

9

ZONING PERMIT APPLICATION

FULL NAME Jordan Keil TELE # 218-839-0480
 MAIL ADDRESS 38865 440th PL
 CITY Aitkin STATE MN ZIP 56431
 911 ADDRESS OF PROPERTY Pending
 CITY Aitkin STATE MN ZIP 56431
 TOWNSHIP Aitkin
 LEGAL DESCRIPTION NE 1/4 of SW 1/4 lying and being Westland Sashbury 200
 SECTION 4 TOWNSHIP 47 RANGE 27

OFFICE USE ONLY	
DATE	<u>4-19-16</u> <input checked="" type="radio"/> APPROVE <input type="radio"/> DENY
PERMIT #	<u>41845</u>
PARCEL #	<u>01-D-007702</u>
RECEIPT #	<u>928759</u>
CHECK #	<u>2634</u>
CONFORMING SEPTIC	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> <u>NEW</u>

(circle) RESIDENTIAL COMMERCIAL ACCESSORY NEW BUILDING ALTERATION
 BUILDING CONTRACTOR AND LICENSE NUMBER: SELF BUILT

DESCRIBE YOUR PROJECT (IF APPLICABLE, INCLUDE DIMENSIONS OF ALL BUILDINGS COVERED BY THIS APPLICATION)

3 bed 2 1/2 Bath house. 30'x92' Foundation Including Attached garage (30x28) with a 14'x18' Sun Room - 10'x40' covered Porch. 1 story house

COMMENTS:

DESIGNER: Tom O'neal

DATA FOR SEWER CONSTRUCTION: INSTALLER DR Lundquist #BEDROOMS/GPD 3 / 450 GPD

The undersigned hereby makes application for permit to construct as herein specified, agreeing to do all such work in strict accordance with the Ordinances of the County of Aitkin, Minnesota; Minnesota Individual Sewage Disposal Code Minimum Standards set forth by Minnesota Department of Health; and Shoreland Management Standards set forth by Minnesota Department of Natural Resources. Applicant agrees that plot plan, sketches and specifications submitted herewith and which are approved by the Zoning Official, shall become a part of the permit. **APPLICANT FURTHER AGREES THAT NO PART OF THE SEWAGE SYSTEM SHALL BE COVERED UNTIL IT HAS BEEN INSPECTED AND ACCEPTED.** It shall be the responsibility of the applicant for the permit to notify the Zoning Office (at least 24 hours in advance) that the Septic System is ready for inspection.

X [Signature]
 SIGNATURE APPLICANT/AGENT

DO NOT WRITE BELOW THIS LINE

ZONING DISTRICT & FLOOD PLAIN
 ZONING DISTRICT PIR
 LAKE/STREAM/RIVER NAME _____
 LAKE/RIVER ID NUMBER _____
 LAKE/RIVER/STREAM CLASSIF. _____
 PARCEL LOCATED IN FLOOD PLAIN? Y ___ N ___
 10/100-YR. FLOOD ELEVATION _____
 LOWEST FLOOR ELEVATION _____
 ELEV. CERTIFICATE REQUIRED Y ___ N ___
 BEFORE CONSTRUCTION Y ___ N ___
 AFTER CONSTRUCTION Y ___ N ___

STRUCTURE SETBACK DISTANCE REQUIREMENTS
 (Measure from eaves or overhang)
 OHW TO LAKE/RIVER/STREAM _____
 PROPERTY LINE SETBACK (10-ft. / 20-ft.) 20
 SETBACK TO ROAD R-O-W (30-ft. Twp. / 50-ft. Co., State, Fed.) 50
 SETBACK TO BLUFF (30-ft.) _____
SEPTIC SYSTEM SETBACK DISTANCES
 SETBACK TO STRUCTURES (10-ft. Tank / 20-ft. Drainfield) 20
 OHW TO LAKE/RIVER _____
 PROPERTY LINE SETBACK (10-ft.) 10
 SETBACK TO ROAD R-O-W (10-ft.) 10

****ATTACH COPY OF ELEVATION CERTIFICATES****

SOIL BORINGS 49 SEPTIC DESIGN maund GARBAGE DISP/HOT TUB
 SSF _____ DEPTH TO RESTRICTING LAYER _____ YES ___ NO

(circle) SSTS Type Type 1 Type 2 Type 3 Type 4 Type 5

RECOMMENDATIONS: residence 73000 sq ft \$500
maund \$300

EXPIRES IN ONE YEAR • Aitkin County Zoning

Courthouse – 209 2nd St. NW. Room 100 • Aitkin, Minnesota 56431 \$ 800 KS 4/13/16
 Telephone 218/927-7342 FEE RECEIVED BY DATE

WHITE – COUNTY

YELLOW – APPLICANT

PINK - TOWNSHIP

FIELD EVALUATION SHEET

NAME Keil PERMIT # 41845
 PARCEL # 01-0-007702 TWP Atkin SECTION 4

CHECK THE FOLLOWING PRIOR TO INSPECTION

 _____ NAME OF SITE EVALUATOR
 _____ NAME OF DESIGNER
 _____ NAME OF INSTALLER

 _____ LOT OF RECORD BEFORE 1-21-92 (SL) IR 1-10-95 (NSL), IF NO, ALT. SITE? Y
 _____ SITE PLAN WITH SETBACK DISTANCES AND DIMENSIONS
 _____ ARE ISTS SITES PROTECTED FROM DAMAGE? IF NOT, WHEN _____
 _____ DESIGN _____ PERC TESTS _____ SOIL BORINGS, 2 PER SITE
 _____ NUMBER OF BEDROOMS (INCLUDE POTENTIAL)
 _____ CROSS SECTION SHEET _____ TRENCH DESIGN SHEET
 _____ MOUND DESIGN SHEET _____ OTHER OR PERFORM.
 _____ PRESSURE DISTRIBUTION SHEET _____ PUMP CALC. TEST
 _____ WATER USE CALCULATIONS _____
 _____ GARBAGE DISPOSAL _____ HOT TUB
 _____ EASEMENTS ON LOT, IS ROAD PUBLIC OR PRIVATE SEE DEED/PLAT
 _____ NATURAL LANDSCAPE PROTECTION PLAN

STAKING: BUILDINGS _____, DRAINFIELD _____, BORINGS _____, WELL _____
 BUILDING SETBACKS: ROAD _____, SIDE _____, REAR _____, BLUFF _____,
 LAKE/RIVER _____

COMPLETE DURING SITE EVALUATION
 _____ BUILDINGS STAKED _____ DRAINFIELD STAKED _____ BORINGS STAKED
 _____ WELL STAKED

SETBACKS (MEASURE DISTANCE)

	<u>DRAINFIELD</u>	<u>HOUSE</u>	
FLOOD PLAIN	YES/NO	YES/NO	<i>verify soils when septic is installed</i>
WETLANDS	YES/NO	YES/NO	
LAKE, RIVER, PROTECTED WATERS	N/A	N/A	
ROAD RIGHT OF WAY	<u>2500'</u>	<u>2500'</u>	
BLUFF	<u>230'</u>	<u>2100'</u>	
SIDE LOT LINE	<u>2100'</u>	<u>2100'</u>	
REAR LOT LINE	_____	_____	
HOUSE OR OTHER STRUCTURE	_____	_____	
WELL	_____	_____	
EASEMENTS	_____	_____	
NEIGHBORING WELL (S) TO ISTS	(1) _____ (2) _____	(3) _____ (4) _____	
DRAINFIELD AREA DISTURBED	_____	_____	

CONFORMING SEPTIC SYSTEM: _____ YES _____ NO If no, list reasons below.
 COMMENTS OR PROBLEMS (drainage, swales, wetlands, need gutters, etc.) New to be installed

APPROVED: (Signature) YES OR NO
 INSPECTORS NAME (Signature) DATE 4-19-16 # PICTURES _____

SOIL BORING LOGS AND SKETCH PLAN ON REVERSE SIDE

INQPCL-1
Data Set: PRD Production

Parcel Description

4/13/16
15:46:11

Parcel/Acct : 01-0-007702	46654	Asmt/Tax year: 2016 2017	Type: RE
Pri. owner : 114547		Unit . . . :	Hold tax stmt:
KEIL, JORDAN & SAMANTHA		Emergency # :	Lease Type:
Taxpayer . : 114547 FALCO: 1 F.O.		Escrow . . . :	
KEIL, JORDAN & SAMANTHA		Surveyed . . :	Notes :
Ref. parcel : 00-2-010000077		Com district: 1	UDI . : 100.00%
Lake #/Name :		MH court nbr:	Billing: P
Physical adr:		TIF district:	KD:
		User defined:	
Acres . . . : 30.00		UTA-Twp/City: 1	AITKIN TWP
Lot/Block . :		School . . . :	1 AITKIN
Plat/Desc . :			AMBU **** * 00 00
Sec/Twp/Rge : 4 47.0 27			00 00 00 00
Description : NE SW LYING WEST OF CSAH 22			<--Version: 1

Press Enter to continue or enter new parcel/tax year: 01-0-007702 2017
 F1=Help F2=Trans History F3=Exit
 F6=Parcel History F7=Name/Addresses F8=Legal F24=More keys

INQPCL-2
Data set: PRD Production

Parcel Description

4/13/16
15:46:15

Parcel/Acct : 01-0-007702 46654 Asmt/Tax year: 2016 2017

Taxpayer: 114547 FALCO: 1 F.O.
KEIL, JORDAN & SAMANTHA
38400 DOVE STREET
AITKIN MN 56431

Primary Owner: 114547
KEIL, JORDAN & SAMANTHA
38400 DOVE STREET
AITKIN MN 56431

Homesteader: 7489
KEIL, STEVEN R & VICTORIA
38865 440TH PLACE
AITKIN MN 56431

F1=Help

F3=Exit

F9=Print

F12=Cancel Bottom

AITKIN COUNTY BUILDING PERMIT SITE PLAN

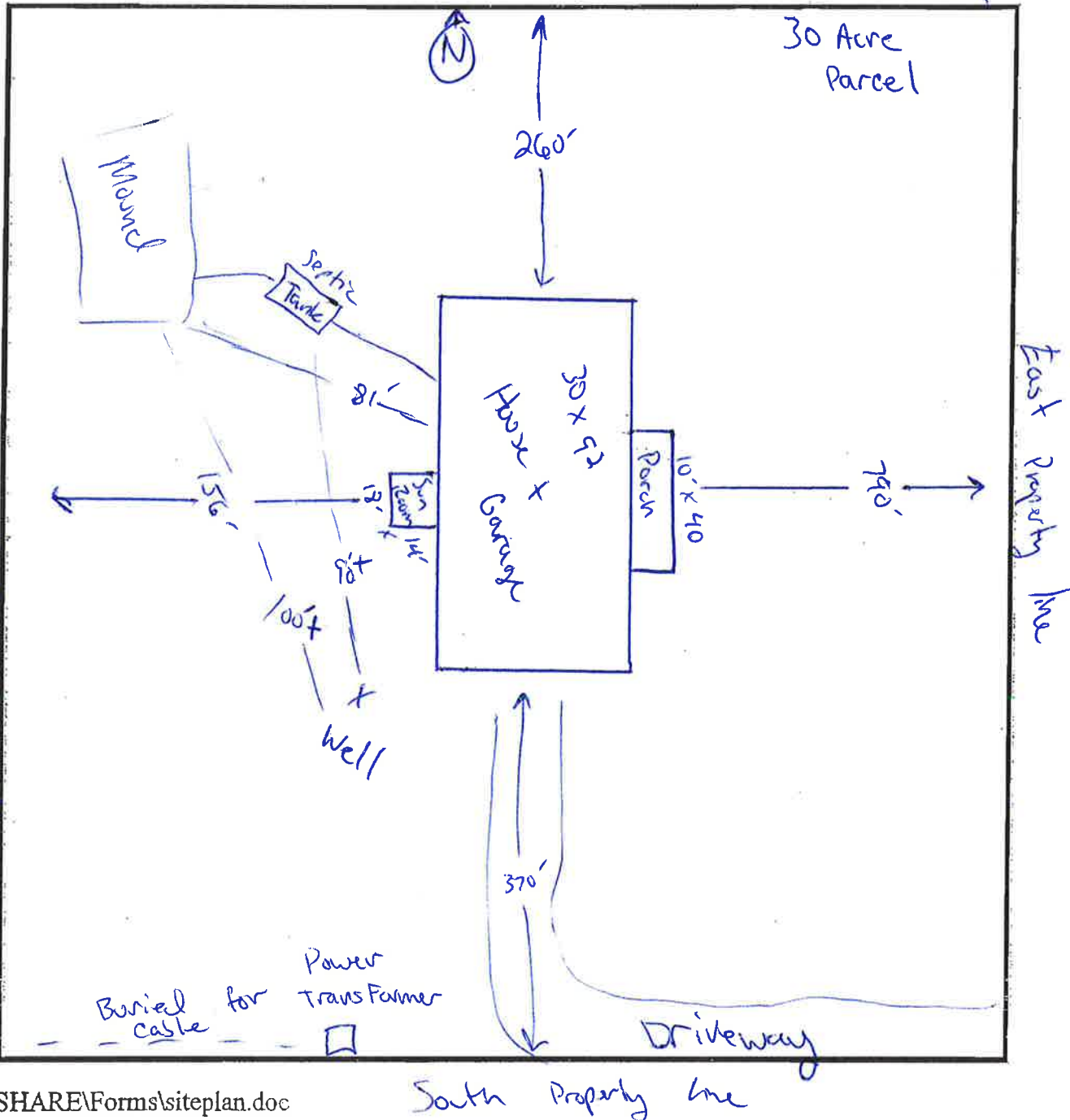
2760
400
252

3412

Please indicate the location of: Wells, well setback to system components, buildings, septic system components, reserved septic system area, property lines, waterways, and buried lines. Include size, length, and appropriate distances from fixed reference points. Provide a North directional arrow!

Jordan Keil

30 Acre
Parcel



FIELD EVALUATION SHEET

PRELIMINARY EVALUATION DATE March 26, 2016, FIELD EVALUATION DATE March 26, 2016
PROPERTY OWNER: Jordan Keil PHONE _____
ADDRESS: _____ CITY, STATE, ZIP: Aitkin, Mn. 56431
LEGAL DESCRIPTION: _____
PIN# _____ SEC 4 T 42 R 22 TWP NAME Aitkin
FIRE# _____ LAKE/RIVER _____ LAKE CLASS _____ OHWL _____ FT.

DESCRIPTION OF SOIL TREATMENT AREAS

	AREA #1	AREA #2	REFERENCE BM ELEV. <u>100</u> FT.
DISTURBED AREAS	YES ___ NO <u>X</u>	YES ___ NO <u>X</u>	REFERENCE BM DESCRIPTION _____
COMPACTED AREAS	YES ___ NO <u>X</u>	YES ___ NO <u>X</u>	_____
FLOODING	YES ___ NO <u>X</u>	YES ___ NO <u>X</u>	_____
RUN ON POTENTIAL	YES ___ NO <u>X</u>	YES ___ NO <u>X</u>	_____
SLOPE %	<u>0</u>	<u>0</u>	_____
DIRECTION OF SLOPE	<u>—</u>	<u>—</u>	_____
LANDSCAPE POSITION	<u>N-S</u>	<u>N-S</u>	_____
VEGETATION TYPES	<u>Hayfield - grass</u>	<u>Hayfield - grass</u>	_____

DEPTH TO STANDING WATER OR MOTTLED SOIL: BORING# 1 13, 1A 14, 2 13, 2A 13

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

SOIL SIZING FACTOR: SITE #1 1.22, SITE #2 1.27

CONSTRUCTION RELATED ISSUES: _____

LIC# 22132 SITE EVALUATOR SIGNATURE: Tom O'Neil

SITE EVALUATOR NAME: Tom O'Neil TELEPHONE# 218-927-6070

LUG REVIEW DA DATE 3/30/16

Comments: Also Soils for split

SOIL BORING LOGS ON REVERSE SIDE

Very Consistent
Sandy Soils on top

Boring 1

SOILS DATA

DEPTH (INCHES)	TEXTURE	MUNSELL COLOR
0-9	Sandy loam	10yr $\frac{3}{3}$ - $\frac{4}{3}$
9-13	Loamy Sand	10yr $\frac{4}{4}$
13-17	loamy Sand	10yr $\frac{5}{4}$
Mottles at 13"		

Boring 2

SOILS DATA

DEPTH (INCHES)	TEXTURE	MUNSELL COLOR
0-9	Sandy loam	10yr $\frac{3}{3}$ - $\frac{4}{3}$
9-14	loamy Sand	10yr $\frac{4}{4}$
14-18	Loamy Sand	10yr $\frac{5}{4}$
mottles at 14"		

Boring 3

SOILS DATA

DEPTH (INCHES)	TEXTURE	MUNSELL COLOR
0-8	Sandy loam	10yr $\frac{3}{3}$ - $\frac{4}{3}$
8-12	Loamy Sand	10yr $\frac{4}{4}$
12-15	Loamy Sand	10yr $\frac{5}{4}$
Mottles at 13"		

Boring 4

SOILS DATA

DEPTH (INCHES)	TEXTURE	MUNSELL COLOR
0-8	Sandy loam	10yr $\frac{3}{3}$ - $\frac{4}{3}$
8-13	Loamy Sand	10yr $\frac{4}{4}$
13-17	Loamy Sand	10yr $\frac{5}{4}$
mottles at 13"		

MOUND DESIGN WORK SHEET (For Flows up to 1200 gpd)

A. Average Design FLOW

Estimated 450 gpd (see figure A-1)
 or measured _____ x 1.5 (safety factor) = _____ gpd

number of bedrooms	Class I	Class II	Class III	Class IV
2	300	225	180	60%
3	450	300	218	of the
4	600	375	256	values
5	750	450	294	in the
6	900	525	332	Class I,
7	1050	600	370	II, or III
8	1200	675	408	columns.

B. SEPTIC TANK Capacity

1,000 min. gallons (see figure C-1)
use 1650 combo

C. SOILS (refer to site evaluation)

- Depth to restricting layer = 1 feet
- Depth of percolation tests = _____ feet
- Texture Sandy-loamy Sand 6-15
 Percolation rate 1.27 mpi
- Soil loading rate .79 gpd/sqft (see figure D-33)
- Percent land slope 0 %

Number of Bedrooms	Minimum Liquid Capacity	Liquid capacity with garbage disposal	Liquid capacity with disposal & lift inside
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. ROCK LAYER DIMENSIONS

- Multiply average design flow (A) by 0.83 to obtain required rock layer area.
450 gpd x 0.83 sqft/gpd = 375 sqft
- Determine rock layer width = 0.83 sqft/gpd x linear Loading Rate (LLR)
 0.83 sqft/gpd x 12 gpd/sqft = 10 ft
- Length of rock layer = area ÷ width =
375 sqft (D1) ÷ 10 ft (D2) = 38 ft

< 120 MPI	≤ 12
≥ 120 MPI	≤ 6

E. ROCK VOLUME

- Multiply rock area (D1) by rock depth of 1 ft to get cubic feet of rock
380 sqft x 1 ft = 380 cuft
- Divide cuft by 27 cuft/cuyd to get cubic yards
380 cuft ÷ 27 cuyd/cuft = 15 cuyd
- Multiply cubic yards by 1.4 to get weight of rock in tons
15 cuyd x 1.4 ton/cuyd = 21 tons

F. SEWAGE ABSORPTION WIDTH

Absorption width equals absorption ratio (See Figure D-33)
 times rock layer width (D2)

1.50 x 10 ft = 15.00 ft

Percolation Rate in Minutes per inch (MPI)	Soil Texture	Loading Rate Gallons per day per square foot	Absorption Ratio
Faster than 5	Coarse Sand Medium Sand Loamy Sand Fine Sand	1.20	1.00
6 to 15	Sandy Loam	0.79	1.50
16 to 30	Loam	0.60	2.00
31 to 45	Silt Loam	0.50	2.40
46 to 60	Silt		
	Sandy Clay Loam	0.45	2.67
	Silty Clay Loam		
	Clay Loam		
61 to 120	Silty Clay	0.24	5.00
	Sandy Clay		
	Clay		
Slower than 120*			

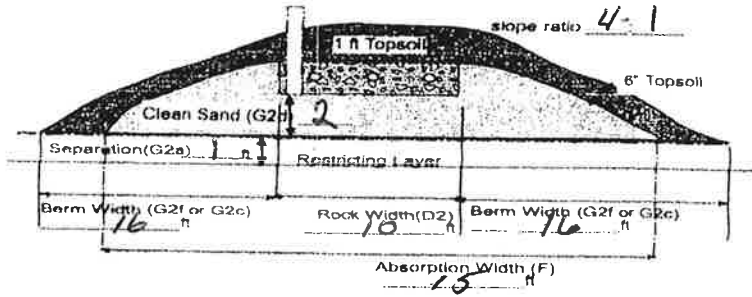
*System designed for these soils must be other or performance

G. Mound Slope Width and Length
(landslope less than or equal to 1%)

<= 1% land slope

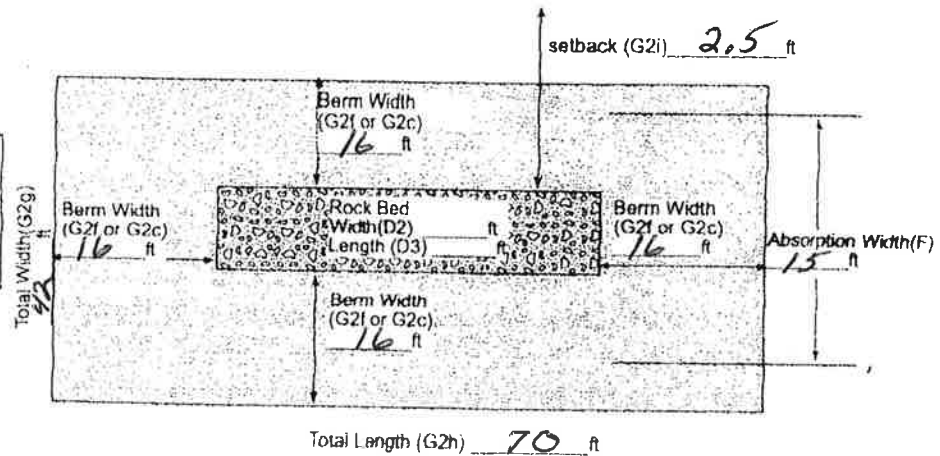


1. Absorption width (F) 15 ft
2. Calculate mound size
 - a. Determine depth of clean sand fill at upslope edge of rock layer = 3 ft minus the distance to restricting layer (C1)



- 3 ft - 1 ft = 2 ft
- b. Mound height at the upslope edge of rock layer = depth of clean sand for separation (G2a) at upslope edge plus depth of rock layer (1 ft) plus depth of cover (1 ft)
2 ft + 1ft + 1ft = 4 ft
- c. Berm width = upslope mound height (G2b) times 4 (4 is recommended, but could be 3-12)
4 x 4 = 16 ft
- d. The total landscape width is the sum of berm (G2c) width plus rock layer width (D2) plus berm width (G2c): 16 ft + 10 ft + 16 ft = 42 ft
- e. Additional width necessary for absorption = absorption width (F) minus the landscape width (G2d)
_____ ft - _____ ft = _____ ft, if number is negative (<0) skip to g
- f. Final berm width = additional width (G2e) plus the berm width (G2c)
_____ ft + _____ ft = _____ ft
- g. Total mound width is the sum of berm width (G2f or G2c) plus rock layer width (D2) plus berm width (G2f or G2c): 16 ft + 10 ft + 16 ft = 42 ft
- h. Total mound length is the sum of berm (G2f or G2c) plus rock layer length (D3) plus berm (G2f or G2c): 16 ft + 38 ft + 16 ft = 70 ft
- i. Setbacks from the rockbed are calculated as follows: the absorption width (F) minus the rock bed width (D2) divided by 2: (15 ft - 10 ft) ÷ 2 = 2.5 ft

Final Dimensions:
42 x 70



I hereby certify that I have completed this work in accordance with applicable ordinances, rules and laws.
Tom Dineen (signature) 62132 (license #) 3/26/2016 (date)

MOUND CROSS-SECTION

0 PERCENT SLOPE OF ORIGINAL SOIL

10 FT. X 38 FT. SIZE OF ROCKBED 28 FT. X 56 FT. SIZE OF SANDBASE ^(Washed)

GEOTEXTILE CLOTH

4 INCHES OF TOPSOIL FOR GRASS COVER

14 INCHES OF SANDY LOAM SOIL TAPERING TO 8 INCHES

9" ROCK BELOW DISTRIBUTION PIPE

24 INCHES OF SAND *

24 INCHES OF SAND *

ORIGINAL GRADE

ROUGHENED SOIL SURFACE

9 FEET UPSLOPE SAND WIDTH

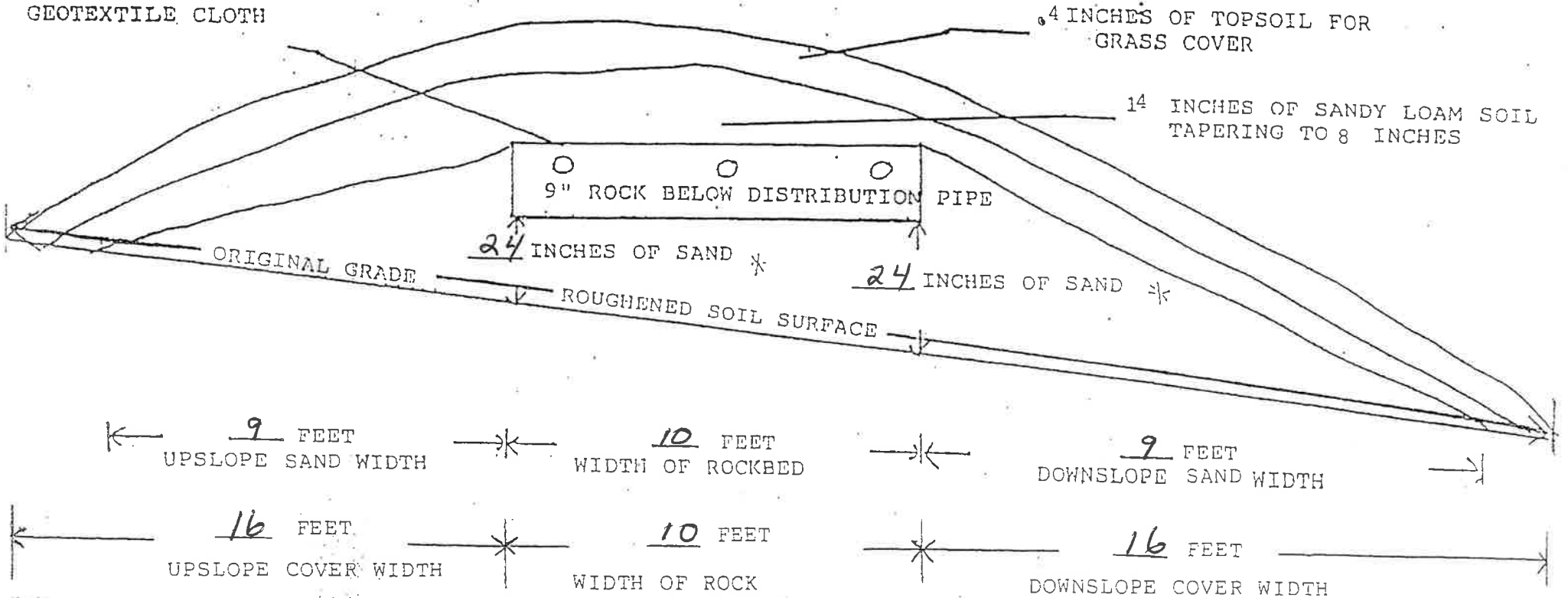
10 FEET WIDTH OF ROCKBED

9 FEET DOWNSLOPE SAND WIDTH

16 FEET UPSLOPE COVER WIDTH

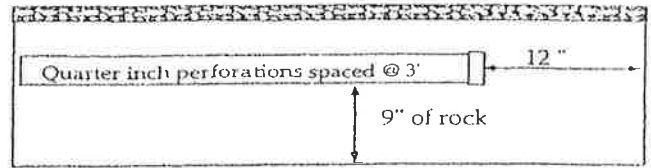
10 FEET WIDTH OF ROCK

16 FEET DOWNSLOPE COVER WIDTH



PRESSURE DISTRIBUTION SYSTEM

Geotextile fabric



Perf Sizing 3/16" - 1/4"
Perf Spacing 1.5' - 5'

- Select number of perforated laterals 3
- Select perforation spacing = 3 ft
- Since perforations should not be placed closer than 1 foot to the edge of the rock layer (see diagram), subtract 2 feet from the rock layer length.

$$\frac{38}{\text{Rock layer length}} - 2 \text{ ft} = 36 \text{ ft}$$

- Determine the number of spaces between perforations. Divide the length (3) by perforation spacing (2) and round down to nearest whole number.

$$\text{Perforation spacing} = 36 \text{ ft} \div 3 \text{ ft} = 12 \text{ spaces}$$

- Number of perforations is equal to one plus the number of perforation spaces (4). Check figure E-4 to assure the number of perforations per lateral guarantees <10% discharge variation.

$$12 \text{ spaces} + 1 = 13 \text{ perforations/lateral}$$

- A. Total number of perforations = perforations per lateral (5) times number of laterals (1)

$$13 \text{ perfs/lat} \times 3 \text{ lat} = 39 \text{ perforations}$$

- B. Calculate the square footage per perforation. Should be 6-10 sqft/perf. Does not apply to at-grades.

Rock bed area = rock width (ft) x rock length (ft)

$$10 \text{ ft} \times 38 \text{ ft} = 380 \text{ sqft}$$

Square foot per perforation = Rock bed area ÷ number of perfs (6)

$$380 \text{ sqft} \div 39 \text{ perfs} = 9.75 \text{ sqft/perf}$$

- Determine required flow rate by multiplying the total number of perforations (6A) by flow per perforation (see figure E-6)

$$39 \text{ perfs} \times 0.74 \text{ gpm/perfs} = 29 \text{ gpm}$$

- If laterals are connected to header pipe as shown on upper example, to select minimum required lateral diameter; enter figure E-4 with perforation spacing (2) and number of perforations per lateral (5) Select minimum diameter for perforated lateral = 1.25 inches.

- If perforated lateral system is attached to manifold pipe near the center, lower diagram, perforated lateral length (3) and number of perforations per lateral (5) will be approximately one half of that in step 8. Using these values, select minimum diameter for perforated lateral = 1 inches.

E-4: Maximum allowable number of 1/4-inch perforations per lateral to guarantee <10% discharge variation

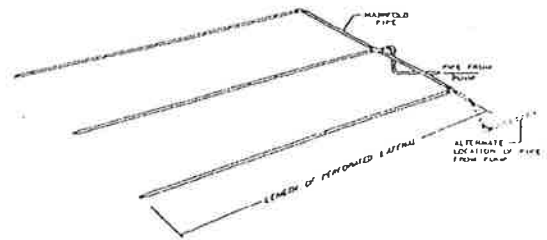
perforation spacing (feet)	1 inch	1.25 inch	1.5 inch	2.0 inch
2.5	8	14	18	28
3.0	8	13	17	26
3.3	7	12	16	25
4.0	7	11	15	23
5.0	6	10	14	22

E-6: Perforation Discharge in gpm

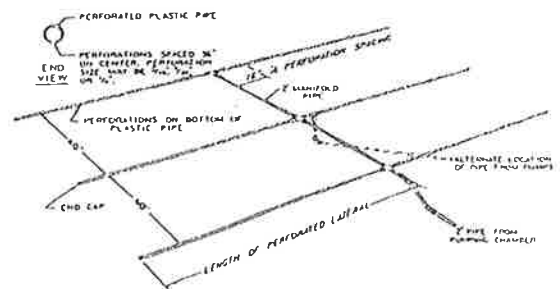
head (feet)	perforation diameter (inches)			
	1/8	3/16	7/32	1/4
1.0 ^a	0.18	0.42	0.56	0.74
2.0 ^b	0.26	0.59	0.80	1.04
5.0	0.41	0.94	1.26	1.65

^a Use 1.0 foot for single-family homes.
^b Use 2.0 feet for anything else.

MANIFOLD LOCATED AT END OF PRESSURE DISTRIBUTION SYSTEM



LAYOUT OF PERFORATED PIPE LATERALS FOR PRESSURE DISTRIBUTION IN AROUND



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

Tom O'Neil (signature)

(signature)

22132 (license #)

(license #)

3/26/2016 (date)

(date)

PUMP SELECTION PROCEDURE

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 distribution work sheet

Approximate Elevations:

Bench Mark	100
Tank inlet	97.5
Pump elevation	94
Bottom of rock manifold	102
	102.75

From A or B Selected pump capacity: 29 gpm

2. Determine pump head requirements:

A. Elevation difference between pump and point of discharge?

9 feet

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

5 feet

C. Calculate Friction loss

1. Select pipe diameter 2 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 = 1.55 ft/100ft of pipe

3. Determine total pipe length from pump discharge to soil treatment discharge point. Estimate by adding 25 percent to pipe length for fitting loss. Total pipe length times 1.25 = equivalent pipe length

40 feet x 1.25 = 50 feet

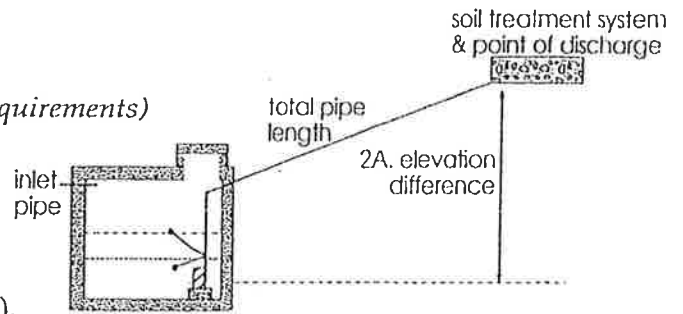
4. Calculate total friction loss by multiplying friction loss (C2) in ft/100 ft by the equivalent pipe length (C3) and divide by 100.

= 1.55 ft/100ft x 50 ÷ 100 = 1 ft

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

9 ft + 5 ft + 1 ft =

Total head: 15 feet



Special Head Requirements	
Gravity Distribution	0 ft
Pressure Distribution	5 ft

flow rate gpm	Per 100 feet		
	nominal pipe diameter		
	1.5"	2"	3"
20	2.47	0.73	0.11
25	3.73	1.11	0.16
30	5.23	<u>1.55</u>	0.23
35	6.96	2.06	0.30
40	8.91	2.64	0.39
45	11.07	3.28	0.48
50	13.46	3.99	0.58
55		4.76	0.70
60		5.60	0.82
65		6.48	0.95
70		7.44	1.09

3. Pump selection

A pump must be selected to deliver at least 29 gpm (1A or B) with at least 15 feet of total head (2D)

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

Tom O'Neil (signature)

(signature)

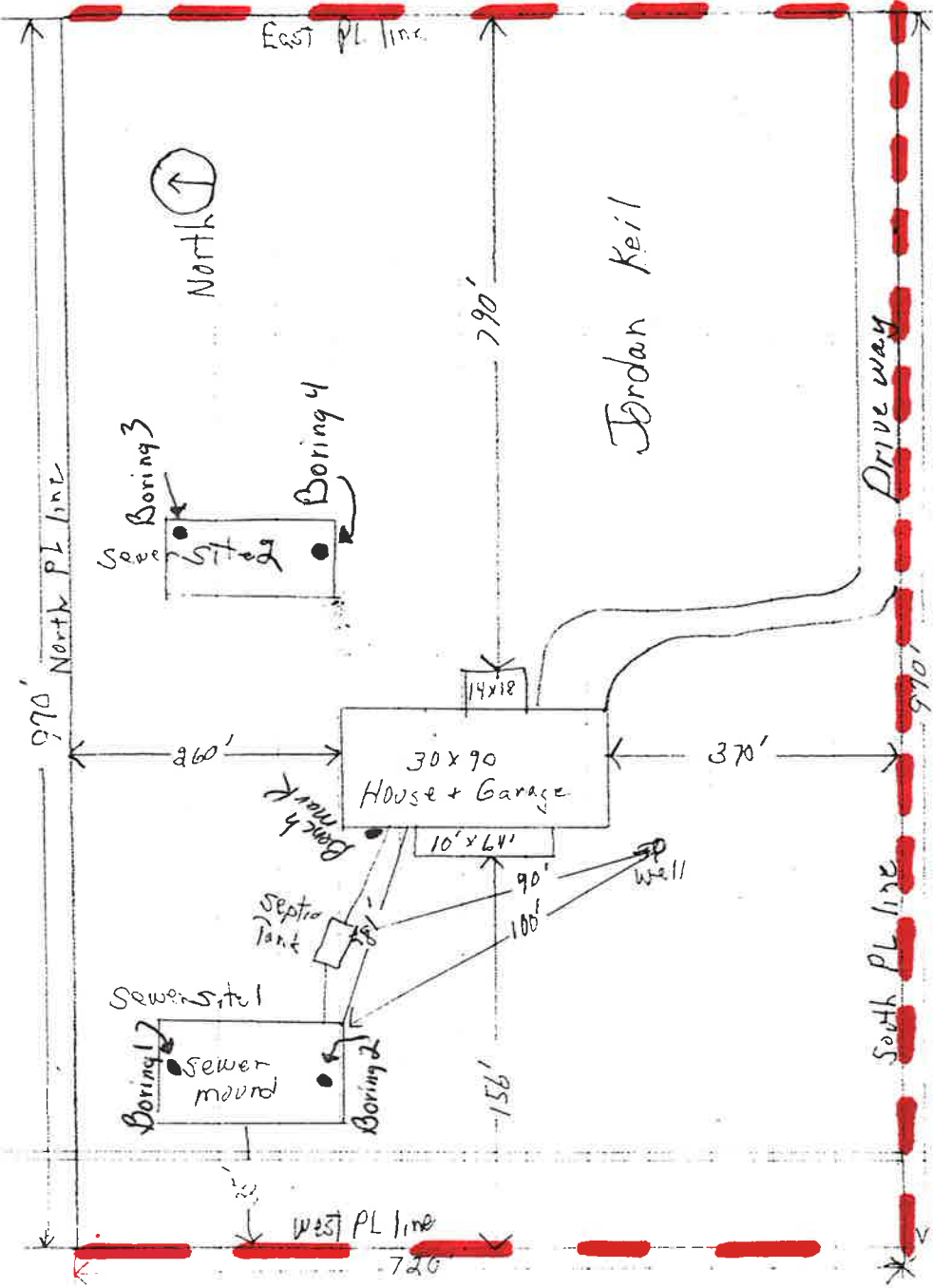
L 2132 (license #)

(license #)

3/26/2016 (date)

(date)

Co Rd 22



Jordan Keil

Drive way

Sewer site 2

Sewer site 1

South PL line
Township Road

PL line
1250'

01-0-007702

FIELD EVALUATION SHEET

PRELIMINARY EVALUATION DATE March 26, 2016, FIELD EVALUATION DATE March 26, 2016
 PROPERTY OWNER: _____ PHONE _____
 ADDRESS: _____ CITY, STATE, ZIP: Aitkin, Mn. 56431
 LEGAL DESCRIPTION: _____
 PIN# _____ SEC 4 T 47 R 27 TWP NAME Aitkin
 FIRE# _____ LAKE/RIVER _____ LAKE CLASS _____ OHWL _____ FT.

DESCRIPTION OF SOIL TREATMENT AREAS

	AREA #1	AREA #2	REFERENCE BM ELEV. _____ FT.	REFERENCE BM DESCRIPTION _____
DISTURBED AREAS	YES _____ NO <u>X</u>	YES _____ NO <u>X</u>	_____	_____
COMPACTED AREAS	YES _____ NO <u>X</u>	YES _____ NO <u>X</u>	_____	_____
FLOODING	YES _____ NO <u>X</u>	YES _____ NO <u>X</u>	_____	_____
RUN ON POTENTIAL	YES _____ NO <u>X</u>	YES _____ NO <u>X</u>	_____	_____
SLOPE %	<u>0</u>	<u>0</u>	_____	_____
DIRECTION OF SLOPE	<u>—</u>	<u>—</u>	_____	_____
LANDSCAPE POSITION	<u>E-W</u>	<u>E-W</u>	_____	_____
VEGETATION TYPES	<u>Hayfield - grass</u>	<u>Hayfield - grass</u>	_____	_____

DEPTH TO STANDING WATER OR MOTTLED SOIL: BORING# 1 13, 1A 13, 2 14, 2A 13

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

SOIL SIZING FACTOR: SITE #1 1.27, SITE #2 1.27

CONSTRUCTION RELATED ISSUES: Ground is flat There should be many possible sites

LIC# L 2132 SITE EVALUATOR SIGNATURE: Tom O'Neil

SITE EVALUATOR NAME: Tom O'Neil TELEPHONE# 218-927-6070

LUG REVIEW _____ DATE _____

Comments: _____

SOIL BORING LOGS ON REVERSE SIDE

Very Consistent Sandy Soils on top

Boring 1

SOILS DATA

DEPTH (INCHES)	TEXTURE	MUNSELL COLOR
0-10	Sandy loam	10yr 3/3 - 4/3
10-14	Loamy Sand	10yr 5/4
Mottles at 13"		

Boring 2

SOILS DATA

DEPTH (INCHES)	TEXTURE	MUNSELL COLOR
0-10	Sandy loam	10yr 3/3 - 4/3
10-15	Loamy Sand	10yr 5/4
mottles at 13"		

Boring 3

SOILS DATA

DEPTH (INCHES)	TEXTURE	MUNSELL COLOR
0-8	Sandy loam	10yr 3/3 - 3/4
8-12	Loamy Sand	10yr 4/4
12-16	Loamy Sand	10yr 5/4
Mottles at 14"		

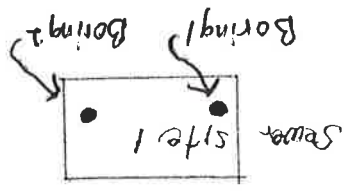
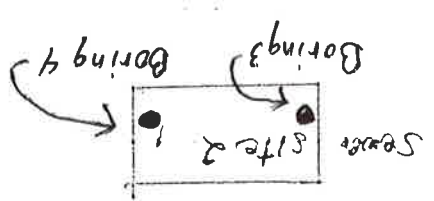
Boring 4

SOILS DATA

DEPTH (INCHES)	TEXTURE	MUNSELL COLOR
0-8	Sandy loam	10yr 3/3 - 4/3
8-11	Loamy Sand	10yr 4/4
11-17	Loamy Sand	10yr 5/4
Mottles at 13"		

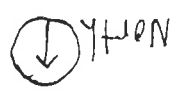
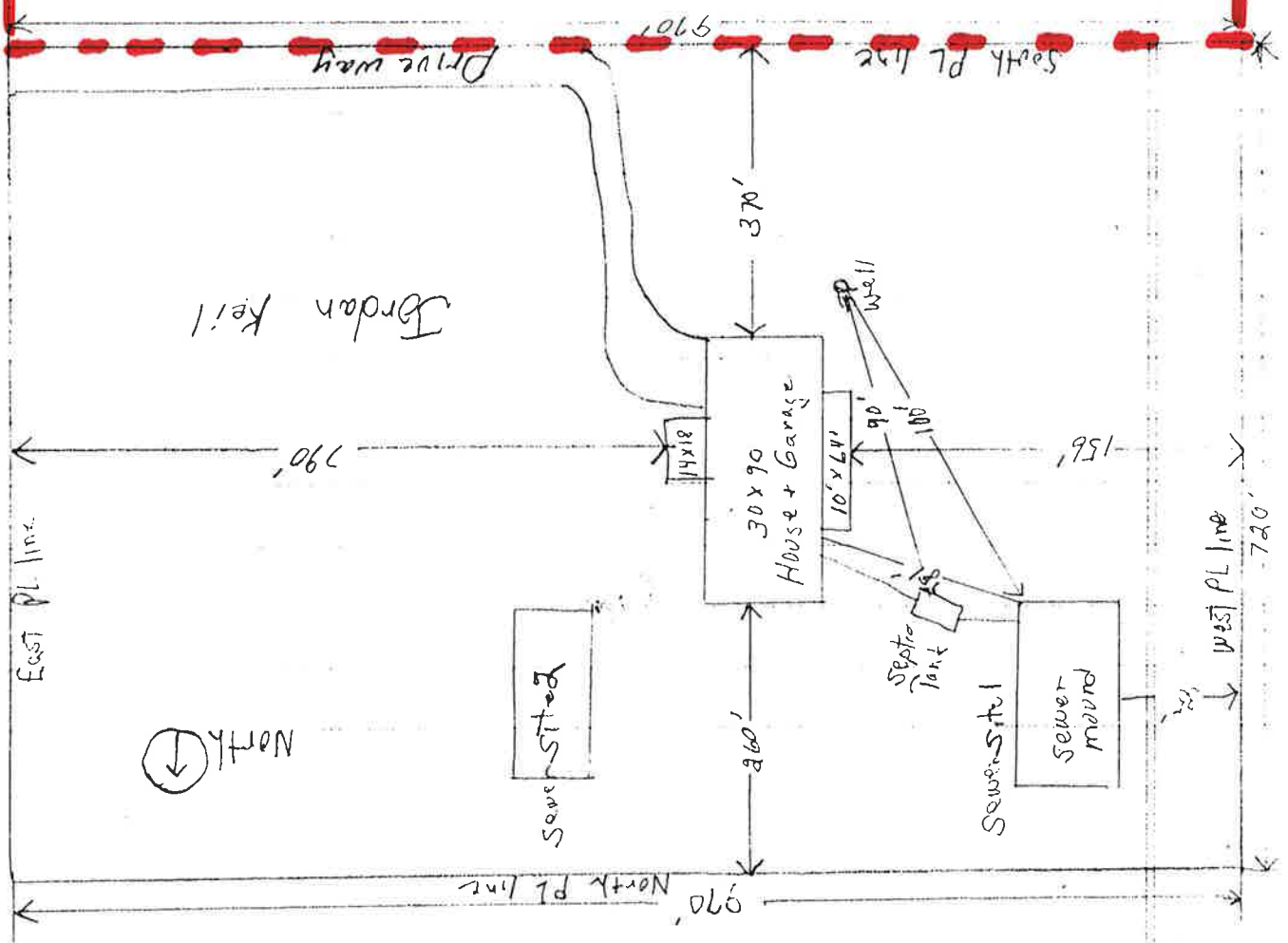
Township Road
South PL line

PL line
1250'



Co Rd 22

Jordan Keil



Yard Services

Sewer Site 1
Sewer mound

AITKIN COUNTY ZONING

PERMIT NUMBER **41845**

PARCEL NUMBER 01-0-007702

Location NE SW LYING WEST OF CSAH 22
Lot Block Gov't. Lot Section Twp. Rge.
4 47 27

Issued April 19, 2016 To Jordan Keil

Nature of Authorization 3 bedroom mound septic system, 30x90 residence
w/ attached 14x18' & 10x40' addn

New Construction Alteration

Sewer Installation

Flood Plain and Lowest Floor Elev. _____

NOTE:

This permit must be posted in a conspicuous place on premises on which work is to be done and remain until work has been completed and inspected.

This permit expires one year from date of issuance
NOT TRANSFERABLE

Kalea J.
ZONING ADMINISTRATOR

No Portion of any Sewage Disposal System shall be Covered Prior to Inspection.