# Jensen Backhoe, LLC

510 2nd St. NW
Hinckley, MN 55037

~~Office: (320) 384-7078~~
Cell: 612-390-9014


11/15/2022

Andrew Pung
3200 White Pine Way
Stillwater, Mn. 55082

Mr. Pung,

As we had discussed in your Pumper access issue I am proposing to use your existing 800 gallon holding tank located on the lake side of your cabin as a lift station. We would install a 1 HP pump in this tank to pump up to a 2000 split tank located in the North West corner of your property. Level alarms would be installed in the lift station and the new holding tank to assist in level notification. This would alleviate the Pumpers concern as to being able to over come the 22' elevation and 130' hose suction issue.

Scott Jensen

ONSITE SEWAGE TREATMENT PROGRAM

# Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

v 04.01.2020

## 1. PROJECT INFORMATION

Property Owner/Client: ANDREW PUNG
Project ID:
Site Address: 11581 117TH ST. FINLAYSON, MN.
Date: 11/15/22
Email Address:
Phone: 651-276-9113

## 2. DESIGN FLOW & WASTE STRENGTH

*Attach data / estimate basis for Other Establishments*

Design Flow: GPD
Anticipated Waste Type:
BOD: mg/L TSS: mg/L Oil & Grease: mg/L
Treatment Level: *Select Treatment Level C for residential septic tank effluent*

## 3. HOLDING TANK SIZING

Minimum Capacity: Residential =400 gal/bedroom, Other Establishment = Design Flow x 5.0, Minimum size 1000 gallons

*Code Minimum* **Holding Tank Capacity:** 1600 Gallons in 1 Tanks or Compartments
*Recommended* **Holding Tank Capacity:** 2000 Gallons in 2 Tanks or Compartments
Type of High Level Alarm: ELECTRIC (HORN + LIGHT) (Set @ 75% tank capacity)
Comments:

## 4. SEPTIC TANK SIZING

**A. Residential dwellings:**

Number of Bedrooms (Residential): 2+2 FUTURE
*Code Minimum* **Septic Tank Capacity:** 1000 Gallons in 1 Tanks or Compartments
*Recommended* **Septic Tank Capacity:** 2000 Gallons in 2 Tanks or Compartments
Effluent Screen & Alarm (Y/N): Model/Type:

**B. Other Establishments:**

Waste received by: GPD x Days Hyd. Retention Time
*Code Minimum* **Septic Tank Capacity:** Gallons In Tanks or Compartments
*Recommended* **Septic Tank Capacity:** Gallons In Tanks or Compartments
Effluent Screen & Alarm (Y/N): Model/Type:

## 5. PUMP TANK SIZING

Pump Tank 1 Capacity (Minimum): Gal
Pump Tank 1 Capacity (Recommended): Gal
Pump 1 GPM Total Head ft
Supply Pipe Dia. in Dose Vol: gal

Pump Tank 2 Capacity (Minimum): Gal
Pump Tank 2 Capacity (Recommended): Gal
Pump 2 GPM Total Head ft
Supply Pipe Dia. Dose Vol: Gal

ONSITE SEWAGE TREATMENT PROGRAM

# Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

Project ID:

**At-Grade:**

| | | | | | |
|---|---|---|---|---|---|
| Bed Width | ft | Bed Length | ft | Finished Height | ft |
| Contour Loading Rate | gal/ft | Upslope Berm | ft | Downslope Berm | ft |
| Endslope Berm | ft | System Length | ft | System Width | ft |

**Level & Equal Pressure Distribution**

| | | | | | |
|---|---|---|---|---|---|
| No. of Laterals | | Perforation Spacing | ft | Perforation Diameter | in |
| Lateral Diameter | in | Min Dose Volume | gal | Max Dose Volume | gal |

**Non-Level and Unequal Pressure Distribution**

| | Elevation (ft) | Pipe Size (in) | Pipe Volume (gal/ft) | Pipe Length (ft) | Perf Size (in) | Spacing (ft) | Spacing (in) |
|---|---|---|---|---|---|---|---|
| Lateral 1 | | | | | | | |
| Lateral 2 | | | | | | | |
| Lateral 3 | | | | | | | |
| Lateral 4 | | | | | | | |
| Lateral 5 | | | | | | | |
| Lateral 6 | | | | | | | |

Minimum Dose Volume: _____ gal

Maximum Dose Volume: _____ gal

**9. Additional Info for At-Risk, HSW or Type IV Design**

**A.** Starting BOD Concentration = Design Flow X Starting BOD (mg/L) X 8.35 ÷ 1,000,000

_____ gpd X _____ mg/L X 8.35 ÷ 1,000,00 = _____ lbs. BOD/day

**B.** Target BOD Concentration = Design Flow X Target BOD (mg/L) X 8.35 ÷ 1,000,000

_____ gpd X _____ mg/L X 8.35 ÷ 1,000,00 = _____ lbs. BOD/day

Lbs. BOD To Be Removed: _____

PreTreatment Technology: _____ *Must Meet or Exceed Target

Disinfection Technology: _____ *Required for Levels A & B

**C.** Organic Loading to Soil Treatment Area:

_____ mg/L X _____ gpd x 8.35 ÷ 1,000,000 ÷ _____ $ft^2$ = _____ $lbs./day/ft^2$

**10. Comments/Special Design Considerations:**

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

| Scott Jensen | Scott Jensen | 346 | 11/15/22 |
|---|---|---|---|
| (Designer) | (Signature) | (License #) | (Date) |

SCOTT JENSEN

Minnesota Pollution Control Agency

# OSTP Basic Pump Selection Design Worksheet

UNIVERSITY OF MINNESOTA

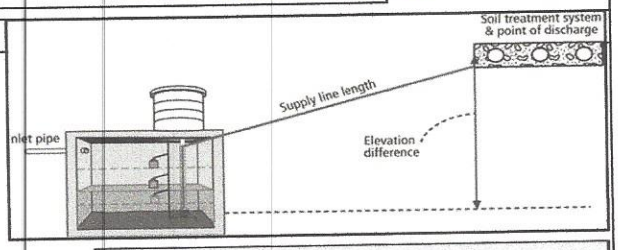
v 04.06.2017

**1. PUMP CAPACITY** Project ID:

**Pumping to Gravity or Pressure Distribution:** Gravity

1. If pumping to gravity enter the gallon per minute of the pump: 40.0 GPM *(10 - 45 gpm)*
2. If pumping to a pressurized distribution system: GPM
3. Enter pump description: ~~Liberty LE70~~ DEMAND DOSE

**2. HEAD REQUIREMENTS**




A. Elevation Difference between pump and point of discharge: 22 ft

B. Distribution Head Loss: 0 ft

C. Additional Head Loss: ft (due to special equipment, etc.)

| Distribution Head Loss | |
|---|---|
| Gravity Distribution = 0ft | |
| Pressure Distribution based on Minimum Average Head Value on Pressure Distribution Worksheet: | |
| **Minimum Average Head** | **Distribution Head Loss** |
| 1ft | 5ft |
| 2ft | 6ft |
| 5ft | 10ft |

**Table I. Friction Loss in Plastic Pipe per 100ft**

| Flow Rate (GPM) | Pipe Diameter (inches) | | | |
|---|---|---|---|---|
| | 1 | 1.25 | 1.5 | 2 |
| 10 | 9.1 | 3.1 | 1.3 | 0.3 |
| 12 | 12.8 | 4.3 | 1.8 | 0.4 |
| 14 | 17.0 | 5.7 | 2.4 | 0.6 |
| 16 | 21.8 | 7.3 | 3.0 | 0.7 |
| 18 | | 9.1 | 3.8 | 0.9 |
| 20 | | 11.1 | 4.6 | 1.1 |
| 25 | | 16.8 | 6.9 | 1.7 |
| 30 | | 23.5 | 9.7 | 2.4 |
| 35 | | | 12.9 | 3.2 |
| 40 | | | 16.5 | 4.1 |
| 45 | | | 20.5 | 5.0 |
| 50 | | | | 6.1 |
| 55 | | | | 7.3 |
| 60 | | | | 8.6 |
| 65 | | | | 10.0 |
| 70 | | | | 11.4 |
| 75 | | | | 13.0 |
| 85 | | | | 16.4 |
| 95 | | | | 20.1 |

D. 1. Supply Pipe Diameter: 2.0 in

2. Supply Pipe Length: 130 ft

E. **Friction Loss in Plastic Pipe per 100ft** from Table I:

Friction Loss = 4.04 ft per 100ft of pipe

F. Determine *Equivalent Pipe Length* from pump discharge to soil dispersal area discharge point. Estimate by adding 25% to supply pipe length for fitting loss. *Supply Pipe Length (D.2)* X 1.25 = *Equivalent Pipe Length*

130 ft X 1.25 = 162.5 ft

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft* (Line E) by the *Equivalent Pipe Length* (Line F) and divide by 100.

Supply Friction Loss =

4.04 ft per 100ft X 162.5 ft ÷ 100 = 6.6 ft

H. *Total Head* requirement is the sum of the *Elevation Difference* (Line A), the Distribution Head Loss (Line B), Additional Head Loss (Line C), and the Supply Friction Loss (Line G )

22.0 ft + 0 ft + ft + 6.6 ft = 28.6 ft

**3. PUMP SELECTION**

A pump must be selected to deliver at least **40.0** GPM (Line 1 or Line 2) with at least **28.6** feet of total head.

Comments:


These data are provided on an "AS-IS" basis, without warranty of any type, expressed or implied, including but not limited to any warranty as to their performance, merchantability, or fitness for any particular purpose.

ArcGIS Web Map

1:564 | 0 0.003 0.006 mi | 1 inch = 47 feet

Web AppBuilder for ArcGIS

Aitkin County

Date: 11/13/2022

Purple Pumper LLC
**Ardell and Janelle Kick**
**48766 B Cattle Drive**
**Sandstone, MN 55072**

**Phone: 320-679-0904 Mora**
**320-384-0655 Hinckley**

## Contract / Agreement for Holding Tank Pumping Services

**This contract is for the pumping of the septic tank on the property of** ANDREW PUNG **located at** 11581 117TH ST FINLAYSON MN.

**I Purple Pumper LLC State License # 2924, agrees to pump the tank(s) upon notification from the customer in compliance with Chapter 7080 and local governing units. Pumper agrees to verify customer of notification.**

**Pumper shall have no fault or obligation to customer for septage overflow if customer fails or is negligent in providing notice of needed pumping.**

**This contract shall continue until written notice is given from the customer.**

**Customer's signature:** [signature] 11-15-2022

**Mailing Address:** 3200 WHITE PINE WAY, STILLWATER MN. 55082

**Contact Phone Number:**

**Pumper's Signature:** Ardell Kick

**Date:** 11/15/22

**( Make (3) copies: 1- Pumper, 2– Home Owner, 3– Permit Application)**

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# Septic System Management Plan for Holding Tank 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 holding tank system is designed to store your used water before it is recycled back into our lakes, streams and groundwater.

This **management plan** will identify the operation and maintenance activities necessary to ensure compliance with applicable rules and regulations. Some of these activities must be performed by you, the homeowner. Other tasks must be performed by a licensed septic maintainer. 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: Andrew Pung

Property Address: 11581 117th St. Finlayson, Mn. Property ID: 34-1-072200

System Designer: Scott Jensen License #: 346

System Installer: Jensen Backhoe, LLC License #: 346

Service Provider/Maintainer: Purple Pumper Phone: 320-630-3821

Permitting Authority: Aitkin County Phone:

Permit #: Date Inspected:

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

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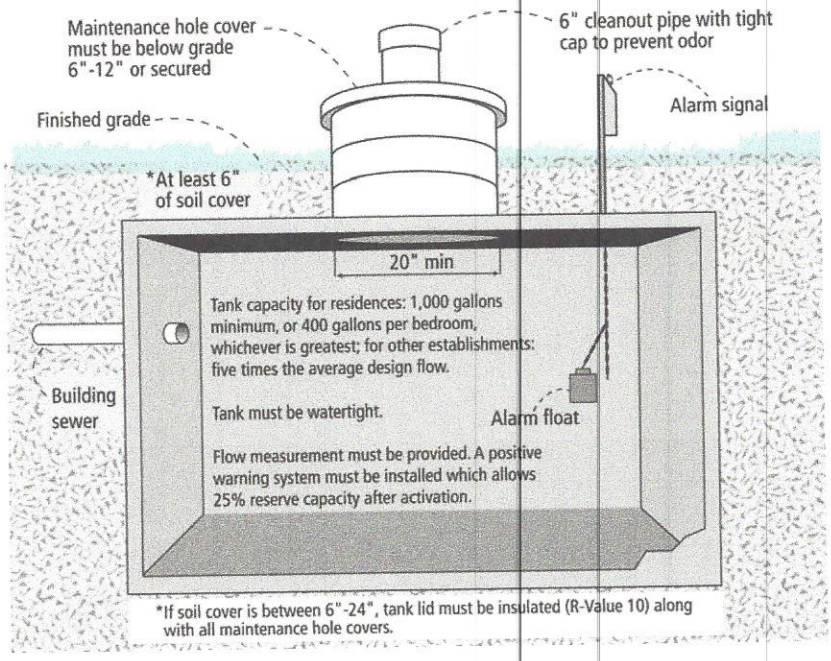
*Septic System Management Plan*
*For Holding Tank Systems*

## Your Holding Tank




| Dwelling Type | Well Construction |
|---|---|
| Number of bedrooms: 4 | Well depth (ft): _____ |
| System capacity/ design flow (gpd): 600 | ☐ Cased well Casing depth: _____ |
| Anticipated average daily flow (gpd): 200 | ☐ Other (specify): _____ |
| Comments_____ | Distance from septic (ft):_____ |
| In-home business? ___ What type? _____ | Is the well on the design drawing? ◉ Y ○ N |
| Number of occupants 4 | |

| Holding Tank | |
|---|---|
| ◉ One tank: *Tank volume:* 2000 *gallons* | ☐ Flow measurement device: event counter |
| ○ Two tanks: *Tank volume:* _____ *gallons* | ☐ Location: control panel |
| ☐ Tank is constructed of _____ | ☐ Alarm ____ visual ✔ audible |
| | ☐ Reserve %: 25% |

☐ Service contract held by: Purple Pumper

☐ Service contract is attached to this management plan

## Homeowner Management Tasks

These op*eration and maintenance ac*tivities 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.

Tank capacity ÷ (# of occupants X 50 Gallons/day) = # of days between cleaning

OR

Within 24 hours of alarm signal

*System Designer*: check every 7 days

*Local Government*: check every _____ days

My tank needs to be emptied every 7 days

**Seasonally**

- ❑ *Monitor alarm daily – make sure the alarm has not signaled.* Alarms signal when your holding tank is nearly full; contact your maintainer.
- ❑ *Measure* and note your average daily water usage on page 5. Conserving water saves you money!
- ❑ *Leaks.* Check (listen, look) for leaks in toilets and dripping faucets. Repair leaks promptly.

**Annually**

- ❑ Establish a contract for tank cleaning services with a state licensed maintenance business.
- ❑ *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, discharge clear water sources to another location. Program the recharge frequency based on *water demand (gallons)* rather than *time (days)*. Recharging too frequently will result in increased pumping costs.
- ❑ *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 has clear access to the holding tank and completely empties the tank
- ❑ 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 frequency of maintenance.
- ❑ Review and document water usage rates with homeowner.

**Holding Tanks**

- ❑ *Maintenance hole 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.
- ❑ *Inspection pipes*. Replace damaged caps.
- ❑ *Alarm*. Verify that the alarm works and that there is at least 25% reserve capacity.
- ❑ *End of year seasonal property pumping*. Remind homeowner of most frequent causes of tank and building sewer freeze-ups. Ensure that there are no "micro-sources" of water such as a high efficiency furnace or other dripping devices. Determine a logical winter water use plan that will not result in need for emergency visit(s).

**All other components – inspect as listed here:**

## Water-Use Appliances and Equipment in the Home

| Appliance | Impacts on Holding Tank | Management Tips |
|---|---|---|
| Garbage disposal | • Uses water and increases pumping frequency and expense. | • Use of a garbage disposal is not recommended.<br>• Minimize garbage disposal use. Compost instead. |
| Washing machine | • Uses water and increases pumping frequency and expense. | • Choose a front-loader or water-saving top-loader, these units use less water than older models.<br>• Wash only full loads.<br>• Do laundry off site. |
| Dishwasher | • Uses water and increases pumping frequency and expense. | • Wash only full loads. |
| Large bathtub (whirlpool) | • Uses water and increases pumping frequency and expense. | • Take short showers to conserve water. |
| **Clear Water Uses** | **Impacts on Holding Tank** | **Management Tips** |
| High-efficiency furnace | • Drip may result in frozen pipes during cold weather. | • Re-route water into a sump pump or directly out of the house. Do not route furnace recharge to your holding tank. |
| Water softener<br>Iron filter<br>Reverse osmosis | • Uses water and increases pumping frequency and expense. | • These sources produce water that is not sewage and should not go into your holding tank.<br>• Reroute water from these sources to another outlet, such as a dry well, drain tile or old drainfield.<br>• When replacing, consider using a demand-based recharge vs. a time-based recharge.<br>• Check valves to ensure proper operation; have unit serviced per manufacturer directions |
| Surface drainage<br>Footing drains | • Uses water and increases pumping frequency and expense. | |

## Maintenance Log

*Track maintenance activities here for easy reference. See list of management tasks on pages 3 and 4.*

| Activity | Date accomplished/measured water usage | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Check daily for a period of time and weekly once average use is determined:*** | | | | | | | | | | |
| Water usage rate (gallons per day) | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Leaks: check for plumbing leaks | | | | | | | | | | |
| ***Annually:*** | | | | | | | | | | |
| Establish and maintain contract for holding tank pumping services | | | | | | | | | | |
| Water use appliances – review use | | | | | | | | | | |

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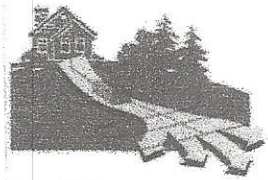
*Septic System Management Plan*
*For Holding Tank Systems*



| Water Meter Reading and Tank Evacuation Schedule | | | |
|---|---|---|---|
| **Date** | **Water Meter Reading (in gallons)** | **Tank Contents Removed?** | **Total Gallons Removed** |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
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| | | | |

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.*

Property Owner Signature: [signature] Date 11-15-2022

Management Plan Prepared By: Scott Jensen Certification # 346

Permitting Authority: Aitkin County