

Preliminary & Field Evaluation Form

www.SepticResource.com vers 12.4

Owner Information			
Date	<u>7/19/2023</u>	Sec / Twp / Rng	<u>S-6, T-46, R-26</u>
Parcel ID	<u>24-0-011101</u>	LUG (county, city, township)	<u>Aitkin Co.</u>
Property Owner:	<u>Bill Christensen</u>	Owners address (if different)	
Property Address:	<u>Near 38814 Deer St. Aitkin Mn 56431</u>	<u>38505 305th St.</u>	
City / State / Zip:	<u>Aitkin Mn 56431</u>		

Flow Information and Waste Type / Strength			
Estimated Design flow	<u>450</u>	Anticipated Waste strength	<input type="checkbox"/> Hi Strength <input checked="" type="checkbox"/> Domestic
Comments: Gravity flow from house. Soils Pits dug on 7/19/2023 Verified by Bryan Hargrazes & Jeff Brummer		Any Non-Domestic Waste	<input type="checkbox"/> Yes (class V) <input checked="" type="checkbox"/> No
		Sewage ejector/grinder pump	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Water softener	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Garbage Disposal	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Daycare / In home business	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Site Information					
Existing & proposed lot improvements located (see site map)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Well casing depth	Proposed deep well	
Easements on lot located (see site map)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Drainfield w/in 100' of residential well	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Property lines determined (see site map)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Site w/in 200' of transient noncommunity water supply (TNCWS)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Req'd setbacks determined (see site map)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Site w/in an inner wellhead mgmt zone (CWS/NTNCWS)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities located & identified (gopher state one call)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Buried water supply pipe w/in 50' of system	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access for system maintenance (shown on site map)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Site located in Shoreland (w/in 1000' of lake, 300' of river)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Soil treatment area protected	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Site map prepared with previous items included	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Construction related issues	<u>Order Tank withwater proofing from MFG if possible.</u> <u>Set tank deep to get drainback from pressure bed.</u>				

Soil Information

Evidence of site:

Cut	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Filled	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Compacted	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Disturbed	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Original soils Yes No

Soil logs completed and attached Yes No

Perk test completed and attached (if applicable) Yes No

Soil loading rate (gpd/ft²) 0.78

Percolation rate (if applicable) _____

Depth/elev to SHWT 77"

Flooding or run-on potential Yes No
(comments)

Depth to system bottom maximum (or elev minimum) 41"

Flood elevation (if applicable) _____

Depth/elev to standing water (if applicable) _____

Elevation of ordinary high water level (if applicable) _____

Depth/elev to bedrock (if applicable) _____

Floodplain designation and elev - 100 yr/10 yr (if applicable) _____

Soil Survey information determined (see attachment) Yes No

Differences between soil survey and field evaluation (if applicable) _____

I hereby certify this evaluation was completed in accordance with MN 7080 and any local req's.



Designer Signature

Brummer Septic LLC.

Company

L-1347

License #

Aitkin County Soils Verification Sheet

Property Owner Bill Christensen Date: 7/19/23
 RE Code: 24-0-011101 Site Address: Next to 38814 Deer St. Aitkin Mn 56431

Bryan Hargrave
 Signature

Bryan Hargrave
 Designer/Inspector
 Licence #: L-3937
 Phone Number: 218-831-4191
 Date: 7/19/23

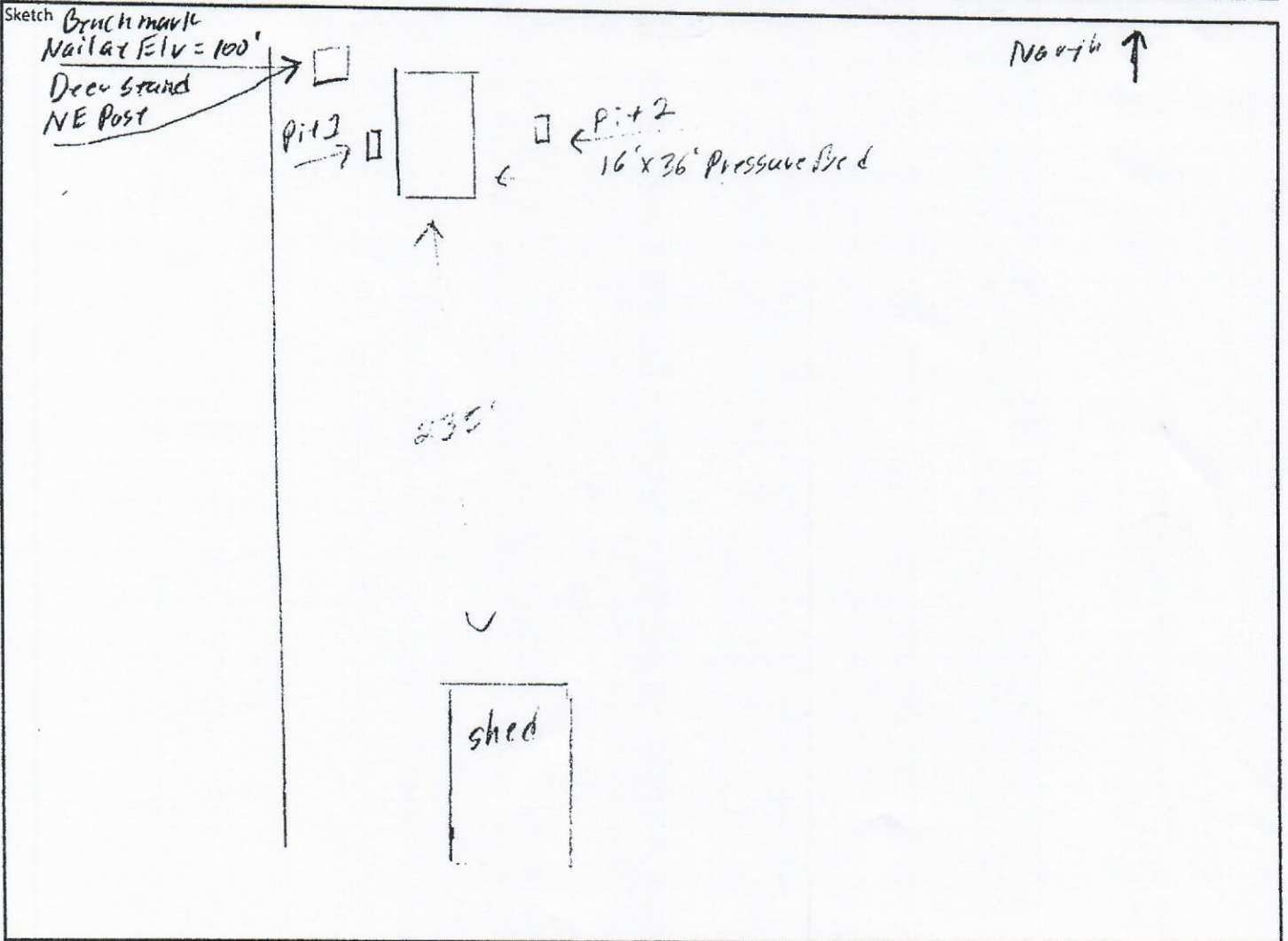
Pit	1	Boring	Elevation	100'	Depth to SHWT	77"	Date	7/19/23
Depth (in)	Texture	Fragment%	Matrix Color	Redox Color	Consistence	Grade	Shape	
0 - 7	Loamy Sand / Top soil	<35	10YR3/2		loose	Loose	Granular	
7 - 12	Loamy Sand Horizon	<35	10YR4/3		loose	loose	Granular	
12 - 19	Loamy Sand	<35	10YR5/4		Loose	Loose	Granular	
19 - 40	Fine Sand	<35	10YR5/4		Loose	Loose	Granular	
40 - 77	Med Sand	<35	10YR5/4		Loose	Loose	Granular	

Jeff Brummer
 Signature

Jeff Brummer
 Designer/Inspector
 Licence #: L-1347
 Phone Number: 218-821-0704
 Date: 7/19/23

Pit	2	Boring	Elevation	99.9'	Depth to SHWT	84"	Date	7/19/23
Depth (in)	Texture	Fragment%	Matrix Color	Redox Color	Consistence	Grade	Shape	
0 - 6	Loamy Sand/ Top soil	<35	10YR3/2		ioose	Loose	Granular	
6 - 18	Sandy loam	<35	10YR4/3		loose	loose	Granular	
18 - 22	Sandy Loam	<35	10YR4/4		Loose	Loose	Granular	
22 - 42	Coarse Sand	<35	10YR5/4		Loose	Loose	Granular	
42 - 84	Med Sand	<35	10YR5/4		Loose	Loose	Granular	

< less than > greater than		
Consistence	Grade	Shape
Loose	Loose	Single Grain
Friable	Weak	Granular, Blocky
Firm	Moderat	Prismatic, Platy
Rigid	Strong	Massive



Pressure Bed Design

Property Owner: Bill Christensen Date: 7/19/2023

Site Address: Near 38814 Deer St. Aitkin Mn 56431 PID: 24-0-011101

Comments: _____

instructions: = req'd input = input or default = calculated field *** = installer info

- 1) 3 bedroom Type I Residential System
- 2) 450 GPD design flow
- 3) No Garbage disposal or pumped to septic
Install Jacobson 1650 2/ Compartment septic / pump tank
- 4) *** 1000 Gallon septic tank (minimum) Tank options: none
- 5) 0.78 GPD/ft² Soil Loading Rate 577 ft² bed req'd, or 577 ft² LUG minimum
(must match soil boring log)
- 6) *** 16.0 ft desired bed width, leads to a 36.1 ft bed length
(25' maximum)
- 7) *** 3.0 ft lateral spacing 3.0 ft perforation spacing (maximum 3 for both)
end feed manifold connection
- 8) *** 5 laterals 34.1 feet long 12.0 perfs / lateral 60 perfs total
(1/2 perf means the first perf starts at the middle feed manifold)
- 9) *** 7/32 inch perfs at 1 feet residual head gives 0.56 gpm flow rate per perforation
(If bed has > 1' of cover, increase residual head for cleanout req's)
for this perf size & spacing, & pipe size on line 12, max perfs/lateral = 19, line #8 must be less --> OK
- 10) 4 doses per day (4 minimum)
- 11) 113 gallons per dose (treatment volume)
- 12) 1.50 inch diameter laterals (or smaller) will meet "5x pipe volume"
*** 1.50 inch diameter laterals (or smaller) must be used to meet "4x pipe volume" requirement
2.00 inch diameter laterals (or smaller) will meet "3x pipe volume"
- 13) *** 215 feet of 2.0 inch supply line leads to 37 gallons of drainback volume
("top feed" to control the drainback)
- 14) 150 gallons TOTAL pump out volume (treatment + drainback)
- 15) 15 feet vertical lift from pump to dispersal area, leads to a
- 16) *** 34 GPM @ 29 feet of head, Pump requirement
(>50 gpm may require additional 3-6' head allowance for discharge assy)

- 17) *** 533 gal Dose tank (minimum) at 12.69 gpi
- 18) *** 11.8 inch swing on Demand float, or Timed dosing of 4.4 min ON (confirm pump rate with drawdown test and adjust as necessary)
(<100% of design flow requires a larger OFF time) 5.9 hrs OFF
- 19) 12 inches of from bottom of tank to "pump OFF" float, and/or to cover pump
- 20) *** 24 inches from bottom of tank to "pump ON" float, or 12 inches to "timer ON" float
- 21) *** 27 inches from bottom of tank to "Hi Level" float (add 5-15 inches if Time Dosed)
- 22) 190 gallons reserve capacity (after High Level Alarm is activated)
- 23) 77 inches, or 6.42 ft. to Redox or other limiting condition (This must match the soil boring log)
- 24) 36 inches, or 3.00 ft. of vertical separation required
leads to bottom of rock no more than:
- 25) *** 41 inches, or 3.4 ft. Below existing grade **CRITICAL FOR FUTURE CERTIFICATIONS!!!**
- 26) *** 9 inches of rock below the pipe
3 inches of rock to cover the pipe
- 27) Overall Dimensions: 16.0 ft. wide by 36.1 ft. long Pressure Bed
- 28) *** Rock Bed materials:
16 ft. by 36.1 ft. by 12 inches total, plus 20% gives 26 yd³ or *1.4= 36 ton

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


 Designer Signature

Brummer Septic LLC.
 Company

L-1347
 License#

7/19/2023
 Date

Installer Summary

1000 gallon Septic tank (minimum) none Install Jacobson 1650

533 gallon Dose tank (minimum) at 12.69 gpi

34 GPM @ 29 ft. of head, Pump required

11.8 inch swing on Demand float or 4.4 minutes ON time & 5.9 hours OFF time

24 inches from bottom of tank to "pump ON" float, or 12 inches to "timer ON" float
27 inches from bottom of tank to "Hi Level Alarm" float

215 ft. of 2.0 inch supply line with end feed manifold connection

5 laterals 1.50 inch diameter 34.1 feet long 3.0 ft lateral spacing

7/32 inch perms 3.0 ft perforation spacing

No Effluent filter & alarm
5 clean out & valve box assembly

Pressure Bed:

16.0 ft. wide by 36.1 ft. Long

Bottom of rock no more than:

41 inches, or 3.4 ft. Below existing grade

9 inches of rock below the pipe

Overall Dimensions: 16 ft. wide by 36.1 ft. long Pressure Bed

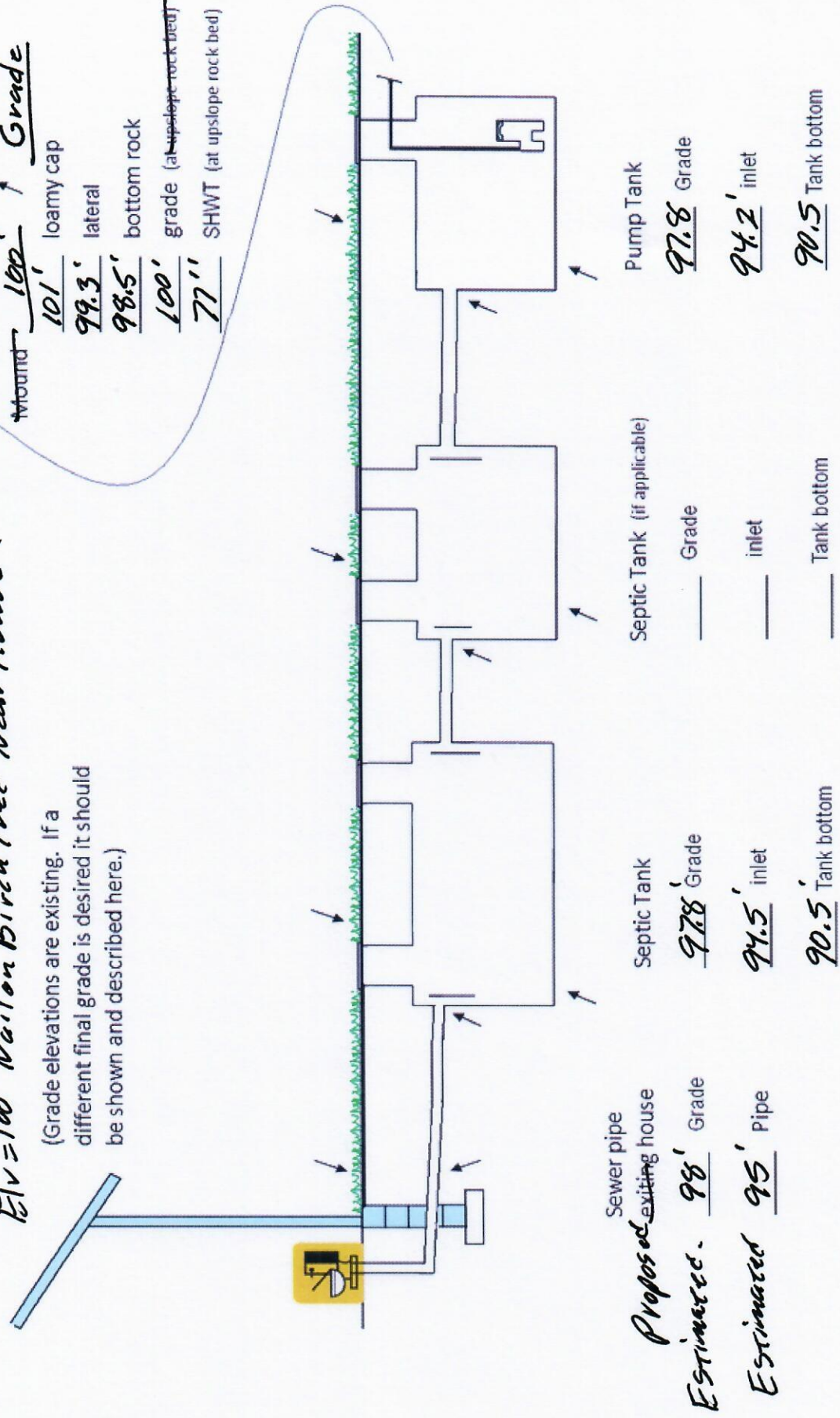
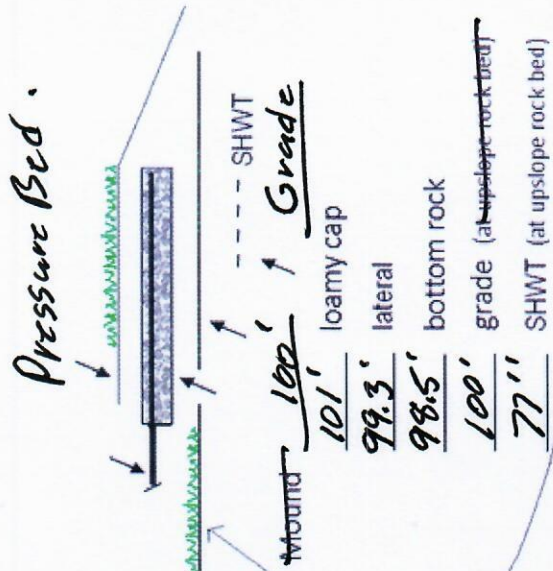
Rock Bed materials: 26 yd³ or *1.4= 36 ton

System Elevations

ELV = 100' benchmark Nail on NE Post of Deer Stand.

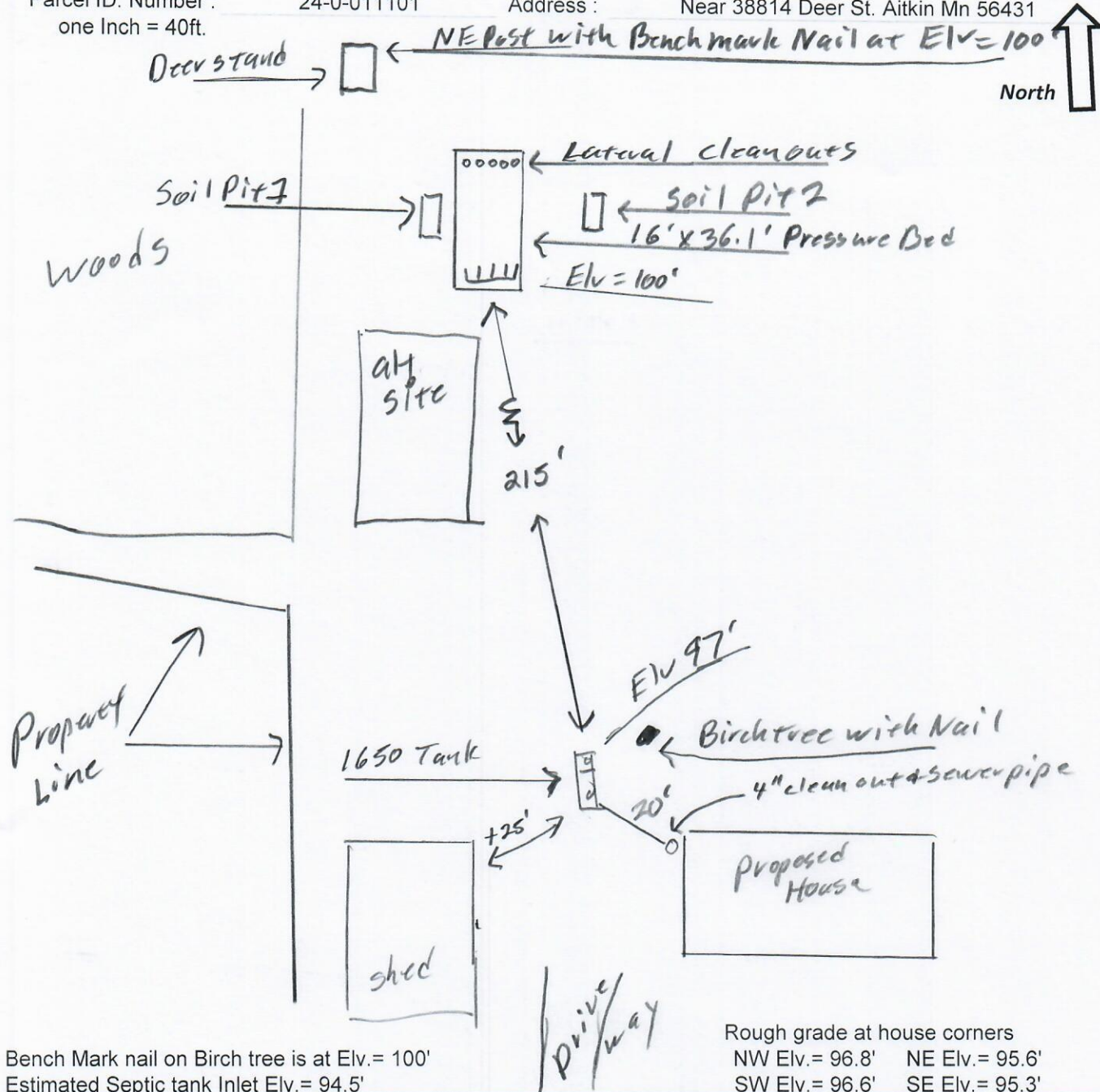
ELV = 100' Nail on Birch Tree Near House.

(Grade elevations are existing. If a different final grade is desired it should be shown and described here.)



{ Design Drawing }

Property Owner: Bill Christensen Date: 7/19/23 Designer's Initials: JB
 Parcel ID. Number: 24-0-011101 Address: Near 38814 Deer St. Aitkin Mn 56431
 one Inch = 40ft.



Bench Mark nail on Birch tree is at Elv. = 100'
 Estimated Septic tank Inlet Elv. = 94.5'

Rough grade at house corners
 NW Elv. = 96.8' NE Elv. = 95.6'
 SW Elv. = 96.6' SE Elv. = 95.3'

Surface/ SHWT	Nail on Post = Bench Mark 100'		Existing Grade at Pressure bed corners	
Soil Pit 1	100' / 77"	Bench Mark	100'	NW Elv. = 100' NE Elv. = 100'
Soil Pit 2	99.9' / 84"	Ground Elv. BM	99.5'	SW Elv. = 100' SE Elv. = 100'
Soil Bore 3		Ground Elv. Tank	97.8'	Bottom of Roack bed Elv. = 98.5'
		Ground at Proposed house	96.8' NW corner	Approx. Sewer pipe at House Elv. = 95'

Please show all that apply (Existing)
 Wells within 100ft. Of Drain field.
 Water lines within 10 ft. of Drain field.
 Drain field Areas:

Please Draw to Scale with North to Top or Left Side of Page:

- | | |
|---------------------------|-----------------------------------|
| Disturbed/Compacted Areas | Access Route for Tank Maintenance |
| Component Location | Property Lines |
| OHW ordinary high water | Structures |
| Lot Easements | Setbacks |

Mound Design Notes - Aitkin county

Property Owner: Bill Christensen

Date: 7/19/2023

Site Address: Near 38814 Deer St. Aitkin Mn 56431

PID: 24-0-011101

Comments: Type I Pressure Bed / 3 bedroom

- 1 This is a type I Pressure Bed for a proposed 3 bedroom House.
Soil separation is at 77" with Flat across pressure bed area.
- 2 Proposed deep well will meet all setbacks to septic system.
Deep Well setbacks are 50 ft. to tank, drainfield, 20 ft to sewer pipe with an air test.
- 3 Grade of house not set at time of design. Modular home on a foundation, no basement.
Because tank will have to be deep (Approx, 3 feet to its top) order tank waterproofed by MFG if possible.
- 4 Bench Mark (Elv.= 100') nail on NE wood post of deer stand. Also one by proposed house on a birch tree.
- 5 The Pressure bed area will be 16 ft. wide and 36.1 ft. long.
Elevation of the bottom of the rock bed should be approx. 98.5'
The area size of the rock bed is 16' x 36.1' .
Cover rock bed with fabric and 12" to 18" of soil.
- 6 Installer to double check bench mark. Installer should confirm bench mark height Elv. with inspector.
Installer should record bench mark Elv. and bottom of rockbed height on installation inspection form.
It is important that the soils do not get compacted, and area stays protected.
- 7 The Jacobson 1650 2 / Compartment septic /pump tank will be gravity flow from dwelling.
Install low enough for drainback from pressure bed (Approx. 215 ft.) figure 3 ft of rise.
Set pump to dose 4 doses per day. approx. 150 gallons per dose, 11.8 inches of tank level.
Install alarm at 3 inches from pump on level.
Install pump with 34 GPM and 29 Ft. head.
Install all manholes, inspection pipes and clean-outs to grade or above, (Recommend 4" above finished grade).
- 8 Install a 2" supply pipe from tank to end manifold in rock bed, install so pipe drains back to pump tank.
- 9 Install 1.5" laterals with 9" of rock under them. (Install Lateral clean-outs at far end of laterals. Recommended or Required)
- 10 **Drill 7/32" perf holes spaced 3 ft. apart.**
Install 4" inspection pipe to bottom of rock bed, secure in rock bed and raise to above final grade.
- 11 Owner is responsible to maintain protection of bed area through construction of house and septic system.

Designed to Aitkin Co. and MPCA recommendations and requirements.



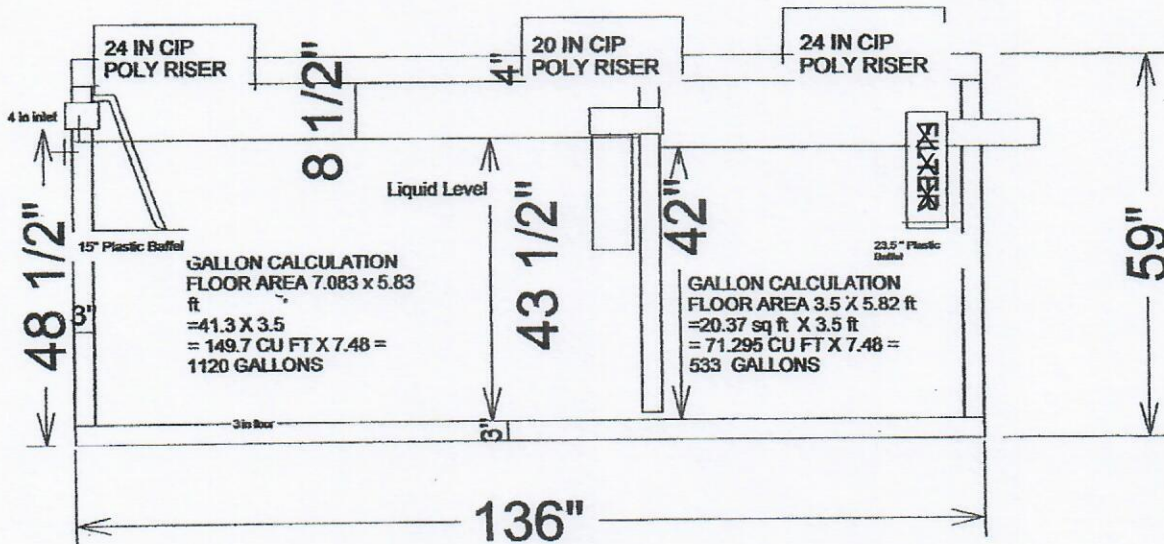
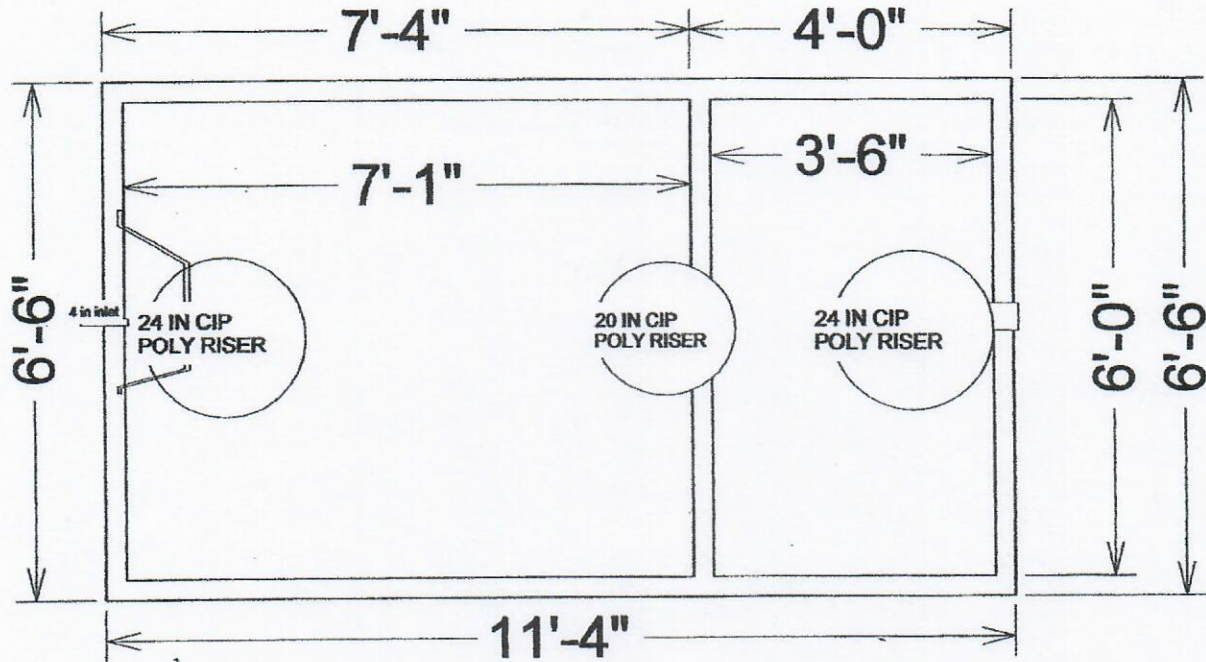
Designer Signature

Brummer Septic LLC.
Design Company

L-1347
License#

1650 Gallon 2 Compartment Septic Tank

TOP VIEW



SIDE VIEW

$533 / 42" = 12.69 \text{ GPI}$

Drawings Owned BY Jacobson Precast, Inc.
36641 HWY 169, Aitkin, Mn 56431

FIELD EVALUATION SHEET

PRELIMINARY EVALUATION DATE 7/16/23, FIELD EVALUATION DATE 7/16/23
PROPERTY OWNER: Patricia Christenson
ADDRESS: TBD Peers Street CITY, STATE, ZIP: Aitkin MN 56431
LEGAL DESCRIPTION:
PIN# 24-0-01101 SEC T R TWP NAME
FIRE# LAKE/RIVER LAKE CLASS OHWL FT.

DESCRIPTION OF SOIL TREATMENT AREAS

AREA #1 AREA #2 REFERENCE BM ELEV. FT.
DISTURBED AREAS YES NO X YES NO X REFERENCE BM DESCRIPTION
COMPACTED AREAS YES NO X YES NO X
FLOODING YES NO X YES NO X
RUN ON POTENTIAL YES NO X YES NO X
SLOPE % 0-2% 0-3%
DIRECTION OF SLOPE W-E W-E
LANDSCAPE POSITION Flat Field
VEGETATION TYPES Mowed Field

DEPTH TO STANDING WATER OR MOTTLED SOIL: BORING# 1 31", 1A 48", 2 48", 2A >72'

BOTTOM ELEVATION--FIRST TRENCH OR BOTTOM OF ROCK BED: #1 FT., #2 FT.

SOIL SIZING FACTOR: SITE #1, SITE #2

CONSTRUCTION RELATED ISSUES:

LC# L455 SITE EVALUATOR SIGNATURE: Tim Woodrow

SITE EVALUATOR NAME: Tim Woodrow TELEPHONE# 218-927-6175

LOG REVIEW DATE

Comments:

SOIL BORING LOGS ON REVERSE SIDE

SKETCH SHEET AND SOIL BORING LOG

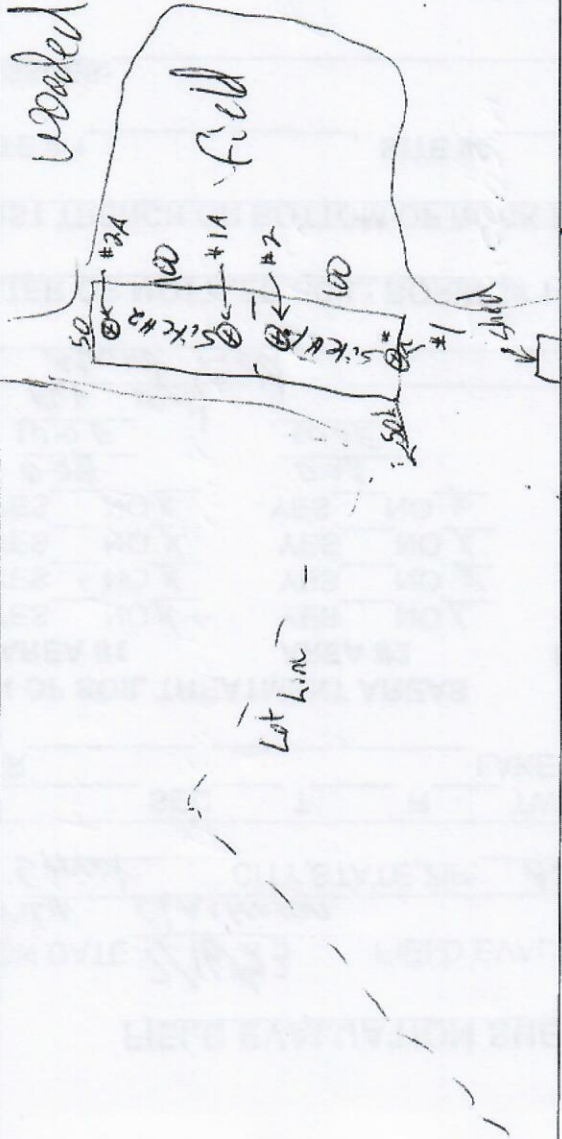


INSPECTOR: Tim Woodrow
 DATE: 7/16/2023
 PID#: 24-0-011101
 SITE ADDRESS: TBD

Equipment: Bucket Auger
 Elevation of Limiting Layer: Varies
 Vegetation: Mowed Grass
 Weather: Sunny & Clear

North

Benchmark (EL = 100'): Bottom of Rock in STA



SOIL BORING #1			SOIL BORING #2		
DEPTH	TEXTURE	COLOR	DEPTH	TEXTURE	COLOR
0-12"	TopSoil	10YR3/2	0-12"	TopSoil	10YR3/2
12-24"	Sand(M)	10YR4/4	12-29"	Sand(F)	10YR5/4
24-34"	Sand(C)	10YR5/3	29-37"	Sand(M)	10YR5/4
34-42"	Sandy Loam	10YR5/2	37-41"	Sand(C)	10YR4/4
42-48"	Clay Loam	10YR5/2	41-48"	Sand(F)	10YR4/4
	Redox @ 34"	5YR5/6	48-56"	Clay Loam	10YR5/2
				Redox @ 48"	5YR5/6

SOIL BORING #1A			SOIL BORING #2A		
DEPTH	TEXTURE	COLOR	DEPTH	TEXTURE	COLOR
0-12"	TopSoil	10YR3/2	0-12"	TopSoil	10YR3/2
12-29"	Sand(F)	10YR5/4	12-48"	Sand(M)	10YR5/4
29-37"	Sand(M)	10YR5/4	48-72"	Sand(C)	7.5YR4/4
37-41"	Sand(C)	10YR4/4		No Redox Observed	
41-48"	Sand(F)	10YR4/4			
48-56"	Clay Loam	10YR5/2			
	Redox @ 48"	5YR5/6			



Detailed Parcel Report

Parcel Number: 24-0-011101

General Information

Township/City: NORDLAND TWP
 Taxpayer Name: CHRISTENSEN, PATRICIA A
 Taxpayer Address: 202 4TH ST NE
 AITKIN MN 56431
 Property Address:
 Township: 46 Lake Number: 0
 Range: 26 Lake Name:
 Section: 6 Acres: 41.12
 Green Acres: No School District: 1.00
 Plat:
 Brief Legal Description: (SW SW) LOT 7 LESS 3.58 AC IN DOC #176453 LESS R/W

Tax Information

Class Code 1: Non-Homestead Agricultural Land
 Class Code 2: Non-Homestead Agricultural Land
 Class Code 3: Unclassified
 Homestead: Non Homestead
 Assessment Year: 2023

Estimated Land Value:	\$83,300.00
Estimated Building Value:	\$23,200.00
Estimated Total Value:	<u>\$106,500.00</u>
Prior Year Total Taxable Value:	\$92,000.00
Current Year Net Tax (Specials Not Included):	\$456.00
Total Special Assessments:	\$0.00
**Current Year Balance Not Including Penalty:	\$228.00
Delinquent Taxes:	No

* For more information on delinquent taxes, please call the Aitkin County Treasurer's Office at 218-927-7325.

** Balance Due on a parcel does not include late payment penalties.



Map may not be valid at this scale. Data was mapped at an accuracy of 1:24000 so any representation of the data at a larger scale is not advised.

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

Christensen

Web AppBuilder for ArcGIS



Date: 7/13/2023

Soil Map—Aitkin County, Minnesota
(Christensen)



Map Scale: 1:1,500 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84



Aitkin County, Minnesota

504B—Duluth fine sandy loam, 1 to 6 percent slopes

Map Unit Setting

National map unit symbol: gjh7

Elevation: 980 to 1,640 feet

Mean annual precipitation: 25 to 30 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 120 to 140 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Duluth and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Duluth

Setting

Landform: Moraines

Landform position (two-dimensional): Backslope, summit

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy till

Typical profile

A - 0 to 3 inches: fine sandy loam

E,Bw,2BE,2Bt - 3 to 41 inches: clay loam

2C - 41 to 60 inches: loam

Properties and qualities

Slope: 1 to 6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)

Depth to water table: About 13 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C/D

Ecological site: F090AY015WI - Loamy Upland with Carbonates

Forage suitability group: Sloping Upland, Acid (G090AN006MN)

Other vegetative classification: Sloping Upland, Acid
(G090AN006MN)

Hydric soil rating: No

Minor Components

Mahtowa and similar soils

Percent of map unit: 3 percent

Landform: Depressions

Hydric soil rating: Yes

Blackhoof and similar soils

Percent of map unit: 3 percent

Landform: Depressions

Hydric soil rating: Yes

Rifle and similar soils

Percent of map unit: 3 percent

Landform: Bogs

Hydric soil rating: Yes

Cromwell and similar soils

Percent of map unit: 2 percent

Hydric soil rating: No

Cutaway and similar soils

Percent of map unit: 2 percent

Hydric soil rating: No

Dusler and similar soils

Percent of map unit: 2 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Aitkin County, Minnesota

Survey Area Data: Version 23, Sep 6, 2022