

University of Minnesota Site Evaluation Form 5/16/2005



Property Owner(s) Christopher Shieffer Phone Number _____
 Address 19036 484th. St. McGregor, MN. 55760 We are relocating the pump tank to make room for a new Garage. 1650 gal
 P.I.D. 29-1-164000 Section _____ Township _____ N Range _____
 Date 6/14/2022 Time 7:00 AM Weather conditions sunny and clear

Location Information (check all that apply)
 relocating pump tank
 1650 Combo Tank
 connecting to a compliant system
 replacement system
 other establishment
 new home construction

Homeowner Information

No. of bedrooms (if applicable) _____ lot split _____ bedrooms (includes possible additions) _____
 No. of residents in home adults _____ children _____
 Estimated flow _____ gpd _____
 Well casing depth _____ 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 Jacuzzi/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: _____
 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

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		

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 Boring Data

Boring 1		Location:		
Elevation:	Texture	Color	Structure	Consistence
Soil Horizons Depth (inches)				

Boring 2		Location:		
Elevation:	Texture	Color	Structure	Consistence
Soil Horizons Depth (inches)				

Site Evaluation Map

See Attached Map

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

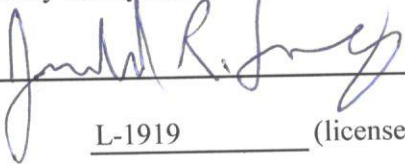
Elevations

- ___ 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.



(signature)

7/14/2022 (date)

L-1919

(license #)

218-839-4737

(phone number)

PUMP SELECTION PROCEDURE

Property Owner: CHIEFFER

A. Determine Pump Capacity:

Gravity Distribution

- Minimum suggested is 20 gpm
- Maximum suggested is 45 gpm

Pressure Distribution

- Select number of Perforated Laterals = 2
- Select Perforation Spacing = 3 feet
- Rock Layer Length 54 - 2 = 52 feet
- Determine the number of spaces between perforations:
(c) $\frac{52.4}{3} + 1 = \frac{17}{18}$ Spaces
- (d) $\frac{17}{18} + 1 = \frac{18}{18}$ Perforations/Lateral
- (a) 2 x (e) $\frac{18}{18}$ = 36 Total # of Perforations
- (f) $\frac{36}{0.74}$ x gpm/perf = 27 gpm

SELECTED PUMP CAPACITY = 27 gpm

Head (feet)	Perforation Discharges (gpm)			
	Perforation diameter (inches)			
1.0a	1/8	3/16	7/32	1/4
2.0b	0.18	0.42	0.56	0.74
5.0	0.26	0.59	0.80	1.04
	0.41	0.94	1.26	1.65

a Use 1.0 foot residential systems
b Use 2.0 feet for other establishments
* Potential for plugging

B. MINIMUM Diameter for Perforated Laterals

- If laterals are connected to header pipe as shown in Figure E-1, to select minimum required lateral diameter, enter Figure E-4 with perforation spacing (A3b) and number of perforations per lateral (A3e).
The MINIMUM diameter for perforated laterals = 2 inches
- If perforated lateral system is attached to manifold pipe near the center, like Figure E-2, perforated lateral length (A3c) and number of perforations per lateral (A3e) will be approximately one half of that in Step B1. Using these values, select the MINIMUM diameter for perforated laterals = _____ inches

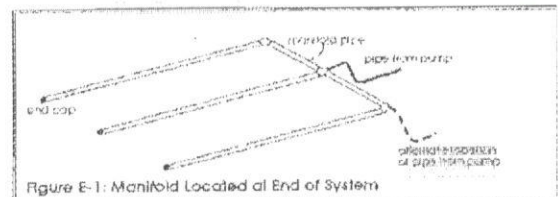


Figure E-1: Manifold Located at End of System

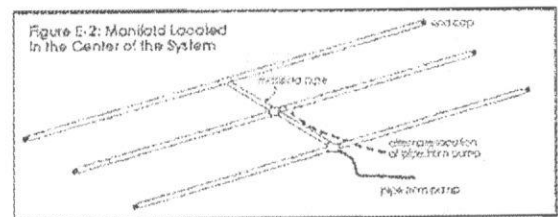


Figure E-2: Manifold Located in the Center of the System

C. Determine Head Requirements:

- Elevation difference between pump and point of discharge = 21 feet (contractor to verify in field)
- Feet of pressure at manifold = 5 feet
5 ft - for pressure required at manifold
0 ft - for gravity distribution
- Friction Loss
 - Enter friction loss table with gpm and pipe diameter
F.L. = 1.55 ft./100 feet of pipe
 - Determine Total Pipe Length from pump to discharge point
Pipe length 225 x 1.25 = 281 feet
 - Calculate Total Friction Loss
(a) 1.55 x (b) 281 + 100 = 4.40 feet
 - Total Head Required
(1) 21 + (2) 5 + (3c) 4.4 = 30 feet

Perforation Spacing (feet)	Pipe Diameter			
	1	1 1/4	1 1/2	2
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

E-4 Maximum number of quarter inch perforations per lateral to guarantee <10% discharge variation

D. Pump Selection

A pump must be selected to deliver at least 27 gpm with at least 30 feet of total head

Flow Rate gpm	Friction Loss in Plastic Pipe		
	Nominal pipe diameter		
	1.5"	2"	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	0.30
40	8.91	2.64	0.39
45	11.07	3.28	0.48
50	13.46	3.99	0.58
55		4.76	0.70
60		5.60	0.82
65		6.48	0.95
70		7.44	1.09

FARLEY SEWER SYSTEMS

SEWER DESIGN & INSTALLATION

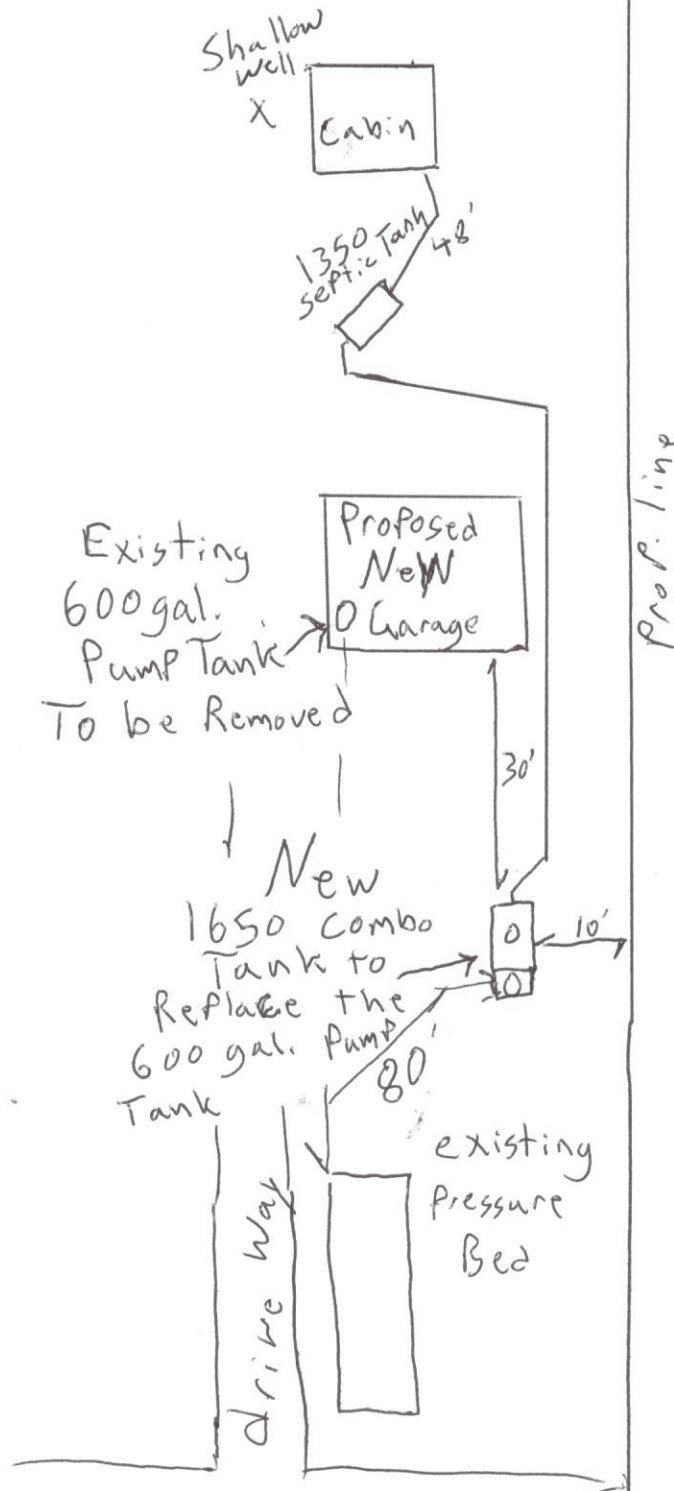
JAROLD R. FARLEY

P.O. Box 472
McGregor, MN 55760

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

218-839-4737 cell

Locke Minnewawa



Elevations = Bench Mark
= 100.0

Outlet of existing
1350 = 98.

Inlet of New
1650 Tank = 96.0

Top of Pump = 92.0

Pipe @ disp. fld. = 113.0

I will connect
to the existing
2" line and there
will 80' to the
Pressure bed.