Becker County Planning & Zoning
915 Lake Ave
Detroit Lakes, MN 56501
(218) 846-7314
www.co.becker.mn.us

Certificate of Compliance
Inspection Report - Permit #: SS2023-1764

Owner & Property Information

Owner Name:	JOHN BEKKERUS
Mailing Address:	JOHN BEKKERUS 13440 FRAZEE RD FRAZEE MN 56544
Parcel #:	030169000
Secondary Parcel #:	

Site Address:	13440 FRAZEE RD
Township - Sec/Twp/Rng:	BURLINGTON - 17/138/040
Legal Description:	17-138-040 S1/2 OF SW1/4 OF SE1/4 LESS 1 AC IN SE COR FOR 001 & LESS 4.15 AC FOR 03.0169.002
Designer:	JenCo Services, LLC, L4041 (James Piper)
Installer:	Graham Septic LLC, L4132 (Timothy M Graham and Timothy L Graham)

Inspector Verified Specifications

Insp- Effluent Screen Installed:	No
Insp- Alarm Required:	No
Insp- Lift Pump in System:	No
Insp- Number of Bedrooms:	3

Insp- Tank Nbr/Size:	1/1000
Insp- Drainfield Type:	Chamber Trench
Insp- Drainfield Size:	25 high capacity chambers X 15 square feet = 375 square feet
Insp- Soil Verification:	#1:attached #2:N/A #3:N/A

Inspector Verified Setbacks

Insp- Tank Dist to Road	100+
Insp- Tank Dist to Nearest Prop Line	18
Insp- Tank Dist to Nearest Structure	75
Insp- Tank Dist to Well	50+
Insp- Tank Dist to OHW	
Insp- Tank Dist to Pond/Wetland	
Insp- Tank Dist to Pressure Line	

Insp- Drainfield Dist to Road	100+
Insp- Drainfield Dist to Nearest Prop Line	15
Insp- Drainfield Dist to Nearest Structure	100+
Insp- Drainfield Dist to Well	50+
Insp- Drainfield Dist to OHW	
Insp- Drainfield Dist to Pond/Wetland	
Insp- Drainfield Dist to Pressure Line	

Certificate of Compliance

(Yes) Certificate is hereby granted based upon the application, addendum from, plans, specifications and all other supporting data. With proper maintenance, this system can be expected to function satisfactory, however this is not a guarantee.

Certification Date: 10/02/2023

Zoning Office Signature:

Denise Gubrud

Denise Gubrud - ISTS Inspector

*** Certificate of Compliance is not valid unless signed by a Registered Qualified Employee ***

Field Review Form

Permit # SS2023-1764

Property and Owner

Owner: **JOHN BEKKERUS**	Parcel Number: **030169000**
Site Address: **13440 FRAZEE RD**	Secondary Parcel:

Home Information

Does the structure contain any of the following elements?	Designer submitted	Inspector verified
	Garbage disposal: No Dishwasher: Grinder pump: Lift pump in bsmt:	Garbage disposal? Y (N) Dishwasher? Y (N) Grinder pump? Y (N) Lift pump in basement? Y (N)
Number of bedrooms: **3**	Review - Number of bedrooms: 3	
Effluent screen	Effluent screen installed? Y (N) Mfr:	
Alarm: **No** Type:	Review - Alarm? Y (N) Type & Mfr:	
Lift pump in system: **No**	Review - Lift pump in system? Y (N) Mfr:	

Component Information

Tank size: **1000**	Review - Tank nbr: 1 size: 1000 Mfr: Infiltrator
Drainfield type: **Chamber Trench**	Review - Drainfield type: Chamber trench
Drainfield size: Full size - **375** Reduced/warr. size - **300**	Review - Drainfield status: none / (installed) / next spring Review - Drainfield size:
Absorption area size:	Review - Absorption area size:
Chamber type/num: **HIGH CAPACITY, 25** Trench sqft/chamber - **12**	Review - Chamber type: Hi capicity Num: 25 Review - Trench sqft/chamber: 15
Drainfield rock depth:	Review - ~~Rock~~ depth: 12"

Soil Verification

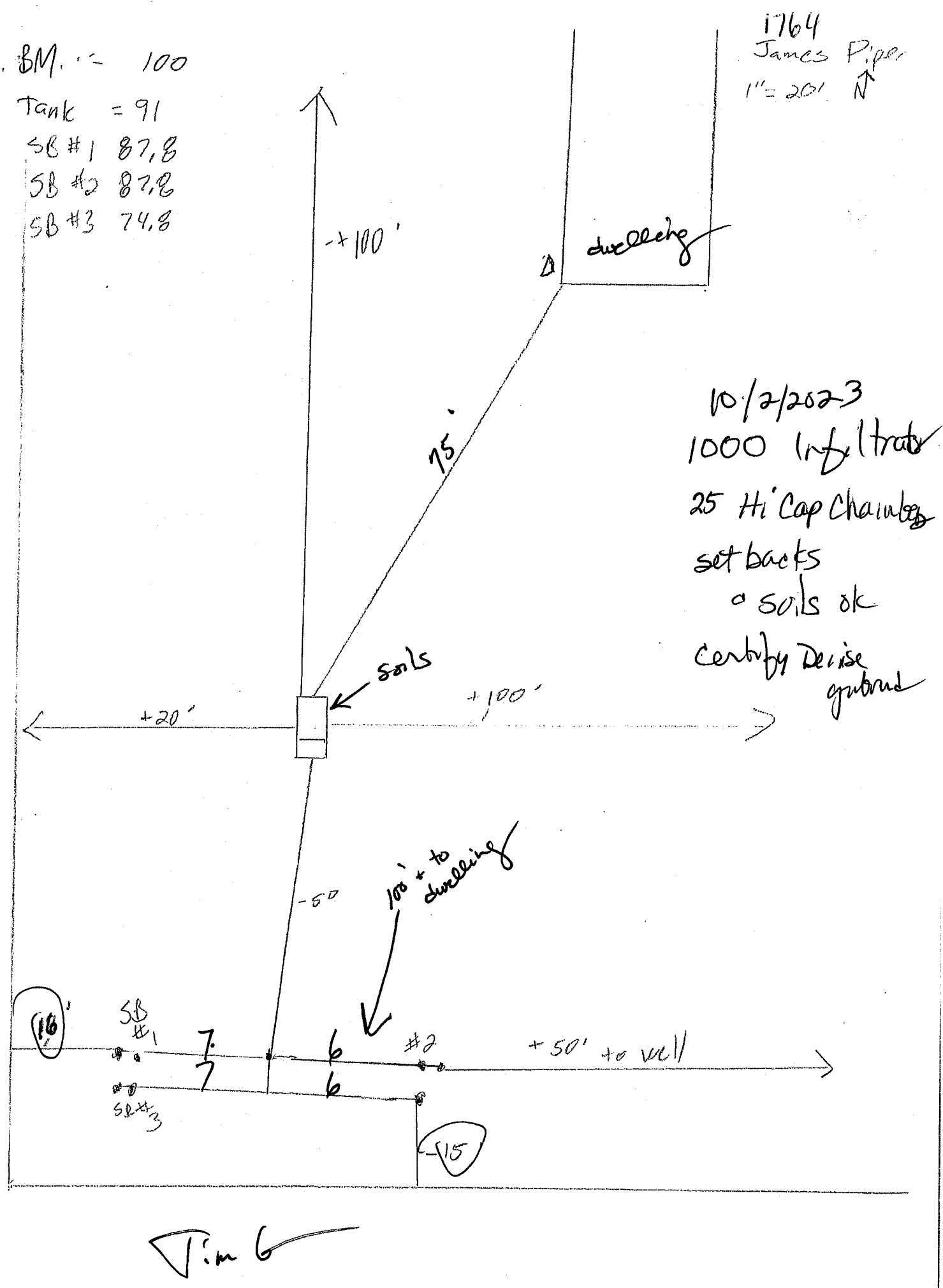
Vertical separation verified	Boring #1: Boring #2: attached Boring #3:

Setback Verification

Distance to...	Designer submitted		Inspector verified	
	Tank	Drainfield	Tank	Drainfield
Road	+100'	+100'	100+	100+
Nearest prop line	+20'	15'	18	15
Nearest structure	+50'	+100'	75	100+
Well	+50'	+50'	50+	50+
OHW				
Pond/Wetland				
Pressure line	+50'	+50'		

Date System Installed: 10/2/2023 Installer: Graham's Inspector: Denise

guboud


1764
James Piper
1" = 20'
BM. = 100
Tank = 91
SB #1 87.8
SB #2 87.8
SB #3 74.8
+100'
dwelling
75'
10/2/2023
1000 Infiltrator
25 Hi Cap Chambers
setbacks
soils ok
Certify by Denise
soils
+20'
+100'
-50'
100' + to dwelling
16'
SB #1
#2
+50' to well
SB #3
15'
Tim G

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 04.01.2020

Client:	JOHN G & MARY BEKKERUS			Location / Address:	13440 FRAZEE ROAD, FRAZEE, MN 56544
Soil parent material(s): (Check all that apply)	☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter				
Landscape Position: (select one)	Back/Side Slope	Slope %: 21.0	Slope shape	Convex, Linear	Elevation-relative to benchmark: 87.8
Vegetation:	Grass	Soil survey map units:	776E		Limiting Layer Elevation: 80.8
Weather Conditions/Time of Day:	SUNNY	MORNING	Date	06/09/23	
Observation #/Location:	#1	BEGINNING OF 1ST TRENCH	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	Loamy Sand	<35%	10YR 2/2	None	None	None	Granular	Weak	Friable
5-14	Loamy Sand	<35%	10YR 5/4	None	None	None	Granular	Weak	Loose
14-38	Sand	<35%	10YR 5/4	None	None	None	Single grain	Structureless	Loose
38-60	Sand	<35%	10YR 6/4	None	None	None	Single grain	Structureless	Loose
60-84	Sand	<35%	10YR 7/3	None	None	None	Single grain	Structureless	Loose

Comments

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

JAMES PIPER		L4041	6/9/2023
(Designer/Inspector)	(Signature)	(License #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 04.01.2020

Client:	JOHN G & MARY BEKKERUS	Location / Address:	13440 FRAZEE ROAD, FRAZEE, MN 56544

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

Landscape Position: (select one)	Back/Side Slope	Slope %: 21.0	Slope shape	Convex, Linear	Elevation-relative to benchmark: 87.8
Vegetation:	Grass	Soil survey map units:	776E		Limiting Layer Elevation: 80.8
Weather Conditions/Time of Day:	SUNNY	MORNING	Date	06/09/23	
Observation #/Location:	#2	END OF 1ST TRENCH	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
0-6	Loamy Sand	<35%	10YR 2/2	None	None	None	Granular	Weak	Friable
6-15	Loamy Sand	<35%	10YR 5/4	None	None	None	Granular	Weak	Friable
15-40	Sand	<35%	10YR 5/4	None	None	None	Single grain	Structureless	Loose
40-60	Sand	<35%	10YR 6/4	None	None	None	Single grain	Structureless	Loose
60-84	Sand	<35%	10YR 7/3	None	None	None	Single grain	Structureless	Loose

Comments

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

JAMES PIPER		L4041	6/9/2023
(Designer/Inspector)	(Signature)	(License #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 04.01.2020

Client:	JOHN G & MARY BEKKERUS	Location / Address:	13440 FRAZEE ROAD, FRAZEE, MN 56544

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

Landscape Position: (select one)	Back/Side Slope	Slope %: 21.0	Slope shape	Convex, Linear	Elevation-relative to benchmark: 74.8
Vegetation:	Grass	Soil survey map units:	776E		Limiting Layer Elevation: 67.8
Weather Conditions/Time of Day:	SUNNY	MORNING	Date	06/09/23	
Observation #/Location:	#3	BEGINNING OF 2ND TRENCH	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	Loamy Sand	<35%	10YR 2/2	None	None	None	Granular	Weak	Friable
5-16	Loamy Sand	<35%	10YR 5/4	None	None	None	Granular	Weak	Friable
16-38	Sand	<35%	10YR 5/4	None	None	None	Single grain	Structureless	Loose
38-58	Sand	<35%	10YR 6/4	None	None	None	Single grain	Structureless	Loose
58-84	Sand	<35%	10YR 7/3	None	None	None	Single grain	Structureless	Loose

Comments

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

JAMES PIPER		L4041	6/9/2023
(Designer/Inspector)	(Signature)	(License #)	(Date)

ONSITE SEWAGE TREATMENT PROGRAM

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Contact Information

v 04.01.2020

Property Owner/Client:	JOHN G & MARY BEKKERUS	Date Completed:	6/9/2023
Site Address:	13440 FRAZEE ROAD, FRAZEE, MN 56544	Project ID:	
Email:		Phone:	218-850-0989
Mailing Address:	SAME		
Legal Description:	17-138-40 S1/2 OF SW1/4 OF SE1/4 LESS 1 AC IN SE1/4 FOR 001 & LESS 4.15 AC FOR 03.		
Parcel ID:	030169000	SEC: 17 TWP: 138 RNG: 040	

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: 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	DEEP					50'	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?	No	Yes, name:	
Elevation of ordinary high water level:	ft	Source:	
Classification:	Tank Setback: ft.	STA Setbk: ft.	
C. Site located in a floodplain?	No	Yes, Type(s):	N/A
Floodplain designation/elevation (10 Year):	N/A ft	Source:	N/A
Floodplain designation/elevation (100 Year):	N/A ft	Source:	N/A

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: 776E Slope Range: 15-30 %

List landforms: HILLSLOPES ON MORAINES

Landform position(s): Back/ Side Slope

Parent materials: Till

Depth to Bedrock/Restrictive Feature: >80 in Depth to Watertable: >80 in

Map Unit Ratings

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

5. Local Government Unit Information

Name of LGU: BECKER COUNTY

LGU Contact: KYLE VAREBERG

LGU-specific setbacks:

LGU-specific design requirements:

LGU-specific installation requirements:

Notes:

ONSITE SEWAGE TREATMENT PROGRAM

Field Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Project Information

v 04.01.2020

Property Owner/Client: JOHN G & MARY BEKKERUS | **Project ID:**

Site Address: 13440 FRAZEE ROAD, FRAZEE, MN 56544 | **Date Completed:** 6/9/2023

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: 21 % | **Slope shape:** Convex, Linear | **Slope direction:** south

Describe the flooding or run-on potential of site: NONE

Describe the need for Type III or Type IV system: NONE

Note:

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

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: 3 | **Soil observation logs attached (Y/N):** Yes

Percolation tests performed & attached (Y/N): No

5. Phase I. Reporting Information

	Depth		Elevation		
Limiting Condition*:	84	in	**80.8**	ft	**Most Restrictive Depth Identified from List Below*
Periodically saturated soil:		in		ft	Soil Texture: medium sand
Standing water:	>80	in		ft	Percolation Rate: min/inch
Bedrock:	>80	in		ft	Soil Hyd Loading Rate: 1.2 gpd/ft^2
Benchmark Elevation:	100.0	ft			Elevations and Benchmark on map? (Y/N): Yes

Benchmark Elevation Location: ANTENNA PAD

Differences between soil survey and field evaluation:

Site evaluation issues / comments:

Anticipated construction issues:

University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

1. PROJECT INFORMATION

v 04.01.2020

Property Owner/Client:	JOHN G & MARY BEKKERUS	Project ID:	
Site Address:	13440 FRAZEE ROAD, FRAZEE, MN 56544	Date:	07/07/23
Email Address:		Phone:	218-850-0989

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: 1000 Gallons in 1 Tanks or Compartments

Recommended **Septic Tank** Capacity: 1000 Gallons in 1 Tanks or Compartments

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

B. Other Establishments:

Waste received by: ____ ____ GPD x ____ Days Hyd. Retention Time

Code Minimum **Septic Tank** Capacity: ____ Gallons In ____ Tanks or Compartments

Recommended **Septic Tank** Capacity: ____ Gallons In ____ Tanks or Compartments

Effluent Screen & Alarm (Y/N): ____ Model/Type: ____

5. PUMP TANK SIZING

Pump Tank 1 Capacity (Minimum):	Gal	Pump Tank 2 Capacity (Minimum):	Gal
Pump Tank 1 Capacity (Recommended):	Gal	Pump Tank 2 Capacity (Recommended):	Gal
Pump 1 ____ GPM Total Head	ft	Pump 2 ____ GPM Total Head	ft
Supply Pipe Dia. ____ in Dose Vol:	gal	Supply Pipe Dia. ____ Dose Vol:	Gal

ONSITE SEWAGE TREATMENT PROGRAM

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

6. SYSTEM AND DISTRIBUTION TYPE

Project ID:

Soil Treatment Type:	Trench	Distribution Type:	Gravity Distribution
Elevation Benchmark:	100 ft	Benchmark Location:	ANTENNA PAD
MPCA System Type:	Type I	Distribution Media:	Registered Product:
Type III/IV Details:			Chamber High Capacity

7. SITE EVALUATION SUMMARY:

Describe Limiting Condition: Depth of Observation

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:	84	inches	7.0	ft	80.80	ft
Minimum Req'd Separation:	36	inches	3.0	ft		
					Elevation	
Code Max System Depth:	48	inches	4.0	ft	83.80	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:	Sand		
Soil Hyd. Loading Rate:	1.20 GPD/ft^2	Percolation Rate:	MPI
Contour Loading Rate:	6	Note:	
Measured Land Slope:	21.0 %	Note:	
Comments:			

8. SOIL TREATMENT AREA DESIGN SUMMARY

Trench:

Dispersal Area	300 ft^2	Sidewall Depth	12 in	Trench Width	3 ft
Total Lineal Feet	100 ft	No. of Trenches	4	Code Max. Trench Depth	48.0 in
Contour Loading Rate	6.0 ft	Length	75 ft	Designed Trench Depth	36.0 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	ft^2	Bed Length	ft	Bed Width	ft
Absorption Width	ft	Clean Sand Lift	ft	Berm Width (0-1%)	ft
Upslope Berm Width	ft	Downslope Berm	ft	Endslope Berm Width	ft
Total System Length	ft	System Width	ft	Contour Loading Rate	gal/ft

University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

At-Grade:

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

Level & Equal Pressure Distribution

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

Non-Level and Unequal Pressure Distribution

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

Minimum Dose Volume _____ gal

Maximum Dose Volume _____ gal

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

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

_____ gpd X _____ mg/L X 8.35 ÷ 1,000,000 = _____ 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:

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

JAMES PIPER		L4041	7/7/2023
(Designer)	(Signature)	(License #)	(Date)

ONSITE SEWAGE TREATMENT PROGRAM

Trench Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. SYSTEM SIZING: Project ID: v 04.01.2020

A. Design Flow: 450 GPD

B. Code Maximum Depth: 48 inches Designers Maximum Depth: 36.0 inches

C. Soil Loading Rate: 1.20 GPD/ft² Contour Loading Rate: 6 gal/ft

D. Required Bottom Area: Design Flow ÷ Soil Loading Rate

450 GPD ÷ 1.20 GPD/ft² = 375 ft²

E. Select Dispersal Media: Registered Product: Chamber High Capacity
(selection required) Registered Media

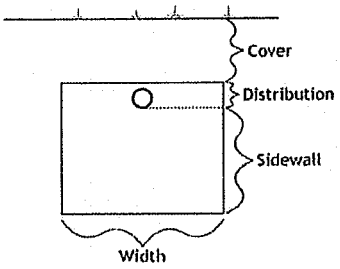
F. Select Distribution Method: Gravity - Other Notes:

G. Is distribution media installed in contact with sand or loamy sand or with a percolation rate of 0.1 to 5 mpi?
If yes, Indicate distribution or treatment method: 25% PIECES

2. TRENCH CONFIGURATION

A.

Initial required trench bottom area (ft²): (from 1.D)	Sidewall Absorption (inches)	Bottom Area Reduction	Bottom Area Multiplier	Design trench bottom area
375	6 to 11	0%	1	375
	12 to 17	20%	0.8	300
	18 to 23	34%	0.66	248
	24	40%	0.6	225



B. Select Sidewall Height: 12 inches = 1.0 ft

C. Design Bottom Area: 300 ft²

D. Select Trench/Registered Width: 3 ft

Check registered product information for specific application details and design

E. Total Designed Trench Length: Bottom Area ÷ Trench Width

300 ft² ÷ 3.0 ft = 100 ft

F. Calculate Minimum length of each trench based on Contour Loading Rate: Design Flow ÷ CLR =

450 gpd ÷ 6.0 gal/ft = 75.0 ft

G. Rapidly Permiable Soil Design Considerations: 25% PIECES

15% Trench Distribution = Required Bottom Area x 15%.

N/A ft² x 15% = N/A ft²

Length Trenches at 15 %: Trench area ÷ Trench Width

N/A ft² ÷ N/A ft = N/A ft

H. Number of Trenches: 1 Based on CLR minimum length N/A Based on 15% sections

Designed Number of Trenches: 4

I. Equal Length per Trench = Actual Trench Length ÷ Number of Trenches

100 ft ÷ 4.0 = 25.0 ft

J. Select Trench Spacing : 6 ft (typically 5 - 12 ft from center to center)

K. Calculate Lawn Area: Trench Length X Trench Spacing

100 ft X 6 ft = 600 ft² lawn area

4. ROCK MATERIALS

Project ID:

A. Select Depth Required to Cover Distribution Pipe: [ ] ft (0.33 ft for pressure, 0.5 ft for gravity)

B. Calculate Rock Volume: (Sidewall Height + Depth to Cover Pipe X Bottom Area = cubic feet ÷ 27 = cubic yards

([ ] ft + [ ] ft) X [ ] ft^2 = [ ] ft^3 ÷ 27 [ ] yd^3

5. REGISTERED PRODUCTS MATERIALS

A. Registered Product: [Chamber High Capacity] Model: [ ]

B Enter the Registered Product Component Length: [4] ft

C Number of Components = Minimum Total Length Required divided by Component Length (Round up)

[100] ft ÷ [4.0] ft = [25] components

I. Actual Total Trench Length = Number of Components X Component Length:

[25] components X [4.0] ft = [100] ft

Comments:

Onsite Sewage Treatment Program

Tank Buoyancy Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Tank Specifications

Project ID:

v 04.01.2020

A. Tank Manufacturer: BROWN PRECAST

Tank Model: 1000 ST

B. Outside Tank Dimensions and Specifications:

Tank Use: Septic

Length: 96 in Width: 68 in Height: 61.25 in

Diameter: in

Length: 8.0 ft Width: 5.7 ft Height: 5.1 ft

Radius of Tank: in

2. Outside Volume of Tank

Rectangular Tank

A. Area of Tank = Length (ft) X Width (ft)

8.0 ft X 5.7 ft = 45.3 ft^2

B. Volume of Tank = Area of Tank (2.A) X Height (ft)

45.3 ft X 5.1 ft = 231.4 ft^3

Circular Tank

A. Area of Tank = πr^2 (3.14 X (Radius of Tank)$^{2)}$

3.14 X ft^2 = ft^2

B. Volume of Tank = Area of Tank X Height (ft)

ft^2 X ft = ft^3

3. Force of Tank Weight (F_{TW})

Weight of Tank (provided by manufacturer) 8,650 lbs/ft^3

4. Force of Soil Weight Over Tank (F_{SW})

A. Depth of Cover Over Tank: 24 in 2.0 ft

B. Weight of Soil Per Cubic Foot: 120 lbs/ft^3

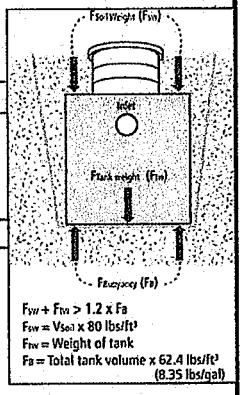
C. Volume of Soil Over Tank = Depth of Cover (ft) X Area of Tank (ft^2)

2.0 ft X 45.3 ft^2 = 90.7 ft^3

Soil Type	Weight of Soil (lbs/ft^3)
Sandy	120
Loamy	100
Clay	90

D. Weight of Soil Over Tank = Volume of Soil Over Tank X Weight of Soil Per Cubic Foot

90.7 ft^3 X 120 lbs/ft^3 10,880.0 lbs *Note: Assumes saturation does not get over the lid of the tank*



$F_{SW} + F_{TW} > 1.2 \times F_B$
$F_{SW} = V_{Soil} \times 80$ lbs/ft^3
F_{TW} = Weight of tank
F_B = Total tank volume x 62.4 lbs/ft^3 (8.35 lbs/gal)

5. Buoyant Force (F_B)

Buoyant Force (F_B) = Outside Volume of Tank X Weight of Water Per Cubic Foot (62.4 lbs/ft^3) X 1.2 (Safety Fctr)

231 X 62.4 lbs/ft^3 X 1.2 = 17,326.4 lbs

6. Evaluation of Net Forces

A. Downward Force = Force of Tank Weight (F_{TW}) + Force of Soil Weight of Soil (F_{SW})

8650 lbs + 10880 lbs = 19,530.0 lbs

B. Net Difference = Downward Force - Buoyant Force Including Safety Factor

19530 lbs - 17326 lbs = 2,203.6 lbs

If the Net Difference is negative, countermeasures will need to be taken to prevent the tank from floating out of the ground.

Comments/Solution:

Becker County, Minnesota

776E—Snellman-Sugarbush complex, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: fbpn
Elevation: 800 to 2,000 feet
Mean annual precipitation: 20 to 28 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 90 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Snellman and similar soils: 55 percent
Sugarbush and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Snellman

Setting

Landform: Hillslopes on moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy glacial till

Typical profile

A - 0 to 3 inches: sandy loam
E - 3 to 14 inches: loamy sand
Bt - 14 to 26 inches: sandy clay loam
Bk,C - 26 to 60 inches: sandy loam

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B

10/2/2023
12:00

Becker County Planning & Zoning
915 Lake Ave
Detroit Lakes, MN 56501
(218) 846-7314
www.co.becker.mn.us

Septic Permit

Permit #: SS2023-1764

Owner & Property Information

Owner Name:	JOHN BEKKERUS
Mailing Address:	JOHN BEKKERUS 13440 FRAZEE RD FRAZEE MN 56544
Phone #:	218-850-0989
Lake/River(1000/300):	No
Lake/River Name:	
Pond/Wetland(50):	No

Parcel #:	030169000
Secondary Parcel #:	
Site Address:	13440 FRAZEE RD
Township - Sec/Twp/Rng:	BURLINGTON - 17/138/040
Designer:	JenCo Services, LLC, L4041 (James Piper)
Installer:	Graham Septic LLC, L4132 (Timothy M Graham and Timothy L Graham)

Specifications

Tank to be Installed:	Compartmented Tank
Total # Tanks Installed:	1
System Status:	Replacement System
System Serves:	Full-Time Dwelling
Number of Bedrooms:	3
Design Flow/GPD:	450
Garbage Disposal?	No
Size of Lift Pump:	
Size of Lift Line:	
Soil Sizing Factor:	.83

Type of Drainfield:	Chamber Trench
Full Size of Drainfield:	375
Reduced/Warrantied Size:	300
Absorbtion Area Size:	300
Rock Depth:	
Chamber Type and Number:	HIGH CAPACITY, 25
Chamber Trench SqFt/Chamber:	12
Is System Pressurized?	No
Alarm?	No
Type of Alarm:	

Setbacks

Road Type:	Public / Township
Tank Dist to Road:	+100'
Tank Dist to Closest Prop Line:	+20'
Tank Dist to Nearest Structure:	+50'
Tank Dist to Well:	+50'
Tank Dist to OHW:	
Tank Dist to Pond/Wetland:	
Tank Dist to Pressure Line:	+50'

Right of Way Marked:	No
Drainfied Dist to Road:	+100'
Drainfied Dist to Closest Prop Line:	+20'
Drainfield Dist to Nearest Structure:	+100'
Drainfield Dist to Well:	+50'
Drainfield Dist to OHW:	
Drainfield Dist to Pond/Wetland:	
Drainfield Dist to Pressure Line:	+50'

Other Information

Date Approved:	07/10/2023
Permit Fee:	$225.00
Receipt Number:	253334800
Date Paid:	09/06/2023 9:54 PM CDT
Notes: Install a 1000 gallon septic tank and a chamber trench drainfield using 25 high capacity chambers	

Zoning Office Signature:

Denise Gubrud

PERMIT MUST BE POSTED AT JOB SITE. PERMIT EXPIRES ONE YEAR FROM DATE PAID.

**** Please schedule for inspection prior to installation! ****

Becker County Restrictive Layer Verification

Client: Bekkerus	Parcel: 03016 9000	Date: 6/9/2023
Address: 13440 Frazee Rd		
Vegetation:		
Weather Conditions/Time of Day: 9:30 Sunny	Observation#/Location/Method: boring	

Depth (in)	Texture	Matrix Color(s)	Mottle Color(s)
84"	f. s	10yr 7/3	none

Comments/Notes:

84" – no restrictive layer

Certified Statement: I hereby certify that I have completed this work in accordance with all applicable ordinace, rules and laws.			
(Designer) Jim Piper	(Inspector) Denise Guebaud	(License #) C8952	(Date) 6/9/2023