360040001

PARCEL	360040001
APP	SEPTIC
YEAR	2011
SCANNED	11/28/11

RECEIVED
NOV 03 2011
ZONING

e 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, purchase agreement or deed)

Parcel Number(s) of property where the system will be installed: **360040001**

Is this a split of an existing property? Yes No (If yes and a parcel number has not yet been assigned, indicate the main parcel number from which the new parcel was split.) Section 07 Township 142 Range 041 Township Name **WHITE EARTH**

Legal Description **PT E1/2 SW1/4: BEG 600' N OF INTER S SEC LN & E LN HWY TH N 400' AL HWY, E 200', S 400', W 200' TO BEG.**

Is the property located within 1000 feet of a lake, 300 feet of a river or 50 ft of a wetland? ____ Yes X No

If so, which one: lake river wetland (circle correct water body) Lake/River Name ____

Project Address: **38145 HWY 59 Waubun, MN 56589**

2. PROPERTY OWNER INFORMATION (as it appears on the tax statement, purchase agreement or deed)

Owner's First Name **Doug** Owner's Last Name **Fabre**

Owner's Mailing Address: **38145 HWY 59 Waubun, MN 56589**

3. DESIGNER/INSTALLER INFORMATION

Designer's Company Name **Nels Thorson Excavating** Designer's Name **Dan Thorson**

License # **47** Address **22403 260th Ave Detroit Lakes, MN 56501** Phone Number **218-439-6306**

Installer's Company Name **Nels Thorson Excavating** Installer's Name **Nels Thorson**

License # **47** Address **22403 260th Ave Detroit Lakes, MN 56501** Phone Number **218-439-3833**

4. SYSTEM DESIGN INFORMATION U of M worksheets and site plan must accompany this form. Worksheets may be found at: hhttp://septic.umn.edu/.

Size of All Tanks to be installed _____ gal Septic Tank ______ gal Tank with ______ gal Lift Station (2 compartment tank)
625 gal Lift Station (separate tank) _______ gal Holding Tank 1000 Existing tank to be used
_____ gal Holding Tank with Privy _______ pit privy

Total Number of tanks to be installed in this system 1 (This # will be reported to MPCA at end of year.)

If using chamber, Brand & Model of Chamber Infiltrator High Capatisty # of chambers to be installed 26

	SETBACKS TANK	 DRAINFIELD
Distance to Well	>50	>100
Distance to Building	>10	>20
Distance to Property Line	>10	>10
Distance to OHWof Lake	N/A	N/A
Distance to Pressure Line	N/A	N/A
Distance to Wetland/Protected Water	N/A	N/A

This work will:

- _____ install a system on a vacant lot (never had structures on the property) (new)
- _____ install a system on a lot where the structure has been removed and being rebuilt (replacement)
- _____ install an additional system on the property (new)
- X replace/repair existing system (failing)
- _____ enlarge existing system (undersized)

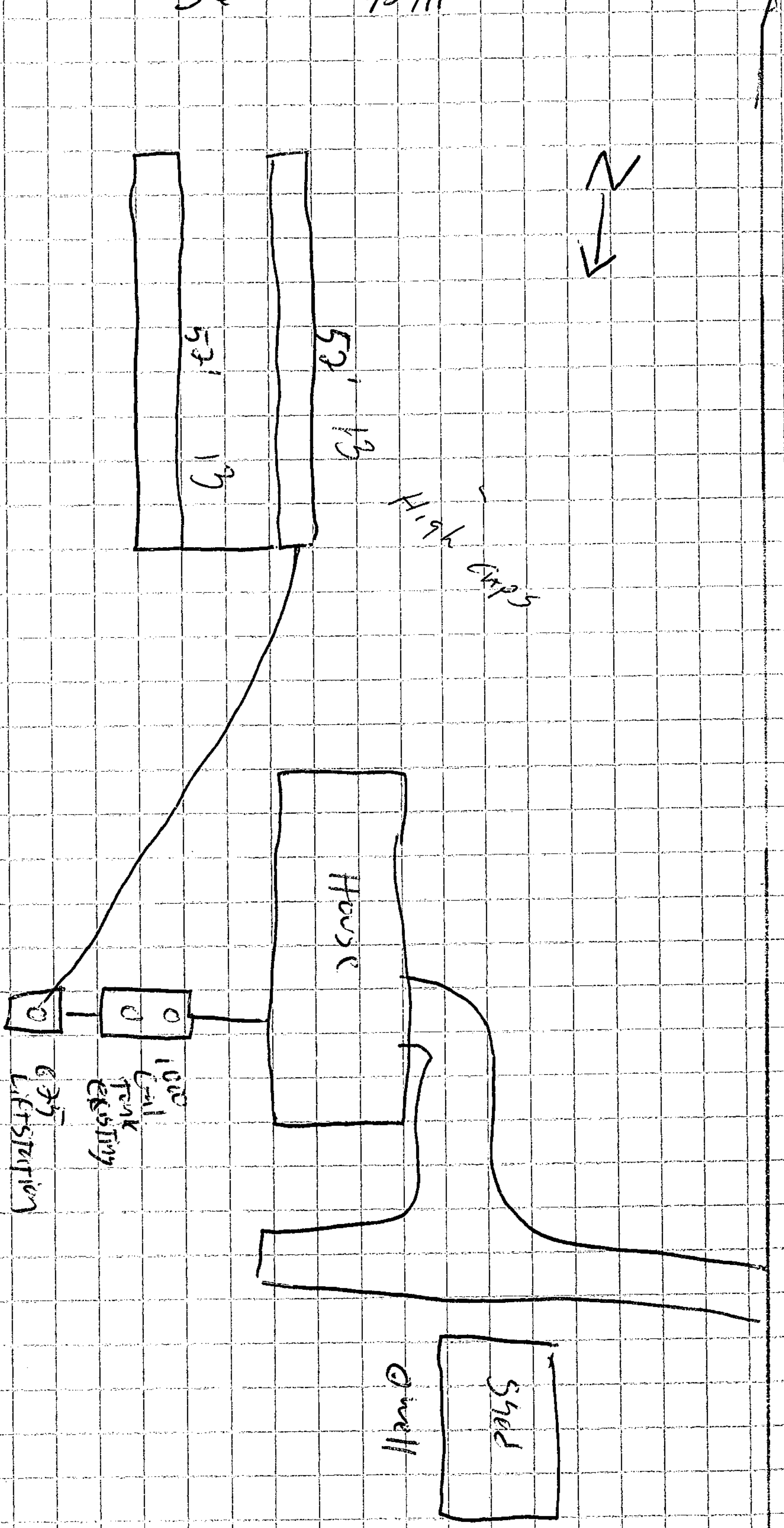
5. DESIGNER'S CERTIFIED STATEMENT

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

Signature of Designer

17 October 2011
Date

3600400001/se/11



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** FOR OFFICE USE ONLY **

pplication Approved by: ______________ Date: 11/3/11
mount Paid $100.00 Receipt Number 266236-490362 Permit Number ______________
OTES: 11/3/11
Mailed C/C to homeowner
11/9/11

****

INSPECTION REPORT

15
26
90
300
390

ome Information

oes the structure contain any of the following elements?

Garbage disposer _____ Yes _____ No Dishwasher _____ Yes _____ No
Grinder pump _____ Yes _____ No Lift pump in basement _____ Yes _____ No
ffluent screen installed? _____ Yes _____ No Effluent screen manufacturer ______________

larm required? _____ Yes _____ No Alarm Type ______________ Alarm manufacturer ______________

ift pump in system? _____ Yes _____ No Same Pump manufacturer ______________

umber of bedrooms 2

omponent Information

Tank size 1000 existing 625 lift Tank manufacturer Brown's w/ lift

Drainfield size +300 sq.ft.
Drainfield medium ______________ Medium manufacturer 26 Q4 High caps
Drainfield medium size/depth ______________

oil Verification

Vertical separation verified for Boring #1 on ______________ Depth +36" Good Separation!

Vertical separation verified for Boring #2 on ______________ Depth ______________

Vertical separation verified for Boring #3 on ______________ Depth ______________

Setback Verification

	TANK	DRAINFIELD
Distance to Well	+50'	+100'
Distance to Building	+10'	+20'
Distance to Property Line	+10'	+10'
Distance to OHW of Lake	—	—
Distance to Pressure Line	—	—
Distance to Wetland/Protected Water	—	—

Date System Installed 11/3/11 **Installer** Nels Cons. **Inspector** ______________

****
****

CERTIFICATE OF COMPLIANCE

( ) Certificate Is Hereby Denied
(✗) Certificate is Hereby Granted Based upon the Application, addendum from, plans, specifications and all other supporting data. With property maintenance, this system can be expected to function satisfactory, however, this is not a guarantee.

	ISTS Inspector	11/3/11
Signature	Title	Date

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

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Site Evaluation

Property owner(s): Doug Fabre

Address: 38145 Hwy 59 Waubun MN 56589

P.I.D. 3.6E+08 **Section:** 7 Township 142 N Range 41 W

Date: 17-Oct-11 **Time:** 10:30am **Weather conditions:** Partly sunny

Check all that apply: shoreland ____ dwelling x in wellhead protection area ____ food, bev. or lodging estab. ____
new ____ existing x class V ____

Soil Survey Data

	Soil #1	Soil #2	Soil #3
Map Unit Sym & Name			
Landscape Position			
Flooding			
Slope			
Watertable depth			
Bedrock Depth			

	Soil #1	Soil #2	Soil #3
Possible system depth			
Texture at depth			
Permeability			
x60=Perc(MPI)			
NRCS onsite suitablity			

Soil Classification: Loamy Sand

Unsuitable/Disturbed/Compacted: *yes or no*

Type of observation: Probe____ Pit ____ Boring ____

Parent material: *Till Outwash Loess Bedrock Alluvium*

Vegetation type: *Wet Dry Unknown*

Slope form: ____

Drainage (select one): *Good Fair Poor Ponding Flooding*

Floodplain: *yes or no*

Elevation of Boring(s): ____ **feet Location:** ____

Depths Information: Standing water: ____ inches
Bedrock: ____ inches
Saturated soil: ____ inches
Maximum depth of system: ____ inches
Maximum Elevation of bottom of system: ____ feet
Well Casing depth (from well log): ____ feet

Flow Information:
No. of bedrooms: 2
Garbage disposal: *yes or no*
Home Classification #: I II III IV
Design flow: 300 gpd

Soil sizing factor (SSF): 0.83 gpd/ft^2
Linear loading rate (LLR): ____ gpd/ft
Percolation Test Data Was a perc test done ? ___NO ___YES
Results if available

	Location	Depth	MPI
Hole #1			
Hole #2			
Hole #3			

Soil Boring Data

Boring 1

Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence
0"-10"	Loamy	BLK	N/A	
10"-34"	Loamy	10YR7/3	N/A	
34"-46"	Loamy	10YR7/4	N/A	
46"-64"	Loamy Sand	10YR7/4	N/A	

Boring 2

Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence
0"-10"	Loamy	BLK	N/A	
10"-34"	Loamy	10YR7/3	N/A	
34"-46"	Loamy	10YR7/4	N/A	
46"-64"	Loamy Sand	10YR7/4	N/A	

Boring 3

Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence
0"-10"	Loamy	BLK	N/A	
10"-34"	Loamy	10YR7/3	N/A	
34"-46"	Loamy	10YR7/4	N/A	
46"-64"	Loamy Sand	10YR7/4	N/A	

Boring 4

Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence

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

____ (signature) 47 (license #) 17-Oct-11 (date)

203 E Hawk Audubon MN 56511 address 218-841-1388 phone number

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Trench and Bed Worksheet

All boxed rectangles must be entered, the rest will be calculated.

1. AVERAGE DESIGN FLOW

A. Estimated 300 gpd *(see figure A-1)*
or measured ☐ x 1.5 *(safety factor)* = 0 gpd
B. Septic tank capacity 1000 gallons

A-1 Estimated Sewage Flows in GPD				
Number of Bedrooms	Class I	Class II	Class III	Class IV
2	300	225	180	60% of the values in the Class I, II or II columns
3	450	300	218	
4	600	375	256	
5	750	450	294	
6	900	525	332	
7	1050	600	370	
8	1200	675	408	

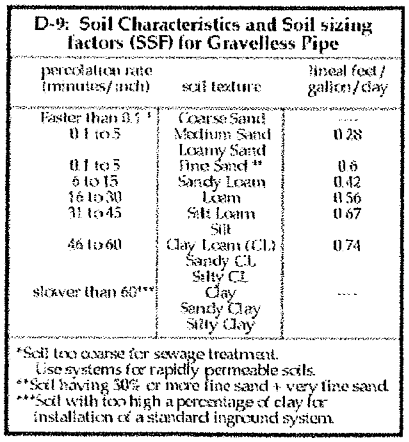
2. SOILS (Site evaluation data)

C. Depth to restricting layer = <5'4" feet
D. Maximum depth of system Item C - 3 ft = #VALUE! feet
E. Texture Loamy Sand Percolation rate ☐ mpi
F. SSF 0.83 ft^2/gpd (see figure D-15)
G. % Land slope ☐ %

D-15 Soil Characterisitcs & SSF		
Perc Rate mpi	Soil Tecture	SSF sq ft/gpd
< 0.1 *	Coarse sand	0.83
0.1- 5	Medium sand	0.83
	Loamy sand	
0.1- 5**	Fine sand	1.67
6 - 15	Sandy loam	1.27
16 - 30	Loam	1.67
31 - 45	Silt loam, silt	2.00
46 - 60	Clay loam, sandy clay or silty clay	2.20
61 - 120***	Clay, sandy or silty clay	4.20
>120****		

* No trench >25% of total system
** Soil with >50% fine sand particles
*** A mound must be used
**** An other or performance system

C-1 Septic Tank Capacity in Gallons			
Number of Bedrooms	Minimum Capacity	Capacity with Garb. Disp.	Capacity with Disp. and Lift
2 or less	750	1125	1500
3 or 4	1000	1500	2000
5 or 6	1500	2250	3000
7, 8 or 9	2000	3000	4000



D-9: Soil Characteristics and Soil sizing factors (SSF) for Gravelless Pipe

percolation rate (minutes/inch)	soil texture	lineal feet / gallon / day
Faster than 0.1 *	Coarse Sand	----
0.1 to 5	Medium Sand	0.28
	Loamy Sand	
0.1 to 5	Fine Sand **	0.6
6 to 15	Sandy Loam	0.42
16 to 30	Loam	0.56
31 to 45	Silt Loam	0.67
	Silt	
46 to 60	Clay Loam (CL)	0.74
	Sandy CL	
	Silty CL	
slower than 60***	Clay	----
	Sandy Clay	
	Silty Clay	

*Soil too coarse for sewage treatment.
Use systems for rapidly permeable soils.
**Soil having 50% or more fine sand + very fine sand.
***Soil with too high a percentage of clay for installation of a standard inground system.

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3. TRENCH OR BED BOTTOM AREA

H. For trenches with 6 inches of rock below the pipe:
A x F = 300 gpd x 0.83 ft/gpd = 249.0 ft^2

I. For trenches with 12 inches of rock below the pipe:
A x F x 0.8= 300 gpd x 0.83 ft/gpd x 0.8 = 199.2 ft^2

J. For trenches with 18 inches of rock below the pipe:
A x F x 0.66= 300 gpd x 0.83 ft/gpd x 0.66 = 164.3 ft^2

K. For trenches with 24 inches of rock below the pipe:
A x F x 0.6= 300 gpd x 0.83 ft/gpd x 0.6 = 149.4 ft^2

L. For gravity beds with 6 or 12 inches of rock below the pipe;
1.5 x A x F = 1.5 x 300 gpd x 0.83 ft/gpd = 373.5 ft^2

M. For pressure beds with 6 or 12 inches of rock below the pipe;
A x F = 300 gpd x 0.83 ft/gpd = 249.0 ft^2

4. DISTRIBUTION (Check all that apply)

☐ Bed (<6% slope)
☒ Trenches
☒ Pressure
☐ Drop Boxes (any slope)
☐ Distribution Box (<3%)
☒ Gravity
☐ Rock
☒ Chamber
☐ Gravelless

5. SYSTEM WIDTH, LENGTH AND VOLUME

M. Select width = 3.0 ft

N. If using rock, divide bottom area by width: (H, I, J or K) divided by P = lineal feet
☐ ft^2 / 3.0 ft = 0.0 lineal feet

Rock depth below distribution pipe plus 0.5 foot times bottom area:
(Rock depth + 0.5 foot) x Area (H, I, J, K, L)
(☐ ft + 0.5 ft) x 601.2 ft^2 = 300.6 ft^3

Volume in cubic yards = volume in cubic feet divided by 27
300.6 / 27= 11.1 yd^3

Weight of rock in tons = cubic yards times 1.4
11.1 x 1.4= 15.6 tons

O. If using 10" Gravelless Pipe, length = Flow (A) x Gravelless SSF (see figure D-9)
300.0 gpd x ☐ ft/gpd = 0.0 lineal feet

P. If using a Chamber (H, I, J, K [based on height of chamber slats] divided by width of chamber in ft)
200.0 ft^2 / 3.0 ft = 66.7 lineal feet

7. LAWN AREA

Q. Select trench spacing, center to center = 8 feet

R. Multiply trench spacing by lineal feet R x Q = sq. ft. of lawn area
8 x 50.0 = 400 ft^2

8. LAYOUT

Select an appropriate scale; one inch = ☐ feet
Show pertinent property boundaries, rights-of-way, easements.
Show location of house, garage, driveway, and all other improvements, existing or proposed.
Show location and layout of sewage treatment system, well and dimensions of all elevations

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

(signature) 47 (license #) 17-Oct-11 (date)

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PUMP SELECTION PROCEDURE

All boxed rectangles must be entered, the rest will be calculated.

1. Determine pump capacity:

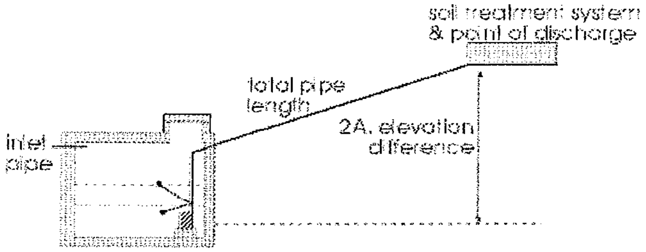
A. Gravity Distribution

1. Minimum required discharge is 10 gpm
2. Maximum suggested discharge is 45 gpm

For other establishments at least 10% greater than the water supply rate, but no faster than the rate at which effluent will flow out of the distribution device.

B. Pressure Distribution - see pressure design worksheet

Selected Pump Capacity: 20 **gpm**



2. Determine head requirements:

A. Elevation difference between pump and point of discharge.

10 feet

B. Special head requirement? *(See Figure - Special Head Requirements)*

0 feet

Special Head Requirements	
Gravity Distribution	0ft
Pressure Distribution	5ft

C. Friction loss

1. Select pipe diameter 1.5 in
2. Enter Figure E-9 with gpm (1A or B) and pipe diameter (C1)

Read friction loss in feet per 100 feet from Figure E-9

Friction loss= 2.47 ft/ 100 ft of pipe

3. Determine total pipe length from pump discharge to soil system discharge point.

Estimate by adding 25 percent to pipe length for fitting loss.

Equivalent pipe length times 1.25 = total pipe length

130 *ft x 1.25 =* *162.5* *feet*

4. Calculate total friction loss by multiplying friction loss (C2) by the equivalent pipe length (C3) and divide by 100.

FL= 2.47 ft/100ft X 162.5 ft / 100: 4.0 feet

E-9 Friction Loss in Plastic Pipe per 100 ft

Flow Rate	nominal pipe diameter		
gpm	1.5"	2.0"	3"
20	2.47	0.73	0.11
25	3.73	1.11	0.16
30	5.23	1.55	0.23
35	6.96	2.06	0.3
40	8.91	2.64	0.39
45	11.07	3.28	0.48
50	13.46	3.99	0.58
55		4.76	0.7
60		5.6	0.82
65		6.48	0.95
70		7.44	1.09

D. Total head requirement is the sum of elevation difference (A), special head requirements (B), and total friction loss (C4).

10 ft + 0 ft + 4.0 ft

Total Head: 14.0 **feet**

3. Pump Selection

1. A pump must be selected to deliver at least 20 gpm (1A or B) with at least 14.0 feet of total head (2D).

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

(signature) 47 (license #) 17-Oct-11