Wabasha County Public Health
- ENVIRONMENTAL SERVICES -

411 Hiawatha Drive East • Wabasha, MN • 55981
651-565-5200 • Fax: 651-565-2637

Inspection Form for New Septic Systems and Repair/ Replacement

Date of Inspection: 10/4/22	Time: 1200	Parcel#: 08.00340.00	Permit Number: 22-026

Reason for Inspection	Property Owner Information
☒ New System	Property Owner(s): Jones Bono
☐ New Replacement mnt	~~Site~~ Address: 8347 Valentine Terrace
☐ Partial Replacement of Existing System	City, State, Zip: Bloomington, MN 55431
☐ Repair Existing System	Phone:
☐ Other (please specify)	

Installers Information	Soil Type		# Of Bedrooms	
Contractor: Wabasha Complete Septic	☐ Course Sand	☐ Loam 1.67	☐ 2	☐ 6
	☐ Sand 0.83	☒ Silt Loam 2.00	☒ 3	☐ Other
License #: 3891	☐ Fine Sand 1.67	☐ Clay Loam 2.20	☐ 4	
	☐ Sandy Loam 1.27	☐ Clay	☐ 5	

System				
Any Repair Done on System?	☐ Yes	☒ No	What?	By Whom?
Usage	☒ Dwelling	☐ Other	☐ Seasonal	☒ Year Round
Water Using Appliances	☐ Washing Machine	☐ Dishwasher	☐ Garbage Disposal	☐ Whirlpool Bath
	☐ Water Conditioning Unit		☐ Self Cleaning Humidifier in Furnace	
Is System Opened Up?	☒ Yes	☐ No	☒ Full	☐ Partial
Distribution System	☐ Gravity	☒ Pressure		

Tank(s)	Tank(s) Material	Soil Treatment System	Other
☒ Septic Tank	☐ Fiberglass	☐ Rock Trench	☐ Alternative System (identify type)
☐ Aerobic Tank	☐ Plastic	☐ Gravelless Pipe	
☒ Pump Tank	☐ Metal	☐ Chamber Trench	☐ Experimental System (identify type)
☐ Holding Tank	☒ Concrete	☐ Seepage Bed	
1600 combo	☐ Other	☒ Mound	☐ Other (identify type)
		☐ At-grade 10x38	

Tank(S) Size ____Gallons Soil Treatment Area Size(s) 380 sq. ft ____lineal ft. Rock Under Pipe 6"

Setbacks

☒ 100' From Well (50' from Cased/Grouted)	☒ 10' Property line	☒ 3' Separation from sat. soil/bedrock
☒ 10' From Building	☒ 20' Soil Treatment From Building	
Nearest Surface Water ____ft. from	☐ River ☐ Lake ☐ Stream ☐ Other	

Remarks and Orders

Verified soils w/ Contractor
1600 combo Tank (1000/600)

Certification ☒ In Compliance with MN Rules Chapter 7080 under Normal Usage ☐ Not in Compliance

I hearby certify as a State of Minnesota licensed Inspector, Designer I or Qualified Employee that my observations recorded on this form are accurate as of the date at the top of this form for the site stated above. No determination of future hydraulic performance can be made due to unknown conditions during system construction, future water usage over the life of the system, abuse of the system, and/or inadequate maintenance all of which will adversely affect the life of the system.

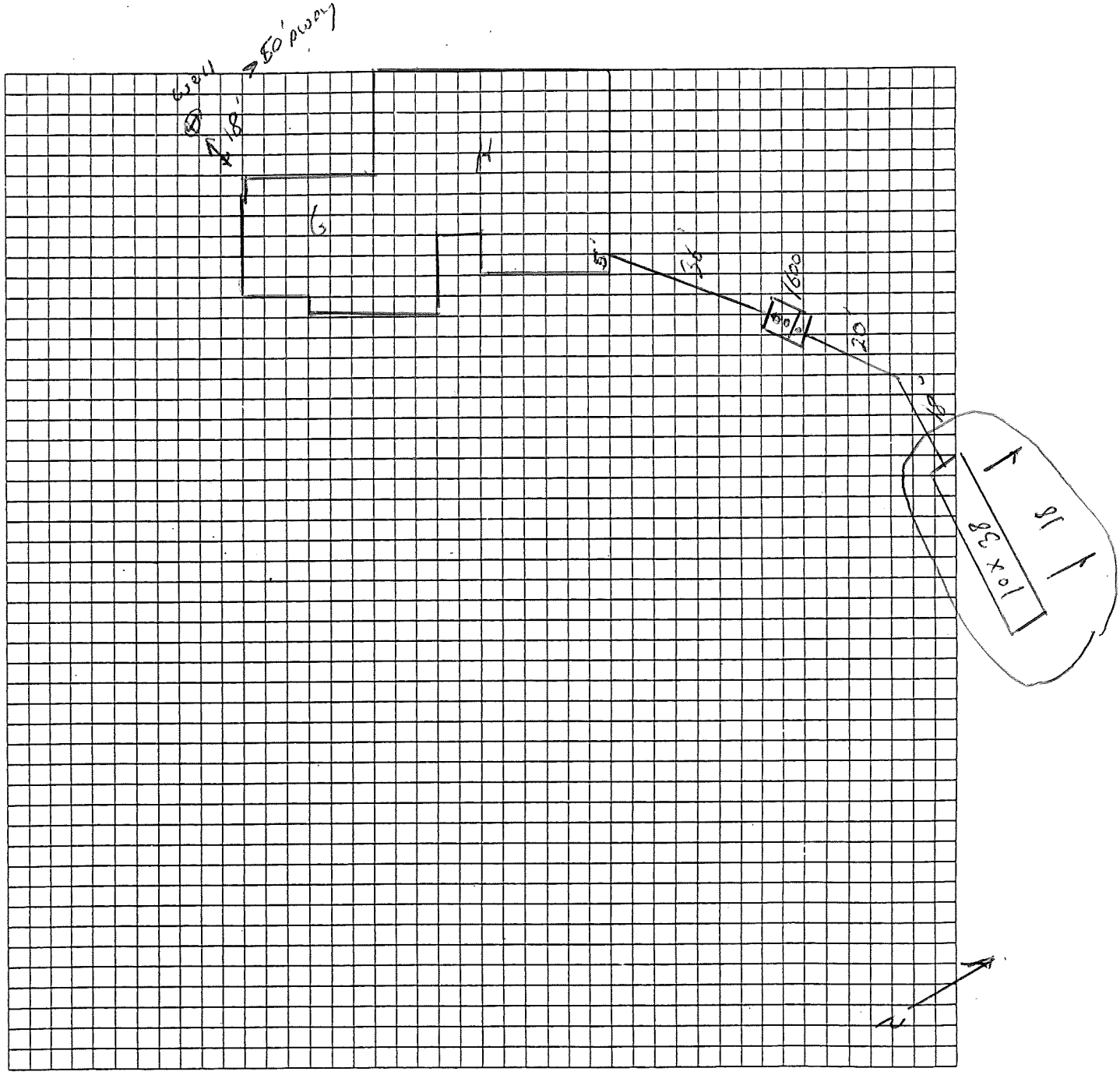
Inspector's Name Darrin Thompson License and/or Registration Number 5518

Inspector's Signature _____ Date 11/9/2023

Site Sketch

Permit #: 22-026

Parcel #: 08.00 340.00



Darrin Thompson
Inspector's Signature

1/9/2023
Date

Wabasha County Public Health – Environmental Health

411 Hiawatha Dr E
Wabasha, MN 55981
651-565-5200

Public Health
Prevent. Promote. Protect.

SSTS AS BUILT SEPTIC INSPECTION FORM

Property Owner: James Bono Parcel Number: R08.0034.00

Property Address: 26884 709th st. Permit Number: 22-026

Installation Date: 10/3/22

Tanks

Number, Type & Size: 1, Concrete, 1600

Tank Manufacturer: Weiser Precast Model #: 1600

Date of Manufacture: 2022 Max Bury Depth: 7'

Install Depth: 4'

Soil Treatment

System Type (I-V) ____ Trench: ____ Chamber: ____ Mound: X At-Grade: ____

Pressure Bed: ____ Holding Tank: ____ Other: ____

Depth of limiting layer: 30" System Depth: 1' 1.5ft

Depth of Treatment media under pipe: 9" Treatment Square Footage: ____

Rock Bed Dimensions: 10'x37.5' Sand Depth: 1' Adsorption Width: 44'x63'

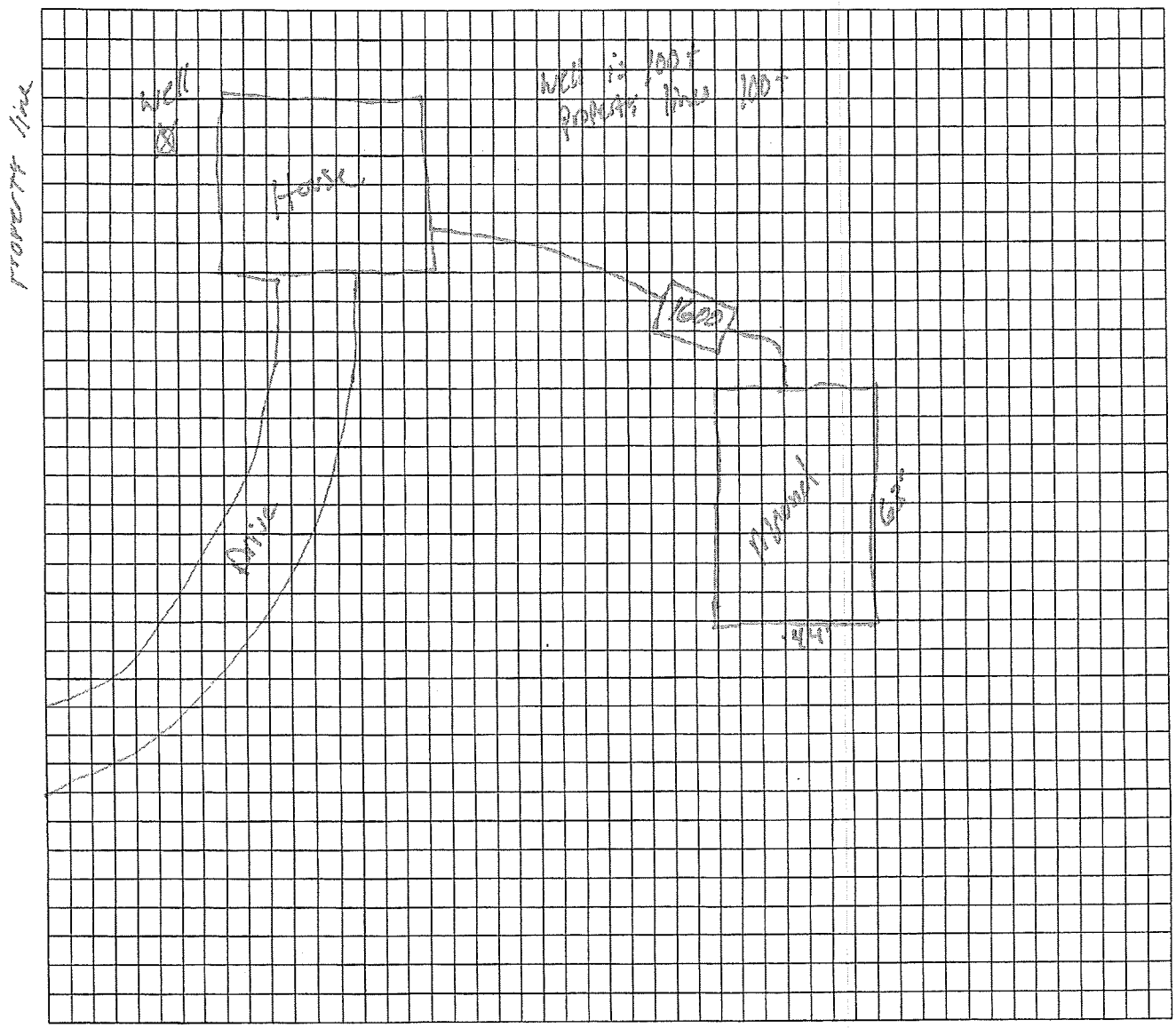
Description/Comments:

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

[signature] Installer 3891 license # 1/11/23 Date
(Installer Signature)

Site Drawing

Include all system components including tanks, piping and treatment systems. Label all components including type, capacities and final dimensions. Show all applicable setbacks including property boundaries, buildings, wells and water bodies. If applicable, show the location of any system abandonment(s).

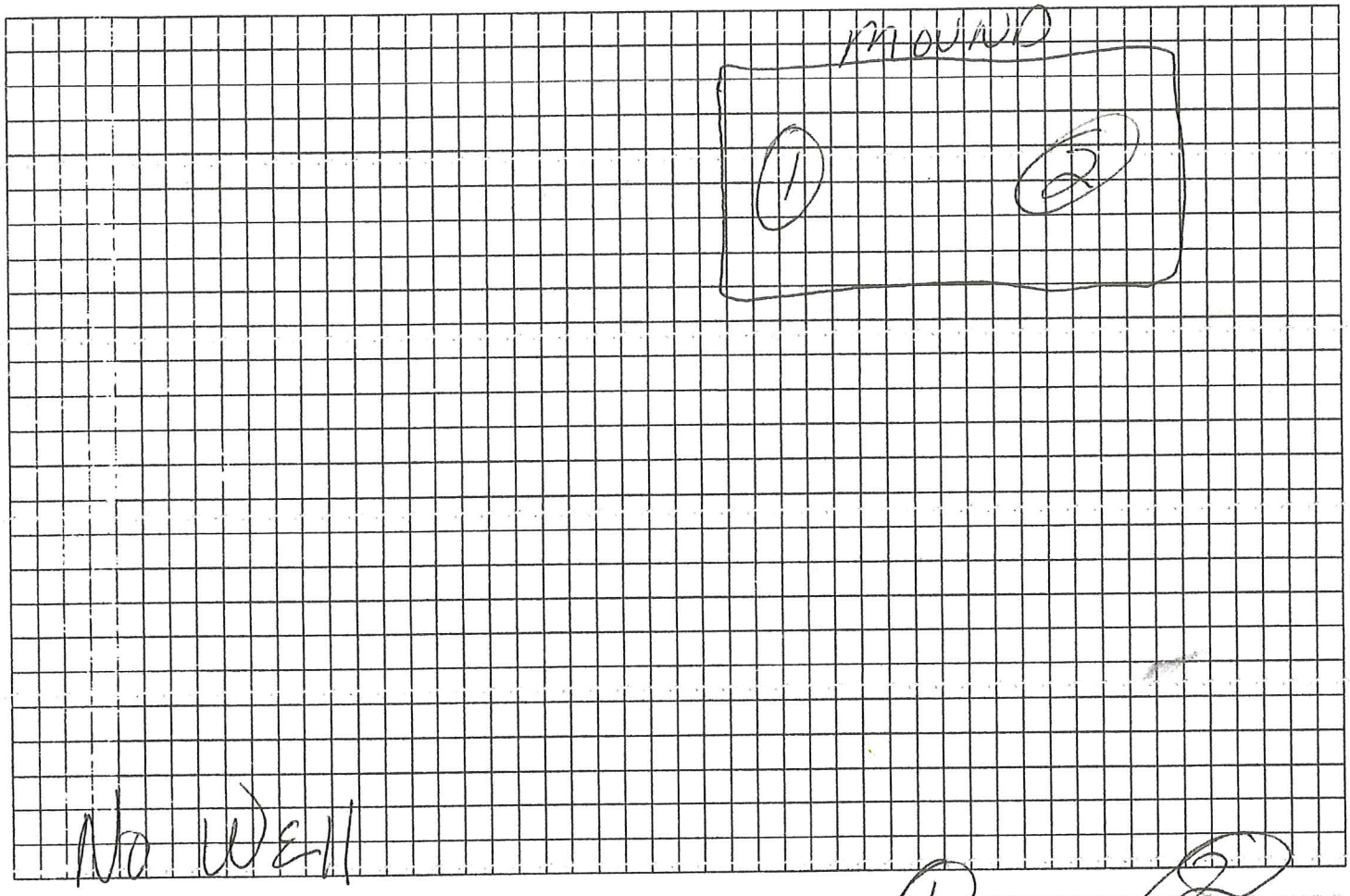


JUL 18 2022

Wabasha County Public Health-Environmental Services
411 Hiawatha Dr E - Wabasha, MN 55981
Ph: (651) 565-5200

Soils Verification form

Owner: James Bond	Site Address: Pepin Golf Course Lot #2
Mailing Address: 8347 Valentine Terrace	Bloomington, MN. 55431
Plat/Parcel # R08.0034000	Contractor: Wabasha Septic



SOIL INFORMATION:		SOIL PROFILE: 1		2	
Depth to bedrock:	—	TOP LOAM	Munsell Color 10YR3/3	TOP	Munsell Color 10YR3/3
Depth to water/mottling:	30"		10"		10"
Maximum depth of penetration:	Mound 1' Sand	SILT LOAM	10YR4/6	SILT LOAM	10YR4/6
Soil type at proposed depth:	Silt Loam		30"		30"
Soil structure at proposed depth:	Massive				
Soil Loading Rate:	20 Sf				

Comments: NO Heavy Equip on Mound during construction

County Inspector: [signature] Date: 7/18/22

Inspected by: Richard T Manahan Date: 7-5-2022

411 Hiawatha Dr E - Wabasha, MN 55981
(651) 565-5200

LOCATION:
Owner's Name: JAMES BOND Phone
Mailing Address: 8347 VALENTINE TERRACE City: BLOOMINGTON Zip 55431
Site Location: PEPIN Golf Course LOT # 2
PARCEL#: R0800340 00 T: 111 R: 012 S: 13

CONSTRUCTION PROPOSED:
☑ New Construction ☐ Replacement System ☐ Repair
☐ Other/Variance
Total Number of Design Bedrooms 3
Note: Include 1 additional bedroom if dwelling has unfinished basement

Indicate Type (MPCA Rule 7080.0170) ☑ Type I ☐ Type II ☐ Type III
☐ Washing Machine ☐ Garbage Disposal ☐ Whirlpool Tub
☐ Water Softener ☐ Dishwasher ☐ Self Cleaning Humidifier

TANK AND TREATMENT SYSTEM:
The capacity of each septic tank is 1500 and _____. Lift Tank 1000

TYPE OF TREATMENT SYSTEM USED (*check the system & the type*):
☑ Type I ☐ Type II ☐ Type III ☐ Type IV
☐ Trench ☑ Mound ☐ Performance ☐ Gravelless Pipe ☐ Bed
☐ Alternative ☐ Chambered ☐ At-Grade ☐ Other:

Total square footage to be installed: _____ If mound design, attach worksheets.

Rock under pipe: _____ inches. Lineal feet of 3' wide trenches _____

*** Attach all design forms, work sheets and Management Plan. All pressure distribution systems must submit a pressure distribution design form.**

FOR OFFICE USE ONLY
Date Received: JUL 0 6 2022
SSTS Permit # 22-026
Approved by: DM
Date Approved: 7/7/22
Receipt # 2209 Amount $ 390.00
Comments: Fee paid by Contractor

SITE INFORMATION: Date of Site Evaluation: 7-1-22

Slope % 5 Vegetation Type: GRASS Landscape Position: BACK YARD
Depth of Restricting Layer: 30" Maximum Depth of Soil Penetration: MOUND
Disturbed or Compacted? ☐ Yes ☑ No Access for Tank Maintenance Provided: ☑ Yes ☐ No
Flood Plain? ☐ Yes ☑ No Shoreland? ☐ Yes ☑ No
***Attach Site Drawings with Setbacks and Soil Boring Logs**

SOIL TYPE:
Soil Texture SILT LOAM Soil Structure MASSIVE Soil Loading Rate 2.0 GPD/FT2

Water Usage Per Day

Number of Bedrooms	I	II
2	300	225
3	450	300
4	600	375
5	750	450
6	900	525

I hereby certify with my signature that all data and the attached specification for this SSTS design are true and correct to the best of my knowledge. I agree to indemnify Wabasha County from all losses, damages, costs, and charges that may be incurred by the County because of my failure to conform to and comply with the provisions of this Ordinance.

Installer's Name: Wabasha Septic License# 3891 Phone #: 651-380-2980
Address: 16240 627th ST. City: Kellogg Zip: 55945
Designer's Name: Richard T. Mantei License# 1114
Designer's Signature: Richard T. Mantei Date: 7-5-2022

>>Note: Permits are valid for one year from the date of approval. Permits may be renewed for an additional year by sending in a request and $75.00 prior to the permit's expiration.

Wabasha County Public Health-Environmental Services
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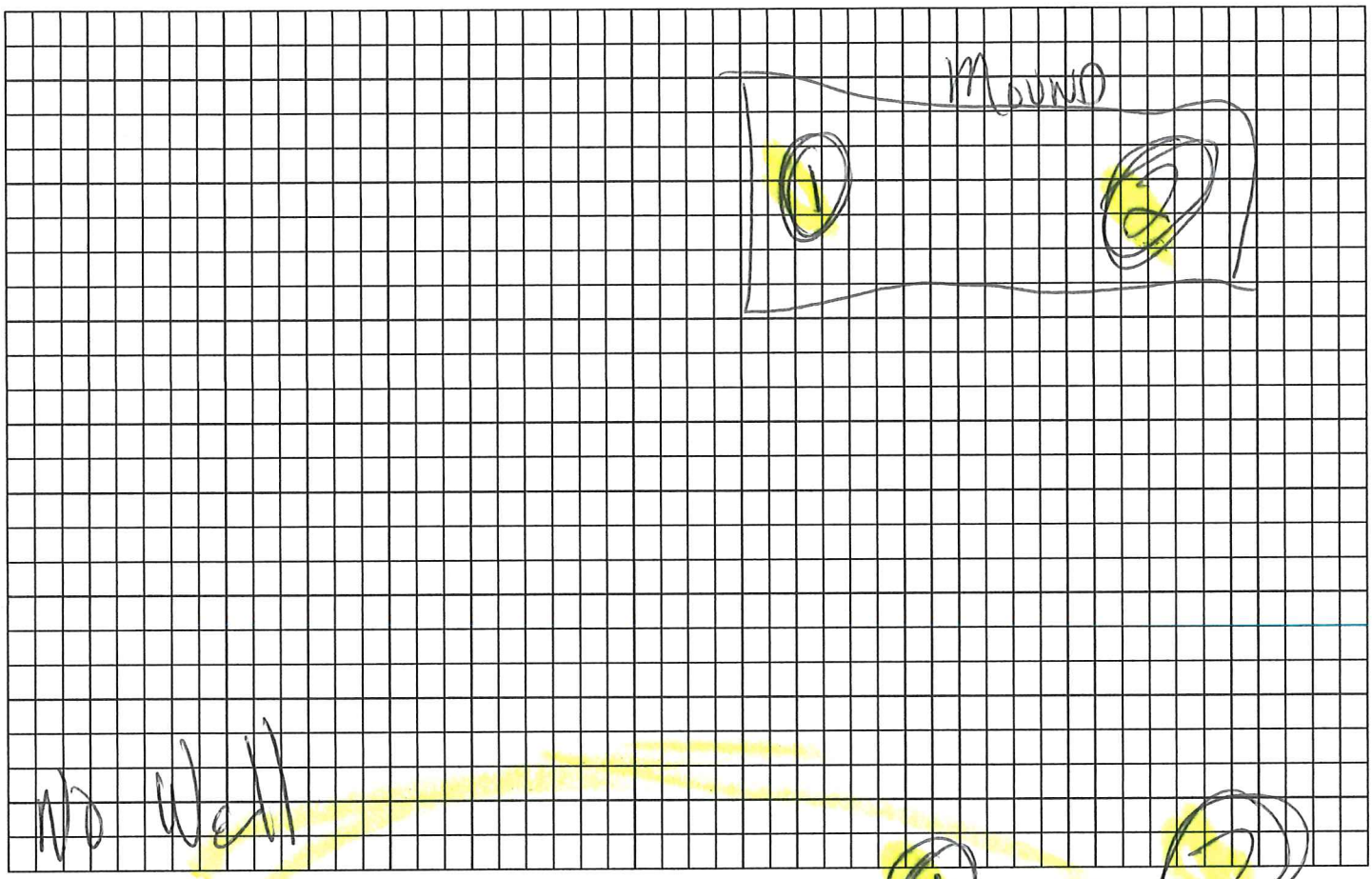
Ph: (651) 565-5200

FIELD INSPECTION REPORT

Owner: JAME BONO	Site Address: Pepin Golf Course Lot #2
Mailing Address: 8347 VALENTINE TERRACE	BLOOMINGTON 55431
Plat/Parcel #: R0800234000	Contractor: WABASHA Septic



SOIL INFORMATION:		SOIL PROFILE:			
Depth to bedrock:	—	TOP 0	Munsell Color	TOP	Munsell Color
Depth to water/mottling:	30"	LOAM 10"	10YR3/3		10YR3/3
Maximum depth of penetration:	MOUND	10" SILT	10" 10YR4/6	SILT	10YR4/6
Soil type at proposed depth:	SILT LOAM	LOAM 30"		LOAM	
Soil structure at proposed depth:	MASSIVE				
Soil Loading Rate:	2.0 SSF				

Comments: NO HEAVY TRUCKS ON MOUND SITE

Inspected by: Richard T Manke Date: 7-5-2022

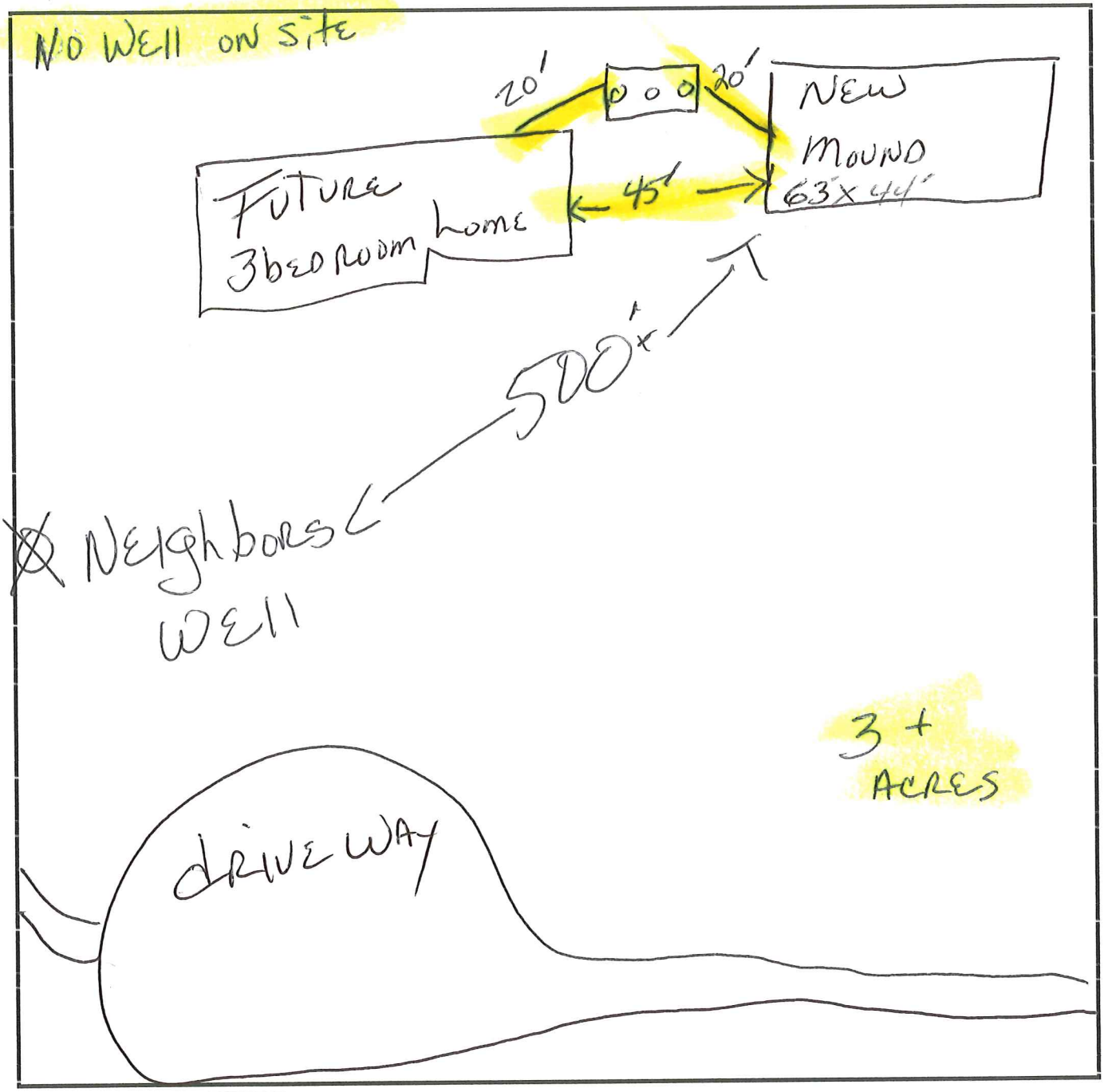
University of Minnesota Onsite Sewage Treatment Program

Proposed Design Map

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 03.01.2021

Property Owner/Client: James E. Bono



Map scale: ☐ Indicated north ☐ Show slope/contours

Elevations in feet Benchmark: ft

System Corners:

NW:		ft
NE:		ft
SW:		ft
SE:		ft

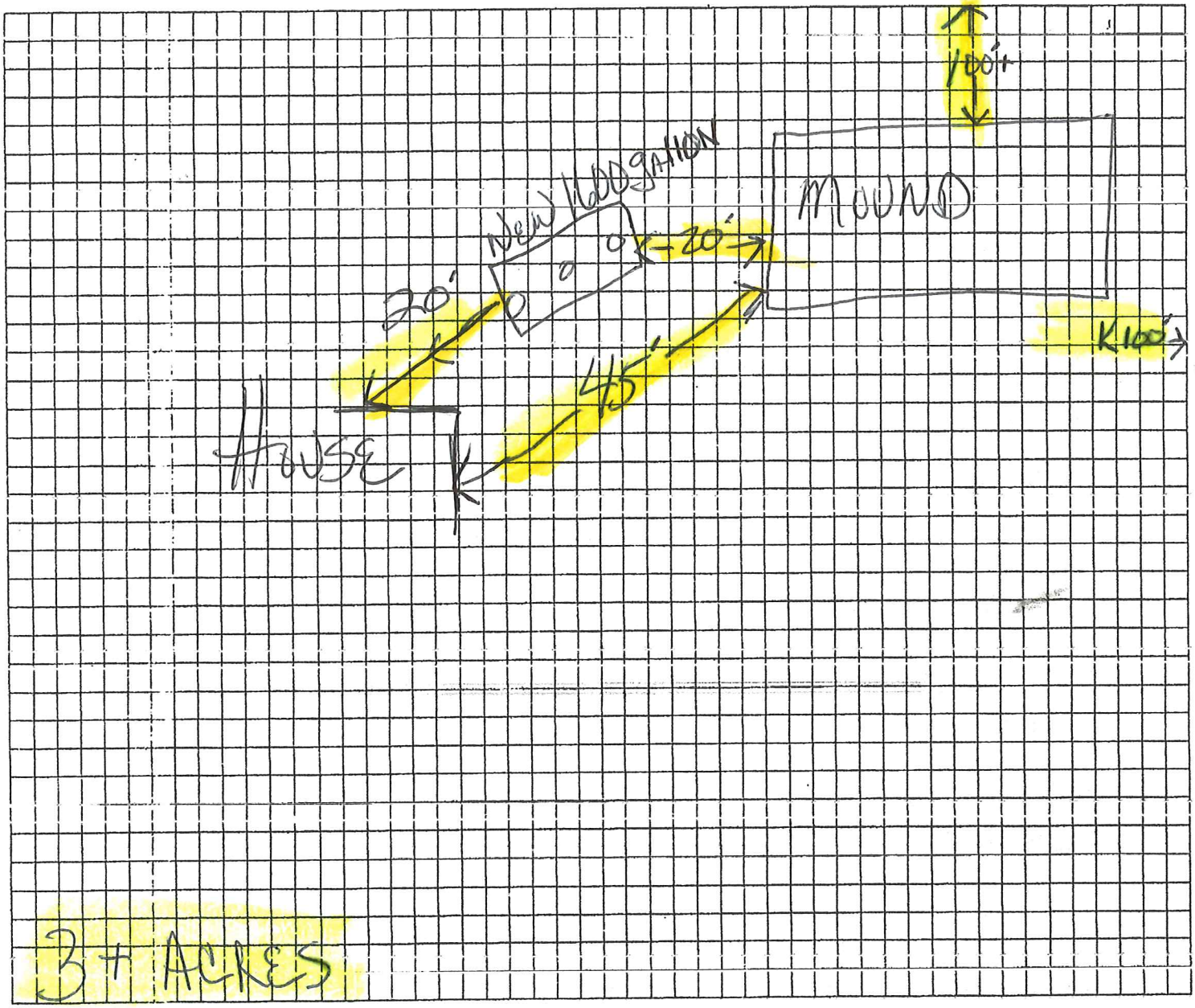
Soil Borings:

#1:		ft
#2:		ft
#3:		ft

Tank Outlet:		ft
Other:		
		ft
		ft

Site Drawing

Include all system components including tanks, piping and treatment systems. Label all components including type, capacities and final dimensions. Show all applicable setbacks including property boundaries, buildings, wells and water bodies. If applicable, show the location of any system abandonment(s).



Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Contact Information

v 04.01.2021

Property Owner/Client: James E. Bono | Date Completed: 7/4/2022

Site Address: Pepin Golf Course Lot 2 | Project ID:

Email: | Phone:

Mailing Address: 8347 Valentine Terrace Bloomington MN. 55431 | Alt Phone:

Legal Description: Bluff reserve

Parcel ID: R080034.00 | SEC: 13 | TWP: 111 | RNG: 012

2. Flow and General System Information

A. Client-Provided information

Project Type: ☑ New Construction ☐ Replacement ☐ Expansion ☐ Repair

Project Use: ☑ Residential ☐ Other Establishment:

Residential use: # Bedrooms: 3 | Dwelling Sq.ft.: | Unfinished Sq. Ft.:

Adults: 2 | # Children: | # Teenagers:

In-home business (Y/N): | If yes, describe:

Water-using devices: *(check all that apply)*

☐ Garbage Disposal/Grinder ☐ Dishwasher ☐ Hot Tub*
☐ Sewage pump in basement ☑ Water Softener* ☐ Sump Pump*
☐ Large Bathtub >40 gallons ☐ Iron Filter* ☐ Self-Cleaning Humidifier*
☐ Clothes Washing Machine ☐ High Eff. Furnace* ☐ Other:

* Clear water source - should not go into system

Additional current or future uses:

Anticipated non-domestic waste:

The above is complete & accurate:

Client signature & date

B. Designer-determined flow information

Attach additional information as necessary.

Design Flow: 450 GPD | Anticipated Waste Type: Residential

BOD: <170 mg/L | TSS <60 mg/L | Oil & Grease <25 mg/L

3. Preliminary Site Information

A. Water Supply Wells

#	Description	Mn. ID#	Well Depth (ft.)	Casing Depth (ft.)	Confining Layer	STA Setback	Source
1							
2							
3							
4							

Field Evaluation Worksheet

ONSITE SEWAGE TREATMENT PROGRAM

MINNESOTA POLLUTION CONTROL AGENCY

v 04.01.2021

1. Project Information

Property Owner/Client: James E. Bono | Project ID:

Site Address: Pepin Golf Course Lot 2 | Date Completed: 7/4/2022

2. Utility and Structure Information

Utility Locations Identified ☐ Gopher State One Call # ☐ Any Private Utilities:

Locate and Verify (*see Site Evaluation map*) ☐ Existing Buildings ☐ Improvements ☐ Easements ☑ Setbacks

3. Site Information

Vegetation type(s): Grass | Landscape position: Back/ Side Slope

Percent slope: 5 % | Slope shape: Linear, Concave | Slope direction:

Describe the flooding or run-on potential of site:

Describe the need for Type III or Type IV system:

Note:

Proposed soil treatment area protected? (Y/N): | If yes, describe:

4. General Soils Information

Filled, Compacted, Disturbed areas (Y/N):

If yes, describe:

Soil observations were conducted in the proposed system location (Y/N):

A soil observation in the most limiting area of the proposed system (Y/N):

Number of soil observations: 2 | Soil observation logs attached (Y/N): Yes

Percolation tests performed & attached (Y/N):

5. Phase I. Reporting Information

	Depth		Elevation	
Limiting Condition*:	30	in		ft
Periodically saturated soil:	30	in		ft
Standing water:		in		ft
Bedrock:		in		ft
Benchmark Elevation:		ft		

*Most Restrictive Depth Identified from List Below

Soil Texture: Clay Loam

Percolation Rate: min/inch

Soil Hyd Loading Rate: 0.45 gpd/ft^2

Elevations and Benchmark on map? (Y/N):

Benchmark Elevation Location:

Differences between soil survey and field evaluation:

Site evaluation issues / comments:

University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

1. PROJECT INFORMATION

v 04.01.2021

Property Owner/Client:	James E. Bono	Project ID:	
Site Address:	Pepin Golf Course Lot 2	Date:	07/04.2022
Email Address:		Phone:	

2. DESIGN FLOW & WASTE STRENGTH

Attach data / estimate basis for Other Establishments

Design Flow: 450 GPD Anticipated Waste Type: Residential

BOD: <170 mg/L TSS: <60 mg/L Oil & Grease: <25 mg/L

Treatment Level: C *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: _____ Gallons in _____ Tanks or Compartments

Recommended **Holding Tank** Capacity: _____ Gallons in _____ Tanks or Compartments

Type of High Level Alarm: _____ (Set @ 75% tank capacity)

Comments: _____

4. SEPTIC TANK SIZING

A. Residential dwellings:

Number of Bedrooms (Residential): 3

Code Minimum **Septic Tank** Capacity: 1500 Gallons in 1 Tanks or Compartments

Recommended **Septic Tank** Capacity: 1500 Gallons in _____ Tanks or Compartments

Effluent Screen & Alarm (Y/N): No Model/Type: concrete

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):	600 Gal	Pump Tank 2 Capacity (Minimum):	Gal
Pump Tank 1 Capacity (Recommended):	600 Gal	Pump Tank 2 Capacity (Recommended):	Gal
Pump 1	27.0 GPM Total Head 10.5 ft	Pump 2	GPM Total Head ft
Supply Pipe Dia.	2.00 in Dose Vol: 100.0 gal	Supply Pipe Dia.	Dose Vol: Gal



Design Summary Page

University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

6. SYSTEM AND DISTRIBUTION TYPE

Project ID:

Soil Treatment Type:	Mound	Distribution Type:	Pressure Distribution-Level
Elevation Benchmark:	ft	Benchmark Location:	
MPCA System Type:	Type I	Distribution Media:	Rock
Type III/IV/V Details:			

7. SITE EVALUATION SUMMARY:

Describe Limiting Condition: Redoximorphic Features/Saturated Soils

Layers with >35% Rock Fragments? (yes/no) ____ If yes, describe below: % rock and layer thickness, amount of soil credit and any additional information for addressing the rock fragments in this design.

Note:

	Depth		Depth		Elevation of Limiting Condition	
Limiting Condition:	30	inches	2.5	ft		ft
Minimum Req'd Separation:	36	inches	3.0	ft	Elevation	
Code Max System Depth:	Mound	inches	-0.5	ft		ft

Critical for system compliance

This is the maximimum depth to the bottom of the distribution media for required separation. Negative Depth (ft) means it must be a mound.

Soil Texture:	Clay Loam		
Soil Hyd. Loading Rate:	0.45 GPD/ft^2	Percolation Rate:	MPI
Contour Loading Rate:	6	Note:	
Measured Land Slope:	5 %	Note:	
Comments:			

8. SOIL TREATMENT AREA DESIGN SUMMARY

Trench:

Dispersal Area	ft^2	Sidewall Depth	in	Trench Width	ft
Total Lineal Feet	ft	No. of Trenches		Code Max. Trench Depth	in
Contour Loading Rate	ft	Minimum Length	ft	Designed Trench Depth	in

Bed:

Dispersal Area	ft^2	Sidewall Depth	in	Maximum Bed Depth	in
Bed Width	ft	Bed Length	ft	Designed Bed Depth	in

Mound:

Dispersal Area	375.0 ft^2	Bed Length	37.5 ft	Bed Width	10.0 ft
Absorption Width	27.0 ft	Clean Sand Lift	1.0 ft	Berm Width (0-1%)	ft
Upslope Berm Width	12.5 ft	Downslope Berm	21.3 ft	Endslope Berm Width	12.8 ft

ONSITE SEWAGE TREATMENT PROGRAM

Mound Design Worksheet
≥1% Slope

MINNESOTA POLLUTION CONTROL AGENCY

1. SYSTEM SIZING: Project ID: v 04.01.2021

A. Design Flow:	450	GPD
B. Soil Loading Rate:	0.45	GPD/ft²
C. Depth to Limiting Condition	2.5	ft
D. Percent Land Slope:	5.0	%
E. Design Media Loading Rate:	1.2	GPD/ft²
F. Mound Absorption Ratio:	2.70	

Table I
MOUND CONTOUR LOADING RATES:

Measured Perc Rate	OR	Texture - derived mound absorption ratio		Contour Loading Rate:
≤ 60mpi		1.0, 1.3, 2.0, 2.4, 2.6	›	≤12
61-120 mpi	OR	5.0	›	≤12
≥ 120 mpi*		>5.0*	›	≤6*

TABLE IXa
LOADING RATES FOR DETERMINING BOTTOM ABSORPTION AREA AND ABSORPTION RATIOS USING PERCOLATION TESTS

Percolation Rate (MPI)	Treatment Level C: Absorption Area Loading Rate (gpd/ft²)	Treatment Level C: Mound Absorption Ratio	Treatment Level A, A-2, B: Absorption Area Loading Rate (gpd/ft²)	Treatment Level A, A-2, B: Mound Absorption Ratio
<0.1	-	1	-	1
0.1 to 5	1.2	1	1.6	1
0.1 to 5 (fine sand and loamy fine sand)	0.6	2	1	1.6
6 to 15	0.78	1.5	1	1.6
16 to 30	0.6	2	0.78	2
31 to 45	0.6	2.4	0.78	2
46 to 60	0.45	2.6	0.6	2.6
61 to 120	-	5	0.3	5.3
>120	-	-	-	-

*Systems with these values are not Type I systems. Contour Loading Rate (linear loading rate) is a recommended value.

2. DISPERSAL MEDIA SIZING

A. Calculate Dispersal Bed Area: Design Flow ÷ Design Media Loading Rate

450 GPD ÷ 1.2 GPD/ft² = 375 ft²

If a larger dispersal media area is desired, enter size: ft²

B. Enter Dispersal Bed Width: 10.0 ft *Can not exceed 10 feet*

C. Calculate Contour Loading Rate: Bed Width X Design Media Loading Rate

10 ft² X 1.2 GPD/ft² = 12.0 gal/ft *Can not exceed Table 1*

D. Calculate Minimum Dispersal Bed Length: Dispersal Bed Area ÷ Bed Width

375 ft² ÷ 10.0 ft = 37.5 ft

If a larger dispersal media Length is desired, enter size: ft

3. ABSORPTION AREA SIZING

A. Calculate Absorption Width: Bed Width X Mound Absorption Ratio

10.0 ft X 2.7 = 27.0 ft

B. For slopes >1%, the Absorption Width is measured downhill from the upslope edge of the Bed.

Calculate Downslope Absorption Width: Absorption Width - Bed Width

27.0 ft - 10.0 ft = 17.0 ft

4. DISTRIBUTION MEDIA: Project ID:

Select Dispersal Media: Rock Enter Either A. or B.

A. Rock Depth Below Distribution Pipe

9 in

B. Registered Media

Registered Media Depth in

Check registered product information for specific application details and design

Specific Media Comments:

6. MOUND SIZING

Project ID:

A. Clean Sand Lift: Required Separation - Depth to Limiting Condition = Clean Sand Lift (1 ft minimum)

3.0 ft - 2.5 ft = 1.0 ft Design Sand Lift (optional): ft

B. Upslope Height: Clean Sand Lift + Depth of Media +Depth to Cover Pipe+ Depth of Cover (1 ft)

1.0 ft + 0.75 ft + 1 ft + 1.0 ft = 3.8 ft

Land Slope %		0	1	2	3	4	5	6	7	8	9	10	11	12
Upslope Berm Ratio	3:1	3.00	2.91	2.83	2.75	2.68	2.61	2.54	2.48	2.42	2.36	2.31	2.26	2.21
	4:1	4.00	3.85	3.70	3.57	3.45	3.33	3.23	3.12	3.03	2.94	2.86	2.78	2.70

C. Select Upslope Berm Multiplier (based on land slope): 3.33

D. Calculate Upslope Berm Width: Multiplier X Upslope Mound Height

3.33 ft X 3.8 ft = 12.5 ft

E. Calculate Drop in Elevation Under Bed: Bed Width X Land Slope ÷ 100 = Drop (ft)

10.0 ft X 5.0 % ÷ 100 = 0.50 ft

F. Calculate Downslope Mound Height: Upslope Height + Drop in Elevation

3.8 ft + 0.50 ft = 4.3 ft

Land Slope %		0	1	2	3	4	5	6	7	8	9	10	11	12
Downslope Berm Ratio	3:1	3.00	3.09	3.19	3.30	3.41	3.53	3.66	3.80	3.95	4.11	4.29	4.48	4.69
	4:1	4.00	4.17	4.35	4.54	4.76	5.00	5.26	5.56	5.88	6.25	6.67	7.14	7.69

G. Select Downslope Berm Multiplier (based on land slope): 5.00

H. Calculate Downslope Berm Width: Downslope Multiplier X Downslope Height

5.00 x 4.3 ft = 21.3 ft

I. Calculate Minimum Berm to Cover Absorption Area: Downslope Absorption Width + 4 feet

17.0 ft + 4 ft = 21.0 ft

J. Design Downslope Berm = greater of 4H and 4I: 21.3 ft

K. Select Endslope Berm Multiplier: 3.00 *(usually 3.0 or 4.0)*

L. Calculate Endslope Berm X Downslope Mound Height = Endslope Berm Width

3.00 ft X 4.3 ft = 12.8 ft

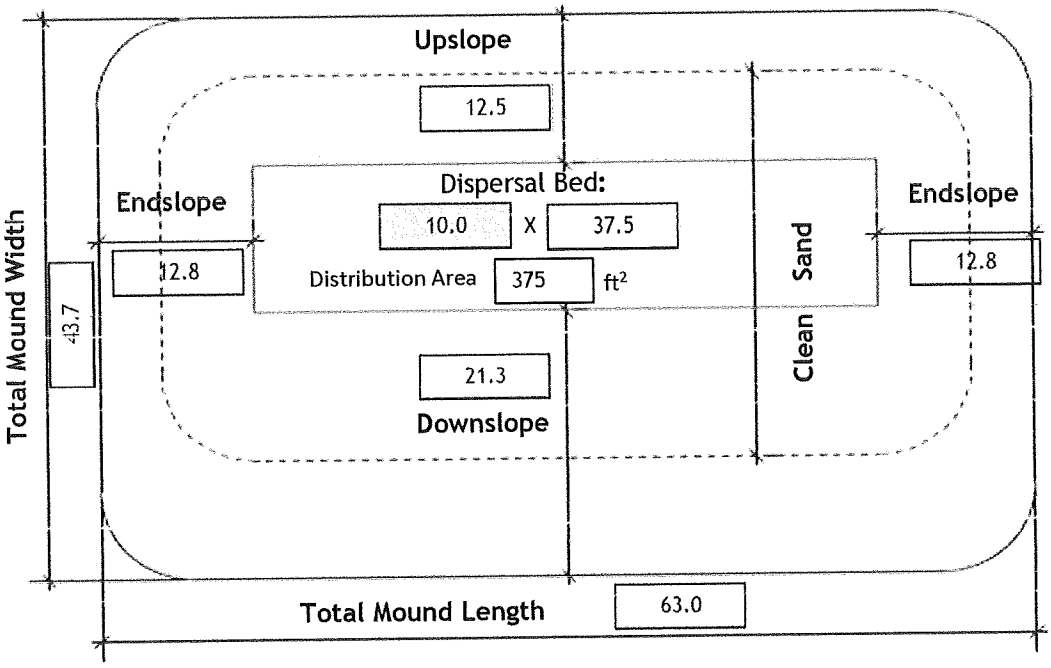
M. Calculate Mound Width: Upslope Berm Width + Bed Width + Downslope Berm Width

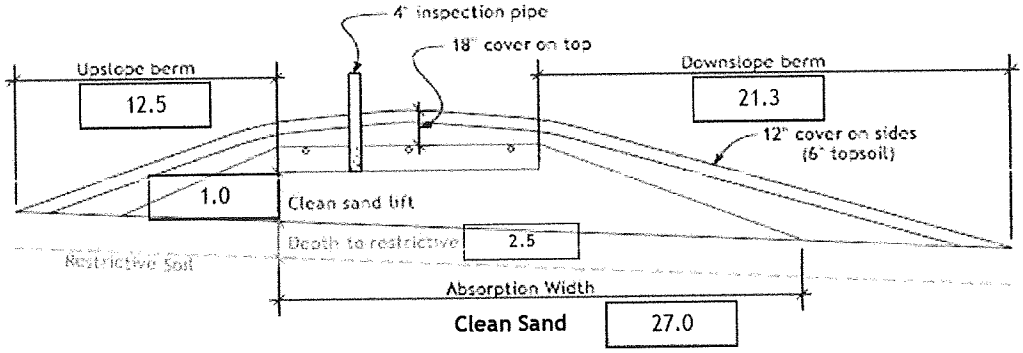
12.5 ft + 10.0 ft + 21.3 ft = 43.7 ft

N. Calculate Mound Length: Endslope Berm Width + Bed Length + Endslope Berm Width

12.8 ft + 37.5 ft + 12.8 ft = 63.0 ft

7. MOUND DIMENSIONS (Feet) Project ID:





Required Separation:	36 (in)	Distribution Media:	Rock
Manifold Connection:	End	Media Depth:	9.0 (in)
Perforation Size:	1/4 (in)	Perforation Spacing:	36.0 (in)

If Split and Non-Level Pressure Distribution Used: See Non-Level Pressure Distribution Form

Comments:

University of Minnesota Onsite Sewage Treatment Program

Mound Materials Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 04.01.2021

A. Rock *Volume* : (Rock Below Pipe + Rock to cover pipe (*pipe outside dia + ~2 inch)*) X *Bed Length* X *Bed Width* = *Volume*

(9 in + 3.0 in) ÷ 12 X 37.5 ft X 10.0 ft = 375.0 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 375.0 ft^3 ÷ 27 = 13.9 yd^3

Add 30% for constructability: 13.9 yd^3 X 1.3 = 18.1 yd^3

B. Calculate *Clean Sand Volume:*

Volume Under Rock bed : *Average Sand Depth* x *Media Width* x *Media Length* – cubic feet

2.0 ft X 10.0 ft X 37.5 ft = 750 ft^3

For a Mound on a slope from 0-1%

Volume from Length = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Length)

(ft - 1) X X ft =

Volume from Width = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Width)

(ft - 1) X X ft =

Total Clean Sand Volume : *Volume from Length* + *Volume from Width* + *Volume Under Media*

ft^3 + ft^3 + ft^3 = ft^3

For a Mound on a slope greater than 1%

Upslope Volume : ((*Upslope Mound Height - 1*) x 3 x *Bed Length*) ÷ 2 = cubic feet

((3.8 ft - 1) X 3.0 ft X 37.5) ÷ 2 = 154.7 ft^3

Downslope Volume : ((*Downslope Height - 1)* x Downslope Absorption Width x *Media Length*) ÷ 2 = cubic feet

((4.3 ft - 1) X 17.0 ft X 37.5) ÷ 2 = 1035.9 ft^3

Endslope Volume : (*Downslope Mound Height - 1)* x 3 x *Media Width* = cubic feet

(4.3 ft - 1) X 3.0 ft X 10.0 ft = 97.5 ft^3

Total Clean Sand Volume : *Upslope Volume* + *Downslope Volume* + *Endslope Volume* + *Volume Under Media*

154.7 ft^3 + 1035.9 ft^3 + 97.5 ft^3 + 750.0 ft^3 = 2038.1 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 2038.1 ft^3 ÷ 27 = 75.5 yd^3

Add 30% for constructability: 75.5 yd^3 X 1.3 = 98.1 yd^3

C. Calculate *Sandy Berm Volume:*

Total Berm Volume (approx) : ((Avg. Mound Height - 0.5 ft topsoil) x Mound Width x Mound Length) ÷ 2

(4.0 - 0.5)ft X 43.7 ft X 63.0) ÷ 2 = 4822.1 ft^3

Total Mound Volume - Clean Sand volume -Rock Volume = cubic feet

4822.1 ft^3 - 2038.1 ft^3 - 375.0 ft^3 = 2408.9 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 2408.9 ft^3 ÷ 27 = 89.2 yd^3

Add 30% for constructability: 89.2 yd^3 x 1.3 = 116.0 yd^3

D. Calculate *Topsoil Material Volume: Total Mound Width X Total Mound Length X .5 ft*

43.7 ft X 63.0 ft X 0.5 ft = 1377.7 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 1377.7 ft^3 ÷ 27 = 51.0 yd^3

Add 30% for constructability:	51.0	yd^3	x	1.3	=	66.3 yd^3

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 04.01.2021

1. Media Bed Width: 10 ft

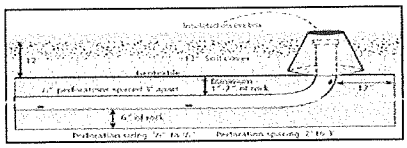
2. Minimum Number of Laterals in system/zone = Rounded up number of [(Media Bed Width - 4) ÷ 3] + 1.

[(10 - 4) ÷ 3] + 1 = 3 laterals *Does not apply to at-grades*

3. Designer Selected *Number of Laterals*: 3 laterals
Cannot be less than line 2 (Except in at-grades)

4. Select *Perforation Spacing*: 3.00 ft

5. Select *Perforation Diameter Size*: 1/4 in



6. *Length of Laterals* = Media Bed Length - 2 Feet.

37.0 - 2ft = 35.0 ft *Perforation can not be closer then 1 foot from edge.*

7. Determine the *Number of Perforation Spaces*. Divide the *Length of Laterals* by the *Perforation Spacing* and round down to the nearest whole number.

Number of Perforation Spaces = 35.0 ft ÷ 3.0 ft = 11 Spaces

8. *Number of Perforations per Lateral* is equal to 1.0 plus the *Number of Perforation Spaces*. Check table below to verify the number of perforations per lateral guarantees less than a 10% discharge variation. The value is double with a center manifold.

Perforations Per Lateral = 11 Spaces + 1 = 12 Perfs. Per Lateral

Maximum Number of Perforations Per Lateral to Guarantee <10% Discharge Variation

1/4 Inch Perforations

Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	10	13	18	30	60
2½	9	12	16	28	54
3	8	12	16	25	52

7/32 Inch Perforations

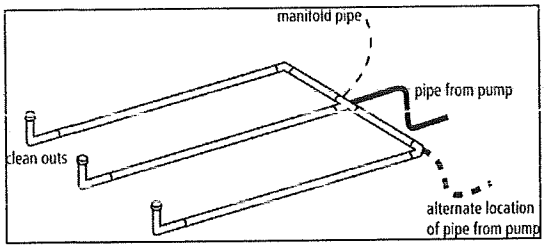
Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	11	16	21	34	68
2½	10	14	20	32	64
3	9	14	19	30	60

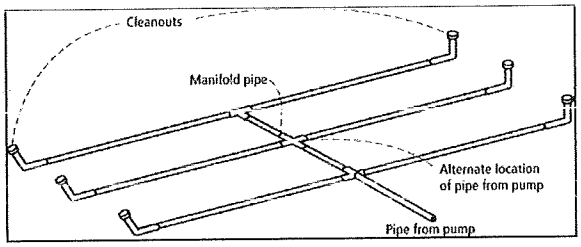
3/16 Inch Perforations

Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	12	18	26	46	87
2½	12	17	24	40	80
3	12	16	22	37	75

1/8 Inch Perforations

Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	21	33	44	74	149
2½	20	30	41	69	135
3	20	29	38	64	128





9. *Total Number of Perforations* equals the *Number of Perforations per Lateral* multiplied by the *Number of Perforated Laterals.*

12 Perf. Per Lat. X 3 Number of Perf. Lat. = 36 Total Number of Perf.

10. Spacing of laterals; Must be greater than 1 foot and no more than 3 feet: 3.0 ft

11. Select *Type of Manifold Connection* (End or Center): End

12. *Select Lateral Diameter (See Table)*: 1.25 in

ONSITE SEWAGE TREATMENT PROGRAM

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

13. Calculate the *Square Feet per Perforation.*

Recommended value is 4-11 ft2 per perforation, Does not apply to At-Grades

a. *Bed Area* = Bed Width (ft) X Bed Length (ft)

10	ft	X	37	ft =	370	ft^2

b. *Square Foot per Perforation* = *Bed Area* ÷ by the *Total Number of Perfs*

370	ft^2 ÷		36	perf =	10.3	ft^2/perf

14. Select *Minimum Average Head*: 1.0 ft

15. Select *Perforation Discharge* based on Table: 0.74 GPM per Perf

16. *Flow Rate = Total Number of Perfs X Perforation Discharge.*

36	Perfs	X	0.74	GPM per Perforation =	27	GPM

17. *Volume of Liquid Per Foot of Distribution Piping (Table II)*: 0.078 Gallons/ft

18. *Volume of Distribution Piping* =

= [*Number of Perforated Laterals* X *Length of Laterals* X (Volume of Liquid Per Foot of Distribution Piping]

3	X		35	ft X	0.078	gal/ft =	8.2	Gallons

19. Minimum Delivered Volume = Volume of Distribution Piping X 4

8.2	gals	X	4	=	32.8	Gallons

Perforation Discharge (GPM)

Head (ft)	Perforation Diameter			
	1/8	3/16	7/32	1/4
1.0[a]	0.18	0.41	0.56	0.74
1.5	0.22	0.51	0.69	0.9
2.0[b]	0.26	0.59	0.80	1.04
2.5	0.29	0.65	0.89	1.17
3.0	0.32	0.72	0.98	1.28
4.0	0.37	0.83	1.13	1.47
5.0[c]	0.41	0.93	1.26	1.65
1 foot	Dwellings with 3/16 inch to 1/4 inch perforations			
2 feet	Dwellings with 1/8 inch perforations			
	Other establishments and WSTS with 3/16 inch to 1/4 inch perforations			
5 feet	Other establishments and WSTS with 1/8 inch perforations			

Table II
Volume of Liquid in Pipe

Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

Comments/Special Design Considerations:

Basic Pump Selection Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY Project ID: v 04.01.2021

Pumping to Gravity or Pressure Distribution: Pressure

A. If pumping to gravity enter the gallon per minute of the pump: ____ GPM *(10 - 45 gpm)*

B. If pumping to a pressurized distribution system: 27.0 GPM

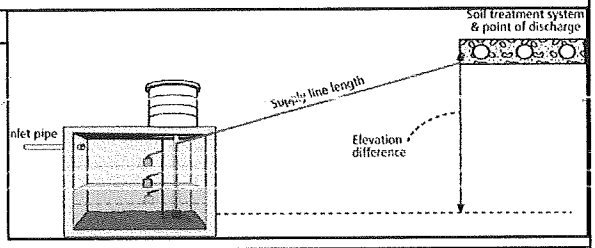
C. Enter pump description: Demand Dosing

2. HEAD REQUIREMENTS

A. Elevation Difference between pump and point of discharge: 5 ft

B. Distribution Head Loss: 5 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: 20 ft

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

Friction Loss = 1.95 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* X 1.25 = *Equivalent Pipe Length*

20 ft X 1.25 = 25.0 ft

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft* by the *Equivalent Pipe Length* and divide by 100.

Supply Friction Loss =

1.95 ft per 100ft X 25.0 ft ÷ 100 = 0.5 ft

H. *Total Head* requirement is the sum of the *Elevation Difference* + Distribution Head Loss, + Additional Head Loss + Supply Friction Loss

5.0 ft + 5.0 ft + ____ ft + 0.5 ft = 10.5 ft

3. PUMP SELECTION

A pump must be selected to deliver at least **27.0** GPM with at least **10.5** feet of total head.

Comments:

Gould 1/3 HP is recommended

Pump Tank Design Worksheet (Demand Dose)

Onsite Sewage Treatment Program

Minnesota Pollution Control Agency

DETERMINE TANK CAPACITY AND DIMENSIONS

Project ID: v 04

1. A. *Design Flow (Design Sum.1A)*: 450 GPD C. Tank Use: Dosing
   B. Min. required pump tank capacity: 600 Gal D. Recommended pump tank capacity: 600

2. A. Tank Manufacturer: Weiser B. Tank Model: 1500/750 combo
   C. Capacity from manufacturer: 600 Gallons
   D. Gallons per inch from manufacturer: 16.0 Gallons per inch
   E. Liquid depth of tank from manufacturer: 50.0 inches

Note: Design calculations are based on this specific Substituting a different tank model will change the float or timer settings. Contact designer if changes necessary.

DETERMINE DOSING VOLUME

3 Calculate *Volume to Cover Pump* (The inlet of the pump must be at least 4-inches from the bottom of the pump tank & 2 inches of water covering the pump is recommended)

(Pump and block height + 2 inches) X *Gallons Per Inch*

(8 in + 2 inches) X 16.0 Gallons Per Inch = 160 Gallons

4 *Minimum Delivered Volume* = 4 X Volume of Distribution Piping:

-Item 18 of the Pressure Distribution or Item 11 of Non-level 33 Gallons (Minimum dose) 2.0 inches/d

5 Calculate *Maximum Pumpout Volume* (25% of Design Flow)

Design Flow: 450 GPD X 0.25 = 113 Gallons (Maximum dose) 7.0 inches/d

6 *Select a pumpout volume that meets both Minimum and Maximum:* 100 Gallons

7 Calculate *Doses Per Day* = Design Flow ÷ *Delivered Volume*

450 gpd ÷ 100 gal = 4.50 *Doses*

8 Calculate Drainback:

A. *Diameter of Supply Pipe* = 2 inches

B. Length of Supply Pipe = 20 feet

C. *Volume of Liquid Per Lineal Foot of Pipe* = 0.170 Gallons/ft

D. *Drainback = Length of Supply Pipe X Volume of Liquid Per Lineal Foot of Pipe*

20 ft X 0.170 gal/ft = 3.4 Gallons

9. *Total Dosing Volume = Delivered Volume* plus *Drainback*

100 gal + 3.4 gal = 103 Gallons

10. Minimum Alarm Volume = Depth of alarm (2 or 3 inches) X gallons per inch of tank

3 in X 16.0 gal/in = 48.0 Gallons

Volume of Liquid in Pipe

Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

DEMAND DOSE FLOAT SETTINGS

11. Calculate *Float Separation Distance* using *Dosing Volume*.

Total Dosing Volume /Gallons Per Inch

103 gal ÷ 16.0 gal/in = 6.5 Inches

12. Measuring from bottom of tank:

A. *Distance to set Pump Off Float* = Pump + block height + 2 inches

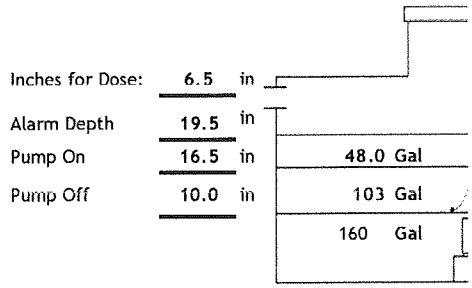
8 in + 2 in = 10 Inches

B. *Distance to set Pump On Float=Distance to Set Pump-Off Float + Float Separation Distance*

10 in + 6.5 in = 16 Inches

C. *Distance to set Alarm Float = Distance to set Pump-On Float + Alarm Depth* (2-3 inches)

16 in + 3.0 in = 19 Inches



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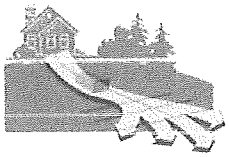


Septic System Management Plan for Above Grade Systems

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 septic system is designed to kill harmful organisms and remove pollutants before the water is recycled back into our lakes, streams and groundwater.

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 maintainer or service provider. 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 James Bono

Property Address Pepin Bluff Reserve Lot 2 Property ID R08.00340.00

System Designer Richard Manthei Phone 507 259 2733

System Installer Wabasha Septic Phone 651 380 2980

Service Provider/Maintainer Wabasha Septic Phone 651 380 2980

Permitting Authority Phone

Permit # Date Inspected

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

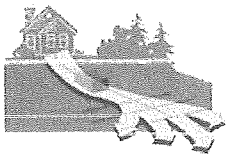
For a copy of the *Septic System Owner's Guide*, call 1-800-876-8636 or go to http://shop.extension.umn.edu/

http://septic.umn.edu

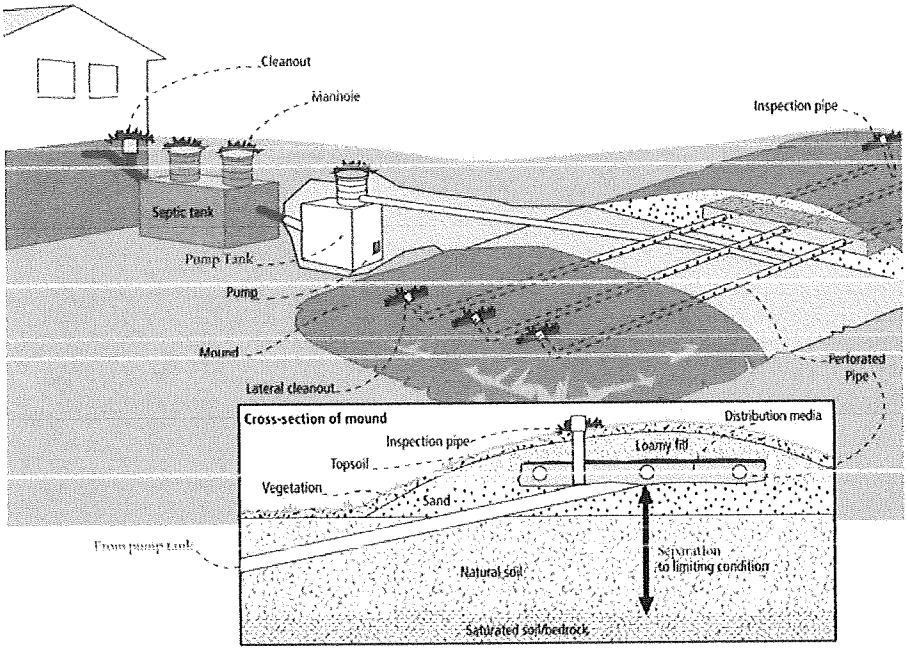
Version 11/03/2010

UNIVERSITY OF MINNESOTA

Septic System Management Plan for Above Grade Systems



Your Septic System



Septic System Specifics

System Type: ◉I ◯II ◯III ◯IV* ◯V*

(Based on MN Rules Chapter 7080.2200 – 2400)

☐ System is subject to operating permit*

☐ System uses UV disinfection unit*

Type of advanced treatment unit _____

**Additional Management Plan required*

Dwelling Type

Number of bedrooms: _____

System capacity/ design flow (gpd): _____

Anticipated average daily flow (gpd): _____

Comments_____

Business? ____ What type? _____

Well Construction

Well depth (ft): _____

☐ Cased well Casing depth: _____

☐ Other (specify): _____

Distance from septic (ft):_____

Is the well on the design drawing? ◯Y ◯N

Septic Tank

☐ One tank *Tank volume:* _____ *gallons*

Does tank have two compartments? ◯Y ◯N

☐ Two tanks *Tank volume:* _____ *gallons*

☐ Tank is constructed of _____

☐ Effluent Screen *type*: _____

☐ Pump Tank _____ gallons

☐ Effluent Pump *make/model*:_____

Pump capacity _____ GPM

TDH _____ Feet of head

☐ Alarm location _____

Soil Treatment Area (STA)

Mound/At-Grade area (width x length): ___ ft x ___ ft

Rock bed size (width x length): ___ ft x ___ ft

Location of additional STA: _____

☐ Cleanouts or inspection ports

☐ Surface water diversions

☐ Additional STA not available



Homeowner Management Tasks

These operation and maintenance activities 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.

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

My tank needs to be checked every _____ months

Seasonally or several times per year

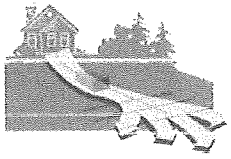
- *Leaks.* Check (listen, look) for leaks in toilets and dripping faucets. Repair leaks promptly.
- *Surfacing sewage.* Regularly check for wet or spongy soil around your soil treatment area. If surfaced sewage or strong odors are not corrected by pumping the tank or fixing broken caps, call your service professional. *Untreated sewage may make humans and animals sick.*
- *Alarms.* Alarms signal when there is a problem; contact your maintainer any time the alarm signals.
- *Lint filter.* If you have a lint filter, check for lint buildup and clean when necessary. Consider adding one after washing machine.
- *Effluent screen.* If you do not have one, consider having one added the next time the tank is cleaned.

Annually

- *Water usage rate.* A water meter can be used to monitor your average daily water use. Compare your water usage rate to the design flow of your system (listed on the next page). Contact your septic professional if your average daily flow over the course of a month exceeds 70% of the design flow for your system.
- *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, program the recharge frequency based on *water demand (gallons)* rather than *time (days)*. Recharging too frequently may negatively impact your septic system.
- *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 services the tank through the manhole. (NOT though a 4" or 6" diameter inspection port.)
- 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 septic system.
- Review water usage rates (if available) with homeowner.

Septic Tank/Pump Tanks

- *Manhole 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. The liquid level should be level with the bottom of the outlet pipe. (If the water level is below the bottom of the outlet pipe, the tank may not be watertight. If the water level is higher than the bottom of the outlet pipe of the tank, the effluent screen may need cleaning, or there may be ponding in the drainfield.)
- *Inspection pipes.* Replace damaged caps.
- *Baffles.* Check to make sure they are in place and attached, and that inlet/outlet baffles are clear of buildup or obstructions.
- *Effluent screen.* Check to make sure it is in place; clean per manufacturer recommendation. Recommend retrofitted installation if one is not present.
- *Alarm.* Verify that the alarm works.
- *Scum and sludge.* Measure scum and sludge in each compartment of each septic and pump tank, pump if needed.

Pump

- *Pump and controls.* Check to make sure the pump and controls are operating correctly.
- *Pump vault.* Check to make sure it is in place; clean per manufacturer recommendations.
- *Alarm.* Verify that the alarm works.
- *Drainback.* Check to make sure it is operating properly.
- *Event counter or run time.* Check to see if there is an event counter or run time log for the pump. If there is one, calculate the water usage rate and compare to the anticipated average daily flow listed on Page 2.

Soil Treatment Area

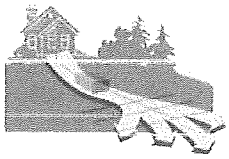
- *Inspection pipes.* Check to make sure they are properly capped. Replace caps that are damaged.
- *Surfacing of effluent.* Check for surfaced effluent or other signs of problems.
- *Lateral flushing.* Check lateral distribution; if cleanouts exist, flush and clean as needed.
- *Ponding.* Check for ponding. Excessive ponding in at-grade and mound beds indicates problems.

All other components – inspect as listed here:

_____

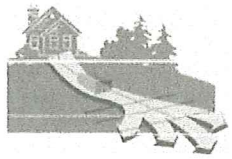
_____

_____



Water-Use Appliances and Equipment in the Home

Appliance	Impacts on System	Management Tips
Garbage disposal	• Uses additional water. • Adds solids to the tank. • Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.	• Use of a garbage disposal is not recommended. • Minimize garbage disposal use. Compost instead. • To prevent solids from exiting the tank, have your tank pumped more frequently. • Add an effluent screen to your tank.
Washing machine	• Washing several loads on one day uses a lot of water and may overload your system. • Overloading your system may prevent solids from settling out in the tank. Unsettled solids can exit the tank and enter the soil treatment area.	• Choose a front-loader or water-saving top-loader, these units use less water than older models. • Limit the addition of extra solids to your tank by using a liquid or easily biodegradable detergents. • Install a ling filter after the washer and an effluent screen on your tank. • Wash only full loads. • Limit use of bleach-based detergents. • Think even – spread your laundry loads throughout the week.
2nd floor laundry	• The rapid speed of water entering the tank may reduce performance.	• Install an effluent screen in the septic tank to prevent the release of excessive solids to the soil treatment area. • Be sure that you have adequate tank capacity.
Dishwasher	• Powdered and/or high-phosphorus detergents can negatively impact the performance of your tank and soil treatment area. • New models promote "no scraping". They have a garbage disposal inside.	• Use gel detergents. Powdered detergents may add solids to the tank. • Use detergents that are low or no-phosphorus. • Wash only full loads. • Scrape your dishes anyways to keep undigested solids out of your septic system.
Grinder pump (in home)	• Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.	• Expand septic tank capacity by a factor of 1.5. • Include pump monitoring in your maintenance schedule to ensure that it is working properly. • Add an effluent screen.
Large bathtub (whirlpool)	• Large volume of water may overload your system. • Heavy use of bath oils and soaps can impact biological activity in your tank and soil treatment area.	• Avoid using other water-use appliances at the same time. For example, don't wash clothes and take a bath at the same time. • Use oils, soaps, and cleaners in the bath or shower sparingly.
Clean Water Uses	**Impacts on System**	**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 septic system.
Water softener Iron filter Reverse osmosis	• Salt in recharge water may affect system performance. • Recharge water may hydraulically overload the system.	• These sources produce water that is not sewage and should not go into your septic system. • Reroute water from these sources to another outlet, such as a dry well, draintile or old drainfield. • When replacing consider using a demand-based recharge vs. a time-based recharge. • Check valves to ensure proper operation; have unit serviced per manufacturer directions
Surface drainage Footing drains	• Water from these sources will likely overload the system.	



Maintenance Log

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

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										
Check annually:										
Water usage rate (monitor frequency____)										
Caps: inspect, replace if needed										
Water use appliances – review use										
Other:										

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. 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: James Bow Date 7/6/22

Management Plan Prepared By: Certification #

Permitting Authority:

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