

Mound Design - Aitkin county

Property Owner: Sandy Schleh

Date: 8/16/2021

Site Address: 20075 St. Hwy. 200 Jacobson, Mn 5575

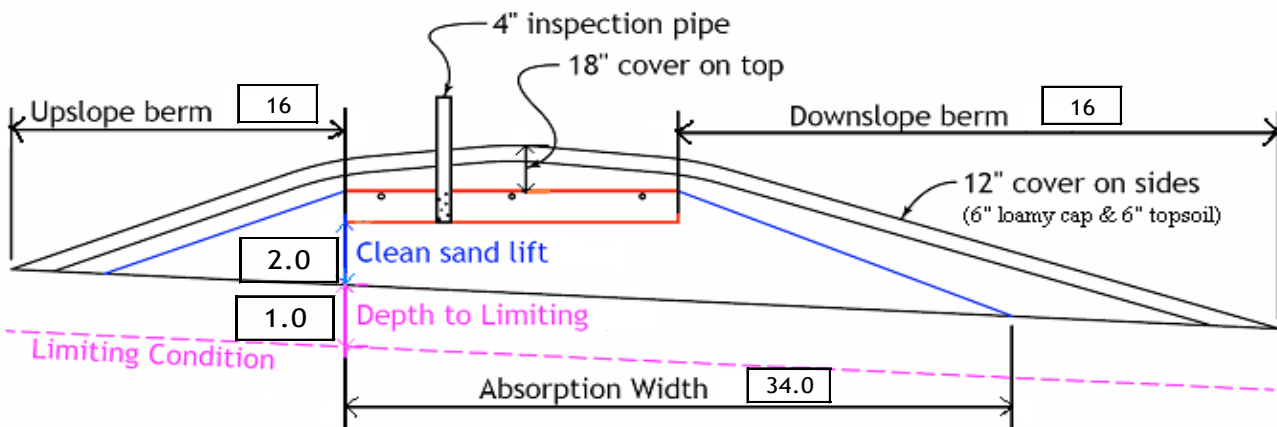
PID: 02-0015-600

Comments: _____

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

- 1) 3 bedroom Type I Residential System
- 2) 450 GPD design flow
- 3) No Garbage disposal or pumped to septic
- 4) 1000 Gal Septic tank (code minimum) 1000 Gal Septic tank (design size / LUG req'd)
Tank options: none
- 5) 1.2 GPD/ft² mound sand loading rate contour loading rate of 12 req's a min 37.5 ft. long rockbed
- 6) 10.0 ft rockbed width 37.5 ft rockbed length
- 7) 3.0 ft lateral spacing 3.0 ft perforation spacing (maximum of 3 for both)
end feed manifold connection
- 8) 3 laterals 35.5 feet long 12.0 perfs / lateral 36 perfs total
(1/2 a perf means the first perf starts at the middle feed manifold)
- 9) 1/4" inch perfs at 1 feet residual head gives 0.74 gpm flow rate per perforation
for this perf size & spacing, & pipe size on line 12, max perfs/lateral = 25, line #8 must be less --> OK
- 10) 4.0 doses per day (4 minimum)
- 11) 113 gallons per dose (treatment volume) 2.00 5x
- 12) 2.00 inch diameter laterals must be used to meet "4x pipe volume" requirement 2.00 3x
- 13) 40 feet of 2.0 inch supply line leads to 7 gallons of drainback volume
(Tip: "top feed" manifold to control the drainback)
- 14) 120 gallons TOTAL pump out volume (treatment + drainback)
- 15) 9 feet vertical lift from pump to mound laterals, leads to a:
- 16) 27 GPM @ 15 feet of head, Pump requirement (note: >50gpm may require an extra 3-6' of head)
- 17) 500 gal Dose tank (code minimum) 500 gal Dose tank (design size / LUG req'd) at 11.60 gpi
leads to a
- 18) 10.3 inch swing on Demand float, or timed dosing of 4.4 min ON (confirm pump rate with drawdown
(this delivers Average flow, =70% of Peak design flow) 9 hrs OFF test and adjust as necessary)
- 19) 12 inches from bottom of tank to "Pump OFF" float
- 20) 22 inches from bottom of tank to "Pump ON" float, or 12 inches to "Timer ON" float if time dosed
- 21) 25 inches from bottom of tank to "Hi Level" float, or 35 inches to "Hi Level" float if time dosed
- 22) 210 gallons reserve capacity (after High Level Alarm is activated)

- 23) **1.20** gpd/ft² Absorption area Soil Loading Rate, which gives a mound ratio of **1** (minimum)
 (this must match the soil boring log) desired mound ratio **1.0**
- 24) **0** percent site slope (0-20% range) **0** (% downslope site slope, if different than upslope)
- 25) **12** inches, or **1.0** ft. to Redox or other limiting condition (need at least 12" to be a Type I)
 Treatment zone contains **0** inches of 0% soil credit, and **0** inches of 50% soil credit. Giving a:
- 26) **24** inch, or **2.0** ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**
- 27) **10.0** ft. base absorption width (with sand beyond rockbed as follows):
34.0 greater of: absorption width OR sand slope
- 28) **0.0** ft. upslope and sideslope sand upslope **12.0**
0.0 ft. Downslope sand down slope **12.0**
- Individual slope ratios give BERM widths (topsoil beyond rockbed) of:
- 29) **4:1** upslope ratio **16** ft. upslope berm
- 30) **4:1** sideslope **16** ft. sideslope berms
- 31) **4:1** downslope **16** ft. downslope berm
- 32) Overall Dimensions: **10.0** ft. wide by **37.5** ft. long Rock bed
42 ft. wide by **70** 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:
10.0 ft. by **37.5** ft. by **6** inches under pipe, plus 20% gives **13** yd³ or *1.4= **18** 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)
41.0 up + **41.0** downslope + **13.3** ends + **27.8** under rock = **148** yd³ or *1.4= **207** ton
 plus 20%
- 35) Loamy Cap:
38 ft. by **66** ft. 6" deep, plus 20% gives **56** yd³ or *1.4= **78** ton
- 36) Topsoil:
42 ft. by **70** ft. 6" deep, plus 20% gives **65** yd³ or *1.4= **91** ton

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

Kris A. Prestidge
 Designer Signature

Kris Prestidge
 Company

L3223
 License#

8-16-221
 Date

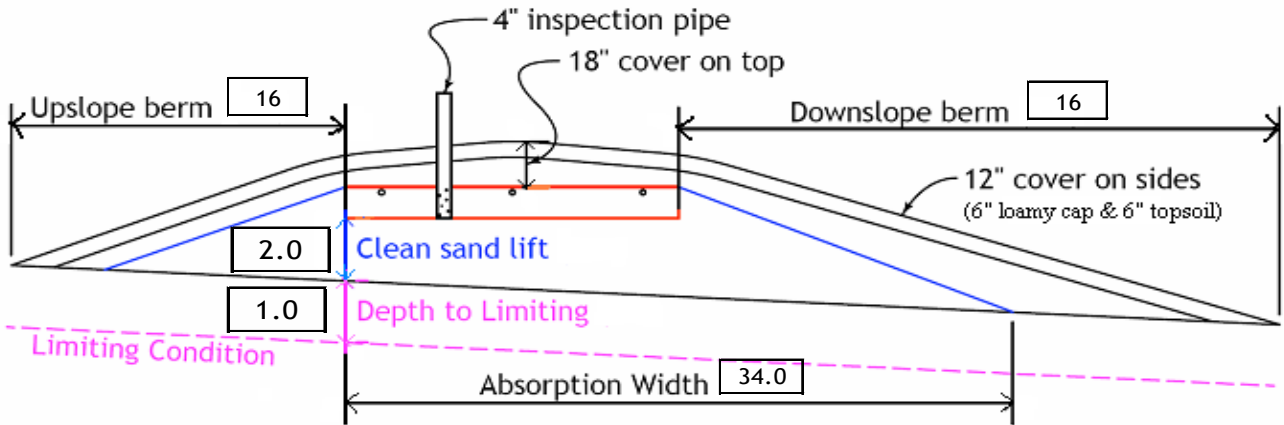
Installer Summary

- 1000 gallon Septic tank (minimum) Tank options: none
- 500 gallon Dose tank (minimum) at 11.60 gpi
- 27 GPM @ 15 ft. of head, Pump required
- 10.3 inch swing on Demand float which translates to roughly 6.2 inches of float tether length
if time dosing is required --> 4.4 minutes ON time & 9 hours OFF time
- 22 inches from bottom of tank to "pump ON" float, or 12 inches to "timer ON" float
- 25 inches from bottom of tank to "Hi Level Alarm" or 35 inches to "Hi level alarm" if time dosed
- 40 ft. of 2.0 inch supply line with end feed manifold connection
(Tip: "top feed" manifold to control drainback)
- 24 inch, or 2.0 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

- 34.0 ft. Total sand ABSORPTION width (minimum)
- 12.0 ft. upslope and sideslope (sand beyond rockbed, minimum)
- 12.0 ft. Downslope (sand beyond rockbed, minimum)

Specific slope ratios give BERM widths (topsoil beyond rockbed) of:

- 4:1 upslope ratio 16 ft. upslope berm
- 4:1 sideslope 16 ft. sideslope berms
- 4:1 downslope 16 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:	148 yd ³ or *1.4=	207 ton	calculation based on 3:1/4:1 slope from top of rockber
Loamy Cap:	56 yd ³ or *1.4=	78 ton	6" deep
Topsoil:	65 yd ³ or *1.4=	91 ton	6" deep

INSPECTOR CHECKLIST - mound

200/5 St. Hwy. 200 Jacobson, Mn 55752

- WELL setbacks: 20' to pressure tested sewer line (5 psi for 15 min)
50' to everything 100' to dispersal area 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 se 10' to bed, tank & sewer line. (else sewer line > 12" below, else ok w/pvc)

- Sewer line & baffle connection (no 90's, 3' between 45's, slope min 1" in 8', max 2" in 8')
(no depth req's, clean out every 100', Sch 40 pipe)

- Septic tank and risers (water tight, insulated, proper depth, existing verified by pumping)
mfg _____ 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, insulated, proper depth, drainback)
mfg _____ 500 gallons

- dose pump _____ 27 gpm 15 head VERIFY PUMP CURVE 4.4 min ON 9 hr OFF

- float setting drop 10.3 inches at 11.6 gpi "DESIGNED" 6.2 inches approx float tether length
120.0 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
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 24 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)

- Absorption Sand beyond rock 12.0 upslope 12.0 downslope

- Bermed topsoil beyond rockbed 16 upslope 16 sideslope 16 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

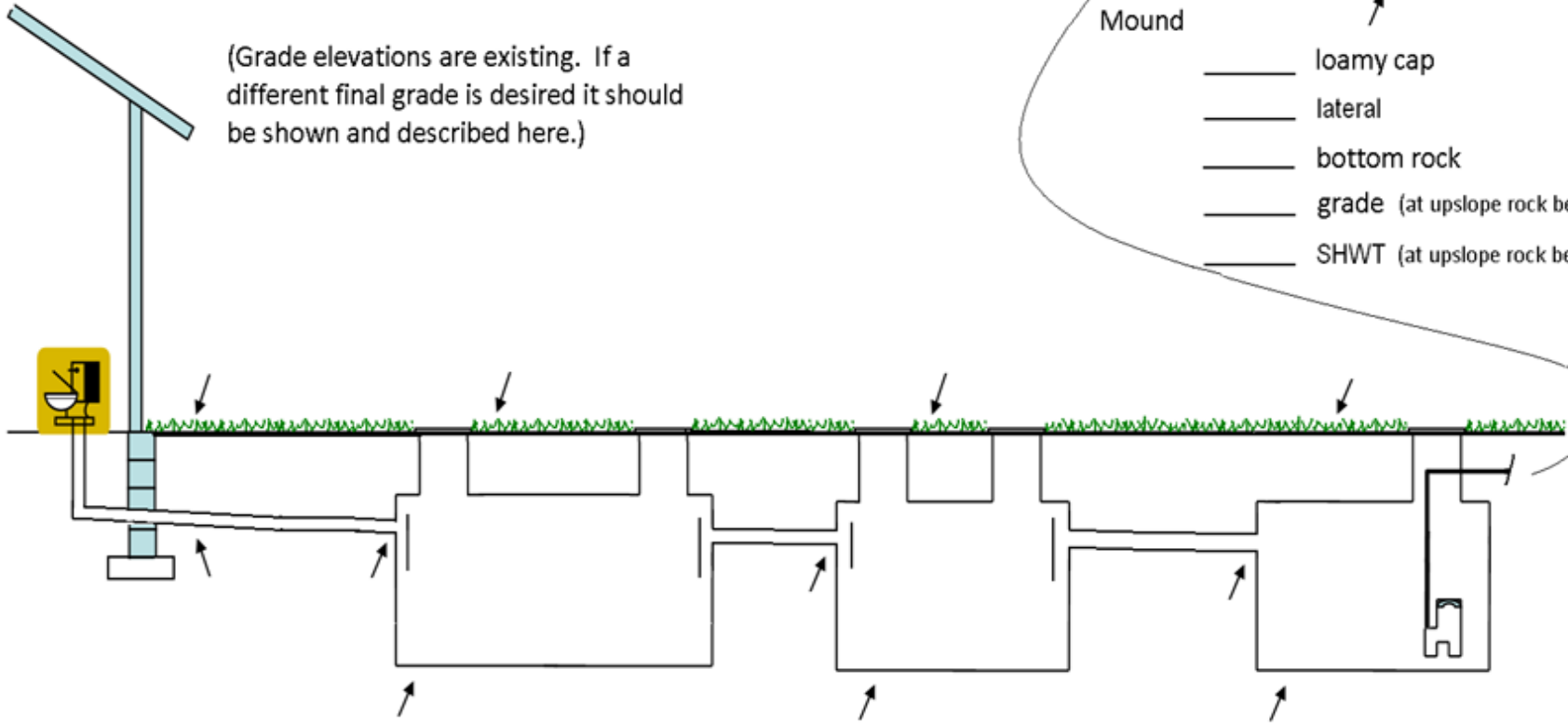
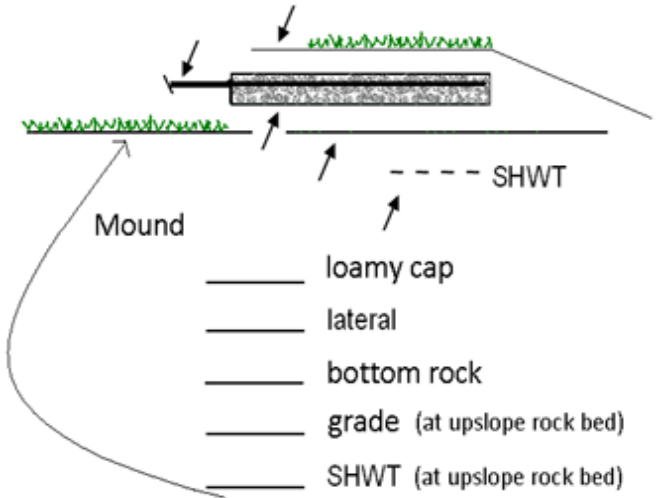
- Air inlet at end of laterals, and at top feed manifold if necessary. VERIFY
- clean outs (no hard 90's)
- 4" inspection pipe to bottom of rock, anchored VERIFY

- Abandon existing system - if necessary Re-use existing tank certification
- monitoring plan and type _____
- well abandonment form - if necessary

System Elevations

_____ benchmark _____

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



Sewer pipe exiting house

_____ Grade

_____ Pipe

Septic Tank

_____ Grade

_____ inlet

_____ Tank bottom

Septic Tank (if applicable)

_____ Grade

_____ inlet

_____ Tank bottom

Pump Tank

_____ Grade

_____ inlet

_____ Tank bottom

Soil Observation Log

www.SepticResource.com vers 12.4

Owner Information

Property Owner / project: Sandy Schleh Date 8/16/2021
 Property Address / PID: 20075 St. Hwy. 200 Jacobson, Mn 55

Soil Survey Information

refer to attached soil survey

Parent matl's: Till Outwash Lacustrine Alluvium Organic Bedrock
 landscape position: Summit Shoulder Side slope Toe slope
 soil survey map units: _____ slope 0 % direction- downhill

Soil Log #1

Boring Pit Elevation _____ Depth to SHWT _____

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
		<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
		<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
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

Comments:

20075 St. Hwy. 200 Jacobson, Mn 55752

Soil Log #2

		<input type="checkbox"/> Boring	<input type="checkbox"/> Pit	Elevation _____		Depth to SHWT _____	
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
		<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
		<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
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

20075 St. Hwy. 200 Jacobson, Mn 55752

Soil Log #3

		<input type="checkbox"/> Boring	<input type="checkbox"/> Pit	Elevation _____		Depth to SHWT _____	
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
		<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
		<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
		<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.

Kris A. Prestidge

 Designer Signature

Kris Prestidge

 Company

L3223

 License #

20075 St. Hwy. 200 Jacobson, Mn 55752

Soil Log #4

		<input type="checkbox"/> Boring	<input type="checkbox"/> Pit	Elevation _____		Depth to SHWT _____	
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
		<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
		<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
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

20075 St. Hwy. 200 Jacobson, Mn 55752

Soil Log #5

		<input type="checkbox"/> Boring	<input type="checkbox"/> Pit	Elevation _____		Depth to SHWT _____	
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
		<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
		<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
		<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.

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 Designer Signature

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 Company

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 License #

Preliminary & Field Evaluation Form

www.SepticResource.com vers 12.4

Owner Information

Date 8/16/2021 Sec / Twp / Rng _____
 Parcel ID 02-0015-600 LUG (county, city, township) _____
 Property Owner: Sandy Schleh Owners address (if different) _____
 Property Address: 20075 St. Hwy. 200 Jacobson, Mn 55754 _____
 City / State / Zip: _____

Flow Information and Waste Type / Strength

Estimated Design flow 450 Anticipated Waste strength Hi Strength Domestic
 Comments: Any Non-Domestic Waste Yes (class V) No
 Sewage ejector/grinder pump Yes No
 Water softener Yes No
 Garbage Disposal Yes No
 Daycare / In home business Yes No

Site Information

Existing & proposed lot improvements located (see site map) Yes No Well casing depth _____
 Easements on lot located (see site map) Yes No Drainfield w/in 100' of residential well Yes No
 Property lines determined (see site map) Yes No Site w/in 200' of transient noncommunity water supply (TNCWS) Yes No
 Req'd setbacks determined (see site map) Yes No Site w/in an inner wellhead mgmt zone (CWS/NTNCWS) Yes No
 Utilities located & identified (gopher state one call) Yes No Buried water supply pipe w/in 50' of system Yes No
 Access for system maintenance (shown on site map) Yes No Site located in Shoreland (w/in 1000' of lake, 300' of river) Yes No
 Soil treatment area protected Yes No Site map prepared with previous items included Yes No

Construction related issues _____

Soil Information

		Evidence of site:	
		Cut	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Filled	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Compacted	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Disturbed	<input type="checkbox"/> Yes <input type="checkbox"/> No
Original soils	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Soil logs completed and attached	<input type="checkbox"/> Yes <input type="checkbox"/> No	Perk test completed and attached (if applicable)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Soil loading rate (gpd/ft ²)	<u>1.20</u>	Percolation rate (if applicable)	_____
Depth/elev to SHWT	<u>12.00</u>	Flooding or run-on potential (comments)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Depth to system bottom maximum (or elev minimum)	<u>-24.00</u>	Flood elevation (if applicable)	_____
Depth/elev to standing water (if applicable)	_____	Elevation of ordinary high water level (if applicable)	_____
Depth/elev to bedrock (if applicable)	_____	Floodplain designation and elev - 100 yr/10 yr (if applicable)	_____
Soil Survey information determined (see attachment)	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Differences between soil survey and field evaluation (if applicable)	_____ _____		

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

Kris A. Prestidge
Designer Signature

Kris Prestidge
Company

L3223
License #

Percolation Data Sheet

1. Contact Information

Property Owner:
 Site Address:

2. General Percolation Information

Diameter in Date prepared and/or soaked:
 Method of scratching sidewall:
 Is pre-soak required*? * *Not required in sandy soils*
 Soak* start time: Soak* end time: hrs of soak
 Method to maintain 12 in of water during soak

3. Percolation Test Data

Test hole: #1 Location:
 Date reading taken: Elevation:
 Starting time: Depth**: inches

Soil texture description:

Depth (in)	Soil Texture

*** 12 inches for mounds & at-grades,
 depth of absorption area for trenches &
 beds*

Reading	Start Time	End Time	Start Reading (in)	End Reading (in)	Perc rate (mpi)	% Difference Last 3 Rates	Pass
1						NA	NA
2						NA	NA
3							

Chosen Percolation Rate for Test Hole #1 mpi

Additional percolation test data may be included on attached pages
 Design Percolation Rate (maximum of all tests) =

mpi

Additional Percolation Data

Percolation Test Data

Test hole: #2 Location:

Date reading taken: Elevation:

Starting time: Depth**: inches

Soil texture description:

Depth (in)	Soil Texture

*** 12 in. for mounds & at-grades, depth of absorption area for trenches and beds*

Reading	Start Time	End Time	Start Reading (in)	End Reading (in)	Perc rate (mpi)	% Difference Last 3 Rates	Pass
1						NA	NA
2						NA	NA
3							

Chosen Percolation Rate for Test Hole #2 mpi

Percolation Test Data

Test hole: #3 Location:

Date reading taken: Elevation:

Starting time: Depth**: inches

Soil texture description:

Depth (in)	Soil Texture

*** 12 in. for mounds & at-grades, depth of absorption area for trenches and beds*

Reading	Start Time	End Time	Start Reading (in)	End Reading (in)	Perc rate (mpi)	% Difference Last 3 Rates	Pass
1						NA	NA
2						NA	NA
3							

Chosen Percolation Rate for Test Hole #3 mpi

Additional Percolation Data

Percolation Test Data

Test hole: #4 Location:

Date reading taken: Elevation:

Starting time: Depth**: inches

Soil texture description:

Depth (in)	Soil Texture

*** 12 in. for mounds & at-grades, depth of absorption area for trenches and beds*

Reading	Start Time	End Time	Start Reading (in)	End Reading (in)	Perc rate (mpi)	% Difference Last 3 Rates	Pass
1						NA	NA
2						NA	NA
3							

Chosen Percolation Rate for Test Hole #4 mpi

Percolation Test Data

Test hole: #5 Location:

Date reading taken: Elevation:

Starting time: Depth**: inches

Soil texture description:

Depth (in)	Soil Texture

*** 12 in. for mounds & at-grades, depth of absorption area for trenches and beds*

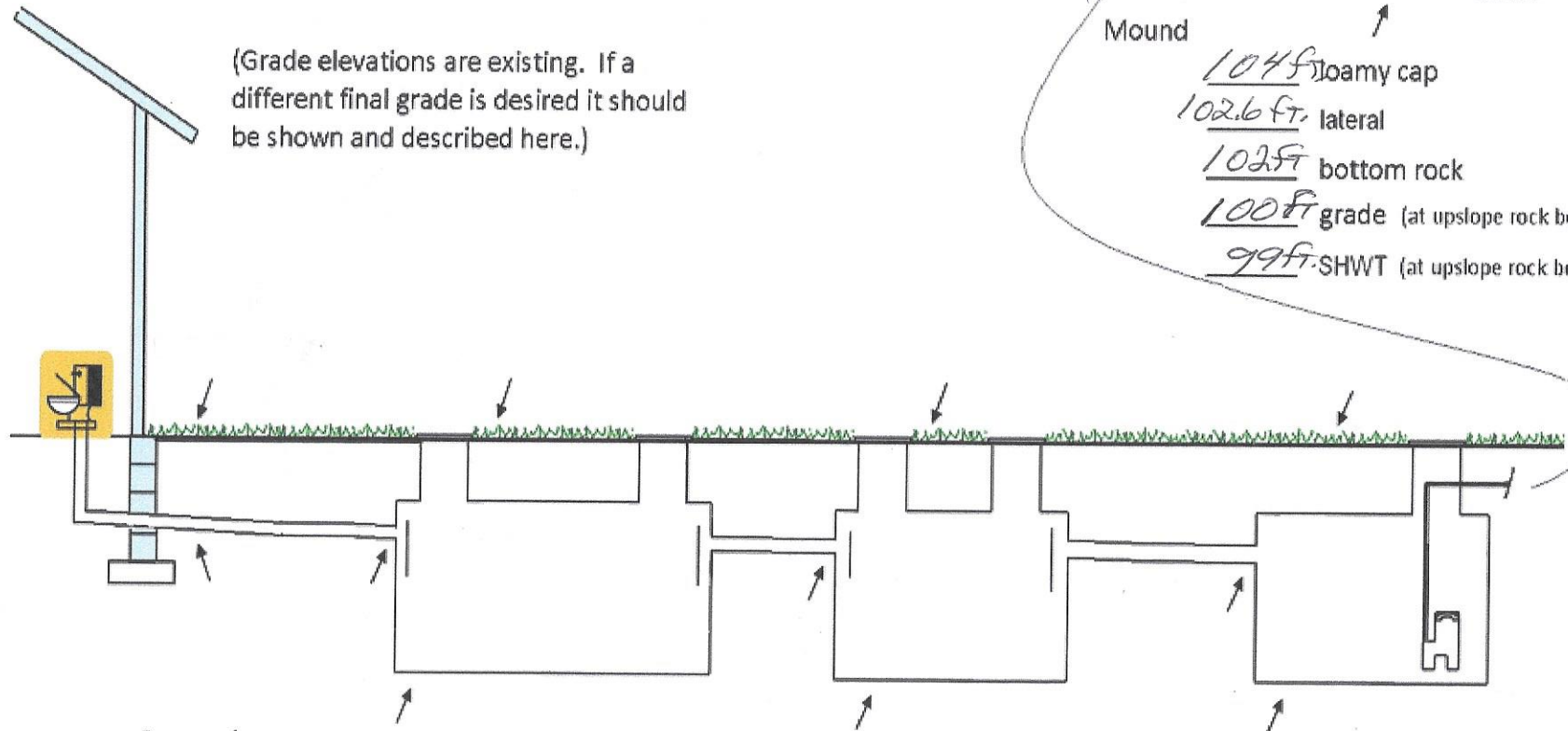
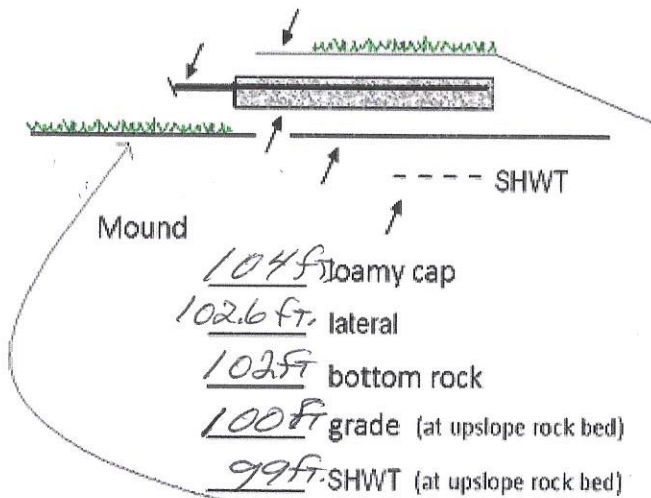
Reading	Start Time	End Time	Start Reading (in)	End Reading (in)	Perc rate (mpi)	% Difference Last 3 Rates	Pass
1						NA	NA
2						NA	NA
3							

Chosen Percolation Rate for Test Hole #5 mpi

System Elevations

100ft benchmark Soil boring #2

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



Sewer pipe exiting house

100 Grade

? Pipe

Septic Tank

100 Grade

97.5 inlet

93.5ft Tank bottom

Septic Tank (if applicable)

~~100~~ Grade

_____ inlet

_____ Tank bottom

Pump Tank

100 Grade

97ft inlet

93ft Tank bottom



Soil Observation Log

Project ID:

v 04.01.2021

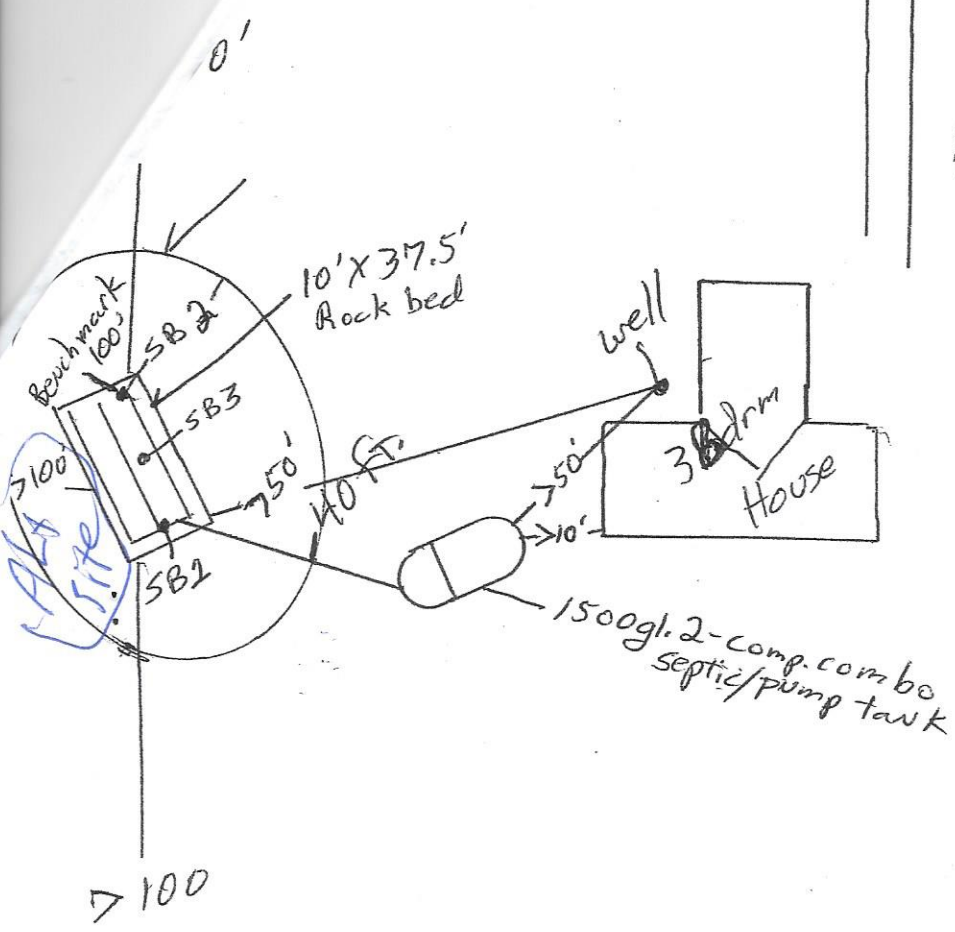
Client:				Location / Address:					
Soil parent material(s): (Check all that apply)				<input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter					
Landscape Position: (select one)			Slope %:	Slope shape		Elevation-relative to benchmark:			
Vegetation:		Soil survey map units:				Limiting Layer Elevation:			
Weather Conditions/Time of Day:					Date				
Observation #/Location:					Observation Type:				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure		
							Shape	Grade	Consistence
0-3	Silt loam		10YR 7/1				Blocky	weak	Loose
3-12	Loamy sand		10YR 6/4				Blocky	weak	Loose
12--	Clay loam		10YR 4/4				Blocky	weak	Loose
3-Soil Borings			Same						
Alt. site			Same soils						

Comments

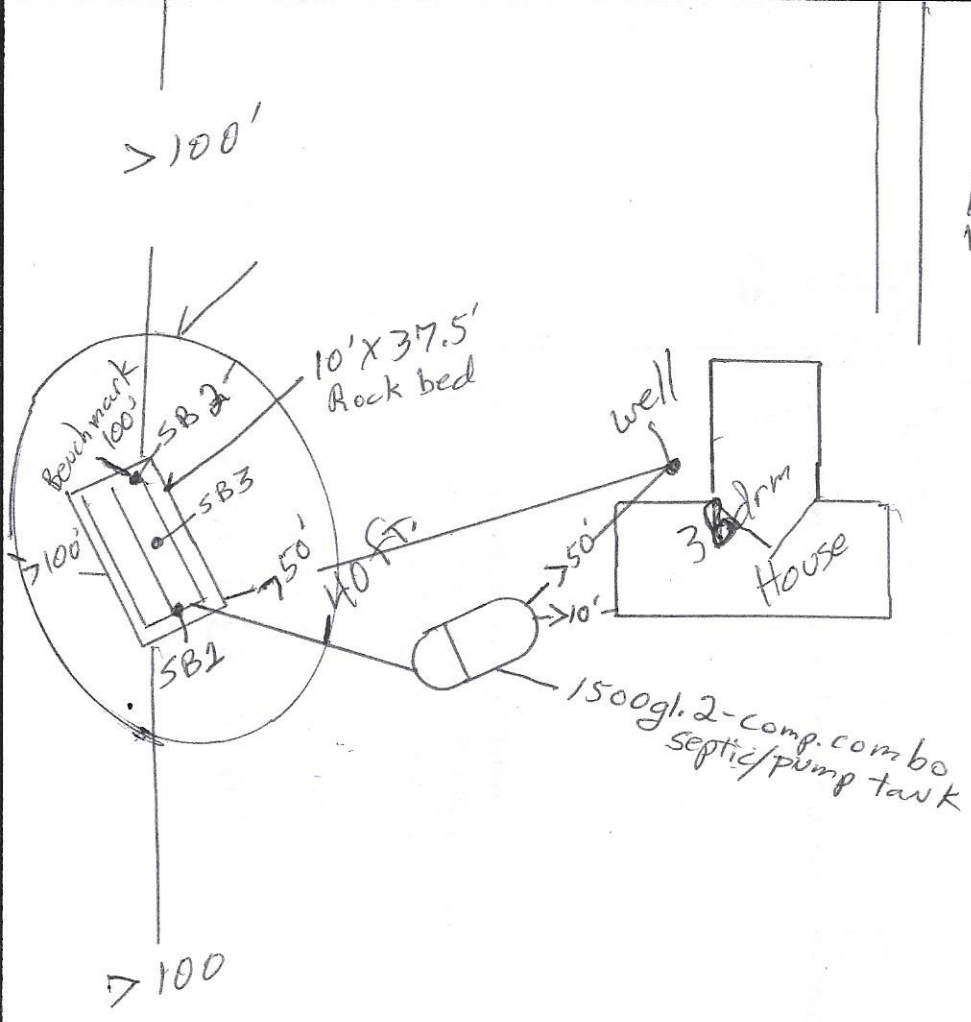
I certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

_____ Kris a. Prestidge L3223
 (Signature) (Signature) (License #) (Date)

↑
measures
approx



↑
measures
approx





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

Property Address

Property ID

System Designer

Phone

System Installer

Phone

Service Provider/Maintainer

Phone

Permitting Authority

Phone

Permit #

Date Inspected

Keep this Management Plan with your *Septic System Owner's Guide*. The *Septic System Owner's Guide* includes a folder designed 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.

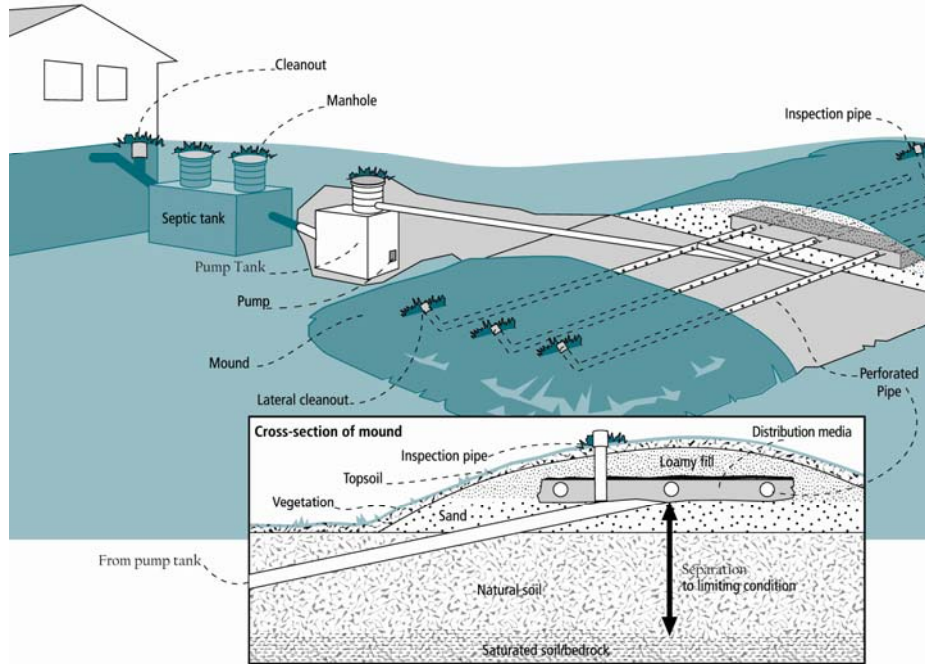
For a copy of the *Septic System Owner's Guide*, call 1-800-876-8636 or go to <http://shop.extension.umn.edu/>

<http://septic.umn.edu>

Version 11/03/2010



Your Septic System



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

Dwelling Type	Well Construction
Number of bedrooms: _____ System capacity/ design flow (gpd): _____ Anticipated average daily flow (gpd): _____ Comments _____ Business? ____ What type? _____	Well depth (ft): _____ <input type="checkbox"/> Cased well Casing depth: _____ <input type="checkbox"/> Other (specify): _____ Distance from septic (ft): _____ Is the well on the design drawing? Y N

Septic Tank	
<input type="checkbox"/> One tank Tank volume: _____ gallons Does tank have two compartments? Y N <input type="checkbox"/> Two tanks Tank volume: _____ gallons <input type="checkbox"/> Tank is constructed of _____ <input type="checkbox"/> Effluent Screen type: _____	<input type="checkbox"/> Pump Tank _____ gallons <input type="checkbox"/> Effluent Pump make/model: _____ Pump capacity _____ GPM TDH _____ Feet of head <input type="checkbox"/> Alarm location _____

Soil Treatment Area (STA)	
Mound/At-Grade area (width x length): ___ ft x ___ ft Rock bed size (width x length): ___ ft x ___ ft Location of additional STA: _____	<input type="checkbox"/> Cleanouts or inspection ports <input type="checkbox"/> Surface water diversions <input type="checkbox"/> Additional STA not available



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.

System Designer: check every _____ months

Local Government: check every _____ months

State Requirement: check every 36 months

<p>My tank needs to be checked every _____ months</p>

Seasonally or several times per year

- *Leaks.* Check (listen, look) for leaks in toilets and dripping faucets. Repair leaks promptly.
- *Surfacing sewage.* 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, call your service professional. *Untreated sewage may make humans and animals sick.*
- *Alarms.* Alarms signal when there is a problem; contact your maintainer any time the alarm signals.
- *Lint filter.* If you have a lint filter, check for lint buildup and clean when necessary. Consider adding one after washing machine.
- *Effluent screen.* If you do not have one, consider having one added the next time the tank is cleaned.

Annually

- *Water usage rate.* A water meter 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.
- *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 services the tank through the manhole. (NOT through a 4" or 6" diameter inspection port.)
- 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 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 drainfield.)
- *Inspection pipes.* Replace damaged 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 operating properly.
- *Event counter or run time.* Check to see if there is an event counter or run time log for the pump. If there is one, calculate the water usage rate and compare to the anticipated average daily flow listed on Page 2.

Soil Treatment Area

- *Inspection pipes.* Check to make sure they are properly capped. Replace caps that are damaged.
- *Surfacing of effluent.* Check for surfaced effluent or other signs of problems.
- *Lateral flushing.* Check lateral distribution; if cleanouts exist, flush and clean as needed.
- *Ponding.* Check for ponding. Excessive ponding in at-grade and mound beds indicates problems.

All other components – inspect 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 a liquid or easily biodegradable detergents. • Install a lint filter after the washer and an effluent screen on your tank. • Wash only full loads. • Limit use of bleach-based detergents. • Think even – spread your laundry loads throughout the week.
2 nd floor laundry	<ul style="list-style-type: none"> • The rapid speed of water entering the tank may reduce performance. 	<ul style="list-style-type: none"> • Install an effluent screen in the septic tank to prevent the release of excessive solids to the soil treatment area. • Be sure that you have adequate tank capacity.
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 into a sump pump or directly out of the house. Do not route furnace recharge 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 likely overload the 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



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										
Check annually:										
Water usage rate (monitor frequency_____)										
Caps: inspect, replace if needed										
Water use appliances – review use										
Other:										

Notes: _____

Mitigation/corrective action plan: _____

"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: _____ Certification # _____

Permitting Authority: _____