Preliminary & Field Evaluation Form

www.SepticResource.com vers 12.4

Owner Information

Date	8/28/2019	Sec / Twp / Rng	S-23, T-46, R-27
Parcel ID	07-0-046003	LUG (county, city, township)	Aitkin Co.
Property Owner:	Robert Folsom	Owners address (if different)	
Property Address:	30020 414th Pl. Aitkin Mn 56431		505 13th Ave. NW
City / State / Zip:			New Brighton MN 55112

Flow Information and Waste Type / Strength

Estimated Design flow: 450

Comments:

Anticipated Waste strength	☐ Hi Strength	☑ Domestic
Any Non-Domestic Waste	☐ Yes (class V)	☑ No
Sewage ejector/grinder pump	☐ Yes	☑ No
Water softener	☐ Yes	☑ No
Garbage Disposal	☐ Yes	☑ No
Daycare / In home business	☐ Yes	☑ No

Site Information

Existing & proposed lot improvements located (see site map)	☑ Yes	☐ No	Well casing depth	Existing deep well
Easements on lot located (see site map)	☑ Yes	☐ No	Drainfield w/in 100' of residential well	☐ Yes ☑ No
Property lines determined (see site map) By Others	☑ Yes	☐ No	Site w/in 200' of transient noncommunity water supply (TNCWS)	☐ Yes ☑ No
Req'd setbacks determined (see site map)	☑ Yes	☐ No	Site w/in an inner wellhead mgmt zone (CWS/NTNCWS)	☐ Yes ☑ No
Utilities located & identified (gopher state one call)	☐ Yes	☑ No	Buried water supply pipe w/in 50' of system	☐ Yes ☑ No
Access for system maintenance (shown on site map)	☑ Yes	☐ No	Site located in Shoreland (w/in 1000' of lake, 300' of river)	☑ Yes ☐ No
Soil treatment area protected	☑ Yes	☐ No	Site map prepared with previous items included	☑ Yes ☐ No

Construction related issues: Part of a cluster system, property to the West will have to be unhooked before this system can be installed

Soil Information

Evidence of site:

Cut	☐ Yes	☑ No
Filled	☐ Yes	☑ No
Compacted	☐ Yes	☑ No
Disturbed	☐ Yes	☑ 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/ft^2) 0.78

Percolation rate (if applicable) _____

Depth/elev to SHWT (+84")

Flooding or run-on potential (comments) ☐ Yes ☐ No

Depth to system bottom maximum (or elev minimum) 48"

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 #

Soil Observation Log

www.SepticResource.com vers 12.4

Owner Information

Property Owner / project: Robert Folsom Date 8/28/2019

Property Address / PID: 30020 414th Pl. Aitkin Mn 56431

Soil Survey Information

☐ refer to attached soil survey

Parent matl's: ☑ Till ☐ Outwash ☐ Lacustrine ☐ Alluvium ☐ Organic ☐ Bedrock

landscape position: ☐ Summit ☐ Shoulder ☑ Side slope ☐ Toe slope

soil survey map units: 504B slope 2 % direction- SE

Soil Log #1

☑ Boring ☐ Pit Elevation 102.1 Depth to SHWT 84"

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 6	Topsoil Sandy Loam	<35	10YR3/2		Loose	Loose	Granular
6 - 48	Med Sand	<35	10YR5/4		Loose	Loose	Granular
48 - 76	Med Sand	<35	10YR6/4		Loose	Loose	Granular
76 - 84	Med Sand	<35	10YR4/4		Loose	Loose	Granular
		<35					

Comments:

30020 414th Pl. Aitkin Mn 56431			**Soil Log #2**				
	☑ Boring	☐ Pit	Elevation 102.1'		Depth to SHWT 84"		
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 6	Topsoil Sandy Loam	<35	10YR3/2		Loose	Loose	Granular
6 - 42	Med Sand	<35	10YR4/4		Loose	Loose	Granular
42 - 60	Med Sand	<35	10YR5/4		Loose	Loose	Granular
60 - 84	Med Sand	<35	10YR6/4		Loose	Loose	Granular
		<35					

30020 414th Pl. Aitkin Mn 56431			**Soil Log #3**				
	☐ Boring	☐ Pit	Elevation		Depth to SHWT		
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

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

Designer Signature: [signature]

Brummer Septic LLC.
Company

L-1347
License #

version 3.2

Pressure Bed Design

contact Troy Johnson at www.SepticResource.com for questions or comments

Property Owner: Robert Folsom **Date:** 8/28/2019

Site Address: 30020 414th Ln. Aitkin MN 56431 **PID:** 07-0-046003

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 Compartment tank

4) *** 1000 Gallon septic tank (minimum) Tank options: none

5) 0.78 GPD/ft^2 Soil Loading Rate (must match soil boring log) 577 ft^2 bed req'd, or 572 ft^2 LUG minimum
450 x 1.27 = 572 sq Ft.

6) *** 13.0 ft desired bed width, (25' maximum) leads to a 44.0 ft bed length

7 *** 3.0 ft lateral spacing 3.0 ft perforation spacing (maximum 3 for both)

end feed manifold connection

8) *** 4 laterals 42.0 feet long 15.0 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) 6 doses per day (4 minimum)

11) 75 gallons per dose (treatment volume)

12) 1.25 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
1.50 inch diameter laterals (or smaller) will meet "3x pipe volume"

13) *** 30 feet of 2.0 inch supply line leads to 5 gallons of drainback volume
("top feed" to control the drainback)

14) 80 gallons TOTAL pump out volume (treatment + drainback)

15) 12 feet vertical lift from pump to dispersal area, leads to a

16) *** 34 GPM @ 19 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) *** 6.3 inch swing on Demand float, or Timed dosing of 2.4 min ON (confirm pump rate with drawdown
(<100% of design flow requires a larger OFF time) 4 hrs OFF test and adjust as necessary)

19) 12 inches of from bottom of tank to "pump OFF" float, and/or to cover pump

20) *** 18 inches from bottom of tank to "pump ON" float, or 12 inches to "timer ON" float

21) *** 21 inches from bottom of tank to "Hi Level" float (add 5-15 inches if Time Dosed)

22) 267 gallons reserve capacity (after High Level Alarm is activated)

23) 84 inches, or 7.00 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) *** 48 inches, or 4.0 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: 13.0 ft. wide by 44.0 ft. long Pressure Bed

28) *** Rock Bed materials:
13 ft. by 44.0 ft. by 12 inches total, plus 20% gives 26 yd^3 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	Company	License#	Date
	Brummer Septic LLC.	L-1347	8/28/2019

Installer Summary

1000 gallon Septic tank (minimum) none Install Jacobson 1650

533 gallon Dose tank (minimum) at 12.69 gpi

34 GPM @ 19 ft. of head, Pump required

6.3 inch swing on Demand float or 2.4 minutes ON time & 4 hours OFF time

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

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

4 laterals 1.50 inch diameter 42.0 feet long 3.0 ft lateral spacing

7/32 inch perfs 3.0 ft perforation spacing

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

Pressure Bed:
13.0 ft. wide by 44.0 ft. Long

Bottom of rock no more than:
48 inches, or 4.0 ft. Below existing grade

9 inches of rock below the pipe

Overall Dimensions: 13 ft. wide by 44.0 ft. long Pressure Bed

Rock Bed materials: 26 yd^3 or *1.4= 36 ton

INSPECTOR CHECKLIST - Pressure bed

- ☐ WELL setbacks: 20' to pressure tested sewer line (5 psi for 15 min)
  50' to everything 100' to dispersal area with shallow well
- ☐ PROPERTY LINES setback: 10' to everything
- ☐ Road setback: outer ditch, or 33' from center of township road, or 65' from center of cnty road
- ☐ LAKE / BLUFF setback: 20' for bluff. Lakes: gen 50', rec 75', nat 150'. Protected wetland 50'.
- ☐ Building setbacks: 10' for everything, 20' for dispersal area.
- ☐ WATER LINE under pressure 10' to bed,tank & sewer line.

- ☐ Sewer line & baffle connection (no 90's, 3' between 45's, slope of 1/8"/ft, or 1" in 8', or 1' in 96'.
  (no depth req's, clean out every 100', Sch 40 D2665 or F891)
- ☐ Septic tank and risers (water tight, insulated, proper depth, existing verified by pumping)
  mfg_____ 1000 gallons none
- ☐ Riser over outlet, riser over inlet, 6"+ inspection pipe over any remaining baffles.
- ☐ No effluent filter & alarm
- ☐ Dose tank risers and piping (water tight, insulated, proper depth, drainback)
  mfg_____ 533 gallons
- ☐ dose pump _____ 34 gpm 19 head VERIFY PUMP CURVE 2.4 M on 4 H off
- ☐ float setting drop 6.3 inches
  LABEL pump requirements and drawdown on riser or panel
- ☐ Cam lock, weep hole, supply line access (no hard 90, pipes reachable from grade)
- ☐ supply pipe sloped 1/8"+, supported by sch40 sleeve, and buried 6"+.
- ☐ splice box / control panel / electrical connections
- ☐ Bed dimensions 13 X 44.0
- ☐ Rock depth below pipe 9 inches
- ☐ Rock bottom elevation 48.0 inches from Grade to bottom of rock (max)
- ☐ cover depth of 12"+ VERIFY

- ☐ 4 laterals (1-2' from edge of rock)
- ☐ 1.50 inch pipe size (bigger is ok but do not exceed 4 times pipe volume)
- ☐ 3.0 ft lateral spacing

- ☐ 7/32 inch perforations (smaller is ok)

- ☐ 3.0 ft perforation spacing

- ☐ Air inlet at end of laterals, and at top feed manifold. VERIFY
- ☐ clean outs (deep bed 2' of head) (no hard 90's)
- ☐ 4" inspection pipe to bottom of rock, anchored VERIFY

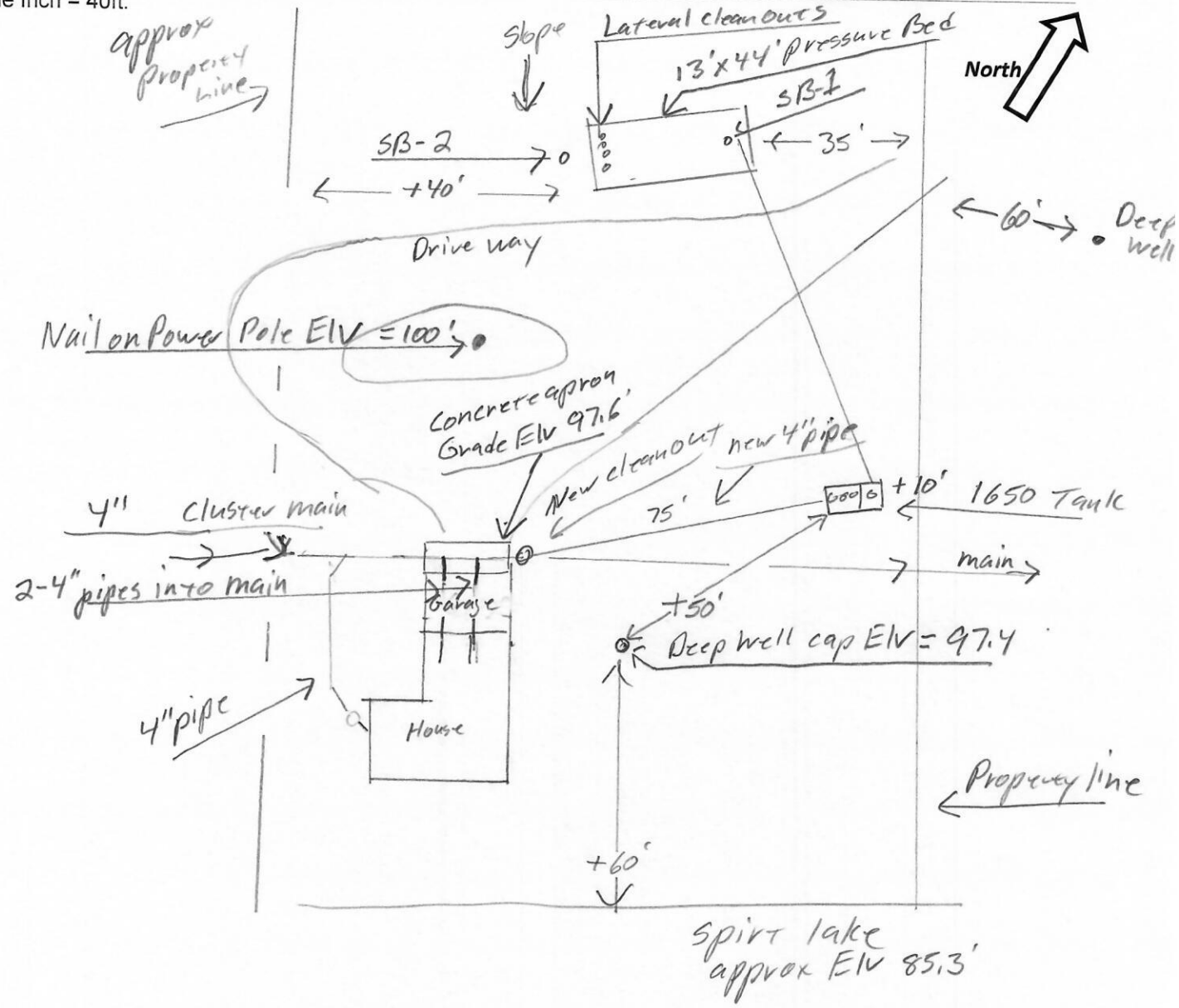
- ☐ Abandon existing system if necessary
- ☐ monitoring plan and type _____

{ Design Drawing }

Property Owner: Robert Folsom Date: 8/28/19 Designer's Initials : JB

Parcel ID. Number : 07-0-046003 Address : 30020 414th Pl. Aitkin Mn 56431

one Inch = 40ft.



	Surface/ SHWT	Nail on Power pole = Bench Mark 100'			Existing Grade	
Soil Bore 1	102.1'/84"	Bench Mark	100'		Grade at Bed	
Soil Bore 2	102.1'/84"	Ground Elv. BM			SE =101.6 SW=101'	NE=102.6' NW=102.8'
Soil Bore 3		Ground Elv. Tank	98'		Bottom of Rockbed Elv.= 100'	
	Ground at	Existing house	97.6'	NE Corner	Well Cap Elv. = 97.4'	

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: Robert Folsom **Date:** 9/17/2019

Site Address: 30020 414th Ln. Aitkin MN 56431 **PID:** 07-0-046003

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 84" with a SE slope of 1' across pressure bed area.

2 There is an existing Deep well to the East of House. Deep well meets setbacks. Neighbor's deep well +60 ft. to bed.

3 Existing septic system is a cluster system. The lot to the West must install their own septic system first.
Before this septic system can be installed as this new system will unhook from cluster system
Installer will cap old 4" cluster main to keep out animals and dirt and water from going down the line.

4 Bench Mark (Elv. = 100') is nail on Power Pole, South of proposed pressure bed.

5 The Pressure bed area will be 13 ft. wide and 44 ft. long. Bottom of rock Elv 100'.
The SW corner is the lowest corner, use the excavated soil to build the berm out from SW corner.
Elevation of the bottom of the rock bed should be approx. 100'
The area size of the rock bed is 13' x 44' .
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 Combo tank will be gravity flow from dwelling. Install the pump for 6 demand doses per day. approx. 75 gallons per dose, 6.3 inches of tank level. Install alarm at 3 inches from pump on level.
Install pump with 34 GPM and 19 Ft. head.
Install all manholes, inspection pipes and clean-outs to grade or above, (Recommend manholes 4" above grade).

8 Install a 2" supply pipe from tank to end manifold in rock bed, install so pipe drains back to tank.
Insulate 2" pipe under driveway, insulate tank top if less than 24" of cover soil on tank.

9 Install 1.5" laterals with 9" of rock under them. Install clean-outs at far end of laterals.(12" total inches of rock)
Drill 7/32" perf holes spaced 3 ft. apart.
Install inspection pipe to bottom of rock bed, secure in rock bed and raise to above final grade.

10 Installer will pressure test and squirt height laterals when finished. Give info to owner.

11 Owner is responsible to maintain protection of bed area through construction of septic system.

12 The Existing main comes under the concrete apron to the garage, there are 2, 4" pipes that come from under the garage and connect to the 4" main pipe. Once the pipe is past the apron it is approx. 4 ft. deep.
Install a clean-out at the new junction of 4" pipes to the new tank.
Owner will have to redo the outlet pipe near kitchen and have a clean-out installed there also.
Remember once this is installed the lot to the West has to be unhooked from the main pipe.

Designed to Aitkin Co. and MPCA recommendations and requirements.

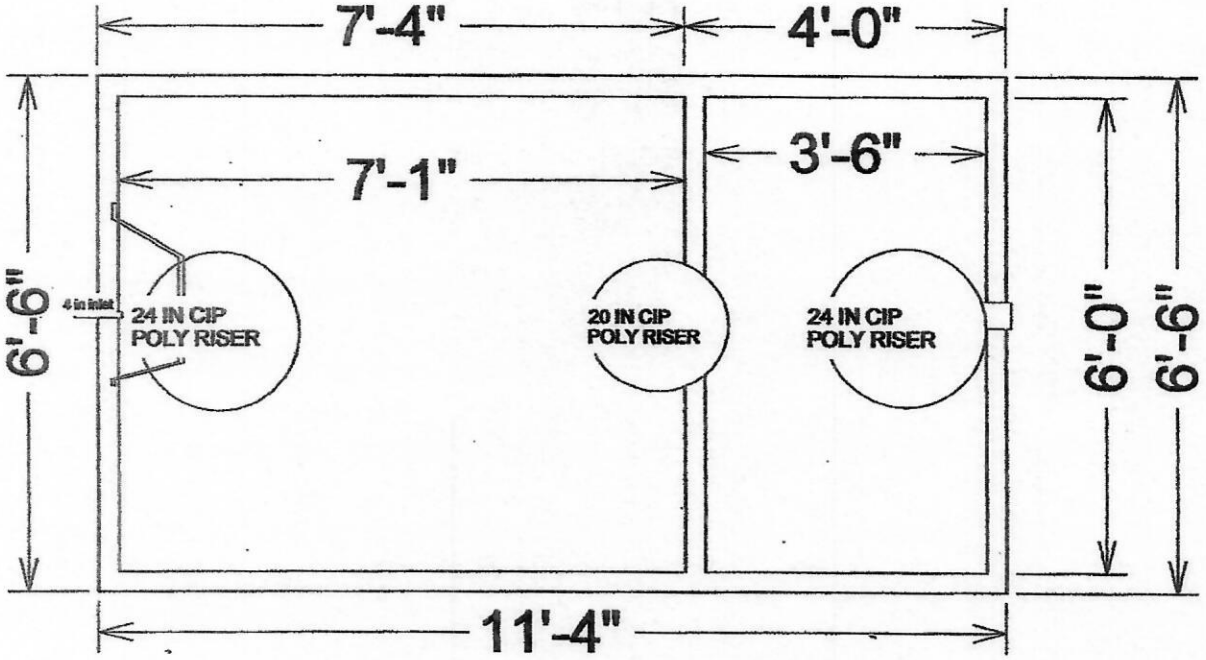
Designer Signature

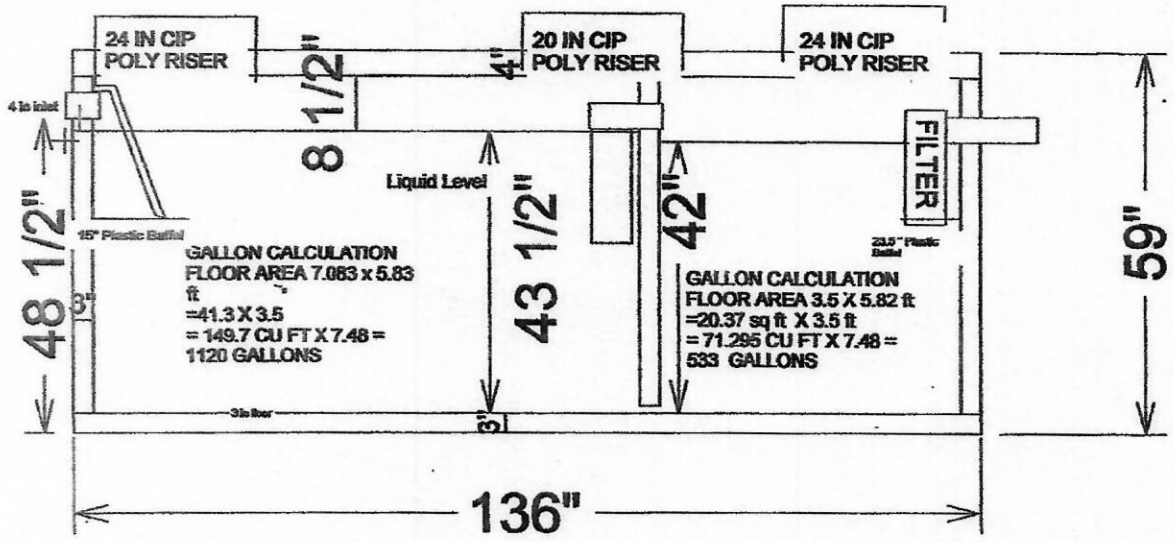
Brummer Septic LLC.
Design Company

L-1347
License#

1650 Gallon 2 Compartment Septic Tank

TOP VIEW





533 / 42" = 12.69 GPI

SIDE VIEW

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

Existing Hookup to main

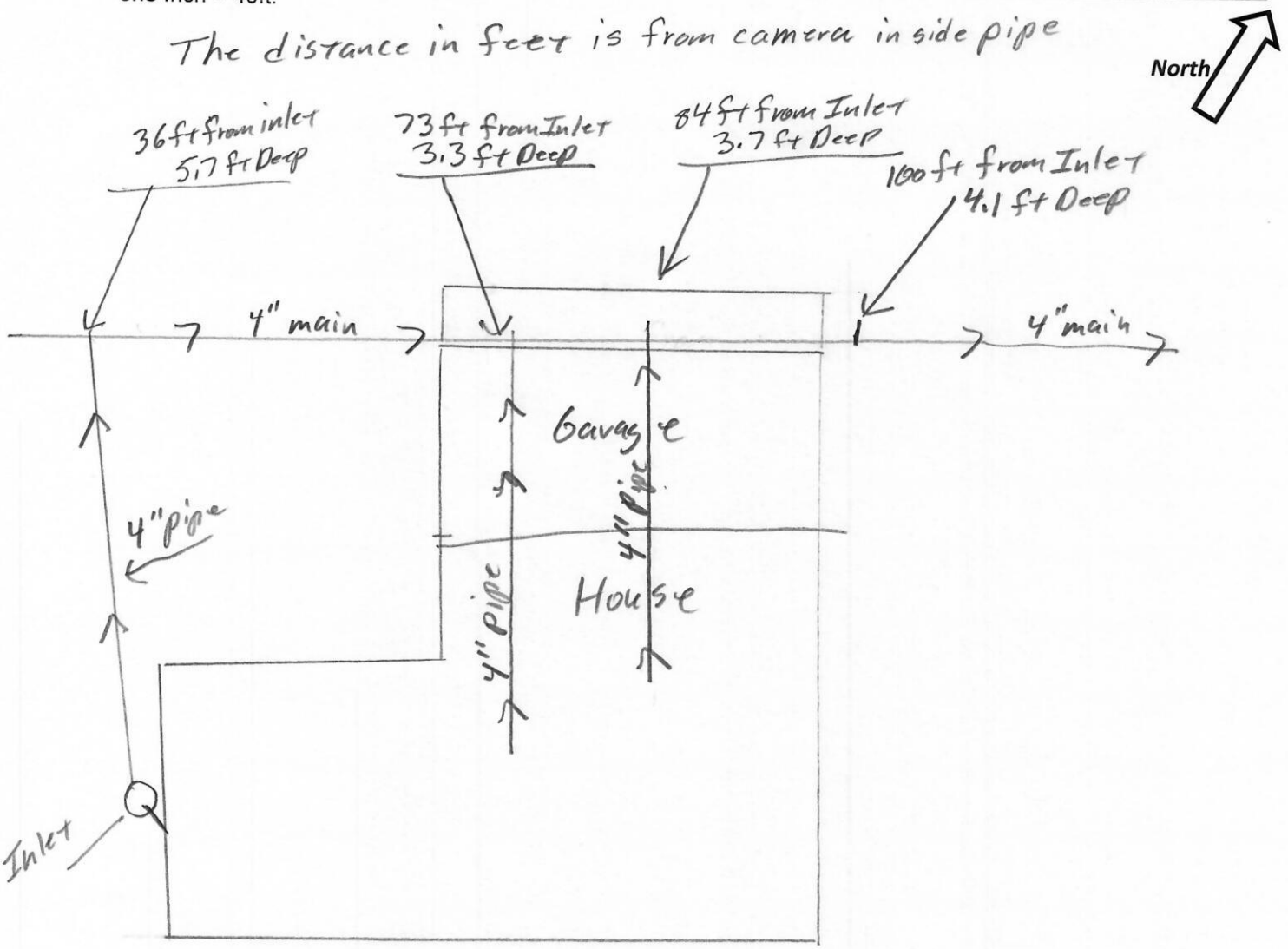
{ Design Drawing }

Property Owner: Robert Folsom Date: 8/28/19 Designer's Initials : JB

Parcel ID. Number : 07-0-046003 Address : 30020 414th Pl. Aitkin Mn 56431

one Inch = 40ft.

The distance in feet is from camera inside pipe



	Surface/ SHWT	Nail on Power pole = Bench Mark 100'			Existing Grade	
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Soil Bore 3		Ground Elv. Tank	98'		Bottom of Rockbed Elv.= 100'	
	Ground at	Existing house	97.6'	NE Corner	Well Cap Elv. = 97.4'	

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

Aitkin County

Detailed Parcel Report

Parcel Number: 07-0-046003

General Information

Township/City:	FARM ISLAND TWP		
Taxpayer Name:	FOLSOM, ROBERT L		
Taxpayer Address:	505 13TH AVENUE NW NEW BRIGHTON MN 55112		
Property Address:	30020 414th Pl		
Township:	46	**Lake Number:**	1017800
Range:	27	**Lake Name:**	SPIRIT LAKE
Section:	23	**Acres:**	1.02
Green Acres:	No	**School District:**	1.00
Plat:			
Brief Legal Description:	.74 AC IN SW-SE & .28 AC IN LOT 1 IN DOC 209872		

Tax Information

Class Code 1:	Non-Comm Seasonal Residential Recreational
Class Code 2:	Unclassified
Class Code 3:	Unclassified
Homestead:	Non Homestead
Assessment Year:	2019

Estimated Land Value:	$150,900.00
Estimated Building Value:	$75,100.00
Estimated Total Value:	$226,000.00
Prior Year Total Taxable Value:	$220,600.00
Current Year Net Tax (Specials Not Included):	$1,772.00
Total Special Assessments:	$0.00
****Current Year Balance Not Including Penalty:**	$886.00
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.**

USDA United States Department of Agriculture
Natural Resources Conservation Service

Web Soil Survey

Search

Map Unit Legend

Aitkin County, Minnesota (MN001)

Aitkin County, Minnesota (MN001)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
504B	Duluth fine sandy loam, 1 to 6 percent slopes	1.2	99.0%
928D	Cushing-Mahtomedi complex, 10 to 25 percent slopes	0.0	1.0%
Totals for Area of Interest		**1.2**	**100.0%**

Soil Map

Scale (not to scale)

Warning: Soil Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:20,000. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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
Natural 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 in profile: 5 percent
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Forage suitability group: Sloping Upland, Acid (G090AN006MN)
Hydric soil rating: No

Minor Components

Blackhoof and similar soils
Percent of map unit: 3 percent
Landform: Depressions
Hydric soil rating: Yes

Mahtowa 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 19, Sep 12, 2018