

Preliminary & Field Evaluation Form

www.SepticResource.com vers 12.4

Owner Information			
Date	<u>5/25/2021</u>	Sec / Twp / Rng	<u>S.24 T.49 R.22</u>
Parcel ID	<u>10-0-040100</u>	LUG (county, city, township)	<u>Aitkin County</u>
Property Owner:	<u>Bruce Senske</u>	Owners address (if different)	
Property Address:	<u>10818 480th St.</u>	<u>20699 695th Ave. S.</u>	
City / State / Zip:	<u>Tamarack, MN. 55787</u>	<u>Darwin, MN. 55324</u>	

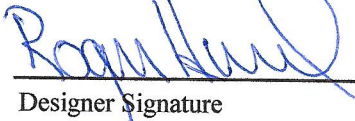
Flow Information and Waste Type / Strength			
Estimated Design flow	<u>300</u>	Anticipated Waste strength	<input type="checkbox"/> Hi Strength <input checked="" type="checkbox"/> Domestic
Comments:		Any Non-Domestic Waste	<input type="checkbox"/> Yes (class V) <input checked="" type="checkbox"/> No
		Sewage ejector/grinder pump	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Water softener	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Garbage Disposal	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Daycare / In home business	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

Soil Information

		Evidence of site:	
		Cut	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Filled	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Compacted	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Disturbed	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Original soils	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Soil logs completed and attached	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Perk test completed and attached (if applicable)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Soil loading rate (gpd/ft ²)	<u>0.78</u>	Percolation rate (if applicable)	_____
Depth/elev to SHWT	<u>25.00</u>	Flooding or run-on potential (comments)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Depth to system bottom maximum (or elev minimum)	<u>-12.00</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 checked="" 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.



 Designer Signature

R.H. Inspection & Design

 Company

3847

 License #

Mound Design - Aitkin county

Property Owner: Bruce Senske

Date: 5/25/2021

Site Address: 10818 480th St.

PID: 10-0-040100

Comments: _____

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

- 1) 2 bedroom Type I Residential System
- 2) 300 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: Effluent filter & alarm req'd
- 5) 1.2 GPD/ft² mound sand loading rate contour loading rate of 12 req's a min 25 ft. long rockbed
- 6) 10.0 ft rockbed width 25.0 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 23.0 feet long 8.0 perfs / lateral 24 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 = 16, line #8 must be less --> OK
- 10) 4.0 doses per day (4 minimum)
- 11) 75 gallons per dose (treatment volume) 2.00 5x
- 12) 1.50 inch diameter laterals must be used to meet "4x pipe volume" requirement 2.00 3x
- 13) 30 feet of 2.0 inch supply line leads to 5 gallons of drainback volume
 (Tip: "top feed" manifold to control the drainback)
- 14) 80 gallons TOTAL pump out volume (treatment + drainback)
- 15) 8 feet vertical lift from pump to mound laterals, leads to a:
- 16) 18 GPM @ 14 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 14.00 gpi
 leads to a
- 18) 5.7 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) 18 inches from bottom of tank to "Pump ON" float, or 12 inches to "Timer ON" float if time dosed
- 21) 21 inches from bottom of tank to "Hi Level" float, or 31 inches to "Hi Level" float if time dosed
- 22) 206 gallons reserve capacity (after High Level Alarm is activated)

23) 0.78 gpd/ft² Absorption area Soil Loading Rate, which gives a mound ratio of 1.5 (minimum)
 (this must match the soil boring log) desired mound ratio 1.5

24) 2 percent site slope (0-20% range) 2 (% downslope site slope, if different than upslope)

25) 25 inches, or 2.1 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) 12 inch, or 1.0 ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**

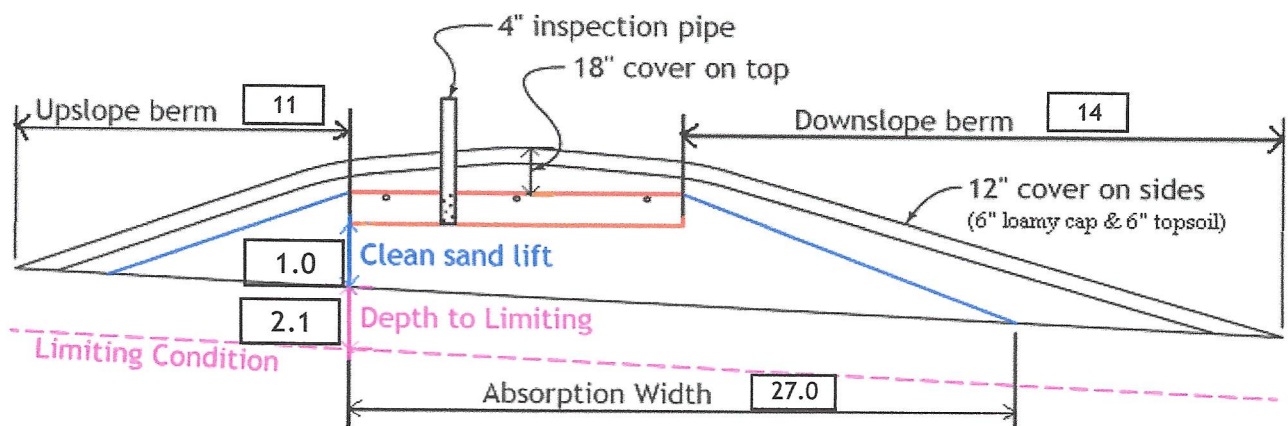
27) 15.0 ft. base absorption width (with sand beyond rockbed as follows):

28) 27.0 greater of: absorption width OR sand slope
 0.0 ft. upslope and sideslope sand upslope 7.4
 5.0 ft. Downslope sand down slope 9.6

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

29) 4:1 upslope ratio 11 ft. upslope berm
 30) 4:1 sideslope 13 ft. sideslope berms
 31) 4:1 downslope 14 ft. downslope berm

32) Overall Dimensions: 10.0 ft. wide by 25.0 ft. long Rock bed
 35 ft. wide by 51 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 25.0 ft. by 6 inches under pipe, plus 20% gives 9 yd³ or *1.4= 13 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)
 11.8 up + 16.8 downslope + 7.2 ends + 10.2 under rock = 55 yd³ or *1.4= 77 ton plus 20%

35) Loamy Cap: 31 ft. by 47 ft. 6" deep, plus 20% gives 33 yd³ or *1.4= 46 ton

36) Topsoil: 35 ft. by 51 ft. 6" deep, plus 20% gives 40 yd³ or *1.4= 56 ton

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

Designer Signature

R.H. Inspection & Design
 Company

3847
 License#

5/25/2021
 Date

Installer Summary

1000 gallon Septic tank (minimum)

Tank options: Effluent filter & alarm req'd

500 gallon Dose tank (minimum)

at 14.00 gpi

18 GPM @ 14 ft. of head, Pump required

5.7 inch swing on Demand float which translates to roughly 3.9 inches of float tether length
if time dosing is required --> 4.4 minutes ON time & 9 hours OFF time

18 inches from bottom of tank to "pump ON" float, or 12 inches to "timer ON" float

21 inches from bottom of tank to "Hi Level Alarm" or 31 inches to "Hi level alarm" if time dosed

30 ft. of 2.0 inch supply line with end feed manifold connection

(Tip: "top feed" manifold to control drainback)

12 inch, or 1.0 ft. Sand Lift Mound

10.0 ft. wide by 25.0 ft. long Rock bed

3 laterals 1.50 inch diameter 23.0 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)

7.4 ft. upslope and sideslope (sand beyond rockbed, minimum)

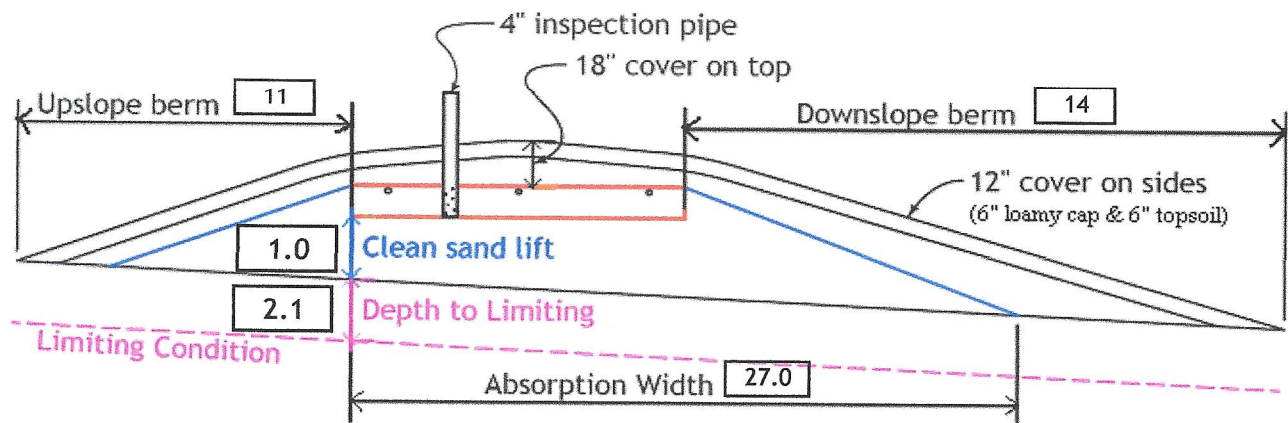
9.6 ft. Downslope (sand beyond rockbed, minimum)

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

4:1 upslope ratio 11 ft. upslope berm

4:1 sideslope 13 ft. sideslope berms

4:1 downslope 14 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:	9.0 yd ³ or *1.4=	13 ton	6 inches under pipe
Mound Sand:	55 yd ³ or *1.4=	77 ton	calculation based on 3:1/4:1 slope from top of rockbed
Loamy Cap:	33 yd ³ or *1.4=	46 ton	6" deep
Topsoil:	40 yd ³ or *1.4=	56 ton	6" deep

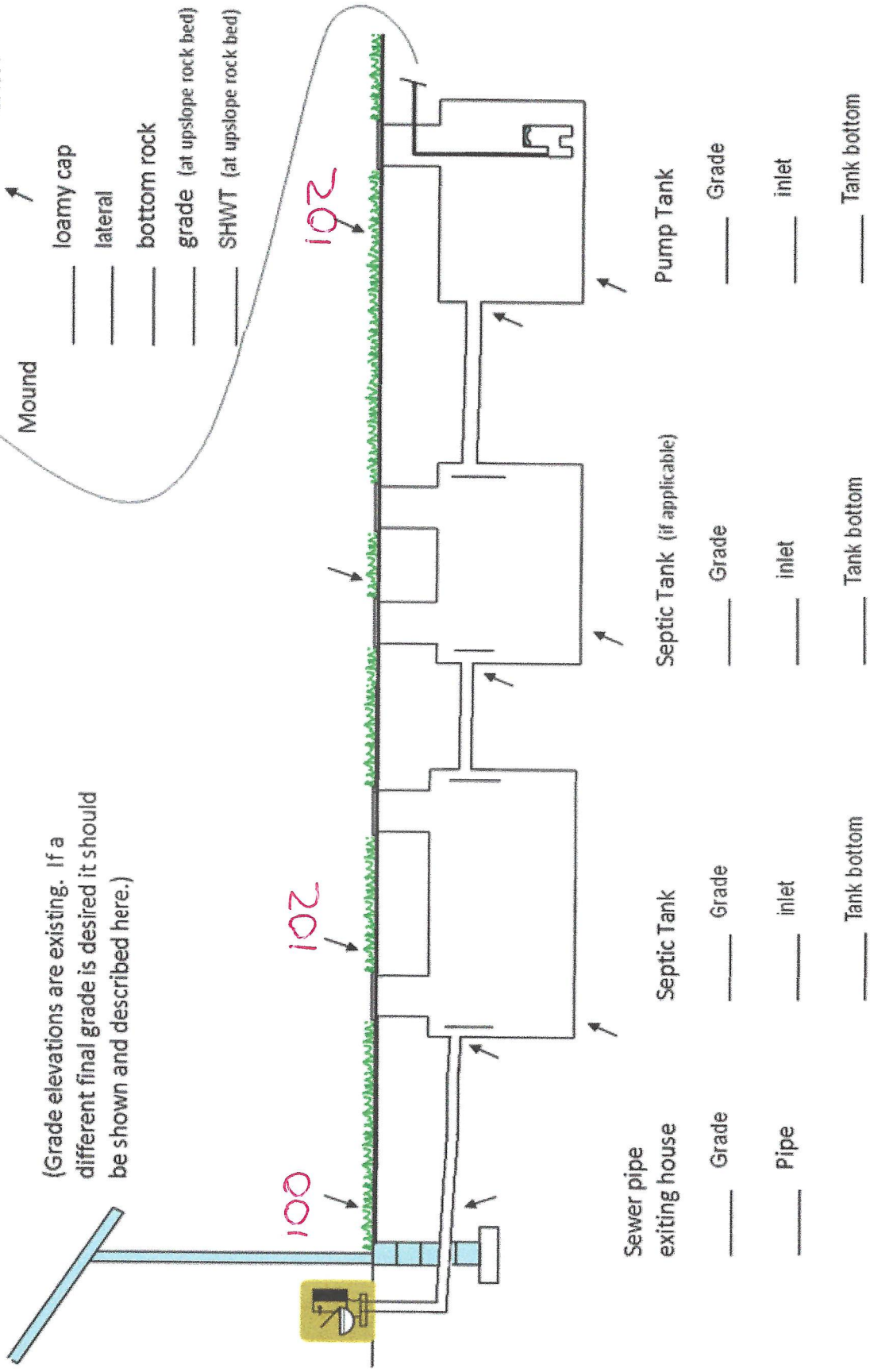
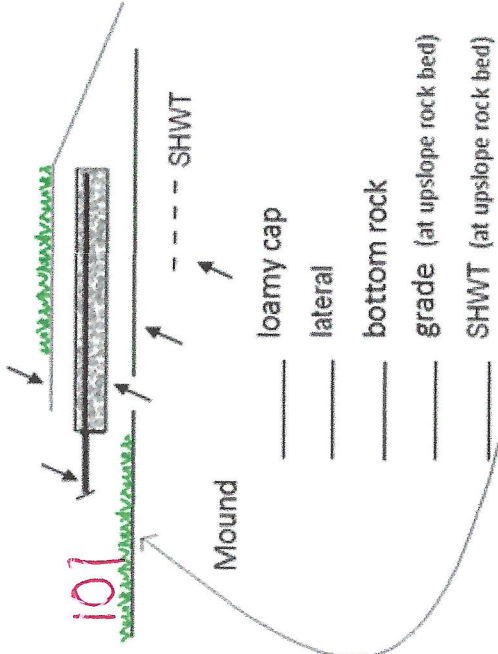
INSPECTOR CHECKLIST - mound

- 10818 480th St.
- 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 set 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 Effluent filter & alarm req'd
- 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 _____ 18 gpm 14 head VERIFY PUMP CURVE 4.4 min ON 9 hr OFF
- float setting drop 5.7 inches at 14.0 gpi "DESIGNED" 3.9 inches approx float tether length
80.0 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 25.0
Sand lift depth 12 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)
- Absorption Sand beyond rock 7.4 upslope 9.6 downslope
- Bermed topsoil beyond rockbed 11 upslope 13 sideslope 14 downslope
- cover depth of 12-18"+ VERIFY
3 laterals (1-2' from edge of rock)
1.50 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 _____

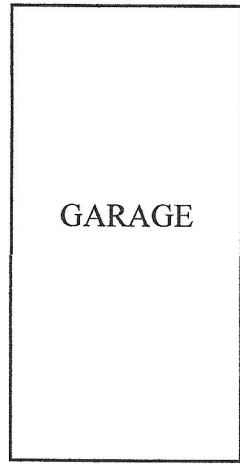
System Elevations

_____ benchmark _____

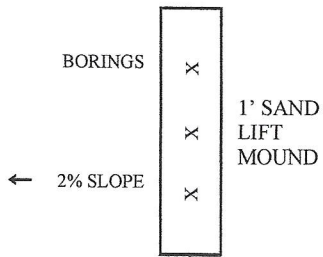
(Grade elevations are existing. If a different final grade is desired it should be shown and described here.)



10818 480TH ST.
TAMARACK, MN. 55787

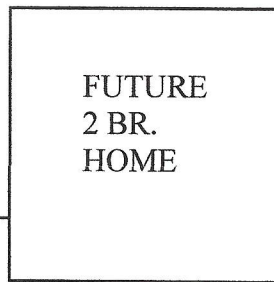


2 ND.
SITE
AREA



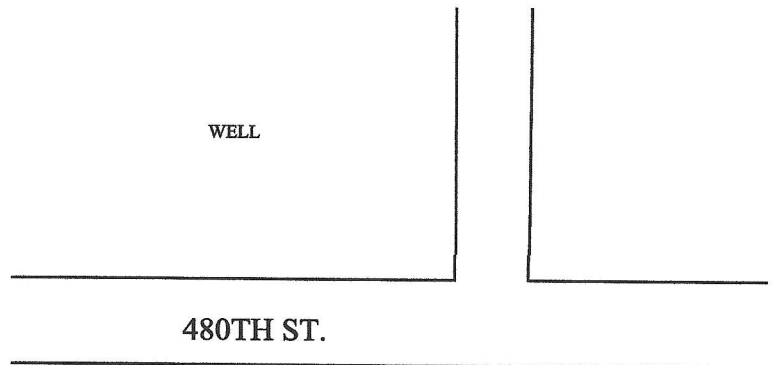
COMBO
TANK

40'



WELL

480TH ST.



Soil Observation Log

www.SepticResource.com vers 12.4

Owner Information

Property Owner / project: Bruce Senske Date 5/25/2021
 Property Address / PID: 10818 480th St.

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 2 % direction- downhill

Soil Log #1

Boring Pit

Elevation _____

Depth to SHWT 25"

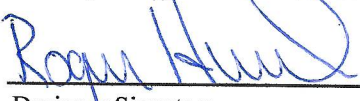
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Topsoil	<35	5YR3/3		Friable	Weak	Blocky
8-25	Loamy Sand	<35	7.5YR4/4	2.5YR4/6	Friable	Weak	Granular
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<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: Mottles at 25"

10818 480th St. Soil Log #2							
<input checked="" type="checkbox"/> Boring		<input type="checkbox"/> Pit		Elevation _____		Depth to SHWT <u>25"</u>	
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Topsoil	<35	5YR3/3		Friable	Weak	Blocky
8-25	Loamy Sand	<35	7.5YR4/4	2.5YR4/6	Friable	Weak	Granular
		<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

10818 480th St. Soil Log #3							
<input checked="" type="checkbox"/> Boring		<input type="checkbox"/> Pit		Elevation _____		Depth to SHWT <u>25"</u>	
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Topsoil	<35	5YR3/3		Friable	Weak	Blocky
8-25	Loamy Sand	<35	7.5YR4/4	2.5YR4/6	Friable	Weak	Granular
		<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.



 Designer Signature

R.H. Inspection & Design

 Company

3847

 License #