

Instructions: Inspector must submit completed form to Local Governmental Unit (LGU) and system owner within 15 days of final determination of compliance or noncompliance. Instructions for filling out this form are located on the Minnesota Pollution Control Agency (MPCA) website at <https://www.pca.state.mn.us/sites/default/files/wq-wwists4-31a.pdf>.

Property information

Local tracking number: _____

Parcel ID# or Sec/Twp/Range: 59-0-006401 Reason for Inspection _____ Transfer of property _____
Local regulatory authority info: Aitkin county planning and zoning
Property address: 230 S. Maddy st., McGregor, Mn. 55760
Owner/representative: Curtis and Lisa Raveill Owner's phone: _____
Brief system description: Two open bottom round Block tanks

System status

System status on date (mm/dd/yyyy): 11/28/2021

Compliant – Certificate of compliance*

Noncompliant – Notice of noncompliance

(Valid for 3 years from report date unless evidence of an imminent threat to public health or safety requiring removal and abatement under section 145A.04, subdivision 8 is discovered or a shorter time frame exists in Local Ordinance.)

Systems failing to protect ground water must be upgraded, replaced, or use discontinued within the time required by local ordinance.

***Note: Compliance indicates conformance with Minn. R. 7080.1500 as of system status date above and does not guarantee future performance.**

An imminent threat to public health and safety (ITPHS) must be upgraded, replaced, or its use discontinued within ten months of receipt of this notice or within a shorter period if required by local ordinance or under section 145A.04 subdivision 8.

Reason(s) for noncompliance (check all applicable)

- Impact on public health (Compliance component #1) – *Imminent threat to public health and safety*
- Tank integrity (Compliance component #2) – *Failing to protect groundwater*
- Other Compliance Conditions (Compliance component #3) – *Imminent threat to public health and safety*
- Other Compliance Conditions (Compliance component #3) – *Failing to protect groundwater*
- System not abandoned according to Minn. R. 7080.2500 (Compliance component #3) – *Failing to protect groundwater*
- Soil separation (Compliance component #5) – *Failing to protect groundwater*
- Operating permit/monitoring plan requirements (Compliance component #4) – *Noncompliant - local ordinance applies*

Comments or recommendations

Certification

I hereby certify that all the necessary information has been gathered to determine the compliance status of this system. No determination of future system performance has been nor can be made due to unknown conditions during system construction, possible abuse of the system, inadequate maintenance, or future water usage.

By typing my name below, I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing this form.

Business name: Farley sewer systems Certification number: C-4744

Inspector signature: [Signature] License number: L-1919

(This document has been electronically signed)

Phone: 218-839-4737

Necessary or locally required supporting documentation (must be attached)

- Soil observation logs
- System/As-Built
- Locally required forms
- Tank Integrity Assessment
- Operating Permit
- Other information (list): _____

1. Impact on public health – Compliance component #1 of 5

Compliance criteria:

System discharges sewage to the ground surface	<input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No
System discharges sewage to drain tile or surface waters.	<input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No
System causes sewage backup into dwelling or establishment.	<input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is an imminent threat to public health and safety.

Describe verification methods and results:

Attached supporting documentation:

- Other: _____
- Not applicable

2. Tank integrity – Compliance component #2 of 5

Compliance criteria:

System consists of a seepage pit, cesspool, drywell, leaching pit, or other pit?	<input checked="" type="checkbox"/> Yes* <input type="checkbox"/> No
Sewage tank(s) leak below their designed operating depth?	<input checked="" type="checkbox"/> Yes* <input type="checkbox"/> No
If yes, which sewage tank(s) leaks:	

Any "yes" answer above indicates the system is failing to protect groundwater.

Describe verification methods and results:

Attached supporting documentation:

- Empty tank(s) viewed by inspector
 - Name of maintenance business: _____
 - License number of maintenance business: _____
 - Date of maintenance: _____
- Existing tank integrity assessment (Attach)
 - Date of maintenance (mm/dd/yyyy): _____ (must be within three years)
 - (See form instructions to ensure assessment complies with Minn. R. 7082.0700 subp. 4 B (1))*
- Tank is Noncompliant (pumping not necessary – explain below)
- Other: _____

3. Other compliance conditions – Compliance component #3 of 5

3a. Maintenance hole covers appear to be structurally unsound (damaged, cracked, etc.), or unsecured?

Yes* No Unknown

3b. Other issues (electrical hazards, etc.) to immediately and adversely impact public health or safety? Yes* No Unknown

*Yes to 3a or 3b - System is an imminent threat to public health and safety.

3c. System is non-protective of ground water for other conditions as determined by inspector? Yes* No

3d. System not abandoned in accordance with Minn. R. 7080.2500? Yes* No

*Yes to 3c or 3d - System is failing to protect groundwater.

Describe verification methods and results:

Attached supporting documentation: Not applicable

4. Operating permit and nitrogen BMP* – Compliance component #4 of 5 Not applicable

Is the system operated under an Operating Permit? Yes No If "yes", A below is required

Is the system required to employ a Nitrogen BMP specified in the system design? Yes No If "yes", B below is required

BMP = Best Management Practice(s) specified in the system design

If the answer to both questions is "no", this section does not need to be completed.

Compliance criteria:

a. Have the operating permit requirements been met? Yes No

b. Is the required nitrogen BMP in place and properly functioning? Yes No

Any "no" answer indicates noncompliance.

Describe verification methods and results:

Attached supporting documentation: Operating permit (Attach)

University of Minnesota Site Evaluation Form 5/16/2005



Property Owner(s) Curtis And Lisa Raveill Phone Number _____
 Address 230 S. Maddy St. McGregor, Mn. 55760 Design for a 4 bedroom pressure bed system.
 P.I.D. 59-0-006401 Section _____ Township _____ N Range _____
 Date 11/4/2021 Time 10:00 AM Weather conditions sunny and clear

Location Information new system connecting to a compliant system replacement system
 (check all that apply) outhouse tank other establishment new home construction

Homeowner Information

No. of bedrooms (if applicable) 4 bedrooms (includes possible additions)
 No. of residents in home 2 adults _____ children
 Estimated flow 600 gpd
 Well casing depth No Well feet Discharge location if checked _____
 Water using devices (check) Garbage disposal Water softener _____
 Dishwasher Sump pump _____
 Large bathtub High eff. furnace _____
 Laundry/large tub on 2nd floor Jucuzzi/hottub _____
 Water use concerns (check) Toilet/faucet leaks Max load laundry/day Long term prescription medications
 Home business Lint screen Antibact. soap Frequent parties or out of town guests

Soil Data

Soil texture classification: sandy loam
 Unnatural soil (check) Yes No
 Type of observation (check) Probe Pit Boring
 Parent material (check) Till Outwash Loess Bedrock Alluvium
 Vegetation type (check) Wet Dry Unknown
 Slope form (check) Summit Shoulder Back Foot Toe
 Drainage (check) Good Fair Poor Ponding Flooding
 Located in floodplain (check) Yes No

Site Summary Data

Standing water: n/a inches
 Bedrock: n/a inches
 Saturated soil: _____ inches
 Maximum depth of system: _____ inches
 Max elevation at system bottom: _____ feet
 Soil sizing factor (SSF): _____ gpd/ft²
 Linear loading rate (LLR): _____ gpd/ft
 Was a perc test done? Yes _____ mpi
 No

Soil Survey Data	Soil #1	Soil #2
Map unit sym & name		
Landscape position		
Flooding		
Slope		
Watertable depth		
Bedrock depth		
Possible system depth		
Texture at depth		
Permeability (P)		
Perc(MPI) = 60 / P		
NRCS onsite suitability		

Soil Boring Data

Boring 1		Elevation:			Location:		
Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence			
0-9"	Top soil	10 yr 3/3	s.g.	loose			
9-31"	sandy loam	7.5 yr 4/6	s.g.	loose			
31-46"	sandy loam	10 yr 5/4	s.g.	loose			
	mottles @ 46"						

Boring 2		Elevation:			Location:		
Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence			
0-8"	top soil	10 yr 3/2	s.g.	loose			
8-33"	sandy loam	7.5 yr 4/6	s.g.	loose			
33-48"	sandy loam	10 yr 4/6	s.g.	loose			
	mottles @ 48"						

Elevations

Bench Mark = 100.0

Out let of House = 98.0

Inlet of New

1820 Combo tank = 96.2

Out let of Combo

tank = 95.8

Inlet of New Pump

tank = 95.6

Top of Pump = 92.3

Pipe @ disp. fld. = 99.3

List any construction issues: _____

Mapping Checklist

Map scale: _____ indicate north _____ show slope _____ % direction _____

Locate

- ___ lot dimensions/property lines
- ___ dwellings and other improvements
- ___ existing and/or proposed system(s)
- ___ replacement area
- ___ unsuitable area(s)
- ___ public water supply wells
- ___ pumping access
- ___ inner wellhead zone

Easements

- ___ phone
- ___ electric
- ___ gas

Elevations

- ___ borings
- ___ benchmark
- ___ perc tests
- ___ horiz&vert reference pts

Setbacks

- ___ building
- ___ all water wells within 100ft
- ___ pressure pipe
- ___ water suction pipe
- ___ streams, lakes, rivers
- ___ floodway and fringe

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

Paul R. Goff (signature)

12/6/2021 (date)

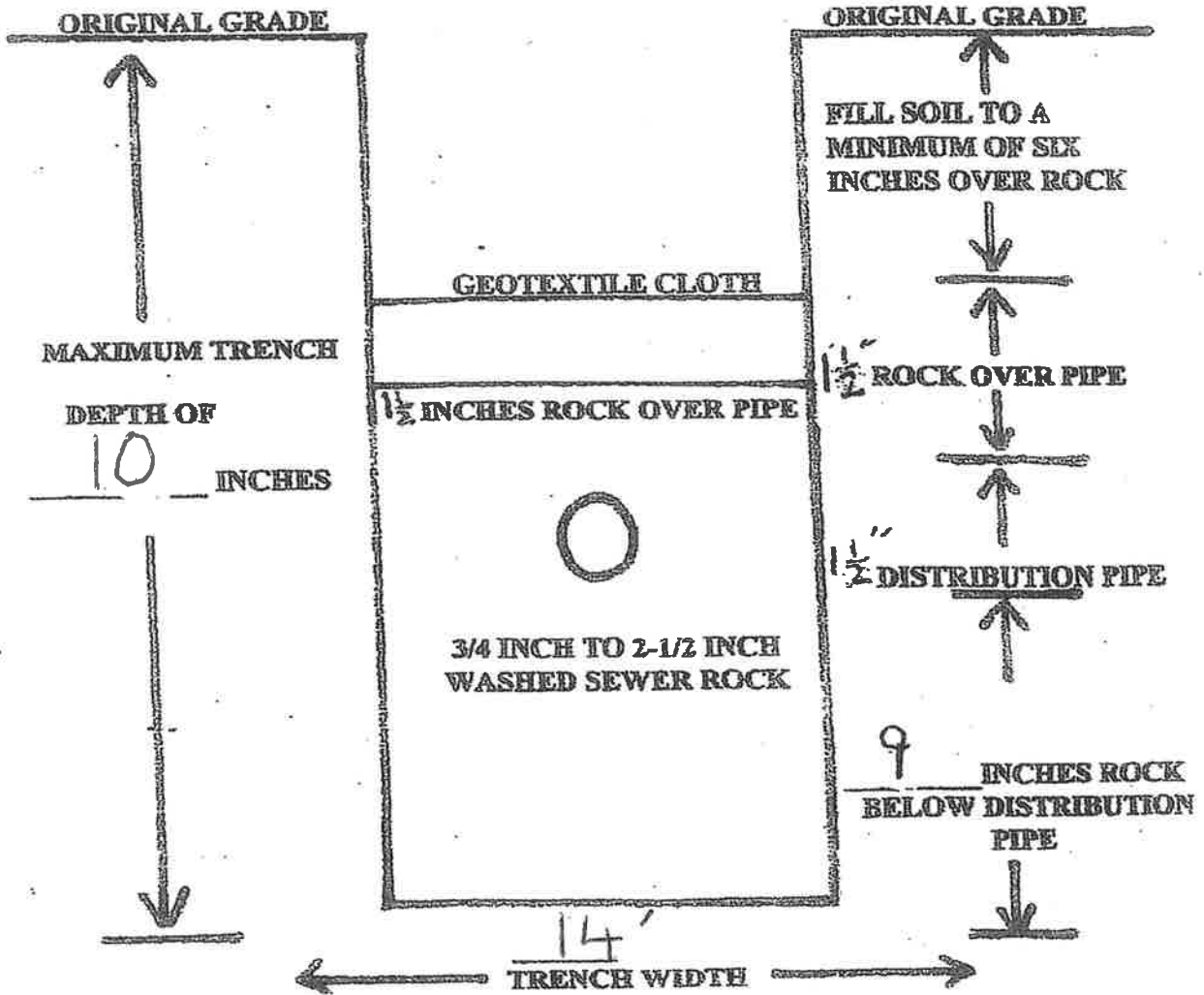
L-1919 (license #) 218-839-4737 (phone number)

PLU. 57-U-006 401

Pressure Bed Cross Section

FINISHED GRADE

6-12 INCHES OF BACKFILL OVER ROCK



University of Minnesota Trench and Bed Worksheet

All boxed rectangles must be entered, the rest will be calculated.



1. Flow

A. Estimated Flow gpd (Fig. A-1)

A-1 Estimated Sewage Flows in GPD

Number of Bedrooms	Class			
	I	II	III	IV
2	300	225	180	60% of the values in the Class I, II or II columns
3	450	300	218	
4	600	375	256	
5	750	450	294	
6	900	525	332	
7	1050	600	370	
8	1200	675	408	

Pump Tank Minimum Sizing

500 gallons or 100% of Average Design Flow (A-1) or dual alternating pump system

2. Minimum Septic Tank Capacity

B. Septic tank capacity (Fig C-1) gallons Number of tanks/compartments

C. Effluent filter (yes/no)

C-1 Minimum Septic Tank Capacity in Gallons

Number of Bedrooms	Minimum Capacity	Capacity with GD*	Capacity with GD and pump in basement **
2 or less	750	1125	1500
3 or 4	1000	1500	2000
5 or 6	1500	2250	3000
7, 8 or 9	2000	3000	4000

* GD = garbage disposal, Must have multiple tanks or compartments

** Must have multiple tanks, compartments or effluent screen

3. Pump Tank Specifications

D. Pump tank needed (yes/no) Minimum size if needed gallons

4. SOILS (Site evaluation data)

E. Depth to restricting layer = ft

F. Maximum depth of system Item E - 3 ft = 4 - 3 = 1 ft

G. Texture Percolation Rate mpi if available

H. SSF ft²/gpd (see figure D-15)

I. % Slope %

D-15 Soil Characteristics & SSF

Perc Rate mpi	Soil Texture	Soil Sizing Factors ft ² /gpd
< 0.1 *	Coarse sand	0.83
0.1 - 5	Medium sand	0.83
	Loamy sand	
0.1 - 5**	Fine sand	1.67
6 - 15	Sandy loam	1.27
16 - 30	Loam	1.67
31 - 45	Silt loam, silt	2.00
46 - 60	Clay loam, sandy clay loam or silty clay loam	2.20
61 - 120***	Clay, sandy or silty clay	4.20
>120****		

* No trench >25% of total system
 ** Soil with >50% fine sand particles
 *** A mound must be used
 **** An other or performance system

5. System Type	Distribution Media Type	Method of Distribution
<input checked="" type="checkbox"/> Pressure Bed (<6% slope)	<input checked="" type="checkbox"/> Rock	<input checked="" type="checkbox"/> Pressure
<input type="checkbox"/> Gravity Bed (<6% slope)	<input type="checkbox"/> Chamber	<input type="checkbox"/> Drop Boxes
<input type="checkbox"/> Trenches	<input type="checkbox"/> Gravelless	<input type="checkbox"/> Dist. Box (<3% slope)
	Other: _____	Other: _____

6. TRENCH OR BED BOTTOM AREA

- J. For trenches with 6 inches of wide wall beneath the pipe or 10" diameter gravelless pipe:
 $A \times H = \underline{600} \text{ gpd} \times \underline{1.27} \text{ ft/gpd} = \underline{NA} \text{ ft}^2$
- K. For trenches with 12 inches of sidewall:
 $A \times H \times 0.8 = \underline{600} \text{ gpd} \times \underline{1.27} \text{ ft/gpd} \times 0.8 = \underline{NA} \text{ ft}^2$
- L. For trenches with 18 inches of sidewall:
 $A \times H \times 0.66 = \underline{600} \text{ gpd} \times \underline{1.27} \text{ ft/gpd} \times 0.66 = \underline{NA} \text{ ft}^2$
- M. For trenches with 24 inches of sidewall:
 $A \times H \times 0.6 = \underline{600} \text{ gpd} \times \underline{1.27} \text{ ft/gpd} \times 0.6 = \underline{NA} \text{ ft}^2$
- N. For gravity beds with 6 or 12 inches of rock below the pipe;
 $1.5 \times A \times H = 1.5 \times \underline{600} \text{ gpd} \times \underline{1.27} \text{ ft/gpd} = \underline{NA} \text{ ft}^2$
- O. For pressure beds with 6 or 12 inches of rock below the pipe;
 $A \times H = \underline{600} \text{ gpd} \times \underline{1.27} \text{ ft/gpd} = \underline{762.0} \text{ ft}^2$

7. Trench and Bed Dimensions

P. Select required square feet of bottom area required based on depth of rock/gravelless pipe or height of chamber slats

ft²

(must use 6" of rock square footage for beds)

Q. Select width of trench or bed ft

(use 3' for gravelless pipe, width of chamber or width of excavation for rock in trenches & beds can not be wider the 25')

R. For trenches or pressure beds the lineal feet required = required square footage / width of bottom of trench or bed
 $\underline{762.0} \text{ ft}^2 / \underline{14.0} \text{ ft} = \underline{54.4} \text{ lineal feet}$

S. For gravity beds the lineal feet required = required square footage / width of bed
 $\underline{762.0} \text{ ft}^2 / \underline{14.0} \text{ ft} = \underline{\hspace{2cm}} \text{ lineal feet}$

8. Rock Sizing and Volume

T. Depth of media below pipe ft

Cubic feet of rock needed = Rock depth below distribution pipe plus 0.5 foot times bottom area:

(Rock depth + 0.5 foot) x Area (J, K, L, M)

$(\underline{0.5} \text{ ft} + 0.5 \text{ ft}) \times \underline{762.0} \text{ ft}^2 = \underline{762.0} \text{ ft}^3$

Volume in cubic yards = volume in cubic feet divided by 27

$\underline{762.0} / 27 = \underline{28.2} \text{ yd}^3$

Weight of rock in tons = cubic yards times 1.4

$\underline{28.2} \times 1.4 = \underline{39.5} \text{ tons}$

Add in 10% extra for constructability = 1.1 X $\underline{39.5} = \underline{43.5} \text{ tons}$

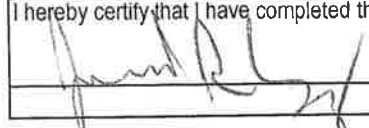
9. Layout

Select an appropriate scale; one inch = ft

Show pertinent property boundaries, rights-of-way, easements.

Show location of house, garage, driveway, and all other improvements, existing or proposed.

Show location and layout of sewage treatment system, well and dimensions of all elevations

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.
 (signature) L-1919 (license #) 12/6/2021 (date)

Local Unit of Government Approval
 _____ (signature) _____ (registration #) _____ (date)

University of Minnesota Pump Selection Procedure - 10/25/04

All boxed rectangles must be entered, the rest will be calculated.



1. Determine pump capacity:

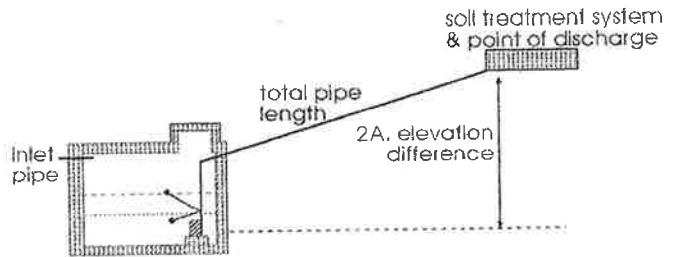
A. Gravity Distribution

1. Minimum required discharge is 10 gpm
2. Maximum suggested discharge is 45 gpm

For other establishments at least 10% greater than the water supply rate, but no faster than the rate at which effluent will flow out of the distribution device.

B. Pressure Distribution - see pressure design worksheet

Selected Pump Capacity: 37.8 gpm



2. Determine Total Dynamic Head (TDH)

A. Elevation difference between pump and point of discharge.

7 feet

B. Special head requirement? (See Figure - Special Head Requirements)

5 feet

Special Head Requirements	
Gravity Distribution	0ft
Pressure Distribution	5ft

C. Friction loss in supply pipe

1. Select pipe diameter 2 in
2. Enter Figure E-9 with gpm (1A or B) and pipe diameter (C1)

Read friction loss in feet per 100 feet from Figure E-9

Friction loss = 2.64 ft/ 100 ft of pipe

3. Determine total pipe length from pump discharge to soil system discharge point.

Estimate by adding 25 percent to pipe length for friction loss in fittings.

Pipe length times 1.25 = equivalent pipe length

50 ft x 1.25 = 62.5 feet

4. Calculate total friction loss by multiplying friction loss (C2) by the equivalent pipe length (C3) and divide by 100.

Friction Loss = 2.64 ft/100ft X 62.5 ft / 100 = 1.7 feet

D. Total head requirement is the sum of elevation difference (A), special head requirements (B), and total friction loss (C4).

7 ft + 5 ft + 1.7 ft

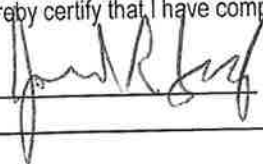
Total Head: 13.7 feet

Flow Rate (gpm)	E-9 Friction Loss in Plastic Pipe per 100 ft		
	nominal pipe diameter		
	1.5"	2.0"	3"
20	2.47	0.73	0.11
25	3.73	1.11	0.16
30	5.23	1.55	0.23
35	6.96	2.06	0.3
40	8.91	2.64	0.39
45	11.07	3.28	0.48
50	13.46	3.99	0.58
55		4.76	0.7
60		5.6	0.82
65		6.48	0.95
70		7.44	1.09

3. Pump Selection

1. A pump must be selected to deliver at least 37.8 gpm (1A or B) with at least 13.7 feet of total head (2D).

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

 (signature)

L-1919 (license #) 12/6/2021

University of Minnesota Pressure Distribution System Design - 10/25/04

All boxed rectangles must be entered, the rest will be calculated.

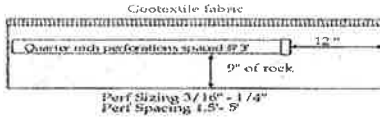


1. Select number of perforated laterals:

2. Select perforation spacing = ft

3. Since perforations should not be placed closer than 1 foot to the edge of the rock layer (see diagram), subtract 2 feet from the rock layer length

- 2 ft = ft



4. Determine the number of spaces between perforations. Divide the length (3) by perforation spacing (2) and round down to nearest whole number.
Perforation spacing = ft / ft =

5. Select perforation size inch

6. Number of perforations is equal to one plus the number of perforation spaces (4).
* Check figure E-4 to assure the number of perforations per lateral guarantees < 10% discharge variation.

spaces + 1 = perforations/lateral

Perforation Spacing ft	Pipe Diameter			
	1 inch	1.25 inch	1.5 inch	2.0 inch
2.5	8	14	18	28
3.0	8	13	17	26
3.3	7	12	16	25
4.0	7	11	15	23
5.0	6	10	14	22

Perforation Spacing feet	Pipe Diameter			
	1 inch	1.25 inch	1.5 inch	2.0 inch
2.5	12	19	25	39
3	11	18	24	37
3.3	10	17	23	36
4	10	16	21	33
5	9	15	20	31

7. A. Total number of perforations = perforations per lateral (5) times number of laterals (1).
 perfs/ lat x laterals = perforations

B. Calculate the square footage per perforation. Recommended value is 6-10 sqft/perf. Does not apply to at-grades.

1. Rock bed area = rock width (ft) x rock length (ft)
 ft x ft = ft²

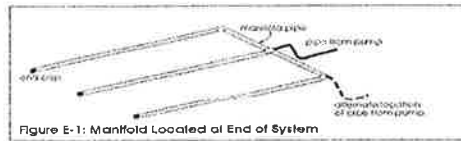
2. Square foot per perforation = Rock Bed Area / number of perfs (6)
 ft² / perfs = ft²/perf

8. Determine required flow rate by multiplying the total number of perforations (6A) by flow per perforations (see figure E-6)
 perfs x gpm / perfs = gpm

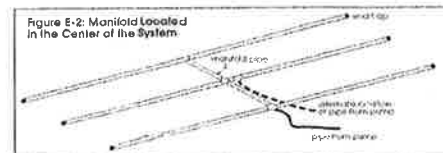
Head (feet)	Perforations diameter (inches)		
	3/16	7/32	1/4
1 st	0.42	0.56	0.74
2 nd	0.59	0.80	1.04
5	0.94	1.26	1.65

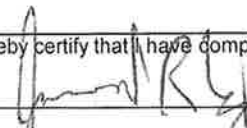
a. Use 1.0 foot for single-family homes.
b. Use 2.0 feet for anything else

9. Determine Minimum Pipe Size
A. **Manifold on End.** If laterals are connected to header pipe as shown in Figure E-1, to select minimum required lateral diameter; enter figure E-4 or E-5 with perforation spacing and number of perforations per lateral. Select minimum diameter for perforated laterals = inches

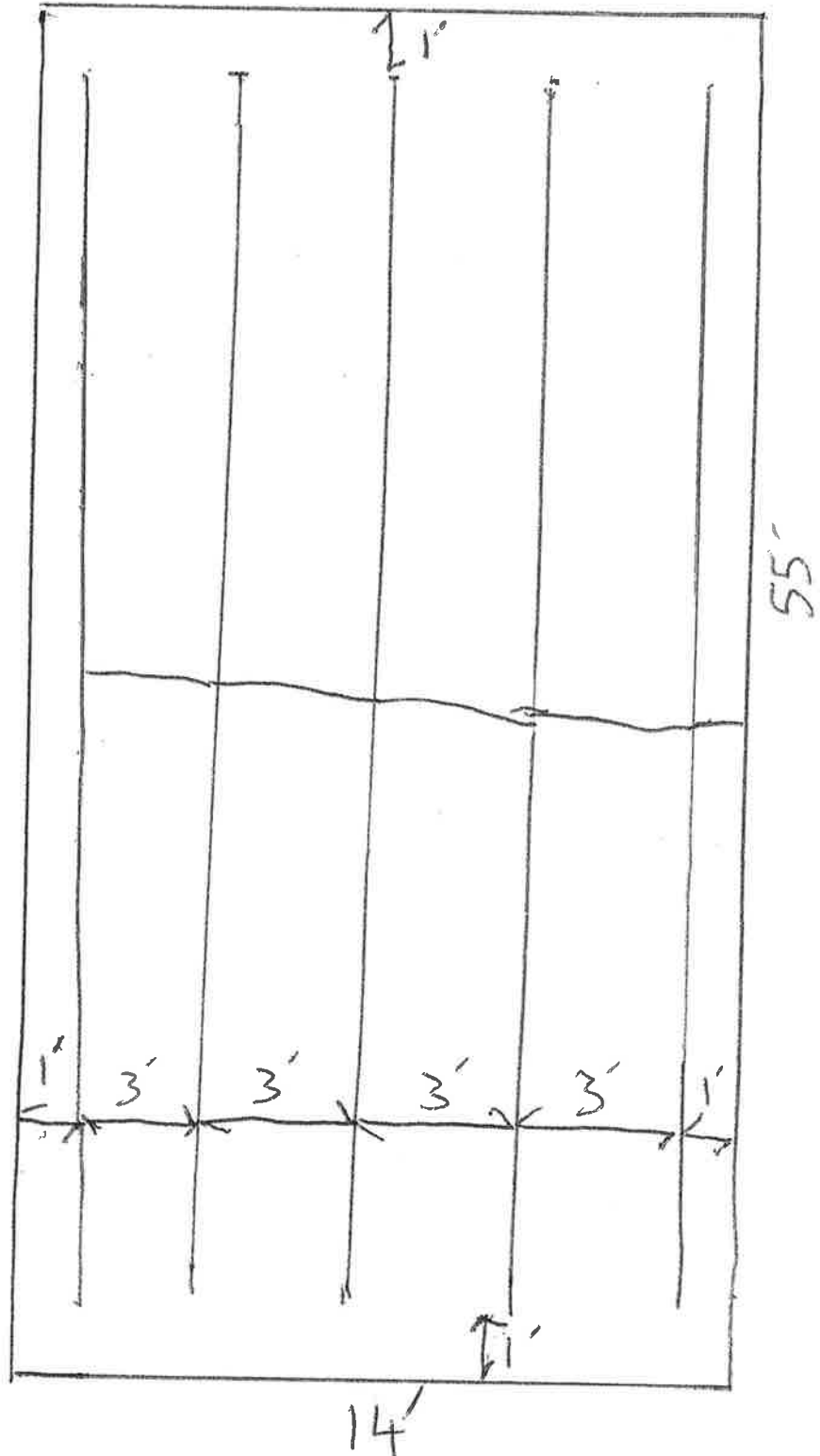


B. **Center Manifold.** If perforated lateral system is attached to manifold pipe near the center, like Figure E-2, perforated lateral length (3) and number of perforations per lateral (5) will be approximately one half of that in step A. Using these values, select minimum diameter for perforated lateral = inches



I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.
 (signature) (license #) (date)

Layout of
Laterals in
Pressure Bed
Center Fed.
Center Fed.



FARLEY SEWER SYSTEMS

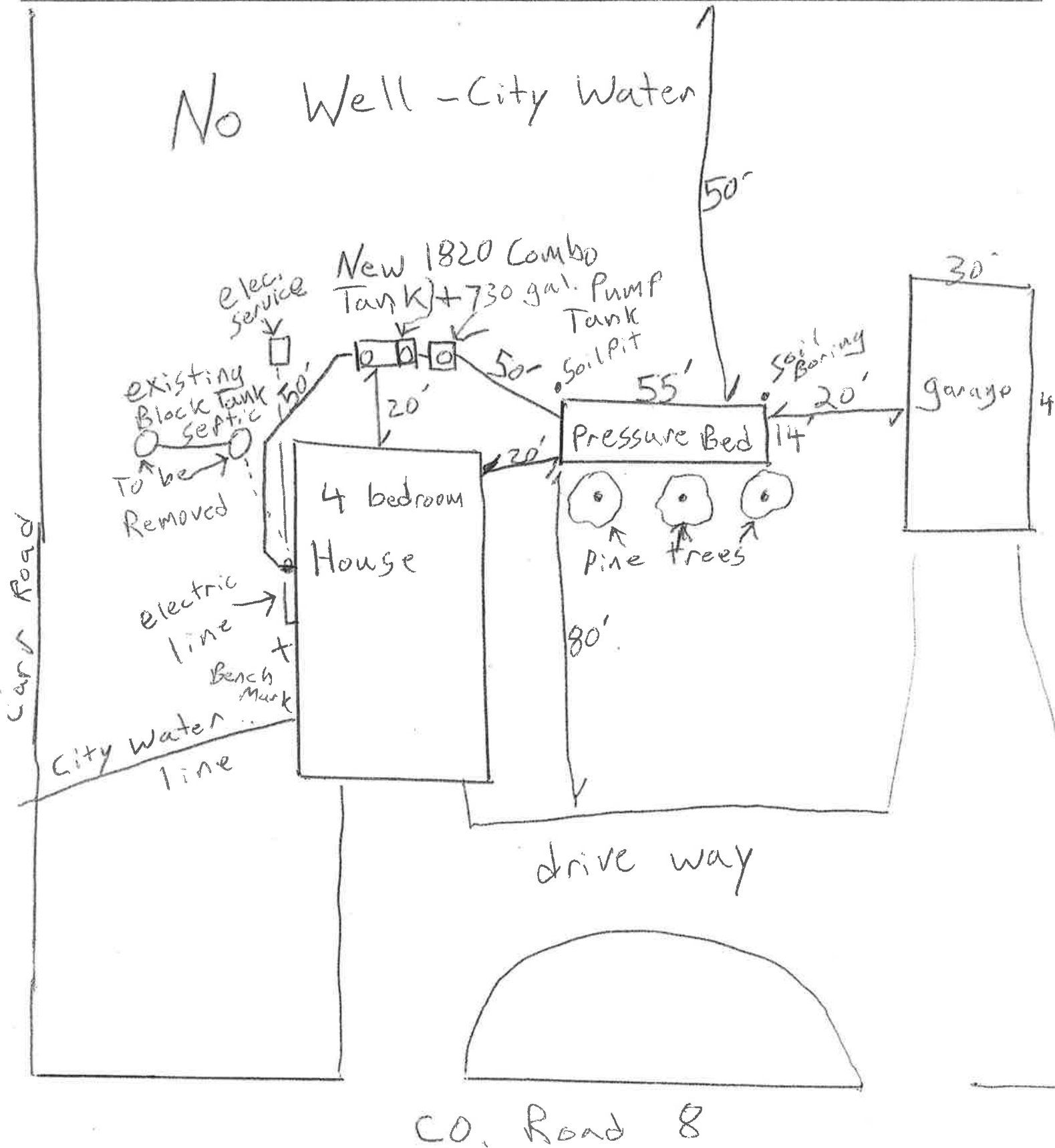
SEWER DESIGN & INSTALLATION

JAROLD R. FARLEY

P.O. Box 472
McGregor, MN 55760

Bus. Lic. No. L1919
Reg. No. 4744

218-839-4737 cell



Subsurface Sewage Treatment System Management Plan

Property Owner: Curtis + Lisa Ravelli Phone: _____ Date: 12-6-2021
 Mailing Address: 230 S. Maddy St. City: McGregor MN Zip: 55760
 Site Address: Same City: _____ Zip: _____

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.

System Designer: check every _____ months.
 Local Government: check every _____ months.
 State Requirement: check every 36 months.

My System needs to be checked every 36 months.

(State requirements are based on MN Rules Chapter 7000.2450, Subp. 2 & 3)

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 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

Professional Management Tasks

- Check to make sure tank is not leaking
- Check and clean the in-tank effluent filter
- 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: [Signature] Date: 12-15-2021

Designer Signature: [Signature] Date: 12-6-2021

See Reverse Side for Management Log

Maintenance Log

Activity	Date Accomplished
<i>Check frequently:</i>	
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 _____)	
<i>Check annually:</i>	
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: _____

Mitigation/corrective action plan: _____
