Preliminary & Field Evaluation Form

www.SepticResource.com vers 12.4

Owner Information

Date	5/6/2022	Sec / Twp / Rng	S.18 T.49 R.23
Parcel ID	29-0-039000	LUG (county, city, township)	
Property Owner:	Mike McMahon	Owners address (if different)	
Property Address:	21720 497th Ln.		
City / State / Zip:	McGregor, MN. 55760		

Flow Information and Waste Type / Strength

Estimated Design flow: 750

Comments:

Anticipated Waste strength	☐ Hi Strength	☑ Domestic
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	☐ Yes	☑ No
Filled	☐ Yes	☑ No
Compacted	☐ Yes	☑ No
Disturbed	☐ Yes	☑ No

Original soils ☑ Yes ☐ No

Soil logs completed and attached ☑ Yes ☐ No

Perk test completed and attached (if applicable) ☐ Yes ☑ No

Soil loading rate (gpd/ft^2) 1.20

Percolation rate (if applicable) _____

Depth/elev to SHWT 43.00

Flooding or run-on potential (comments) ☐ Yes ☑ No

Depth to system bottom maximum (or elev minimum) -12.00

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) _____

Soil Survey information determined (see attachment) ☐ Yes ☑ No

Floodplain designation and elev - 100 yr/10 yr (if applicable) _____

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 #

2011 purple code

Mound Design - Aitkin county

www.SepticResource.com (vers 15.2)

Property Owner: Mike McMahon **Date:** 5/6/2022

Site Address: 21720 497th Ln. **PID:** 29-0-039000

Comments:

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

1) 5 bedroom Type I Residential System

2) 750 GPD design flow

3) No Garbage disposal or pumped to septic

4) 1500 Gal Septic tank (code minimum) 2500 Gal Septic tank (design size / LUG req'd)
Tank options: Effluent filter & alarm req'd

5) 1.2 GPD/ft^2 mound sand loading rate contour loading rate of 12 req's a min 62.5 ft. long rockbed

6) 10.0 ft rockbed width 63.0 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 61.0 feet long 21.0 perfs / lateral 63 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) 188 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) 90 feet of 2.0 inch supply line leads to 15 gallons of drainback volume
(Tip: "top feed" manifold to control the drainback)

14) 203 gallons TOTAL pump out volume (treatment + drainback)

15) 8 feet vertical lift from pump to mound laterals, leads to a:

16) 47 GPM @ 20 feet of head, Pump requirement (note: >50gpm may require an extra 3-6' of head)

17) 750 gal Dose tank (code minimum) 1000 gal Dose tank (design size / LUG req'd) at 36.80 gpi
leads to a

18) 5.5 inch swing on Demand float, or timed dosing of 4.3 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) 227 gallons reserve capacity (after High Level Alarm is activated)

23) 1.20 gpd/ft² Absorption area Soil Loading Rate, (this must match the soil boring log) which gives a mound ratio of 1 (minimum) desired mound ratio 1.0

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

25) 43 inches, or 3.6 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) 10.0 ft. base absorption width (with sand beyond rockbed as follows:)

26.0 greater of: absorption width OR sand slope

28) 0.0 ft. upslope and sideslope sand upslope 8.0

0.0 ft. Downslope sand down slope 8.0

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

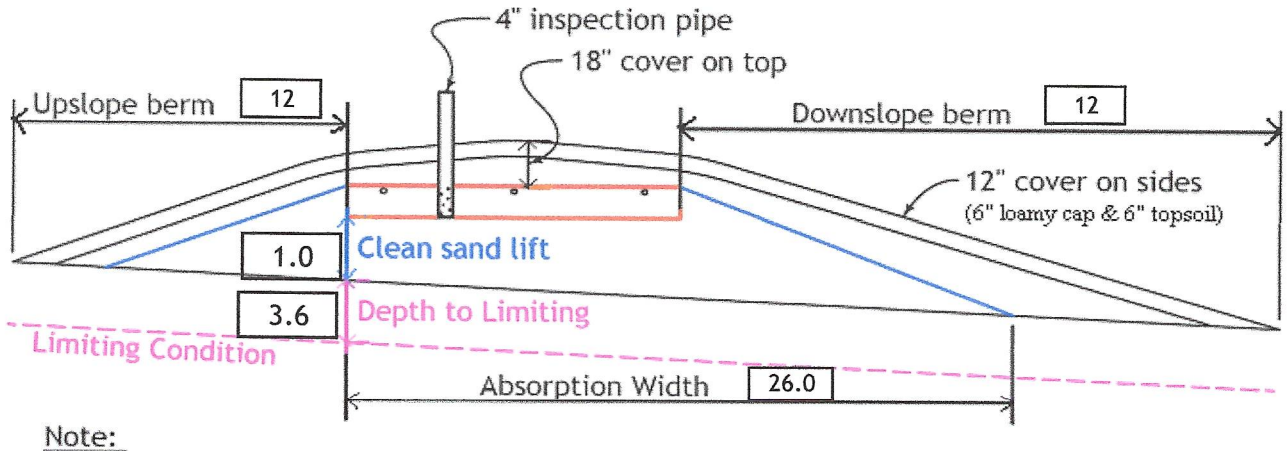
29) 4:1 upslope ratio 12 ft. upslope berm

30) 4:1 sideslope 12 ft. sideslope berms

31) 4:1 downslope 12 ft. downslope berm

32) Overall Dimensions: 10.0 ft. wide by 63.0 ft. long Rock bed

34 ft. wide by 87 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 63.0 ft. by 6 inches under pipe, plus 20% gives 21 yd³ or *1.4= 29 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)

23.4 up + 23.4 downslope + 5.9 ends + 23.3 under rock = 91 yd³ or *1.4= 128 ton
plus 20%

35) Loamy Cap:

30 ft. by 83 ft. 6" deep, plus 20% gives 56 yd³ or *1.4= 78 ton

36) Topsoil:

34 ft. by 87 ft. 6" deep, plus 20% gives 66 yd³ or *1.4= 92 ton

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

Designer Signature	Company	License#	Date
Roger Hunt	R.H. Inspection & Design	3847	5/6/2022

Installer Summary

2500 gallon Septic tank (minimum) Tank options: Effluent filter & alarm req'd

1000 gallon Dose tank (minimum) at 36.80 gpi

47 GPM @ 20 ft. of head, Pump required
5.5 inch swing on Demand float which translates to roughly 3.8 inches of float tether length
if time dosing is required --> 4.3 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

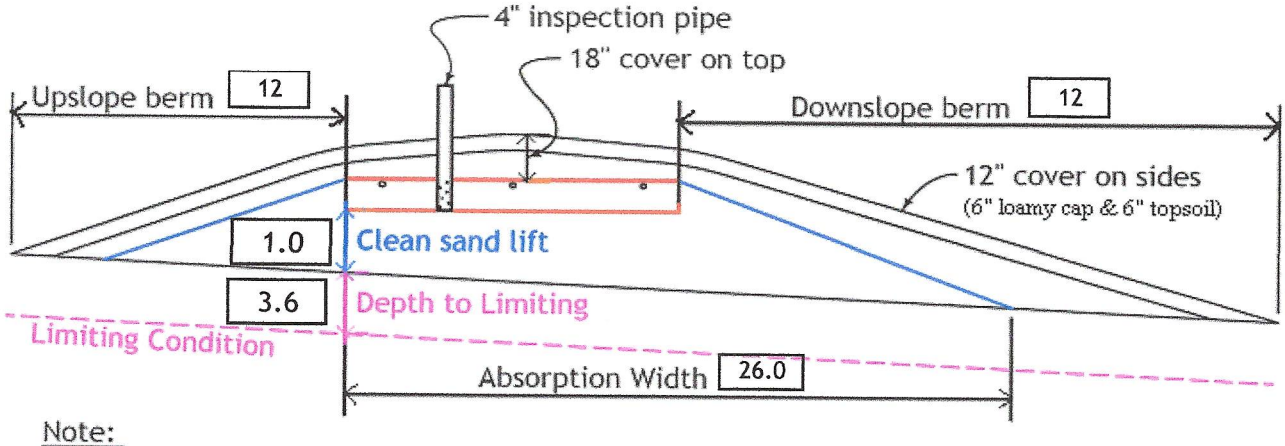
90 ft. of 2.0 inch supply line with end feed manifold connection
(Tip: "top feed" manifold to control drainback)

12 inch, or 1.0 ft. Sand Lift Mound
10.0 ft. wide by 63.0 ft. long Rock bed
3 laterals 2.00 inch diameter 61.0 ft. long 3.0 ft. lateral spacing
1/4" inch perfs 3.0 ft. perforation spacing

Yes Effluent filter & alarm
3 clean out & valve box assemblies

26.0 ft.Total sand ABSORPTION width (minimum)
8.0 ft. upslope and sideslope (sand beyond rockbed, minimum)
8.0 ft. Downslope (sand beyond rockbed, minimum)

Specific slope ratios give BERM widths (topsoil beyond rockbed) of:
4:1 upslope ratio 12 ft. upslope berm
4:1 sideslope 12 ft. sideslope berms
4:1 downslope 12 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:	21.0 yd^3 or *1.4=	29	ton	6 inches under pipe
Mound Sand:	91 yd^3 or *1.4=	128	ton	calculation based on 3:1/4:1 slope from top of rockbe
Loamy Cap:	56 yd^3 or *1.4=	78	ton	6" deep
Topsoil:	66 yd^3 or *1.4=	92	ton	6" deep

INSPECTOR CHECKLIST - mound

21720 49th Ln.

☐ 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_____ 2500 gallons Effluent filter & alarm req'd

☐ Riser over outlet, riser over inlet or center, and 6"+ inspection pipe over any remaining baffles.

☐ Yes effluent filter & alarm

☐ Dose tank risers and piping (water tight, insulated, proper depth, drainback)
mfg_____ 1000 gallons

☐ dose pump _____ 47 gpm 20 head VERIFY PUMP CURVE 4.3 min ON 9 hr OFF

☐ float setting drop 5.5 inches at 36.8 gpi "DESIGNED" 3.8 inches approx float tether length
203.0 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 63.0

☐ Sand lift depth 12 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)

☐ Absorption Sand beyond rock 8.0 upslope 8.0 downslope

☐ Bermed topsoil beyond rockbed 12 upslope 12 sideslope 12 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

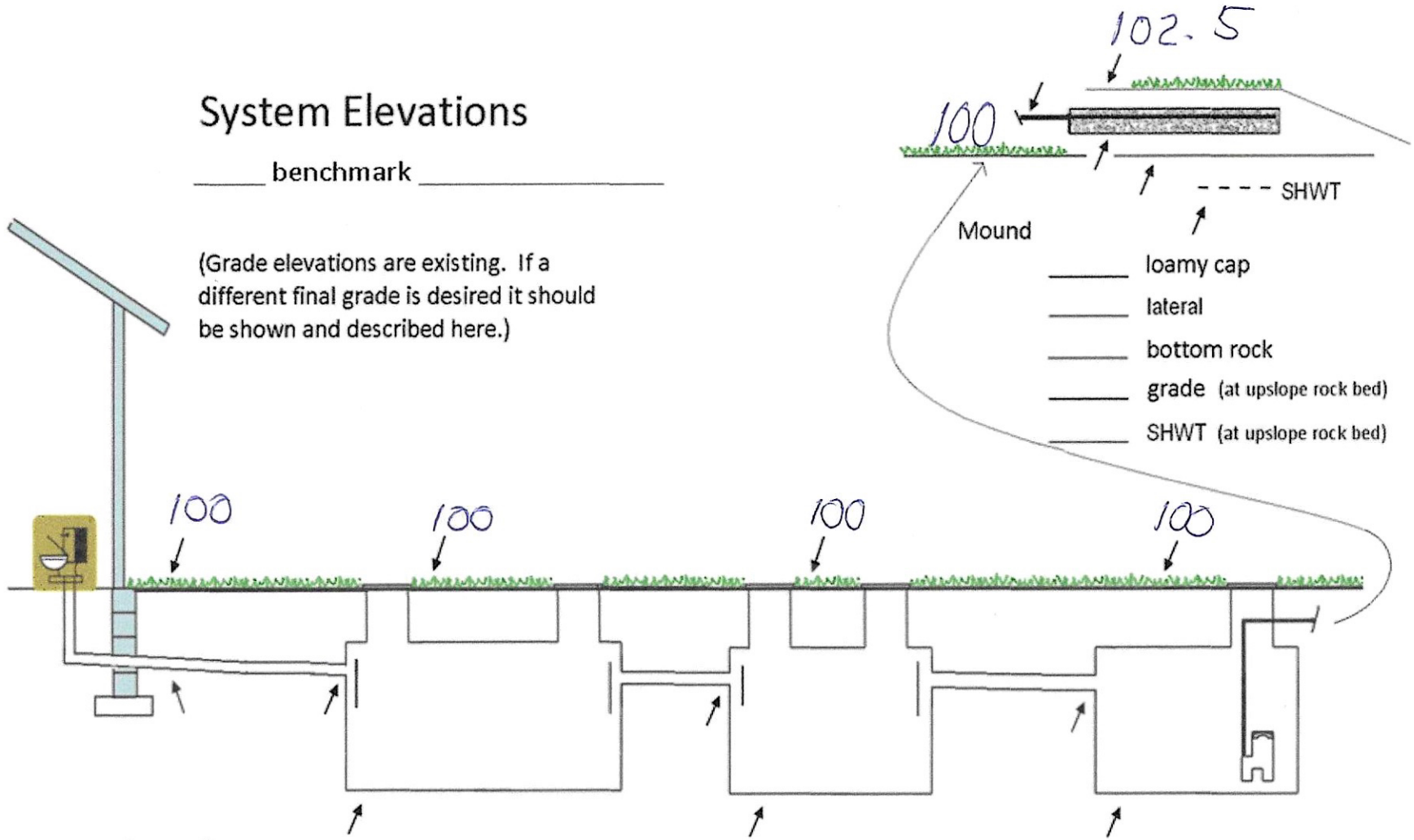
☐ monitoring plan and type _____

☐ 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.)



_____ loamy cap

_____ lateral

_____ bottom rock

_____ grade (at upslope rock bed)

_____ SHWT (at upslope rock bed)

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: Mike McMahon Date 5/6/2022

Property Address / PID: 21720 497th Ln.

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 100 Depth to SHWT 43"

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Topsoil	<35	5YR3/3		Friable	Weak	Granular
8-24	Fine sand	<35	7.5YR4/3		Loose	Loose	Single grain
24-43	Fine sand	<35	10YR4/6	5YR5/8	Loose	Loose	Single grain
		<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 43"

21720 497th Ln.

Soil Log #2

☑ Boring ☐ Pit Elevation 100 Depth to SHWT 43"

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Topsoil	<35	5YR3/3		Friable	Weak	Granular
8-24	Fine sand	<35	7.5YR4/3		Loose	Loose	Single grain
24-43	Fine sand	<35	10YR4/6	5YR5/8	Loose	Loose	Single grain
		<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

21720 497th Ln.

Soil Log #3

☑ Boring ☐ Pit Elevation 100 Depth to SHWT 43"

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Topsoil	<35	5YR3/3		Friable	Weak	Granular
8-24	Fine sand	<35	7.5YR4/3		Loose	Loose	Single grain
24-43	Fine sand	<35	10YR4/6	5YR5/8	Loose	Loose	Single grain
		<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.

Roger Hunt

Designer Signature

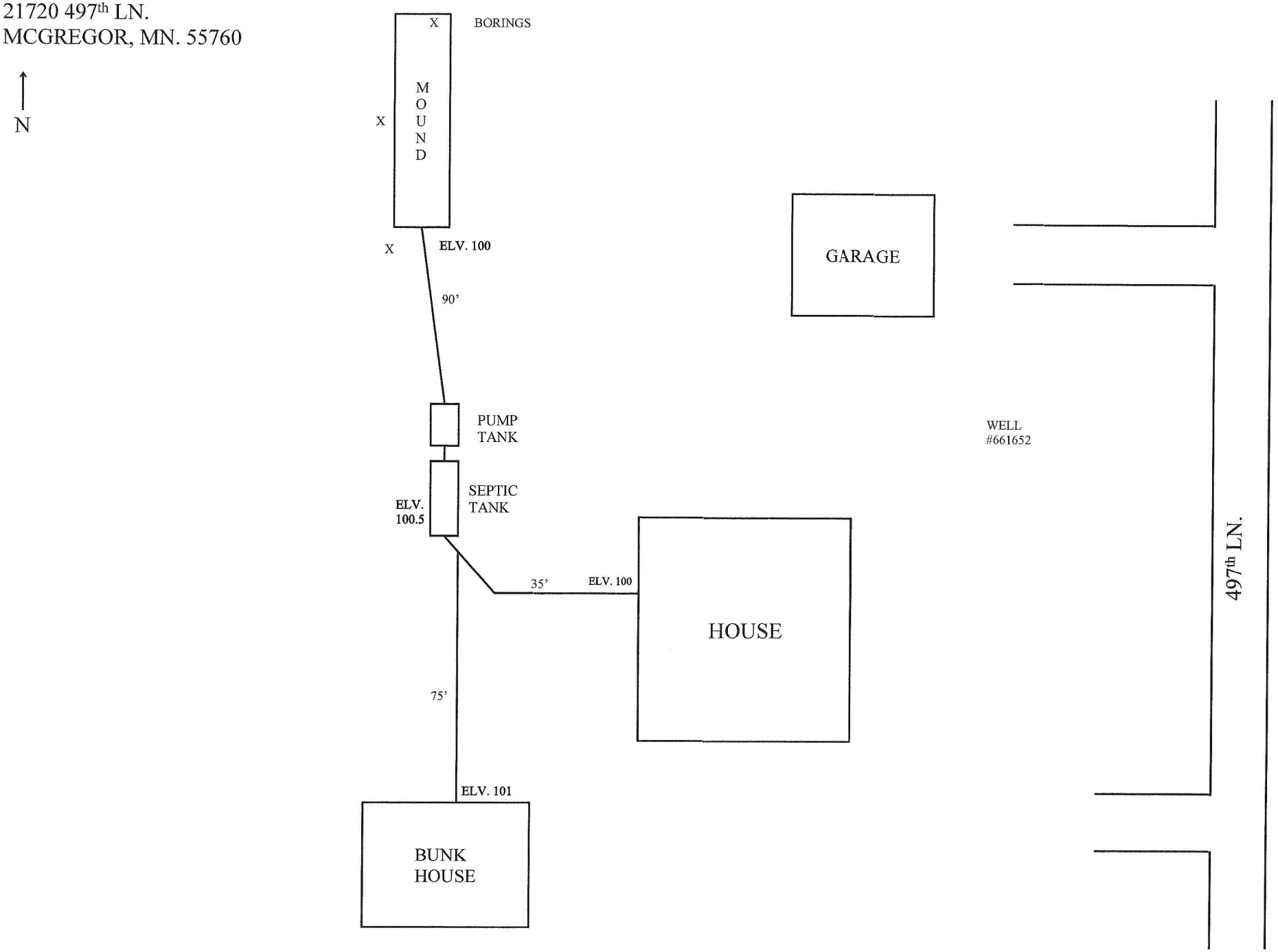
R.H. Inspection & Design

Company

3847

License #

21720 497th LN.
MCGREGOR, MN. 55760



Subsurface Sewage Treatment System Management Plan

Property Owner: _____ Phone: _____ Date: 5/6/2022

Mailing Address: _____ City: _____ Zip: _____

Site Address: 21720 497TH LN. City: McGREGOR Zip: 55760

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 service provider or maintenance provider.

System Designer: Recommends SSTS check every 36 months.
Local Government: Recommends SSTS check every 36 months.
State Requirement: Requires SSTS check every 36 months.
(State requirements are based on MN Rules Chapter 7080.2450, Subp. 2 & 3)

My System needs to be checked every 36 months.

Homeowner Management Tasks:

Leaks – Check (look, listen) for leaks in toilets and dripping faucets. Repair leaks promptly.

Surfacing sewage – Regularly check for wet or spongy soil around your soil treatment area.

Effluent filter – Inspect and clean twice a year or more.

Alarms – Alarm signals when there is a problem. Contact a service or maintenance provider any time an alarm signals.

Event counter or water meter – Record your water use.

-recommend meter readings be conducted (*circle one:* DAILY WEEKLY MONTHLY N/A)

Licensed septic service provider or maintenance provider (Check all that apply):

- ☑ Check to make sure tank is not leaking
- ☑ Check and clean the in-tank effluent filter (if exists)
- ☑ Check the sludge/scum layer levels in all septic tanks
- ☑ Recommend if tank should be pumped
- ☑ Check inlet and outlet baffles
- ☑ Check the drainfield effluent levels in the rock layer
- ☑ Check the pump and alarm system functions
- ☑ Check wiring for corrosion and function
- ☐ Check dissolved oxygen and effluent temperature in tank
- ☑ Provide homeowner with list of results and any action to be taken
- ☑ Flush and clean laterals if cleanouts exist

"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 the 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: _____

Designer Signature: Roger Hund Date: 5/22/23

See Reverse Side for Management Log

Maintenance Log

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										
Water usage rate (monitor frequency _____)										
Check annually:										
Caps: inspect, replace if needed										
Sludge & Scum/Pump										
Inlet & Outlet baffles										
Drainfield effluent leaks										
Pump, alarm, wiring										
Flush & clean laterals if cleanouts exists										
Other:_____										
Other:_____										

Notes:_____