clean outs (no hard 90's)
- 4" inspection pipe to bottom of rock, anchored VERIFY
- Abandon existing system - if necessary Re-use existing tank certification
- monitoring plan and type _____
- well abandonment form - if necessary _____

System Elevations

1308.3 benchmark Top Block

(Grade elevations are existing. If a different final grade is desired it should be shown and described here.)



Mound

- 1311.10 loamy cap
- 1310.10 lateral
- 1309.60 bottom rock
- 1310.93 grade (at upslope rock bed)
- 1306.4 SHWT (at upslope rock bed)

Sewer pipe exiting house	1307.6	Grade			
1305.36	Pipe				
Septic Tank	1307.4	Grade			
	1304.97	Inlet			
	1300.92	Tank bottom			
Septic Tank (if applicable)		Grade			
		Inlet			
		Tank bottom			
Pump Tank		Grade			
		Inlet			
		Tank bottom			

Soil Observation Log

Owner Information	
Property Owner / project: <u>00000-0</u>	Date <u>5/24/2024</u>
Property Address / PID: <u>300 th place</u>	

Soil Survey Information	
<input type="checkbox"/> refer to attached soil survey	
Parent mat'l's:	<input checked="" type="checkbox"/> Till <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Alluvium <input type="checkbox"/> Organic <input type="checkbox"/> Bedrock
landscape position:	<input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Side slope <input type="checkbox"/> Toe slope
soil survey map units:	_____ slope <u>1</u> % direction- <u>downhill</u>

Soil Log #1							
		<input checked="" type="checkbox"/> Boring	<input type="checkbox"/> Pit	Elevation <u>1306.6</u>		Depth to SHWT _____	
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0"-7"	Topsoil	<35	10yr 3/4		Friable	Moderate	Blocky
7"-10"	Clay Loam	<35	10yr 5/4		Friable	Moderate	Blocky
10"-14"	Clay Loam	<35	10yr 5/4	10yr 5/3	Friable	loose weak moderate strong	Blocky
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

Comments:

300 th place		Soil Log #2					
Depth (in)	Texture	fragment %	Elevation 1106.1		Depth to SHWT		
			matrix color	redox color	consistence	grade	shape
0"-4"	Topsoil	<35	10yr 3/4		Friable	Moderate	blocky
4"-12"	Clay Loam	<35	10yr 5/4		Friable	Moderate	blocky
12"-15"	Clay Loam	<35	10yr 5/4	10yr 5/8	Friable	Moderate	blocky
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

300 th place		Soil Log #3					
Depth (in)	Texture	fragment %	Elevation 1306		Depth to SHWT		
			matrix color	redox color	consistence	grade	shape
0"-4"	Topsoil	<35	10yr 3/4		Friable	Moderate	Blocky
4"-10"	Clay Loam	<35	10yr 5/4		Friable	Moderate	Blocky
10"-14"	Clay Loam	<35	10yr 5/4	10yr 5/8	Friable	Moderate	Blocky
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

I hereby certify this work was completed in accordance with MN 7080 and any local req's.

G. P. Burt
 Designer Signature

TW Hartman
 Company

6521
 License #

LUG soil verify Signature _____ | LUG media elev/depth Signature _____ = Soil Separation Report

300 th place Soil Log #4

Depth (in)	<input checked="" type="checkbox"/> Boring	<input type="checkbox"/> Pit	Elevation	Depth to SHWT				
	Texture	fragment %		matrix color	redox color	consistence	grade	shape
0"-4"	Topsoil	<35	1305.4	10 yr ¼		Friable	Moderate	Blocky
4"-10"	Clay Loam	<35		10yr 5/4		Friable	Moderate	Blocky
10"-14"	Clay Loam	<35		10yr 5/4	10yr 5/8	loose friable firm rigid	Moderate	Blocky
		<35 35 - 50 >50				loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic massive platy
		<35 35 - 50 >50				loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic massive platy

300 th place Soil Log #5

Depth (in)	<input type="checkbox"/> Boring	<input type="checkbox"/> Pit	Elevation	Depth to SHWT				
	Texture	fragment %		matrix color	redox color	consistence	grade	shape
0"-4"	Clay Loam	<35	1305.9	10yr ¼		Loose	Moderate	Blocky
4"-10"	Clay Loam	<35		10yr 5/4		Loose	Moderate	Blocky
10"-14"	Clay Loam	<35 35 - 50 >50		10 yr ¼	10yr 5/8	Loose	Moderate	Blocky
		<35 35 - 50 >50				loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic massive platy
		<35 35 - 50 >50				loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic massive platy

Soil Observation Log

Owner Information	
Property Owner / project: <u>Jergenson Homes</u>	Date <u>5/24/2024</u>
Property Address / PID: <u>300 th place</u>	

Soil Survey Information		<input type="checkbox"/> refer to attached soil survey
Parent mat'l's:	<input checked="" type="checkbox"/> Till <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Alluvium <input type="checkbox"/> Organic <input type="checkbox"/> Bedrock	
landscape position:	<input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Side slope <input type="checkbox"/> Toe slope	
soil survey map units:	_____	slope <u>1</u> % direction- <u>downhill</u>

Soil Observation Log #6							
	<input checked="" type="checkbox"/> Boring <input type="checkbox"/> Pit		Elevation <u>1306</u>	Depth to SHWT _____			
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0"-7"	Topsoil	<35	10yr ¼		Friable	Moderate	Blocky
7"-10"	Clay Loam	<35	10yr 5/4		Friable	Moderate	Blocky
10"-14"	Clay Loam	<35	10yr 5/4	10yr 5/3	Friable	loose weak moderate strong	Blocky
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

Comments:

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: B/D
Ecological site: F090AY011WI - Moist Loamy Lowland
Forage suitability group: Level Swale, Acid (G090XN005MN), Mod AWC, high water table (G090AY004WI)
Other vegetative classification: Level Swale, Acid (G090XN005MN), Mod AWC, high water table (G090AY004WI)
Hydric soil rating: No

Description of Ronneby, Stony

Setting

Landform: Moraines, drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, left
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till

Typical profile

A - 0 to 10 inches: silt loam
E - 10 to 11 inches: fine sandy loam
B/E - 11 to 17 inches: fine sandy loam
Bl - 17 to 45 inches: fine sandy loam
BCd - 45 to 79 inches: fine sandy loam

Properties and qualities

Slope: 1 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 31 to 54 inches to densic material
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 8 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F090AY011WI - Moist Loamy Lowland
Forage suitability group: Level Swale, Acid (G090XN005MN), Mod AWC, high water table (G090AY004WI)
Other vegetative classification: Level Swale, Acid (G090XN005MN), Mod AWC, high water table (G090AY004WI)
Hydric soil rating: No

Major Components

Gubana, stony

Percent of map unit: 8 percent
Landform: Moraines, interdrumlins
Landform position (two-dimensional): Foothlope, toeslope
Landform position (three-dimensional): Tall
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F090AY006WI - Wet Loamy Lowland
Other vegetative classification: Level Swale, Acid
(G090XN005MN), High AWC, high water table (G090AY007WI)
Hydric soil rating: Yes

Milaca, stony

Percent of map unit: 5 percent
Landform: Drumlins, moraines
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Ecological site: F090AY014WI - Loamy Bedrock Upland
Other vegetative classification: Sloping Upland, Acid
(G090XN006MN), Mod AWC, adequately drained
(G090AY005WI)
Hydric soil rating: No

Glebo, frequently ponded, stony

Percent of map unit: 2 percent
Landform: Interdrumlins, moraines
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: F090AY006WI - Wet Loamy Lowland
Other vegetative classification: Ponded If Not Drained
(G090XN013MN), High AWC, high water table (G090AY007WI)
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Aitkin County, Minnesota
Survey Area Data: Version 24, Sep 9, 2023

- # 10 x 37 Rock Bed
- # 3' Clean Sand
- # Ball trees to be removed
- # NO Rubber Fire antelope
- # 1500 GAL Split Tank

