ONSITE SEWAGE TREATMENT PROGRAM

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Contact Information

v 04.01.2020

Property Owner/Client:	Mike Unze	Date Completed:	5/23/2022
Site Address:	10051 180th St N Hugo MN 55038	Project ID:	
Email:	mgunze8013@gmail.com	Phone:	651-248-1478
Mailing Address:	10051 180th St N Hugo MN 55038		
Legal Description:			

Parcel ID: 36.032.21.43.0004 SEC: 36 TWP: 032 RNG: 021

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: # Children: # Teenagers:

In-home business (Y/N): No 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: None

Anticipated non-domestic waste: None

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	Shallow Well		<50	<50		100	Owner
2							
3							
4							

Additional Well Information:

ONSITE SEWAGE TREATMENT PROGRAM

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Site within 200' of noncommunity transient well (Y/N)	No	Yes, source:	
Site within a drinking water supply management area (Y/N)	No	Yes, source:	
Site in Well Head Protection inner wellhead management zone (Y/N)	No	Yes, source:	
Buried water supply pipes within 50 ft of proposed system (Y/N)	No		
B. Site located in a shoreland district/area?	Yes	Yes, name:	UnNamed
Elevation of ordinary high water level:	ft	Source:	
Classification: None	Tank Setback: ft.	STA Setbk:	ft.
C. Site located in a floodplain?	No	Yes, Type(s):	N/A
Floodplain designation/elevation (10 Year):	960 ft	Source:	Survey
Floodplain designation/elevation (100 Year):	962 ft	Source:	Survey

D. Property Line Id / Source: ☐ Owner ☑ Survey ☑ County GIS ☐ Plat Map ☐ Other:

E. ID distance of relevant setbacks on map: ☑ Water ☐ Easements ☑ Well(s) ☑ Building(s) ☐ Property Lines ☐ OHWL ☐ Other:

4. Preliminary Soil Profile Information From Web Soil Survey (attach map & description)

Map Units: Ronneby Fine Sand Slope Range: 0-12 %

List landforms: Moraines

Landform position(s): Shoulder

Parent materials: Till

Depth to Bedrock/Restrictive Feature: in Depth to Watertable: in

Map Unit Ratings

Septic Tank Absorption Field- At-grade:	Extremely Limited
Septic Tank Absorption Field- Mound:	Moderately Limited
Septic Tank Absorption Field- Trench:	Extremely Limited

5. Local Government Unit Information

Name of LGU: Washington County

LGU Contact:

LGU-specific setbacks: 75' from body of water

LGU-specific design requirements: Mgt plan required

LGU-specific installation requirements: Permit and inspection required

Notes: A variance will be needed to be closer than 75' to unnamed body of water and to encroeach ROW with cover dirt

University of Minnesota Onsite Sewage Treatment Program

Field Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Project Information

v 04.01.2020

Property Owner/Client: Mike Unze | Project ID:

Site Address: 10051 180th St N Hugo MN 55038 | Date Completed: 5/23/2022

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): Lawn | Landscape position: Shoulder

Percent slope: 8 % | Slope shape: Linear, Linear | Slope direction: Southwest

Describe the flooding or run-on potential of site: Direct run off water around mound

Describe the need for Type III or Type IV system: Type 3

Note: soil separation, over old drainfield, doesn't meet setback from body of water

Proposed soil treatment area protected? (Y/N): No | If yes, describe:

4. General Soils Information

Filled, Compacted, Disturbed areas (Y/N): No

If yes, describe:

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

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

Number of soil observations: 4 | Soil observation logs attached (Y/N): Yes

Percolation tests performed & attached (Y/N): Yes

5. Phase I. Reporting Information

	Depth		Elevation	
Limiting Condition*:	0	in	**104.0**	ft
Periodically saturated soil:		in	104.0	ft
Standing water:		in		ft
Bedrock:		in		ft
Benchmark Elevation:	103.3	ft		

Most Restrictive Depth Identified from List Below

Soil Texture: sandy clay loam

Percolation Rate: 48.00 min/inch

Soil Hyd Loading Rate: 0.45 gpd/ft^2

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

Benchmark Elevation Location: Base of tree located on map

Differences between soil survey and field evaluation:

Site evaluation issues / comments: Variance will be needed to lack of setback distances

Anticipated construction issues: None

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 04.01.2020

Client:	Mike Unze	Location / Address:	10051 180th St N Hugo MN 55038

Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter

Landscape Position: (select one)	Summit	Slope %: 10.0	Slope shape	Linear, Linear	Elevation-relative to benchmark: 102.0
Vegetation:	Lawn	Soil survey map units:	166		Limiting Layer Elevation: 102.5
Weather Conditions/Time of Day:	Sunny			Date	05/23/22
Observation #/Location:	B1			Observation Type:	Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure		
							Shape	Grade	Consistence
0-4	Sandy Clay Loam	<35%	10YR 3/2				Blocky	Moderate	Friable
4-6	Sandy Clay Loam	<35%	10YR 3/4				Blocky	Moderate	Friable
6-	Sandy Clay Loam	<35%	10YR 3/4	10YR 5/6	Concentrations	S1	Blocky	Moderate	Friable

Comments: Redox features found at 6"

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

Josh Putt		L4063	5/23/2022
(Designer/Inspector)	(Signature)	(License #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 04.01.2020

Client:	Mike Unze	Location / Address:	10051 180th St N Hugo MN 55038

Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter

Landscape Position: (select one)	Shoulder	Slope %: 10.0	Slope shape	Linear, Linear	Elevation-relative to benchmark: 104.0
Vegetation:	Lawn	Soil survey map units:	166		Limiting Layer Elevation: 104
Weather Conditions/Time of Day:	Sunny			Date	05/23/22
Observation #/Location:	B2			Observation Type:	Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-3	Sandy Clay Loam	<35%	10YR 3/2				Blocky	Moderate	Friable
3-	Sandy Clay Loam	<35%	10YR 3/2	7.5YR 4/6	Concentrations	S1	Blocky	Moderate	Friable

Comments: Redox features found at the surface

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

Josh Putt		L4063	5/23/2022
(Designer/Inspector)	(Signature)	(License #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 04.01.2020

Client:	Mike Unze	Location / Address:	10051 180th St N Hugo MN 55038

Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter

Landscape Position: (select one)	Shoulder	Slope %: 10.0	Slope shape	Linear, Linear	Elevation-relative to benchmark: 104.9
Vegetation:	Lawn	Soil survey map units:	166		Limiting Layer Elevation: 105.3
Weather Conditions/Time of Day:	Sunny			Date	05/23/22
Observation #/Location:	B3			Observation Type:	Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-5	Sandy Clay Loam	<35%	10YR 3/2				Blocky	Moderate	Friable
5-	Sandy Loam	<35%	10YR 3/4	7.5YR 4/4	Concentrations	S1	Blocky	Moderate	Friable

Comments: Redox features found at 5"

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

Josh Putt		L4063	5/23/2022
(Designer/Inspector)	(Signature)	(License #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 04.01.2020

Client:	Mike Unze	Location / Address:	10051 180th St N Hugo MN 55038

Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter

Landscape Position: (select one)	Summit	Slope %: 10.0	Slope shape	Linear, Linear	Elevation-relative to benchmark: 101.8
Vegetation:	Lawn	Soil survey map units:	166		Limiting Layer Elevation: 101.8
Weather Conditions/Time of Day:	Sunny			Date	05/23/22
Observation #/Location:	B4			Observation Type:	Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure		
							Shape	Grade	Consistence
0-4	Sandy Clay Loam	<35%	10YR 3/2				Blocky	Moderate	Friable
4-	Sandy Clay Loam	<35%	10YR 3/2	7.5YR 4/6	Concentrations	S1	Blocky	Moderate	Friable

Comments: mottled at the surface

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

Josh Putt		L4063	5/23/2022
(Designer/Inspector)	(Signature)	(License #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Percolation Test Data

MINNESOTA POLLUTION CONTROL AGENCY

1. Contact Information Project ID: v 04.01.2020

Property Owner/Client: Mike Unze

2. General Percolation Information

Diameter: 6 in | Date prepared and/or soaked: 5/23/2022

Method of scratching sidewall: nail

Is pre-soak required*? yes | If No, how long for 12" to soak away: ____ min

Soak* start time: 9:50 AM | Soak* end time: 1:22 PM | 3:32 hrs of soak

Method to maintain 12 in of water during soak: handfill

** Not required in fast perc soils*

3. Summary of Percolation Test Data

Design Percolation Rate (maximum of all tests attached) = 48.00 mpi

Map of Perc Test Locations

University of Minnesota Onsite Sewage Treatment Program

Percolation Test Data

MINNESOTA POLLUTION CONTROL AGENCY

Project ID:

Date Completed: 5/24/2022

Test hole: #1 Location: P1 Depth**: 12 inches

Soil texture description: Elevation: 103.4 feet

Depth (in)	Soil Texture
0-6	Sandy Clay Loam
6-12	Sandy Loam

*** 12 in. for mounds & at-grades, depth of absorption area for trenches and beds*

Reading	Start Time	End Time	Start Reading (in)	End Reading (in)	Perc rate (mpi)	% Difference Last 3 Rates	Pass
1	8:00 AM	8:35 AM	6.0	5.3	46.7	NA	NA
2	8:40 AM	9:15 AM	6.0	5.3	46.7	NA	NA
3	9:18 AM	9:54 AM	6.0	5.3	48.0	2.8	Yes
4							

Chosen Percolation Rate for Test Hole #1: 48.0 mpi

Date Completed:

Test hole: #2 Location: Depth**: inches

Soil texture description: Elevation: feet

Depth (in)	Soil Texture

*** 12 in. for mounds & at-grades, depth of absorption area for trenches and beds*

Reading	Start Time	End Time	Start Reading (in)	End Reading (in)	Perc rate (mpi)	% Difference Last 3 Rates	Pass
1						NA	NA
2						NA	NA
3							

Chosen Percolation Rate for Test Hole #2: mpi

University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

1. PROJECT INFORMATION

v 04.01.2020

Property Owner/Client:	Mike Unze	Project ID:	REDESIGN
Site Address:	10051 180th St N Hugo MN 55038	Date:	09/07/22
Email Address:	mgunze8013@gmail.com	Phone:	651-248-1478

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: 2000 Gallons in 2 Tanks or Compartments

Recommended **Septic Tank** Capacity: 2000 Gallons in 2 Tanks or Compartments

Effluent Screen & Alarm (Y/N): Yes — Model/Type: Polylok

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):	500 Gal	Pump Tank 2 Capacity (Minimum):	Gal
Pump Tank 1 Capacity (Recommended):	1000 Gal	Pump Tank 2 Capacity (Recommended):	Gal
Pump 1: 34.0 GPM — Total Head	20.4 ft	Pump 2: GPM — Total Head	ft
Supply Pipe Dia.: 2.00 in — Dose Vol:	90.0 gal	Supply Pipe Dia.: — Dose Vol:	Gal

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:	103.3 ft	Benchmark Location:	Base of tree located on map
MPCA System Type:	Type III	Distribution Media:	Rock
Type III/IV Details:	Soils, over old system		

7. SITE EVALUATION SUMMARY:

Describe Limiting Condition: Redoximorphic Features/Saturated Soils

Layers with >35% Rock Fragments? (yes/no) 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:	0	inches	0.0	ft	104.00	ft
Minimum Req'd Separation:	36	inches	3.0	ft		
			Elevation			
Code Max System Depth:	Mound	inches	-3.0	ft	107.00	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:	Sandy Clay Loam		
Soil Hyd. Loading Rate:	0.45 GPD/ft^2	Percolation Rate:	48.00 MPI
Contour Loading Rate:	12	Note:	
Measured Land Slope:	8.0 %	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	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	450.0 ft^2	Bed Length	45.0 ft	Bed Width	10.0 ft
Absorption Width	26.0 ft	Clean Sand Lift	3.0 ft	Berm Width (0-1%)	ft
Upslope Berm Width	11.6 ft	Downslope Berm	22.1 ft	Endslope Berm Width	16.8 ft
Total System Length	78.6 ft	System Width	43.7 ft	Contour Loading Rate	10.0 gal/ft

University of Minnesota 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	3	Perforation Spacing	3 ft	Perforation Diameter	1/4 in
Lateral Diameter	2.00 in	Min Dose Volume	88 gal	Max Dose Volume	113 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 ÷ 1,000,000 = _____ 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 ÷ 1,000,000 = _____ 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:

Verify all distances prior to install. Survey map completed with distances and floodplains and elevations

8% slope in the STA - Make sure to keep 100' setback from shallow well

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

Josh Putt		L4063	9/7/2022
(Designer)	(Signature)	(License #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Mound Design Worksheet
≥1% Slope

MINNESOTA POLLUTION CONTROL AGENCY

1. SYSTEM SIZING: Project ID: REDESIGN v 04.01.2020

A. Design Flow:	450	GPD
B. Soil Loading Rate:	0.45	GPD/ft²
C. Depth to Limiting Condition	0.0	ft
D. Percent Land Slope:	8.0	%
E. Design Media Loading Rate:	1.0	GPD/ft²
F. Mound Absorption Ratio:	2.60	

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		Treatment Level A, A-2, B,	
	Absorption Area Loading Rate (gpd/ft²)	Mound Absorption Ratio	Absorption Area Loading Rate (gpd/ft²)	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	0.5	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 ÷ 1.0 GPD/ft² = 450 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 1.0 GPD/ft² = 10.0 gal/ft *Can not exceed Table 1*

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

450 ft² ÷ 10.0 ft = 45.0 ft

3. ABSORPTION AREA SIZING

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

10.0 ft X 2.6 = 26.0 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

26.0 ft - 10.0 ft = 16.0 ft

4. DISTRIBUTION MEDIA: ROCK Project ID:

A. Rock Depth Below Distribution Pipe

6 in 0.50 ft

5. DISTRIBUTION MEDIA: REGISTERED TREATMENT PRODUCTS: CHAMBERS AND EZFLOW

A. Enter Dispersal Media: _____

B. Enter the Component: Length: _____ ft Width: _____ ft Depth: _____ ft

C. Number of Components per Row = Bed Length divided by Component Length (Round up)

_____ ft ÷ _____ ft = _____ components/row

Check registered product information for specific application details and design

D. Actual Bed Length = Number of Components/row X Component Length:

_____ components X _____ ft = _____

E. Number of Rows = Bed Width divided by Component Width (Round up)

_____ ft ÷ _____ ft = _____ rows *Adjust width so this is a whole number.*

F. Total Number of Components = Number of Components per Row X Number of Rows

_____ X _____ = _____ components

6. MOUND SIZING

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

3.0 ft - _____ ft = 3.0 ft Design Sand Lift (optional): 3 ft

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

3.0 ft + 0.50 ft + 0.3 ft + 1.0 ft = 4.8 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): 2.42

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

2.42 ft X 4.8 ft = 11.6 ft

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

10.0 ft X 8.0 % ÷ 100 = 0.80 ft

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

4.8 ft + 0.80 ft = 5.6 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): 3.95

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

3.95 x 5.6 ft = 22.1 ft

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

16.0 ft + 4 ft = 20.0 ft

J. Design Downslope Berm = greater of 4H and 4I: 22.1 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 5.6 ft = 16.8 ft

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

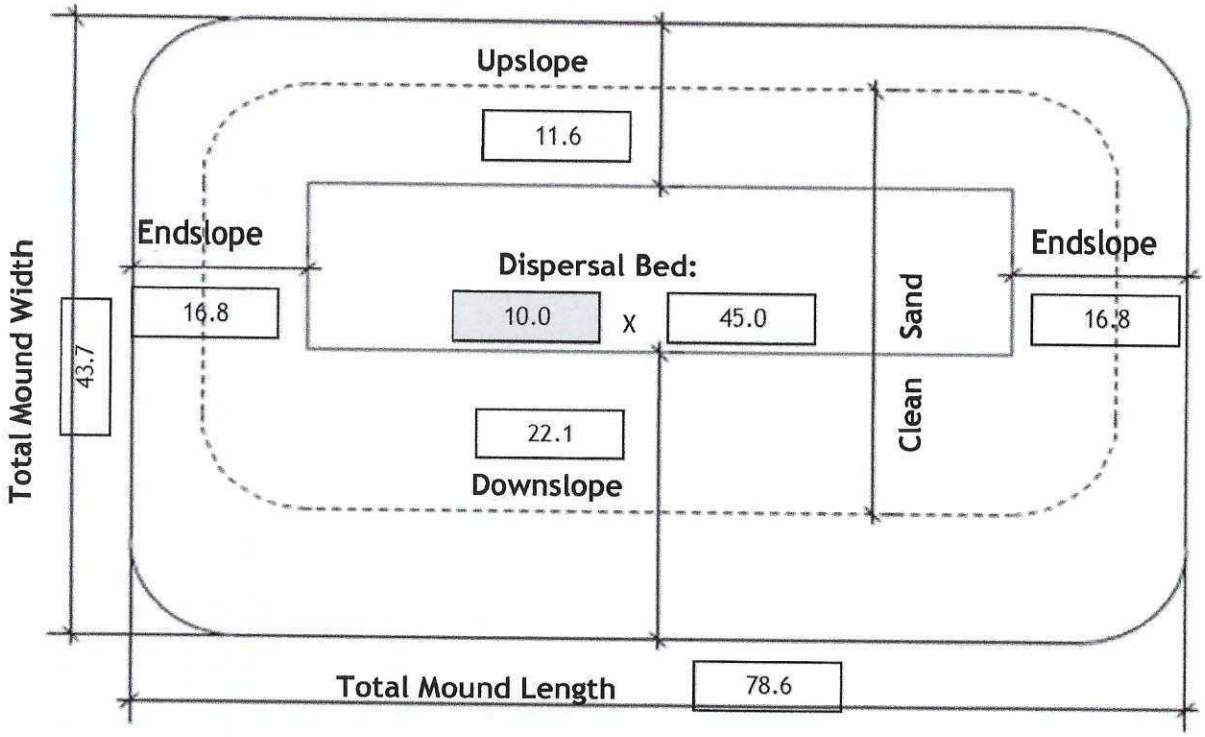
11.6 ft + 10.0 ft + 22.1 ft = 43.7 ft

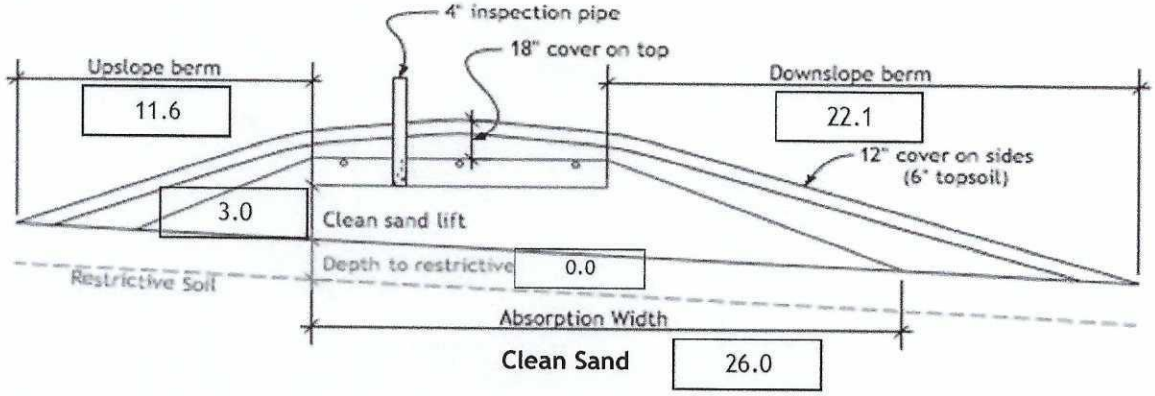
N. Calculate Mound Length: Endslope Berm Width + Bed Length + Endslope Berm Width

16.8 ft + 45.0 ft + 16.8 ft = 78.6 ft

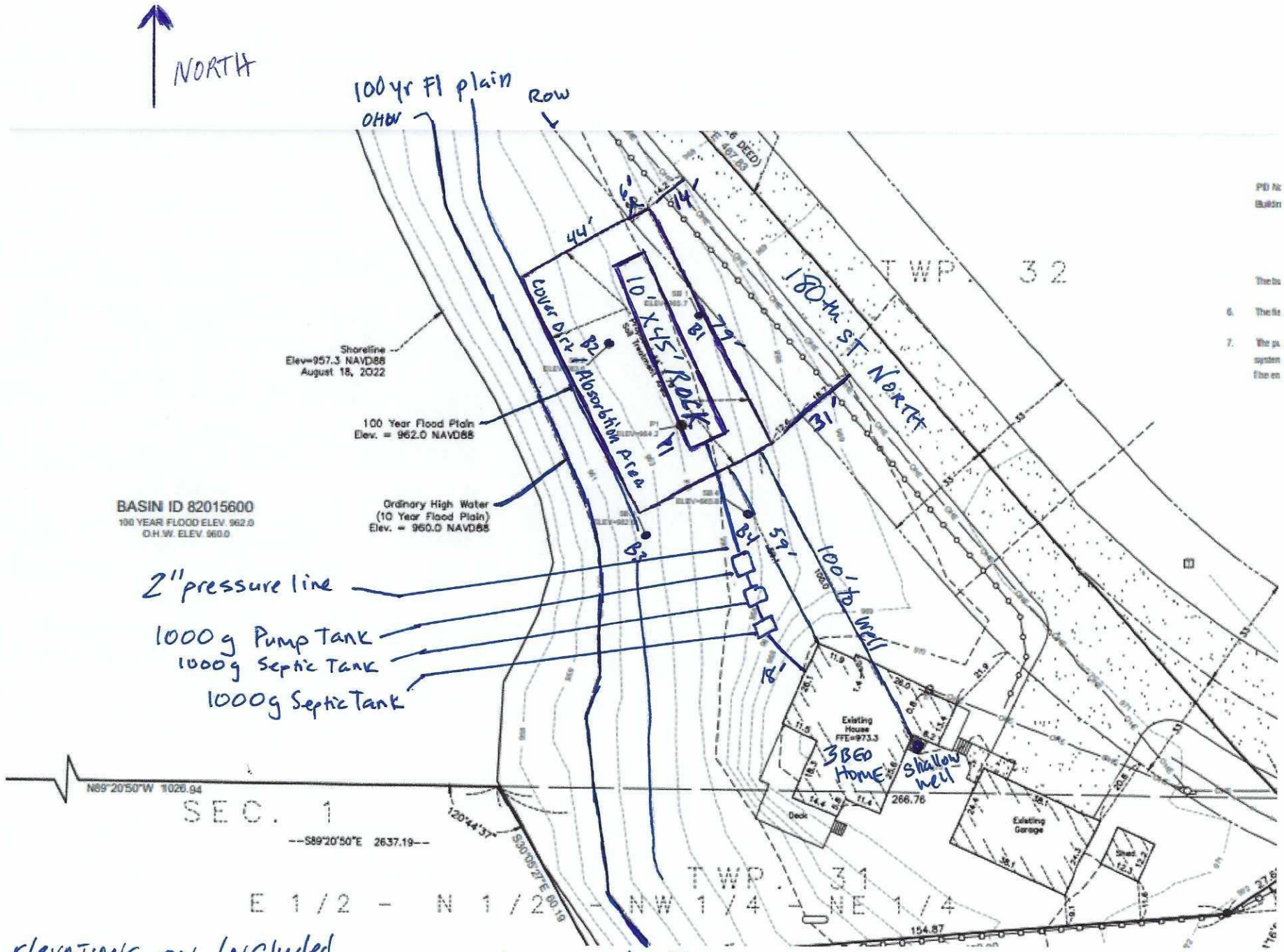
7. MOUND DIMENSIONS

Project ID:





Comments:



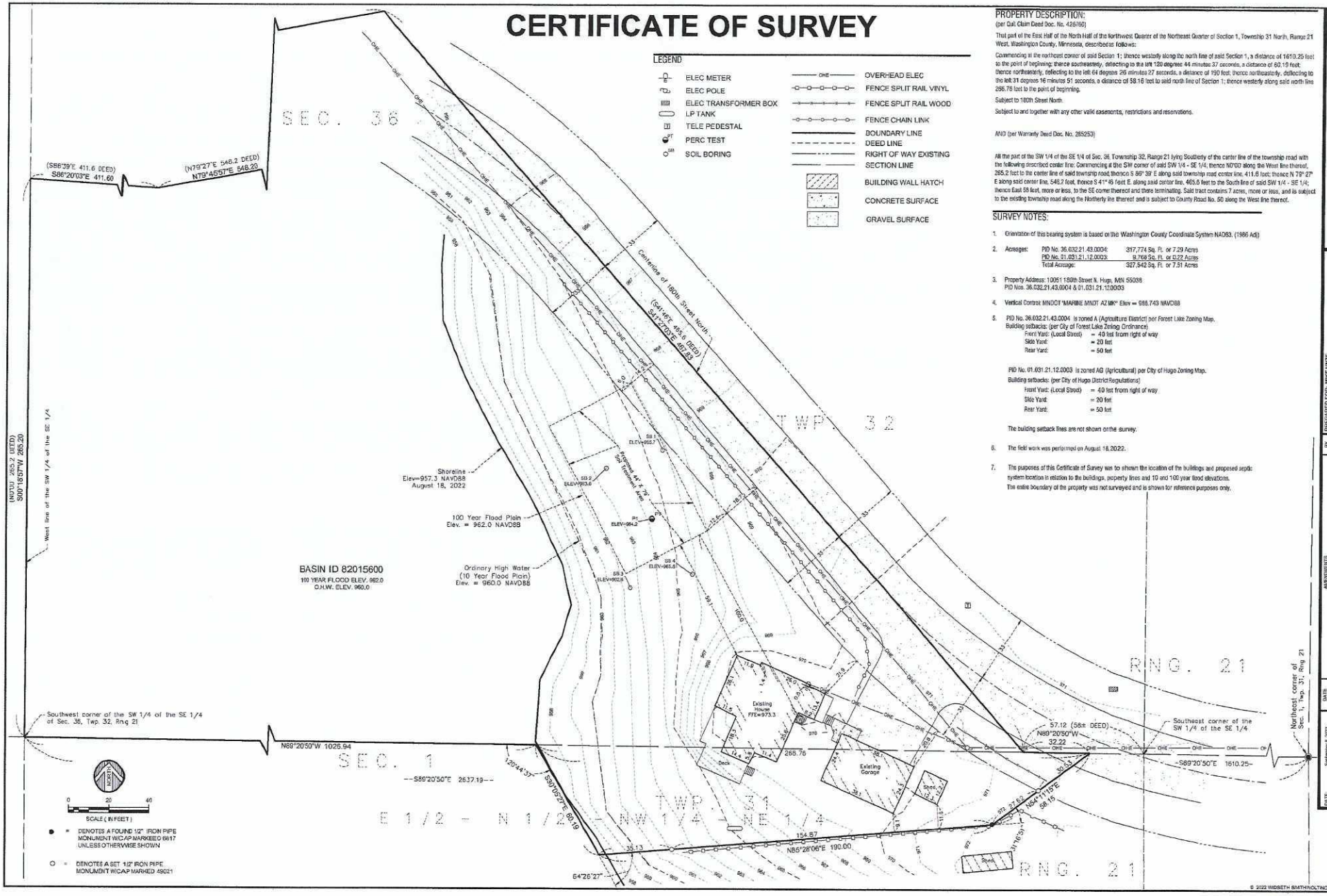
All Elevations on Included Survey Map. This is a blown up version to see layout better.

8% slope in STA ↙ Direction

B1 - 102.0'
B2 - 104.0'
B3 - 104.9'
B4 - 101.3'
P1 - 103.4'

Bench Mark = Base of tree Y nail
103.3'

CERTIFICATE OF SURVEY



LEGEND

- ELEC METER
- ELEC POLE
- ELEC TRANSFORMER BOX
- LP TANK
- TELE PEDESTAL
- PERC TEST
- SOIL BORING
- OVERHEAD ELEC
- FENCE SPLIT RAIL VINYL
- FENCE SPLIT RAIL WOOD
- FENCE CHAIN LINK
- BOUNDARY LINE
- DEED LINE
- RIGHT OF WAY EXISTING
- SECTION LINE
- BUILDING WALL HATCH
- CONCRETE SURFACE
- GRAVEL SURFACE

PROPERTY DESCRIPTION:

(per Quit Claim Deed Doc. No. 425760)

That part of the East Half of the North Half of the Northwest Quarter of the Northeast Quarter of Section 1, Township 31 North, Range 21 West, Washington County, Minnesota, described as follows:

Commencing at the northeast corner of said Section 1; thence westerly along the north line of said Section 1, a distance of 1610.25 feet to the point of beginning; thence southeasterly, deflecting to the left 129 degrees 44 minutes 37 seconds, a distance of 60.19 feet; thence northeasterly, deflecting to the left 64 degrees 26 minutes 27 seconds, a distance of 190 feet; thence northeasterly, deflecting to the left 31 degrees 16 minutes 51 seconds, a distance of 58.16 feet to said north line of Section 1; thence westerly along said north line 266.76 feet to the point of beginning.

Subject to 180th Street North

Subject to and together with any other valid easements, restrictions and reservations.

AND (per Warranty Deed Doc. No. 285253)

All that part of the SW 1/4 of the SE 1/4 of Sec. 36, Township 32, Range 21 lying Southerly of the center line of the township road with the following described center line: Commencing at the SW corner of said SW 1/4 - SE 1/4; thence N0°0'0 along the West line thereof, 265.2 feet to the center line of said township road; thence S 86° 39' E along said township road center line, 411.6 feet; thence N 79° 27' E along said center line, 548.2 feet, thence S 41° 45 feet E. along said center line, 465.6 feet to the South line of said SW 1/4 - SE 1/4; thence East 58 feet, more or less, to the SE corner thereof and there terminating. Said tract contains 7 acres, more or less, and is subject to the existing township road along the Northerly line thereof and is subject to County Road No. 50 along the West line thereof.

SURVEY NOTES:

1. Orientation of this bearing system is based on the Washington County Coordinate System NAD83, (1986 Adj)
2. Acreages: PID No. 36.032.21.43.0004: 317,774 Sq. Ft. or 7.29 Acres
   PID No. 01.031.21.12.0003: 9,768 Sq. Ft. or 0.22 Acres
   Total Acreage: 327,542 Sq. Ft. or 7.51 Acres
3. Property Address: 10051 180th Street N. Hugo, MN 55038
   PID Nos. 36.032.21.43.0004 & 01.031.21.12.0003
4. Vertical Control: MNDOT "MARINE MNDT AZ MK" Elev = 988.743 NAVD88
5. PID No. 36.032.21.43.0004 is zoned A (Agriculture District) per Forest Lake Zoning Map.
   Building setbacks: (per City of Forest Lake Zoning Ordinance)
   Front Yard: (Local Street) = 40 feet from right of way
   Side Yard: = 20 feet
   Rear Yard: = 50 feet

   PID No. 01.031.21.12.0003 is zoned AG (Agricultural) per City of Hugo Zoning Map.
   Building setbacks: (per City of Hugo District Regulations)
   Front Yard: (Local Street) = 40 feet from right of way
   Side Yard: = 20 feet
   Rear Yard: = 50 feet

   The building setback lines are not shown on the survey.
6. The field work was performed on August 18, 2022.
7. The purposes of this Certificate of Survey was to shown the location of the buildings and proposed septic system location in relation to the buildings, property lines and 10 and 100 year flood elevations. The entire boundary of the property was not surveyed and is shown for reference purposes only.

WIDSETH
ARCHITECTS • ENGINEERS • SCIENTISTS • SURVEYORS

PREPARED FOR: MIKE UNZE

I HEREBY CERTIFY THAT THIS SURVEY, PLAN, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

Shawn M. Kuzdas L.S. DATE: 9/2022 LIC. NO. 49021

BY	DATE	AMENDMENTS

DATE: September 6, 2022
SCALE: AS SHOWN
DRAWN BY: SA
CHECKED BY: SMK
FILE NUMBER: 2022-11348

University of Minnesota Onsite Sewage Treatment Program

Mound Materials Worksheet

Minnesota Pollution Control Agency

Project ID: REDESIGN

v 04.01.2020

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

(6 in + 3.0 in) ÷ 12 X 45.0 ft X 10.0 ft = 337.5 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 337.5 ft^3 ÷ 27 = 12.5 yd^3

Add 30% for constructability: 12.5 yd^3 X 1.3 = 16.3 yd^3

B. Calculate *Clean Sand Volume:*

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

3.2 ft X 10.0 ft X 45.0 ft = 1440.0 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

((4.8 ft - 1) X 3.0 ft X 45.0) ÷ 2 = 256.5 ft^3

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

((5.6 ft - 1) X 16.0 ft X 45.0) ÷ 2 = 1656.0 ft^3

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

(5.6 ft - 1) X 3.0 ft X 10.0 ft = 138.0 ft^3

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

256.5 ft^3 + 1656.0 ft^3 + 138.0 ft^3 + 1440.0 ft^3 = 3490.5 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 3490.5 ft^3 ÷ 27 = 129.3 yd^3

Add 30% for constructability: 129.3 yd^3 X 1.3 = 168.1 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

(5.2 - 0.5)ft X 43.7 ft X 78.6) ÷ 2 = 8078.5 ft^3

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

8078.5 ft^3 - 3490.5 ft^3 - 337.5 ft^3 = 4250.5 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 4250.5 ft^3 ÷ 27 = 157.4 yd^3

Add 30% for constructability: 157.4 yd^3 x 1.3 = 204.7 yd^3

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

43.7 ft X 78.6 ft X 0.5 ft = 1718.8 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 1718.8 ft^3 ÷ 27 = 63.7 yd^3

Add 30% for constructability: 63.7 yd^3 x 1.3 = 82.8 yd^3

ONSITE SEWAGE TREATMENT PROGRAM

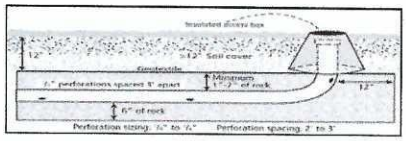
Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: REDESIGN v 04.01.2020

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.

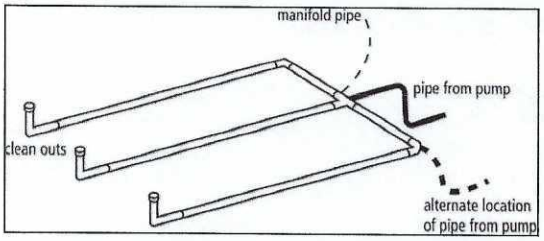
   45.0 - 2ft = 43.0 ft *Perforation can not be closer then 1 foot from edge.*
7. Determine the *Number of Perforation Spaces*. Divide the *Length of Laterals* by the *Perforation Spacing* and round down to the nearest whole number.

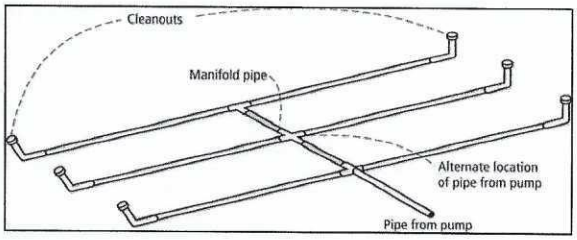
   Number of Perforation Spaces = 43.0 ft ÷ 3.0 ft = 14 Spaces
8. *Number of Perforations per Lateral* is equal to 1.0 plus the *Number of Perforation Spaces*. Check table below to verify the number of perforations per lateral guarantees less than a 10% discharge variation. The value is double with a center manifold.

   Perforations Per Lateral = 14 Spaces + 1 = 15 Perfs. Per Lateral

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

1/4 Inch Perforations						7/32 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	10	13	18	30	60	2	11	16	21	34	68
2½	8	12	16	28	54	2½	10	14	20	32	64
3	8	12	16	25	52	3	9	14	19	30	60
3/16 Inch Perforations						1/8 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	12	18	26	46	87	2	21	33	44	74	149
2½	12	17	24	40	80	2½	20	30	41	69	135
3	12	16	22	37	75	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.*

   15 Perf. Per Lat. X 3 Number of Perf. Lat. = 45 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)*: 2.00 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 45 ft = 450 ft^2

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

450 ft^2 ÷ 45 perf = 10.0 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.*

45 Perfs X 0.74 GPM per Perforation = 34 GPM

17. *Volume of Liquid Per Foot of Distribution Piping (Table II)*: 0.170 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 43 ft X 0.170 gal/ft = 21.9 Gallons

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

21.9 gals X 4 = 87.7 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 MSTS with 3/16 inch to 1/4 inch perforations
5 feet	Other establishments and MSTS 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

Onsite Sewage Treatment Program — Minnesota Pollution Control Agency

1. PUMP CAPACITY Project ID: REDESIGN v 04.01.2020

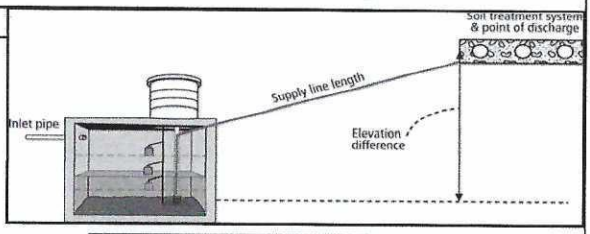
Pumping to Gravity or Pressure Distribution: Pressure

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: 34.0 GPM

C. Enter pump description: Demand Dosing

2. HEAD REQUIREMENTS



A. Elevation Difference between pump and point of discharge: 13 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

D. 1. Supply Pipe Diameter: 2.0 in

2. Supply Pipe Length: 65 ft

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

Friction Loss = 2.99 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*

65 ft X 1.25 = 81.3 ft

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

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

Supply Friction Loss =

2.99 ft per 100ft X 81.3 ft ÷ 100 = 2.4 ft

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

13.0 ft + 5.0 ft + _____ ft + 2.4 ft = 20.4 ft

3. PUMP SELECTION

A pump must be selected to deliver at least **34.0** GPM with at least **20.4** feet of total head.

Comments:

Pump Tank Design Worksheet (Demand Dose)

Onsite Sewage Treatment Program

Minnesota Pollution Control Agency

DETERMINE TANK CAPACITY AND DIMENSIONS — Project ID: REDESIGN — v 04.01.2020

1. A. *Design Flow (Design Sum.1A)*: 450 GPD — C. Tank Use: Dosing
   B. Min. required pump tank capacity: 500 Gal — D. Recommended pump tank capacity: 1000 Gal

2. A. Tank Manufacturer: Brown Wilbert — B. Tank Model: 1000 PT
   C. Capacity from manufacturer: 1000 Gallons
   D. Gallons per inch from manufacturer: 25.8 Gallons per inch
   E. Liquid depth of tank from manufacturer: 43.0 inches

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

(14 in + 2 inches) X 25.8 Gallons Per Inch = 413 Gallons

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

-Item 18 of the Pressure Distribution or Item 11 of Non-level 88 **Gallons (Minimum dose)** 3.4 inches/dose

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

Design Flow: 450 GPD X 0.25 = 113 **Gallons (Maximum dose)** 4.4 inches/dose

6 *Select a pumpout volume that meets both Minimum and Maximum:* 90 Gallons

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

450 gpd ÷ 90 gal = 5.00 *Doses*

8 Calculate Drainback:

A. *Diameter of Supply Pipe* = 2 inches

B. Length of Supply Pipe = 65 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*

65 ft X 0.170 gal/ft = 11.1 Gallons

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

90 gal + 11.1 gal = 101 Gallons

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

2 in X 25.8 gal/in = 51.6 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

101 gal ÷ 25.8 gal/in = 3.9 Inches

12. Measuring from bottom of tank:

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

14 in + 2 in = 16 Inches

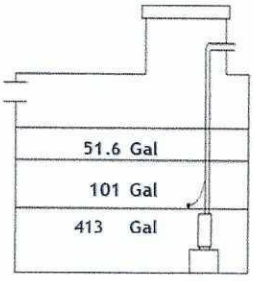
B. *Distance to set Pump On Float=Distance to Set Pump-Off Float + Float Separation Distance*

16 in + 3.9 in = 20 Inches

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

20 in + 2.0 in = 22 Inches

Inches for Dose:	3.9	in
Alarm Depth	21.9	in
Pump On	19.9	in
Pump Off	16.0	in



Washington County

Property Records and Taxpayer Services
(651) 430-6175
www.co.washington.mn.us

14949 62nd Street North
PO Box 200
Stillwater, MN 55082-0200

Property ID: 36.032.21.43.0004 Bill #: 2291384

Taxpayer:

24755*80**G50**1.242**3/6*********AUTO5-DIGIT 55025
GARY J UNZE
10051 180TH ST N
HUGO MN 55038-9328

TAX STATEMENT 2022

2021 Values for Taxes Payable in

VALUES AND CLASSIFICATION

	Taxes Payable Year:	2021	2022
Step 1	Estimated Market Value:	297,200	298,600
	Homestead Exclusion:	10,300	10,200
	Taxable Market Value:	286,900	288,400
	New Improvements:		
	Property Classification:	Res Hstd	Res Hstd

Sent in March 2021

Step 2 PROPOSED TAX

Did not include special assessments or referenda approved by the voters at the November election — *$3,324.00*

Sent in November 2021

Step 3 PROPERTY TAX STATEMENT

First half taxes due	May 15	$1,652.00
Second half taxes due	October 15	$1,652.00
Total Taxes Due in 2022:		$3,304.00

$$$

REFUNDS?

You may be eligible for one or even two refunds to reduce your property tax. Read the back of this statement to find out how to apply.

Property Address:
10051 180TH ST N
HUGO MN 55038

Property Description:
Section 36 Township 032 Range 021 PT SW1/4-SE1/4 BEING PT LYING SLY C/L TWP RD DESC AS FOLL DESC C/L COM @ SW COR SD1/4 1/4 THN N00DEG00' ALG W LN THEREOF 265.2 FT TO C/L TWP RD THN S86DEG39'E ALG SD TWP RD C/L 411.6 FT THN N79DEG27'E ALG C/L 548.2 FT THN S41DEG46'E ALG C/L 465.6 FT TO S L

Line 13 Special Assessment Detail:

COUNTY ENVIRONMENTAL CHARGE PHE DEPT	3.00
Principal:	3.00
Interest:	0.00

Tax Detail for Your Property:

Taxes Payable Year:		2021	2022
1. Use this amount on Form M1PR to see if you are eligible for a property tax refund. File by August 15. If this box is checked, you owe delinquent taxes and are not eligible.			$3,301.00
2. Use these amounts on Form M1PR to see if you are eligible for a special refund. ☐		$3,337.00	
Tax and Credits — 3. Property taxes before credits		$3,337.00	$3,301.00
4. Credits that reduce property taxes	A. Agricultural and rural land credits	$0.00	$0.00
	B. Other Credits	$0.00	$0.00
5. Property taxes after credits		**$3,337.00**	**$3,301.00**
Property Tax by Jurisdiction — 6. WASHINGTON COUNTY	A. County General	$786.42	$794.73
	B. County Regional Rail Authority	$4.50	$4.29
7. CITY OF FOREST LAKE		$1,165.99	$1,182.19
8. State General Tax		$0.00	$0.00
9. ISD 831 FOREST LAKE	A. Voter approved levies	$604.52	$547.02
	B. Other Local Levies	$612.33	$615.35
10. Special Taxing Districts	A. Metropolitan Council	$18.02	$18.18
	B. Metropolitan Council Transit	$32.69	$30.46
	C. Metropolitan Mosquito Control	$10.89	$10.41
	D. Rice Creek Watershed	$55.01	$52.05
	E. County CDA	$36.98	$37.11
11. Non-school voter approved referenda levies		$9.65	$9.21
12. Total property tax before special assessments		$3,337.00	$3,301.00
13. Special assessments		$3.00	$3.00
14. TOTAL PROPERTY TAX AND SPECIAL ASSESSMENTS		**$3,340.00**	**$3,304.00**

Please fold on perforation BEFORE tearing

PAYABLE 2022 2nd HALF PAYMENT STUB

TO AVOID PENALTY PAY ON OR BEFORE: October 15

Property ID: 36.032.21.43.0004 Bill #: 2291384

Taxpayer:
GARY J UNZE
10051 180TH ST N
HUGO MN 55038-9328

Detach at perforation & mail this stub with your 2nd half payment in the enclosed envelope

Res Hstd

SECOND HALF TAX AMT

$1,652.00

No Receipt sent. Your canceled check is proof of payment. Do not send postdated checks.

MAKE CHECKS PAYABLE TO: ☐ CHECK ☐ CASH

WASHINGTON COUNTY
P.O. BOX 200
STILLWATER MN 55082-0200

3603221430004 2 00000000165200 9

Please fold on perforation BEFORE tearing

PAYABLE 2022 1st HALF PAYMENT STUB

TO AVOID PENALTY PAY ON OR BEFORE: May 15

Property ID: 36.032.21.43.0004 Bill #: 2291384

Taxpayer:
GARY J UNZE
10051 180TH ST N
HUGO MN 55038-9328

Detach at perforation & mail this stub with your 1st half payment in the enclosed envelope

Res Hstd

FIRST HALF TAX AMT

$1,652.00

No Receipt sent. Your canceled check is proof of payment. Do not send postdated checks.

MAKE CHECKS PAYABLE TO: ☐ CHECK ☐ CASH

WASHINGTON COUNTY
P.O. BOX 200
STILLWATER MN 55082-0200

3603221430004 1 00000000165200 1

DEPARTMENT OF NATURAL RESOURCES

Lake & Flood Elevations Online

N

0 0.01 0.02 0.04 Miles

Datums for LiDAR contours:
Vertical NAV88 | Horizontal NAD83

National Flood Hazard Layer (NFHL)

Flood Hazard Zones

- 1% Annual Chance Flood Hazard (100 Year Floodplain)
- Floodway
- Zone D (Area of Undetermined Flood Hazard)
- 0.2% Annual Chance Flood Hazard (500 Year Floodplain)
- Area with Reduced Flood Risk Due to Levee

Estimated 1% Water Surface Elevations

Minnesota Public Waters Delineations

Public Water Watercourses

- Public Water Watercourse
- Public Ditch/Altered Natural Watercourse

Public Waters Basins

Sources:
-MNDNR contours from MnTOPO
-FEMA National Flood Hazard Layer
See LFEO FAQ for data source details:
http://files-intranet.dnr.state.mn.us/user_files/3687/lfeo-faq.pdf

Disclaimer: The State of Minnesota, Department of Natural Resources, Ecological and Water Resources Division assumes no responsibility for and disclaims all liability for any typographical or other errors on this site. The DNR may make changes to the lake floodplain elevations at any time and without notice.

Date: Mon Jul 18 2022 08:37:51

Comments: 10051 180th St N

10051 180th St N

5/24/2022, 7:04:31 AM

1:564

0 0 0.01 0.01 mi

0 0.01 0.01 0.02 km

Maxar, Microsoft

Parcels

Address Points

Commissioner

Contours2011

Index

Intermediate

DNR Protected Waters ID

MNWASH038007.sid

Red: Band_1

Green: Band_2

Blue: Band_3

MNWASH032009.sid

Red: Band_1

Green: Band_2

Blue: Band_3

MNWASH026009.sid

Red: Band_1

Maxar, Microsoft |

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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	Email
Property Address 10051 180th ST N Hugo MN 55038	Property ID 36.032.21.43.0004
System Designer Josh Putt 651-900-1567	Contact Info Josh Putt
System Installer	Contact Info
Service Provider/Maintainer	Contact Info
Permitting Authority	Contact Info
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-built 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*, visit www.bookstores.umn.edu and search for the word "septic" or call 800-322-8642.

For more information see http://septic.umn.edu

Version: August 2015

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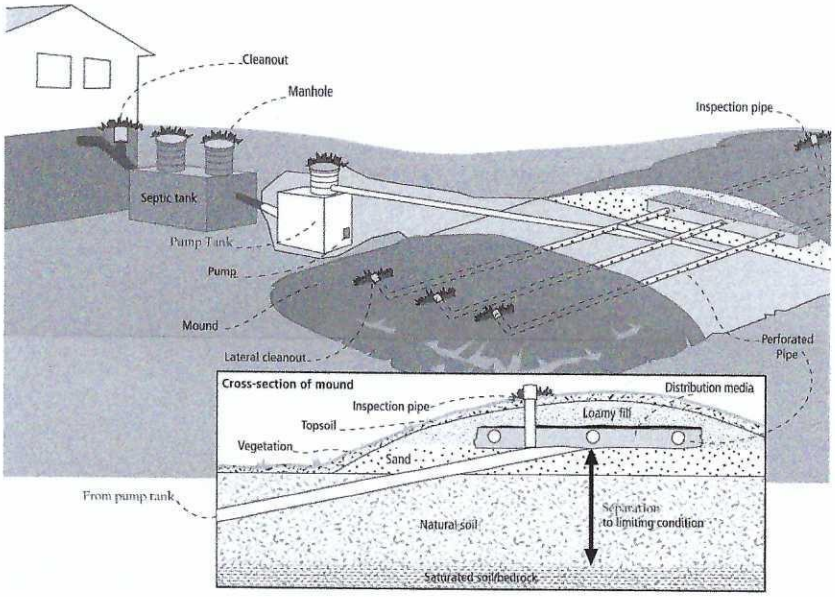
Septic System Management Plan for Above Grade Systems

Your Septic System



Septic System Specifics

System Type: I II (III) IV* V*

(Based on MN Rules Chapter 7080.2200 – 2400)

**Additional Management Plan required*

- ☐ System is subject to operating permit*
- ☐ System uses UV disinfection unit*

Type of advanced treatment unit _____

Dwelling Type

Number of bedrooms: 3

System capacity/ design flow (gpd): 450

Anticipated average daily flow (gpd): 315

Comments _____

Business? : Y (N) What type? _____

Well Construction

Well depth (ft): < 50'

- ☐ Cased well Casing depth: < 50'
- ☐ Other (specify): _____

Distance from septic (ft): 100'

Is the well on the design drawing? (Y) N

Septic Tank

- ☐ First tank *Tank volume:* 1000 *gallons*

  Does tank have two compartments? Y (N)
- ☐ Second tank *Tank volume:* 1000 *gallons*
- ☐ Tank is constructed of Concrete
- ☐ Effluent screen: Y N Alarm Y N

- ☐ Pump Tank 1000 *gallons*
- ☐ Effluent Pump *make/model:* _____

  Pump capacity 34 GPM

  TDH 20.4 Feet of head
- ☐ Alarm location HOUSE

Soil Treatment Area (STA)

Mound/At-Grade area (width x length): 44 ft x 79 ft

Rock bed size (width x length): 10 ft x 45 ft

Location of additional STA: SAME SPOT

Type of distribution media: ROCK

- ☐ Inspection ports ☐ Cleanouts
- ☐ Surface water diversions
- ☐ Additional STA not available

Homeowner Management Tasks

These op*eration and maintenance ac*tivities are your responsibility. *Chart on page 6 can help track your activities.*

Your toilet is not a garbage can. Do not flush anything besides human waste and toilet paper. No wet wipes, cigarette butts, disposal diapers, used medicine, feminine products or other trash!

The system and septic tanks needs to be checked every 24 months

Your service provider or pumper/maintainer should evaluate if your tank needs to be pumped more or less often.

Seasonally or several times per year

- *Leaks.* Check (listen, look) for leaks in toilets and dripping faucets. Repair leaks promptly.
- *Soil treatment area.* 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 and leaks, call your service professional. *Untreated sewage may make humans and animals sick.* Keep bikes, snowmobiles and other traffic off and control borrowing animals.
- *Alarms.* Alarms signal when there is a problem; contact your service professional any time the alarm signals.
- *Lint filter.* If you have a lint filter, check for lint buildup and clean when necessary. If you do not have one, consider adding one after washing machine.
- *Effluent screen.* If you do not have one, consider having one installed the next time the tank is cleaned along with an alarm.

Annually

- *Water usage rate.* A water meter or another device 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. Consider updating to demand operation if your system currently uses time,
- *Review your water usage rate.* Review the Water Use Appliance chart on Page 5. Discuss any major changes with your service provider or pumper/maintainer.

During each visit by a service provider or pumper/maintainer

- Make sure that your service professional services the tank through the manhole. (NOT though a 4" or 6" diameter inspection port.)
- Ask how full your tank was with sludge and scum to determine if your service interval is appropriate.
- 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. At each visit a written report/record must be provided to homeowner.

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 soil treatment area.)
- *Inspection pipes.* Replace damaged or missing pipes and 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 draining properly.
- *Event counter or elapsed time meter.* Check to see if there is an event counter or elapsed time meter for the pump. If there is one or both, calculate the water usage rate and compare to the anticipated use listed on Design and Page 2. Dose Volume: _____ gallons: Pump run time: _____ Minutes

Soil Treatment Area

- *Inspection pipes.* Check to make sure they are properly capped. Replace caps and pipes that are damaged.
- *Surfacing of effluent.* Check for surfacing effluent or other signs of problems.
- *Lateral flushing.* Check lateral distribution; if cleanouts exist, flush and clean at recommended frequency.
- *Vegetation* - Check to see that a good growth of vegetation is covering the system.

All other components – evaluate 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 liquid or easily biodegradable detergents. Limit use of bleach-based detergents and fabric softeners. • Install a lint filter after the washer and an effluent screen to your tank • Wash only full loads and think even – spread your laundry loads throughout the week.
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 directly out of the house. Do not route furnace discharge 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 overload the system and is prohibited from entering septic system.	

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Septic System Management Plan for Above Grade Systems

Homeowner 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)***										
Alarm**										
Check annually:										
Water usage rate (maximum gpd ____)										
Caps: inspect, replace if needed										
Water use appliances – review use										
Other:										

*Monthly

**Quarterly

***Bi-Annually

Notes: _____

_____

_____

_____

"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: _____ Date _____

Management Plan Prepared By: Josh Rutt Certification # L4063

Permitting Authority: Washington County