200233000-2022

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 #: SS2021-1009

Owner & Property Information

Owner Name:	BCANS ENTERPRISES LLC	**Site Address:**	29783 387th St
Mailing Address:	BCANS ENTERPRISES LLC 29783 387TH ST WAUBUN MN 56589	**Township - Sec/Twp/Rng:**	MAPLE GROVE - 08/142/040
Parcel #:	200233000	**Legal Description:**	8-142-40 GOVT LOT 2 LESS 4.61 AC FOR NEMEC BCH, NEMEC 1ST ADDN; TRACTS SOLD, LESS 3.17 AC FOR 20-0233-001, -002, -003.
Secondary Parcel #:		**Designer:**	Scott's Septic Services LLC, L3947 (Scott Ellingson)
		Installer:	OTHER – Not listed (please add in next field and we will add to our list)

Inspector Verified Specifications

Insp- Effluent Screen Installed:	No	**Insp- Tank Nbr/Size:**	5/2000,2250,2500,2500,1600
Insp- Alarm Required:	Yes	**Insp- Drainfield Type:**	Mound
Insp- Lift Pump in System:	Yes	**Insp- Drainfield Size:**	Two 10' X 120' rock beds and Two 26' X 120' soil absorption area = 6240 square feet
Insp- Number of Bedrooms:	28 bedrooms - 2552.5 gpd	**Insp- Soil Verification:**	#1:attached #2:N/A #3:N/A

Inspector Verified Setbacks

Insp- Tank Dist to Road	30+	**Insp- Drainfield Dist to Road**	100+
Insp- Tank Dist to Nearest Prop Line	100+	**Insp- Drainfield Dist to Nearest Prop Line**	100+
Insp- Tank Dist to Nearest Structure	100+	**Insp- Drainfield Dist to Nearest Structure**	50+
Insp- Tank Dist to Well	50+	**Insp- Drainfield Dist to Well**	1000
Insp- Tank Dist to OHW	500+	**Insp- Drainfield Dist to OHW**	100+
Insp- Tank Dist to Pond/Wetland		**Insp- Drainfield Dist to Pond/Wetland**	
Insp- Tank Dist to Pressure Line		**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: 6/29/2022

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 # SS2021-1009

Property and Owner

Owner: **BCANS ENTERPRISES LLC**	Parcel Number: **200233000**
Site Address: **29783 387th St**	Secondary Parcel:

Home Information

Does the structure contain any of the following elements?	Designer submitted	Inspector verified
	Garbage disposal: No Dishwasher: Invalid Field Grinder pump: Invalid Field Lift pump in bsmt: Invalid Field	Garbage disposal? Y (N) Dishwasher? Y (N) Grinder pump? Y (N) Lift pump in basement? Y (N)
Number of bedrooms: **28**	Review - Number of bedrooms: 28	
Effluent screen	Effluent screen installed? Y (N) Mfr:	
Alarm: **Yes** Type:	Review - Alarm? (Y) N Type & Mfr: Alderon	
Lift pump in system: **Yes**	Review ~~Lift pump in system~~? (Y) N Mfr:	

Component Information

Tank size: **2000,2250,2500,2500,1600**	Review - Tank nbr: 5 size: Mfr: Thelen
Drainfield type: **Mound**	Review - Drainfield type: mound
Drainfield size: Full size - **6240** Reduced/warr. size -	Review - Drainfield status: none / (installed) / next spring Review - Drainfield size: 2 - 10'x120' center fed
Absorption area size:	Review - Absorption area size: 2 - 26 x 120 SAA
Chamber type/num: Trench sqft/chamber -	Review - Chamber type: Num: =6240 sq ft Review - Trench sqft/chamber:
Drainfield rock depth:	Review - Rock depth: 12" & 3' sand Uft

Soil Verification

Vertical separation verified	Boring #1: Boring #2: Type III 3+' of clean sand Uft Boring #3:

Setback Verification

	Designer submitted		Inspector verified	
Distance to...	Tank	Drainfield	Tank	Drainfield
Road	30'	100'+	30+	100+
Nearest prop line	100'	300'	100+	300+
Nearest structure	50'	50'	100+	50+
Well	50'	1000'	50+	1000
OHW	1000'	3000'	500+	1000's
Pond/Wetland				65
Pressure line				

Date System Installed: 6/29/2022 Installer: Hedlund Backhoe Inspector: Denise Gubrud

drainfield 8/17/2021 - Hedlund Backhoe - DG

Overview

Type III Mounds

10 MH x 225 gpd = 2250 gals
2 MH x 225 gpd x 1.45 = 20250 gals
RCU 100 gals

2,552.50 gpd

✓ 2 MH + 1 RCU use existing septic tank

✓ 10 MH get new septic tanks 2250/2,000/2500-2

✓ New common pump tank 1600 gals
with dual Alternating pumps w/ check valves.

✓ New common pumptank at Mounds
1600 gal with dual Alternating pumps
(1 pump to one Mound & 1 pump to other mound)

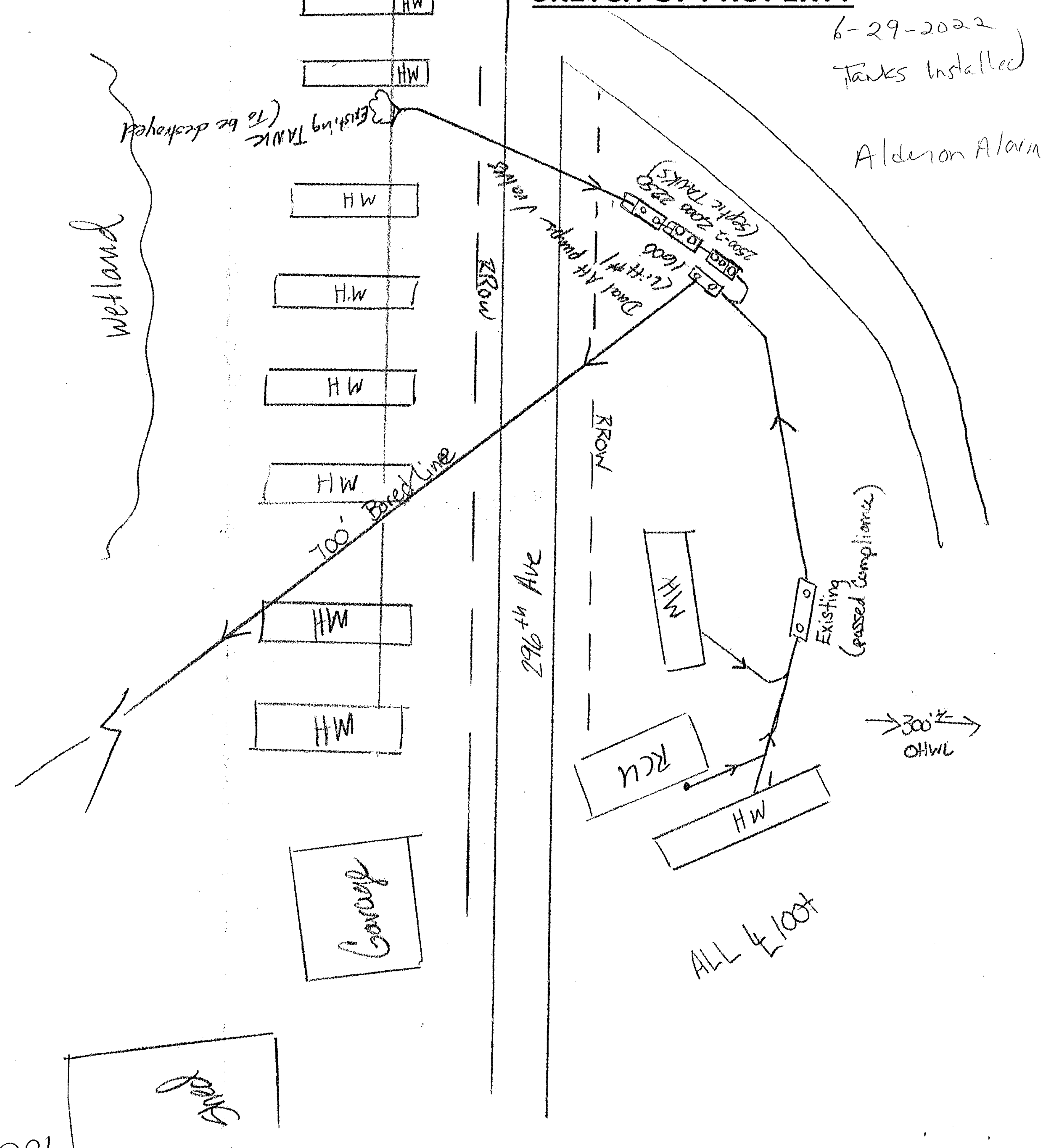
Scott's Septic Services, LLC
Scott Ellingson
201 Meadow Circle, Ashby, MN 56309
218-205-1667

PARCEL# 200233000
YEAR 2019
SCALE 1" = 60'

SKETCH OF PROPERTY

6-29-2022
Tanks Installed

Alderon Alarm



1009

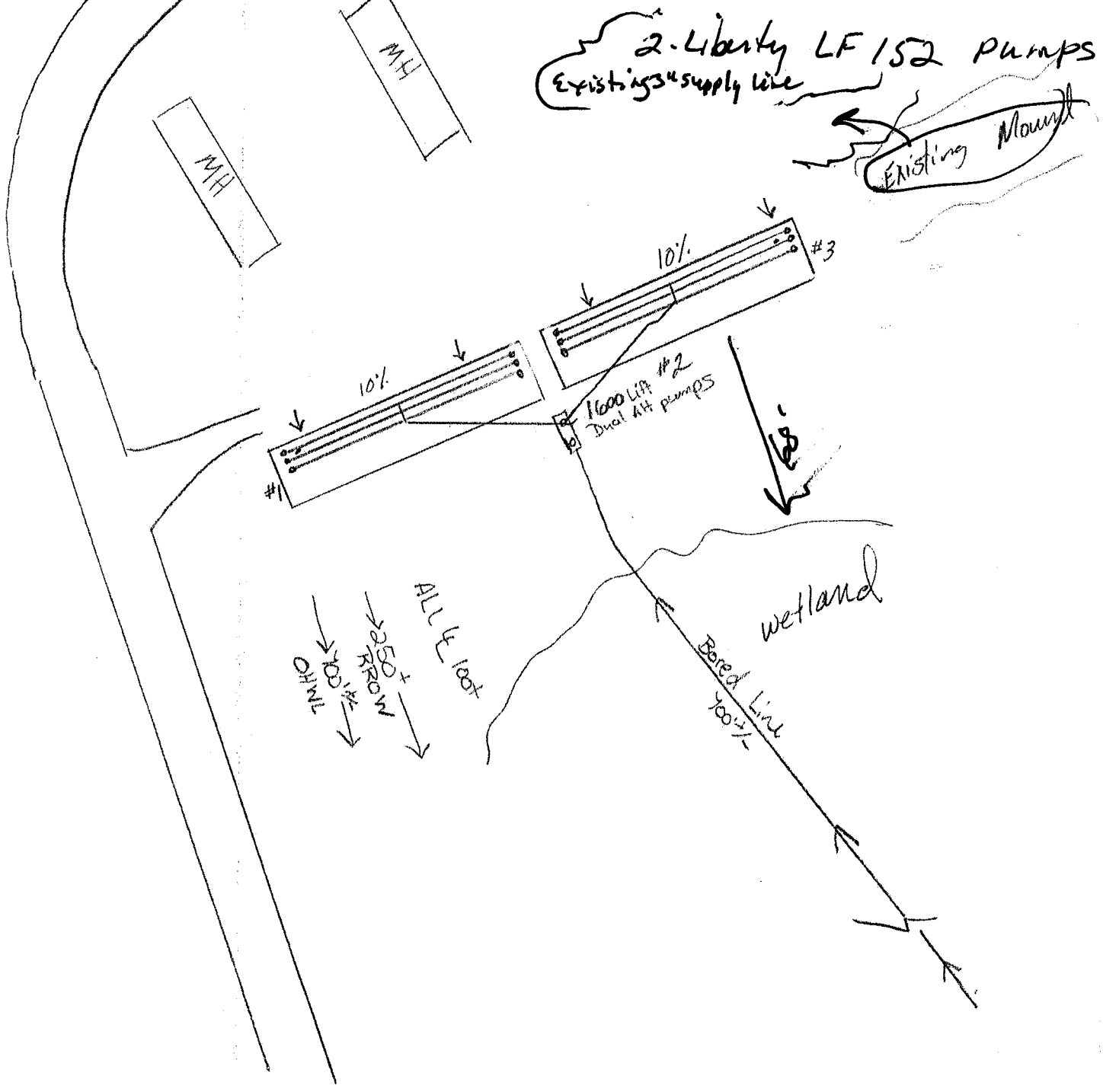
Hedlund Rockford #3" supply

Scott's Septic Services, LLC
Scott Ellingson
201 Meadow Circle, Ashby, MN 56309
218-205-1667

PARCEL # 200233000
YEAR 2019
SCALE 1" = 60'

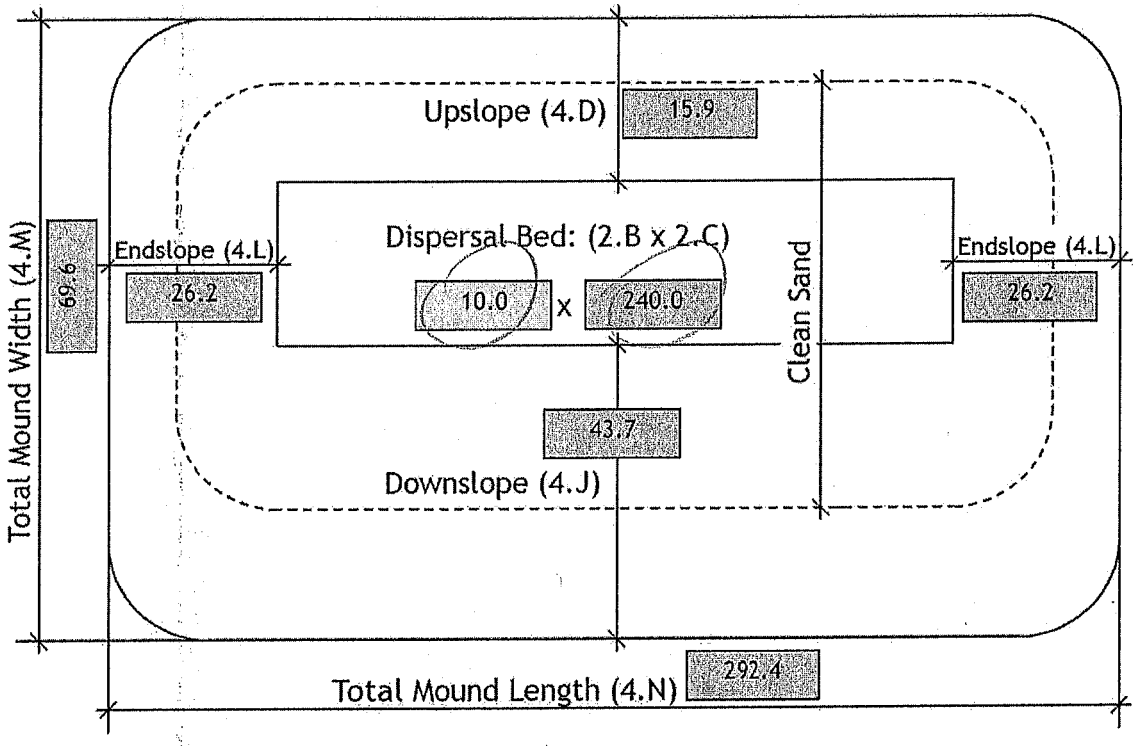
SKETCH OF PROPERTY

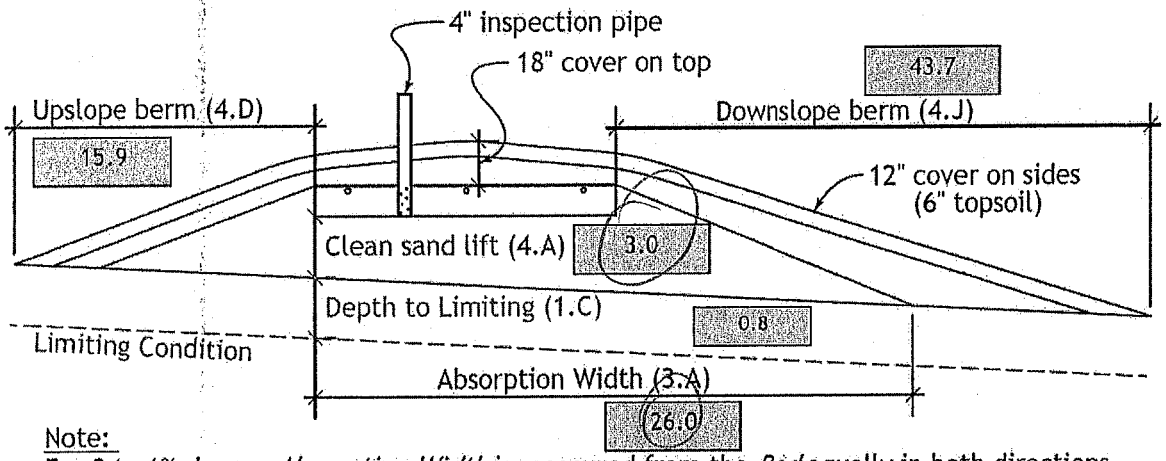
8-17-2021
3' sand



7. MOUND DIMENSIONS

Project ID:





Note:
For 0 to 1% slopes, *Absorption Width* is measured from the *Bed* equally in both directions.
For slopes >1%, *Absorption Width* is measured downhill from the upslope edge of the *Bed*.

Comments:

This mound will be split into 2 mounds each being 120' Long each

PARCEL	20023300
APP	SEPTIC
YEAR	2019
SCANNED	
LAKE	White Earth

2019 Onsite Septic System Application

Becker County Planning & Zoning
915 Lake Ave, Detroit Lakes, MN 56501
Phone (218)-846-7314; Fax (218)-846-7266

1. PROPERTY DATA (as it appears on the tax statement or deed)
Parcel Number of property where the system will be installed: 20023300
If septic system is on more than one parcel, what is the number of the secondary parcel? —

2. OWNER INFORMATION (as it appears on the tax statement or deed)
Owner Name: BCANS Enterprises LLC
Owner Mailing Address: 29783 387th St — City, State, Zip: Waubun, MN 56589
Owner Phone Number: 507-458-6630 — Owner Email Address: ccr@cedarcrestresort.net
Property Site Address: 29783 387th St — City, State, Zip: Waubun, MN 56589
Township Name: Maple Grove — Section/Township/Range: 8 142 40
LegalDescription: Gov Lot 2 less 4.61 AC for NEMEC...

3. DESIGNER/INSTALLER INFORMATION
Designer and License#: Scott Ellingson #3947 — Installer and License#: ____
Designer Email Address: scottsseptic@outlook.com — Installer Email Address: ____
Address: 201 Meadow Cir Ashby, MN 56309 — Address: ____
Company: Scott's Septic Services, LLC — Company: ____
Phone Number: 218-205-1667 — Phone Number: ____

4. SYSTEM DESIGN INFORMATION

System Status
___ Vacant Lot-No existing system-new structure
___ Replacement – structure removed and being rebuilt
↘ Failing –Replacement- cesspool/seepage pit or other
___ Enlargement of system-Undersized
___ Repairs Needed to existing
___ Additional system on property

What will new system serve? Check one.
___ Dwelling Fee: $150.00
↘ Resort/Commercial Fee: $300.00
___ Commercial (Non-resort) Fee: $300.00
___ Other – Explain: ____

Date of Site Evaluation: 5-7-19

Design Flow 2,552.50 Gallons Per Day
Number of Bedrooms —
Garbage Disposal: ___ Yes ↘ No
Dishwasher: ↘ Yes ___ No
Lift station in Structure ___ Yes ↘ No
Grinder Pump in Structure: ___ Yes ↘ No

Well Depth:
↘ Deep Well
___ Shallow Well
___ Well not Installed-To be Drilled
Depth of Other Wells within 100 ft. of System: (if applicable):
___ Deep Well
___ Shallow Well
___ Well not Installed-To be Drilled

↘ Original Soil ___ Compacted Soil

Type of Soil Observation:
___ Pit ___ Probe ↘ Boring

Depth to Restricting Layer (inches or ~~feet~~)
10"
Maximum Depth of System 3' SAND Lift (Mound)

Does the Septic Design Include a Drain Field? ↘ Yes ___ No
New or Existing Tank? ↘ New ↘ Existing

Type of All Tank(s) to be installed :
↘ gal Single Compartment Septic Tank
↘ gal Compartmented Tank
___ Pit Privy
___ gal Holding Tank
___ Existing Tank
___ Existing Tank w/ New Additional Tank
___ Existing tank w/new Lift Station
___ Holding Tank with Privy

Total Number of Tanks to be Installed: 5 *This number will be reported to the MPCA at the end of the year.
Size of Tank(s) see below
Is There an Alarm? ↘ Yes ___ No
Type of Alarm: electronic
Is there an effluent screen? ___ Yes ↘ No

Is There a Lift Pump? ↘ Yes ___ No
If Yes, What is the Size of the Lift Pump? ____
What is the Size of the Lift Line? ____

Lift #1 25gpm 24.8 tth 2" S.L. (Dual AH pumps w/ valves)
Lift #2 96 gpm 17.8 tth 3" S.L. (Dual AH pumps)

1- 2,000 gallon single
1- 2,250 gallon single
1- 2,500-2 compartment
1- 1600 gallon single (pump tank) Lift #1
1- 11000 gallon single (pump tank) Lift #2

Type of Drainfield	Full Size of Drainfield	Reduced/Warrantied Size
_____ Chamber Trench	_____sq. ft.	_____sq. ft.
_____ Rock Trench	_____sq. ft.	_____sq. ft.
_____ Graveless	_____sq. ft.	_____sq. ft.
↘ Mound	6,240 sq. ft.	
_____ Pressure Bed	_____sq. ft.	
_____ Seepage Bed	_____sq. ft.	
_____ At-Grade	_____sq. ft.	
_____ Alternative/Performance	_____sq. ft.	

Size of Absorption Area 26'x240'
Depth of Rock 9" ↓ pipe
Chamber Type and Number –
Total Sq. Ft. Per Chamber –

Is System Pressurized? ↘ Yes _____ No

*If System is pressurized, you must submit the applicable forms as listed below.

- Pressure Distribution System
- At Grade Design Worksheet
- Mound Design Worksheet- Slope 1% or Less
- Mound Design Worksheet- Slope 1% or More

What is the Perc Rate? 50 What is the Soil Sizing Factor? .45

*If SSF other than .83, you must attach the Perc Test Data

_____ 0.00	↘ 0.45	_____ 0.60	_____ 0.83	_____ 1.67
_____ 0.24	_____ 0.50	_____ 0.78	_____ 1.27	

Soil Borings **(three are required)** and **ALL FIELDS ARE MANDATORY**

(1)

Depth	Texture	Color	Structure Shape	Structure Grade	Structure Constancy
0"-4"	L	10yr 2/1	B	W	Fri
4"-10"	CL	10yr 4/3	B	Mod	Firm
10"+	CL	10yr 4/3			

10yr 5/1 7.5 yr 4/6 C,D S1

(2)

Depth	Texture	Color	Structure Shape	Structure Grade	Structure Constancy
0"-6"	L	10yr 2/1	B	W	Fri
6-12	CL	10yr 4/3	B	Mod	Firm
12"+	CL	10yr 4/3			

10yr 5/1 7.5 yr 4/6 C,D S1

(3)

Depth	Texture	Color	Structure Shape	Structure Grade	Structure Constancy
0"-8"	L	10yr 2/1	B	W	Fri
8"-10"	CL	10yr 4/3	B	Mod	Firm
10"+	CL	10yr 4/3			

10yr 5/1 7.5 yr 4/6 C,D S1

Depth	Texture	Color	Structure Shape	Structure Grade	Structure Constancy

Options for Texture:

- Loamy Sand
- Loamy Coarse Sand
- Fine Sand
- Very Fine Sand
- Loamy Fine Sand
- Sandy Loam
- Coarse Sandy Loam
- Fine Sandy Loam
- Very Fine Sandy Loam
- Loam
- Silt Loam
- Silt
- Clay Loam
- Sandy Clay Loam
- Silty Clay Loam
- Clay
- Sandy Clay
- Silty Clay
- Top Soil
- Redox/Limiting Layer

Options for Structure Shape

- Granular
- Platy
- Blocky
- Prismatic
- Strong
- Single Grain

Options for Structure Grade:

- Massive
- Weak
- Moderate
- Loose

Options for Soil Structure Consistency:

- Loose
- Friable
- Firm
- Extremely Firm
- Rigid

Measurements & Setbacks: *For a list of current required setbacks, see attached page.*

Lake/River/Wetlands Info (If Applicable)

Is the property within 1000 Feet of a lake or within 300 feet of a river? ✓ Yes _____ No

Lake Name White Earth
Township Maple Grove
Classification RD
River Name —
Tank Distance from OHW of Lake or River 300'+

Drainfield Distance from the OHW of Lake or River 300'+

Does the property contain or is it within 50 feet of a pond or wetland?
✓ Yes _____ No

Tank Distance from Closest Pond/Wetland 50+

Drainfield Distance from the Closest Pond/Wetland 50+

Road Type:

___ State
✓ County
___ Public/Township
___ Private Easement
___ 4 Lane Highway

I have found and marked the road right-of-way: _____ Yes ✓ No

Please note: Measurement is taken from the property pins (measure from pins into property).

Setback Verification

	TANK	DRAINFIELD
Distance to Road	20+	250+
Distance to Property Line, other than road (side or rear):	100+	100+
Distance to Buildings including garages attached to dwellings	50+	50+
Distance to Pressure Line	10+	10+
Distance to Wetland/Protected Water	50+ 300+	50+ 300+
Distance to Well	100+	100+

Depth of Well: _____ Shallow ✓ Deep

5. REQUIRED DOCUMENTS: ***If any of the following is required, please submit along with application:***

- Property Line Agreement Form
- Township Road Right of Way Encroachment Form
- County Road Right of Way
- U of MN worksheets are required for mounds, pressure beds, seepage beds, at grades or Type IV or type V systems.

Are the required worksheets attached?
✓ Yes _____ No

6. DESIGNER'S CERTIFIED STATEMENT

I, Scott Ellingson (Print Name of Designer) certify that I have completed the preceding design work in accordance with all applicable requirements (including, but not limited to Minnesota Chapter 7080 and the Becker County Individual Sewage Treatment System Ordinance).

Scott Ellingson
Signature of Designer

5-28-19
Date

University of Minnesota Onsite Sewage Treatment Program

Mound Design Worksheet
≥1% Slope

MINNESOTA POLLUTION CONTROL AGENCY

1. SYSTEM SIZING: Project ID: v 04.02.2019

A. Design Flow:	2251	GPD ✓
B. Soil Loading Rate:	0.45	GPD/ft² ✓
C. Depth to Limiting Condition	0.8	ft ✓
D. Percent Land Slope:	10.0	%
E. Design Media Loading Rate:	1.2	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	0.6	2.4	0.78	2
46 to 60	0.45	2.6	0.6	2.6
61 to 120	-	5	0.3	5.3
>120	-	-	-	-

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

2. DISPERSAL MEDIA SIZING

A. Calculate Dispersal Bed Area: Design Flow ÷ Design Media Loading Rate = ft²

2251 GPD ÷ 1.2 GPD/ft² = 1875 ft² @ 2400

If a larger dispersal media area is desired, enter size: 2400 ft²

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

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

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

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

2400 ft² ÷ 10.0 ft = 240.0 ft 10 X 240

3. ABSORPTION AREA SIZING

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

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

9 in 0.75 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. Calculate Minimum Clean Sand Lift: 3 feet minus Depth to Limiting Condition = Clean Sand Lift

3.0 ft - 0.8 ft = 2.2 ft Design Sand Lift (optional): 3 ft

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

3.0 ft + 1.1 ft + 1.5 ft = 5.6 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): 2.86

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

2.86 ft X 5.6 ft = 15.9 ft

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

10.0 ft X 10.0 % ÷ 100 = 1.00 ft

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

5.6 ft + 1.00 ft = 6.6 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): 6.67

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

6.67 x 6.6 ft = 43.7 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: 43.7 ft

K. Select Endslope Berm Multiplier: 4.00 *(usually 3.0 or 4.0)*

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

4.00 ft X 6.6 ft = 26.2 ft

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

15.9 ft + 10.0 ft + 43.7 ft = 69.6 ft

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

26.2 ft + 240.0 ft + 26.2 ft = 292.4 ft

University of Minnesota Onsite Sewage Treatment Program

Mound Materials Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID:

v 04.02.2019

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

(9 in + 3.5) ÷ 12 240.0 ft X 10.0 ft = 2500.0 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 2500.0 ft^3 ÷ 27 = 92.6 yd^3

Add 30% for constructability: 92.6 yd^3 X 1.3 = 120.4 yd^3

B. Calculate *Clean Sand Volume:*

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

4.1 ft X 10.0 ft X 240.0 ft = 9720.0 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

((5.6 ft - 1) X 3.0 ft X 240.0) ÷ 2 = 1638.0 ft^3

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

((6.6 ft - 1) X 16.0 ft X 240.0) ÷ 2 = 10656.0 ft^3

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

(6.6 ft - 1) X 3.0 ft X 10.0 ft = 166.5 ft^3

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

1638.0 ft^3 + 10656.0 ft^3 + 166.5 ft^3 + 9720.0 ft^3 = 22180.5 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 22180.5 ft^3 ÷ 27 = 821.5 yd^3

Add 30% for constructability: 821.5 yd^3 X 1.3 = 1068.0 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

(6.1 - 0.5)ft X 69.6 ft X 292.4) ÷ 2 = 56442.9 ft^3

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

56442.9 ft^3 - 22180.5 ft^3 - 2500.0 ft^3 = 31762.4 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 31762.4 ft^3 ÷ 27 = 1176.4 yd^3

Add 30% for constructability: 1176.4 yd^3 x 1.2 = 1529.3 yd^3

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

69.6 ft X 292.4 ft X 0.5 ft = 10169.9 ft^3

Divide ft^3 by 27 ft^3/yd^3 to calculate cubic yards: 10169.9 ft^3 ÷ 27 = 376.7 yd^3

Add 30% for constructability: 376.7 yd^3 x 1.3 = 289.7 yd^3

University of Minnesota Onsite Sewage Treatment Program

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 04.02.2019

1. Media Bed Width: 10 ft PER MOUND X2

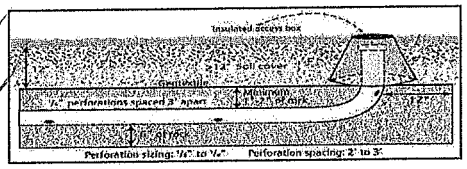
2. Minimum Number of Laterals in system/zone = Rounded up number of [(Media Bed Width - 4) ÷ 3] + 1.

[(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:* 7/32 in



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

120.0 - 2ft = 118.0 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 = 118.0 ft ÷ 3.0 ft = 39 Spaces

½ centerfold

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 = 39 Spaces + 1 = 40 Perfs. Per Lateral

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

¼ Inch Perforations

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

7/32 Inch Perforations

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

3/16 Inch Perforations

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

⅛ Inch Perforations

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

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

40 Perf. Per Lat. X 3 Number of Perf. Lat. = 120 Total Number of Perf.

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

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

11. *Select Lateral Diameter (See Table):* 2.00 in

University of Minnesota Onsite Sewage Treatment Program

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

12. 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	120	ft	=	1200	ft²

b. *Square Foot per Perforation* = *Bed Area* divided by the *Total Number of Perforations*.

1200	ft²	÷	120	perforations	=	10.0	ft²/perforations

13. Select *Minimum Average Head*: 2.0 ft

14. Select *Perforation Discharge* (GPM) based on Table: 0.80 GPM per Perforation

15. Determine required *Flow Rate* by multiplying the *Total Number of Perfs.* by the *Perforation Discharge*.

120	Perfs	X	0.80	GPM per Perforation	=	96	GPM

16. *Volume of Liquid Per Foot of Distribution Piping (Table II)*: 0.170 Gallons/ft

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

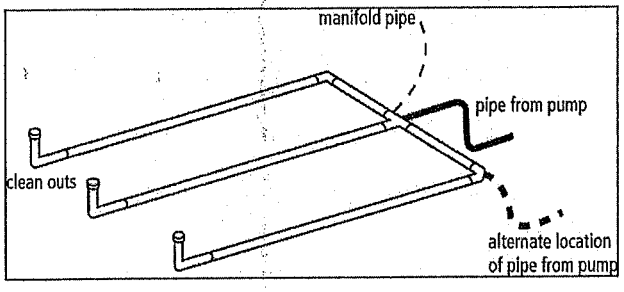
3	X	118	ft	X	0.170	gal/ft	=	60.2	Gallons

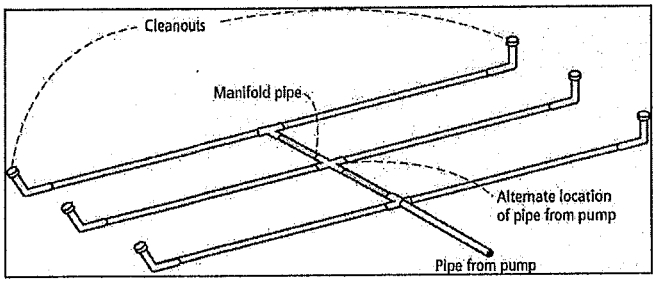
18. Minimum Delivered Volume = Volume of Distribution Piping X 4

60.2	gals	X	4	=	240.7	Gallons

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:

ONSITE SEWAGE TREATMENT PROGRAM

Basic Pump Selection Design Worksheet

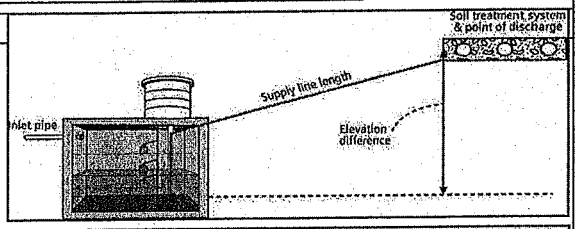
MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY Project ID: v 04.02.2019

Pumping to Gravity or Pressure Distribution: Pressure

1. If pumping to gravity enter the gallon per minute of the pump: ____ GPM *(10 - 45 gpm)*
2. If pumping to a pressurized distribution system: 96.0 ✓ GPM
3. Enter pump description: Equalization/Time Dosing

2. HEAD REQUIREMENTS



A. Elevation Difference between pump and point of discharge: 10 ft

B. Distribution Head Loss: 5 ft

C. Additional Head Loss: 0.0 ft (due to special equipment, etc.)

Distribution Head Loss	
Gravity Distribution = 0ft	
Pressure Distribution based on Minimum Average Head Value on Pressure Distribution Worksheet:	
Minimum Average Head	**Distribution Head Loss**
1ft	5ft
2ft	6ft
5ft	10ft

Table I. Friction Loss in Plastic Pipe per 100ft

Flow Rate (GPM)	Pipe Diameter (inches)			
	1	1.25	1.5	2
10	9.1	3.1	1.3	0.3
12	12.8	4.3	1.8	0.4
14	17.0	5.7	2.4	0.6
16	21.8	7.3	3.0	0.7
18		9.1	3.8	0.9
20		11.1	4.6	1.1
25		16.8	6.9	1.7
30		23.5	9.7	2.4
35			12.9	3.2
40			16.5	4.1
45			20.5	5.0
50				6.1
55				7.3
60				8.6
65				10.0
70				11.4
75				13.0
85				16.4
95				20.1

D. 1. Supply Pipe Diameter: 3.0 in

2. Supply Pipe Length: 80 ft

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

Friction Loss = 2.84 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 (D.2)* X 1.25 = *Equivalent Pipe Length*

80 ft X 1.25 = 100.0 ft

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft* (Line E) by the *Equivalent Pipe Length* (Line F) and divide by 100.

Supply Friction Loss =

2.84 ft per 100ft X 100.0 ft ÷ 100 = 2.8 ft

H. *Total Head* requirement is the sum of the *Elevation Difference* (Line A), the Distribution Head Loss (Line B), Additional Head Loss (Line C), and the Supply Friction Loss (Line G)

10.0 ft + 5.0 ft + 0.0 ft + 2.8 ft = 17.8 ft

3. PUMP SELECTION

A pump must be selected to deliver at least **96.0** GPM (Line 1 or Line 2) with at least **17.8** feet of total head.

Comments:

Onsite Sewage Treatment Program

Pump Tank Design Worksheet (Demand Dose)

Minnesota Pollution Control Agency

DETERMINE TANK CAPACITY AND DIMENSIONS | Project ID: | v 04.02.2019

1. A. *Design Flow (Design Sum.1A)*: X 2 per mound | 1125 GPD | C. Tank Use: Dosing
   B. Min. required pump tank capacity: 500 Gal | D. Recommended pump tank capacity: 1600 Gal

2. A. Tank Manufacturer: Brown Wilbert | B. Tank Model: 1600 ✓
   C. Capacity from manufacturer: 1639 Gallons
   D. Gallons per inch from manufacturer: 38.1 Gallons per inch
   E. Liquid depth of tank from manufacturer: 46.0 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* (2C or 3E)

(16 in + 2 inches) X 38.1 Gallons Per Inch = 686 Gallons

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

-Item 18 of the Pressure Distribution or Item 11 of Non-level 241 Gallons (Minimum dose) 6.3 inches/dose

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

Design Flow: 1125 GPD X 0.25 = 281 Gallons (Maximum dose) 7.4 inches/dose

6 *Select a pumpout volume that meets both Minimum and Maximum:* 250 Gallons ✓

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

1125 gpd ÷ 250 gal = 4.50 *Doses*

8 Calculate Drainback:

A. *Diameter of Supply Pipe* = 3 inches

B. Length of Supply Pipe = 80 feet

C. *Volume of Liquid Per Lineal Foot of Pipe* = 0.380 Gallons/ft

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

80 ft X 0.380 gal/ft = 30.4 Gallons

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

250 gal + 30.4 gal = 280 Gallons

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

2 in X 38.1 gal/in = 76.2 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

280 gal ÷ 38.1 gal/in = 7.4 Inches

Dual PUMPS ✓

12. Measuring from bottom of tank:

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

16 in + 2 in = 18 Inches

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

18 in + 7.4 in = 25 Inches

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

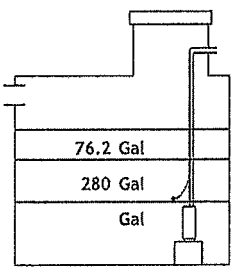
25 in + 2.0 in = 27 Inches

Inches for Dose: 7.4 in

Alarm Depth 27.4 in

Pump On 25.4 in

Pump Off 18.0 in



University of Minnesota Onsite Sewage Treatment Program

Basic Pump Selection Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY

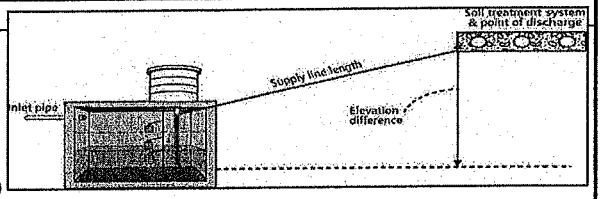
Project ID:

v 04.02.2019

Pumping to Gravity or Pressure Distribution: Gravity ✓ Pump Tank To Pump Tank

1. If pumping to gravity enter the gallon per minute of the pump: 25.0 ✓ GPM *(10 - 45 gpm)*
2. If pumping to a pressurized distribution system: GPM
3. Enter pump description: Demand Dosing

2. HEAD REQUIREMENTS



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

B. Distribution Head Loss: 5 ft

C. Additional Head Loss: ft (due to special equipment, etc.)

Distribution Head Loss	
Gravity Distribution = 0ft	
Pressure Distribution based on Minimum Average Head Value on Pressure Distribution Worksheet:	
Minimum Average Head	**Distribution Head Loss**
1ft	5ft
2ft	6ft
5ft	10ft

D. 1. Supply Pipe Diameter: 2.0 in ✓

2. Supply Pipe Length: 700 ft ✓

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

Friction Loss = 1.69 ft per 100ft of pipe

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

F. Determine *Equivalent Pipe Length* from pump discharge to soil dispersal area discharg point. Estimate by adding 25% to supply pipe length for fitting loss. *Supply Pipe Lengt (D.2)* X 1.25 = *Equivalent Pipe Length*

700 ft X 1.25 = 875.0 ft

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft* (Line E) by the *Equivalent Pipe Length* (Line F) and divide by 100.

Supply Friction Loss =

1.69 ft per 100ft X 875.0 ft ÷ 100 = 14.8 ft ✓

H. *Total Head* requirement is the sum of the *Elevation Difference* (Line A), the Distribution Head Loss (Line B), Additional Head Loss (Line C), and the Supply Friction Loss (Line G)

5.0 ft + 5.0 ft + ft + 14.8 ft = 24.8 ft

3. PUMP SELECTION

A pump must be selected to deliver at least **25.0** GPM (Line 1 or Line 2) with at least **24.8** feet of total head.

Comments:

ONSITE SEWAGE TREATMENT PROGRAM

Pump Tank Design Worksheet (Demand Dose)

MINNESOTA POLLUTION CONTROL AGENCY

DETERMINE TANK CAPACITY AND DIMENSIONS

Project ID:

v 04.02.2019

1. A. *Design Flow (Design Sum.1A)*: 2251 GPD
   C. Tank Use: Dosing
   B. Min. required pump tank capacity: 500 Gal
   D. Recommended pump tank capacity: 1600 Gal

2. A. Tank Manufacturer: Brown Wilbert
   B. Tank Model: 1600
   C. Capacity from manufacturer: 1639 Gallons
   D. Gallons per inch from manufacturer: 38.1 Gallons per inch
   E. Liquid depth of tank from manufacturer: 46.0 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* (2C or 3E)

(16 in + 2 inches) X 38.1 Gallons Per Inch = 686 Gallons

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

-Item 18 of the Pressure Distribution or Item 11 of Non-level 241 Gallons (minimum dose) 6.3 inches/dose

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

Design Flow: 2250.5 GPD X 0.25 = 563 Gallons (maximum dose) 14.8 inches/dose

6 *Select a pumpout volume that meets both Minimum and Maximum:* 250 Gallons

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

2250.5 gpd ÷ 250 gal = 9.0 *Doses*

8 Calculate Drainback:

A. *Diameter of Supply Pipe* = 3 inches

B. Length of Supply Pipe = 80 feet

C. *Volume of Liquid Per Lineal Foot of Pipe* = 0.380 Gallons/ft

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

80 ft X 0.380 gal/ft = 30.4 Gallons

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

250 gal + 30.4 gal = 280 Gallons

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

2 in X 38.1 gal/in = 76.2 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

280 gal ÷ 38.1 gal/in = 7.4 Inches

12. Measuring from bottom of tank:

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

16 in + 2 in = 18 Inches

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

18 in + 7.4 in = 25 Inches

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

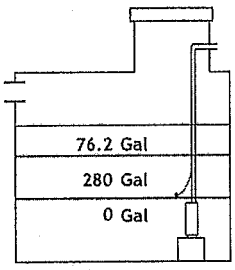
25 in + 2.0 in = 27 Inches

Inches for Dose: 7.4 in

Alarm Depth 27.4 in

Pump On 25.4 in

Pump Off 18.0 in



University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

v 04.02.2019

1. PROJECT INFORMATION

Property Owner/Client:	BCANS Enterprises LLC	Project ID:	
Site Address:	29783 387th ST	Date:	05/28/19
Email Address:	ccr@cedarcrestresort.net	Phone:	507-458-6630

2. DESIGN FLOW & WASTE STRENGTH

Attach data / estimate basis for Other Establishments

Design Flow: 2250.5 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): ____

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: ____

B. Other Establishments:

Waste received by: Gravity 2250 GPD x 3 Days Hyd. Retention Time

Code Minimum **Septic Tank** Capacity: 6750 Gallons In 1 Tanks or Compartments

Recommended **Septic Tank** Capacity: 6750 Gallons In 4 Tanks or Compartments

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

5. PUMP TANK SIZING

Pump Tank 1 Capacity (Minimum):	500 Gal	Pump Tank 2 Capacity (Minimum):	500 Gal
Pump Tank 1 Capacity (Recommended):	2500 Gal	Pump Tank 2 Capacity (Recommended):	1600 Gal
Pump 1	96.0 GPM Total Head 17.8 ft	Pump 2	25.0 GPM Total Head 24.8 ft
Supply Pipe Dia.	3.00 in Dose Vol: 250.0 gal	Supply Pipe Dia.	2.00 Dose Vol: 250.0 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:	ft	Benchmark Location:	
MPCA System Type:	Type III	Distribution Media:	Rock
Type III/IV Details:	3' Sand Lift bad soils		

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	
Limiting Condition:	10	inches	0.8	ft		ft
Minimum Req'd Separation:	36	inches	3.0	ft	Elevation	
Code Max System Depth:	Mound	inches	-2.2	ft		ft

Critical for system compliance

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

Soil Texture:	Clay Loam		
Soil Hyd. Loading Rate:	0.45 GPD/ft^2	Percolation Rate:	MPI
Contour Loading Rate:	10	Note:	
Measured Land Slope:	10.0 %	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	Min. 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	2400.0 ft^2	Bed Length	240.0 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	15.9 ft	Downslope Berm	43.7 ft	Endslope Berm Width	26.2 ft
Total System Length	292.4 ft	System Width	69.6 ft	Contour Loading Rate	12.0 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	7/32 in
Lateral Diameter	2.00	in	Min Dose Volume	241	gal	Max Dose Volume	563 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:

Installing Type III Mound with 3' Sand Lift. 2 MH & 1 RCU Site have existing septic tank. 10 MH site will have new septic tanks. 1600 common lift tank dual alt pumps with check valves to common 1600 lift at mounds dual pumps to mound.

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

Scott Ellingson	Scott Ellingson	3947	5/28/2019
(Designer)	(Signature)	(License #)	(Date)

Tanks ~~$100~~ Check

8-17-2021 drainfield OK

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

Septic Permit

Permit #: SS2021-1009

Owner & Property Information

Owner Name:	BCANS ENTERPRISES LLC	**Parcel #:**	200233000
Mailing Address:	BCANS ENTERPRISES LLC 29783 387TH ST WAUBUN MN 56589	**Secondary Parcel #:**	
Phone #:	2184732116	**Site Address:**	29783 387th St
Lake/River(1000/300):	Yes	**Township - Sec/Twp/Rng:**	MAPLE GROVE - 08/142/040
Lake/River Name:	White Earth (Maple Grove) [RD]	**Designer:**	Scott's Septic Services LLC, L3947 (Scott Ellingson) Hedlund Backhoe
Pond/Wetland(50):	No	**Installer:**	OTHER – Not listed (please add in ~~next field and we will add to our~~ list)

Specifications

Tank to be Installed:	Existing Tank with New Additional Tank	**Type of Drainfield:**	Mound
Total # Tanks Installed:	4	**Full Size of Drainfield:**	6240
System Status:	Replacement System	**Reduced/Warrantied Size:**	
System Serves:	Commercial Resort	**Absorbtion Area Size:**	6240
Number of Bedrooms:	28	**Rock Depth:**	
Design Flow/GPD:	2552.5	**Chamber Type and Number:**	
Garbage Disposal?	No	**Chamber Trench SqFt/Chamber:**	
Size of Lift Pump:	25gpm	**Is System Pressurized?**	Yes
Size of Lift Line:	96gpm	**Alarm?**	Yes
Soil Sizing Factor:	0.45	**Type of Alarm:**	

Setbacks

Road Type:	Public / Township	**Right of Way Marked:**	No
Tank Dist to Road:	30'	**Drainfied Dist to Road:**	100'+
Tank Dist to Closest Prop Line:	100'	**Drainfied Dist to Closest Prop Line:**	100'
Tank Dist to Nearest Structure:	50'	**Drainfield Dist to Nearest Structure:**	50'
Tank Dist to Well:	50'	**Drainfield Dist to Well:**	1000'
Tank Dist to OHW:	1000'	**Drainfield Dist to OHW:**	3000'
Tank Dist to Pond/Wetland:		**Drainfield Dist to Pond/Wetland:**	
Tank Dist to Pressure Line:		**Drainfield Dist to Pressure Line:**	

Other Information

Date Approved:	7/12/2021
Permit Fee:	300.00
Receipt Number:	250328561
Date Paid:	7/13/2021

Notes: Type III system - 3' sand lift in mound, no suitable soils Utilize one existing septic tank. Add 2250, 2000 & 2500-2compartment septic tanks, two 1600 gallon lift tanks with dual alternating pumps. Construct a mound system

Zoning Office Signature:

Denise Gubrud

consisting of 3' sand lift, two - 10' X 120' rock beds (center fed) and two - 26' X 120' soil absorption areas. Must have Advanced Inspector

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

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