Lincoln-Lancaster County Health Department
Environmental Public Health Division
3140 N Street • Lincoln NE 68510-1514
Phone: 402-441-8643

A

Permit Number
HS002196

Onsite Wastewater Treatment System
Request for Site Clearance and Permit

Include Form B and C. Submit correct fee with this Application

3 acres or more required for: ☐ Septic System ☒ Lagoon ☐ Other (Refer to Form C)

The undersigned hereby requests site clearance and permit to construct a Wastewater Treatment System in conformance with appropriate regulations.

PLEASE PRINT OR TYPE

A. Onsite System Location

Address 6910 W Benes Creek Rd (no rural route) City Raymond, NE Zip 68428

Legal Description 13 12 5 Coyote Ridge 1 1
1/4 1/4 Section Township Range Subdivison Addition Block Lot

PID 06-13-301-001-000

B. Owner

Name Chad Barr Signature

Address Po Box 98 City/State/Zip Valparaiso, NE 68065

Home Phone Work Phone 402-430-6634

C. Certified Installer

Name: Jeff Schoeneck Signature

Address 1291 CR V City/State/Zip Fremont, NE 68025

Work Phone 402-720-9209

D. Engineer ☐ **Check and complete if engineer designed system** P.E. License Number:

Designer Name Firm Work Phone

E. This system will serve a

☒ Residential Dwelling Number of Bedrooms 3 Whirlpool Bathtub? ☐ Yes ☒ No Total Acres 4.0
Garbage Grinder? ☒ Yes ☐ No

☐ Commercial Establishment/Other Facility Specify Design flow in gallons per day

Type of Wastewater ☐ Domestic ☐ Non-Domestic

DO NOT WRITE BELOW THIS LINE

Approval Process ☐ Municipal Code 24.38 ☐ County Resolution No. 02-30

1. Health Department
Site visits Date rec'd ACTION ☐ Approved ☐ Disapproved
Date frwd Signature
Comments

2. Supt. Bldg. Insp. or Village Clerk
Comments Date rec'd ACTION ☐ Approved ☐ Disapproved
Date frwd Signature

3. City or County Engineer
Comments Date rec'd ACTION ☐ Approved ☐ Disapproved
Date frwd Signature

Installation Final Written Approval
By
Date

Business Office Use Only
Date Received 4-12-21 Amount Paid $440.00
Received By JAV Cash/Check No CC4232

White - Health Department Yellow - Engineer Pink - Building & Safety

Form A Updated: 1/13

Lincoln-Lancaster County Health Department
Environmental Public Health Division (402) 441-8027
3131 O Street Lincoln, Nebraska 68510-1514

ON-SITE WASTE WATER SYSTEM
CONSTRUCTION - INSTALLATION PERMIT
No. HS002196

System Type: Lagoon

Situs: No Site Address Specified

Issued: 4/13/2021

Expires: 4/13/2022

Description: COYOTE RIDGE ADDITION, BLOCK 1, Lot 1

Owner: BARR, NICOLE & CHAD MATHEW
PO BOX 154 209 BLAINE ST
VALPRAISO, NE 68065

Patricia D. Lopez

Patricia D. Lopez, RN, MSN, Interim Health Director

Dear Applicant:

The above document is your permit to construct a new On-site Waste Water System at the location listed. Please contact this office once the sytem is complete in order to schedule a final inspection before use.

Patricia D. Lopez

Patricia D. Lopez, RN, MSN
Health Director

JEFF SCHOENECK
1291 COUNTY ROAD V
FREMONT, NE 68025

HS002196

NEBRASKA

Good Life. Great Resources.

DEPT. OF ENVIRONMENT AND ENERGY

Construction Permit No. 21OWT018

is hereby issued to

Chad Barr

for the

400 Gallon per Day Septic and Modified Mound System for 6910 W Benes Creek Road, Raymond, NE 68428

Description:

A new three bedroom home will install one new 1,500 gal septic tank with effluent filter. Wastewater will flow by gravity to a 1,000 gal pump tank to be fitted with a submersible effluent pump sized at 20 gpm at 26 TDH. The pump will be controlled by float switches with an alarm level for high water. The pump will dose two modified mound beds of 12 inch diameter polystyrene bundles. The overall bed width will be nine foot by 60 ft length. Each bed will have two EZflow bundles of 3 ft width each laid adjacent to one another in the center of the bed with a 50 ft length. A 1.5 inch diameter PVC force main will connect the pump with a automatic distributor which will alternate between the two mound beds. The perforated lateral pipe will be 1.5 inch with 3/16 inch holes at 30 inch spacing to the end of the 50 ft polystyrene bundles. The two mound beds will have a total of 1,080 sq ft of soil absorption area which exceeds the Basal loading requirement of 1000 sq ft - a product of the 400 gal per day divided by 0.4 gal/sq ft/day for silty clay loam w/moderate prismatic/blocky soil structure. The laterals will be bedded on 12 inches of sand infiltrating to native silty clay loam having a percolation rate of greater than 60 minutes per inch and topped with filter fabric and overlaid with 12 inches of native soil cap. The distance to groundwater is greater than 8 ft. by soil boring and the laterals have a 100 ft. setback from owner's private well. A maintenance agreement with a certified installer is recommended for the life of the system.

located at

6910 W Benes Creek Road, Raymond, NE 68428

46.0096 Latitude, -96.8143 Longitude

Pursuant to a Delegation Memorandum dated November 23, 2020, and signed by the Director, the undersigned hereby executes this document on behalf of the Director.

Signed 5/19/2021

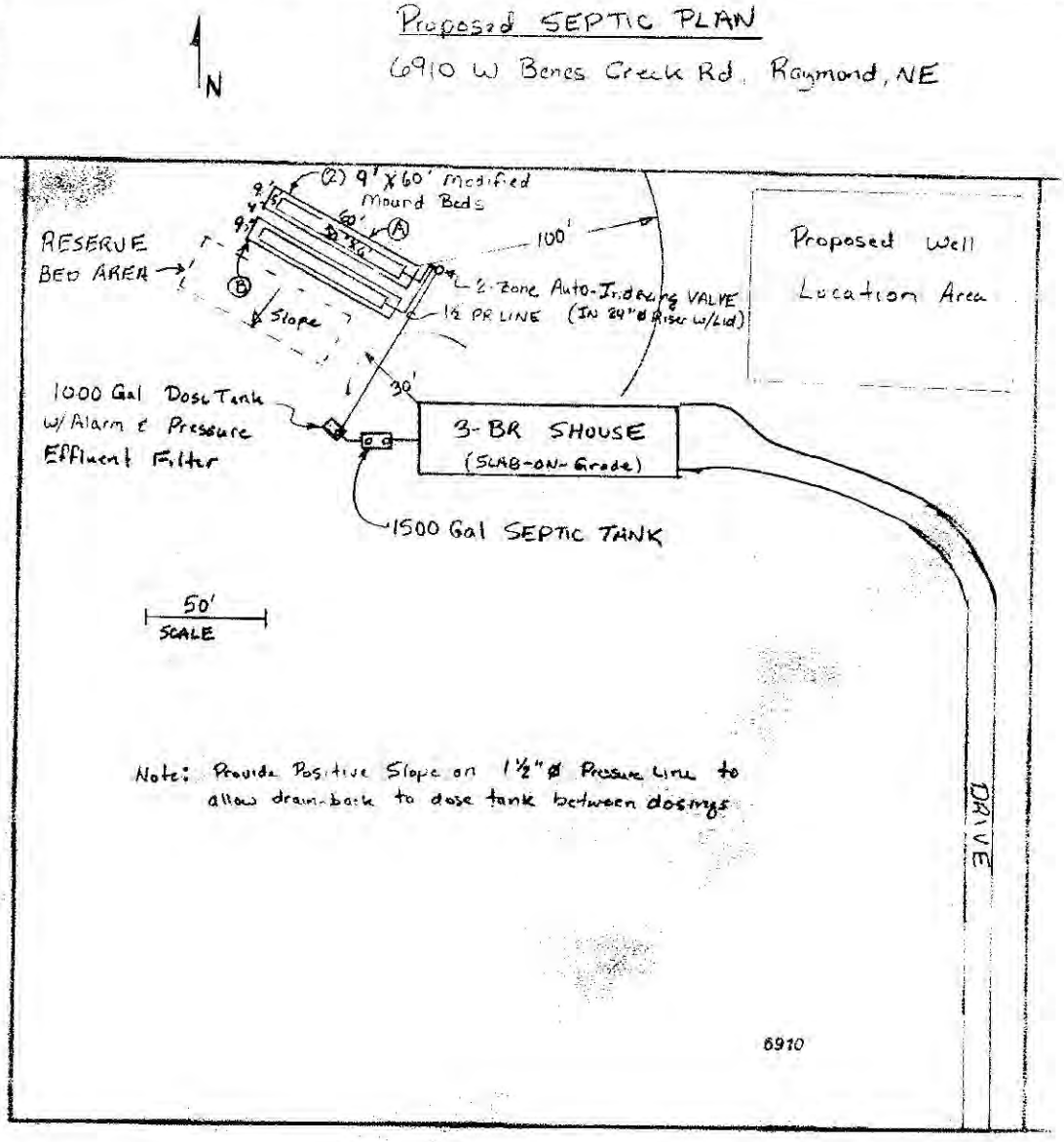
Shelley Schneider PE, Permitting & Engineering Div. Administrator

245 Fallbrook Blvd, P. O. Box 98922, Lincoln, Nebraska, 68509-8922
Phone (402) 471-2186, Fax (402) 471-2909, e-mail ndee.moreinfo@nebraska.gov

Development Viewer

Proposed SEPTIC PLAN

6910 W Beres Creek Rd, Raymond, NE



1:1,128

DISCLAIMER: The information is provided on a best-efforts basis and should not be relied upon for making financial, survey, legal or other co
questions or comments regarding the data displayed on this map, please email plan@lincoln.ne.gov and you will be directed to the appro

Legend

Address Labels

Prepared By: Jeffery N Schoeneck, P.E.

PROFESSIONAL AGRICULTURAL ENGINEER — JEFFERY N. SCHOENECK E-9999 — 4/8/21 — STATE OF NEBRASKA

Horizon Envirotech, LLC

1291 CR V, Fremont, NE 68025

402-720-9209

Lincoln-Lancaster County Health Department
Environmental Public Health Division
3140 N Street • Lincoln NE 68510-1514
Phone: 402-441-8643

SCANNED
SCANNED

A

Permit Number
HS002196

Onsite Wastewater Treatment System
Request for Site Clearance and Permit

Include Form B and C. Submit correct fee with this Application

3 acres or more required for: ☐ Septic System ☒ Lagoon ☐ Other (Refer to Form C)

The undersigned hereby requests site clearance and permit to construct a Wastewater Treatment System in conformance with appropriate regulations.

PLEASE PRINT OR TYPE

A. Onsite System Location

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Legal Description: 1/4 1/4 Section 13 Township 12 Range 5 Subdivison Coyote Ridge Addition 1 Block 1 Lot

PID 06-13-301-001-000

B. Owner

Name Chad Barr Signature

Address Po Box 98 City/State/Zip Valparaiso, NE 68065

Home Phone Work Phone 402-430-6634

C. Certified Installer

Name: Jeff Schoeneck Signature

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Work Phone 402-720-9209

D. Engineer

☐ **Check and complete if engineer designed system** P.E. License Number:

Designer Name Firm Work Phone

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☐ Commercial Establishment/Other Facility Specify Design flow in gallons per day

Type of Wastewater ☐ Domestic ☐ Non-Domestic

DO NOT WRITE BELOW THIS LINE

Approval Process ☐ Municipal Code 24.38 ☒ County Resolution No. 02-30

1. Health Department
Site visits 8/19/21 D.E
Comments
Date rec'd 4/13/21
Date frwd
ACTION ☒ Approved ☐ Disapproved
Signature

2. Supt. Bldg. Insp. or Village Clerk
Comments
Date rec'd
Date frwd
ACTION ☐ Approved ☐ Disapproved
Signature

3. City or County Engineer
Comments
Date rec'd
Date frwd
ACTION ☐ Approved ☐ Disapproved
Signature

Installation Final Written Approval
By
Date 8/19/21

Business Office Use Only
Date Received 4-12-21 Amount Paid $440.00
Received By JAV Cash/Check No CC-4232

White - Health Department Yellow - Engineer Pink - Building & Safety

Form A Updated: 1/13

SCANNED

Nebraska DEQ

Onsite Wastewater Treatment System Application for Construction/Operating Permit

For NDEQ Use Only NDEQ ID: Program ID:

(Print or Type)

Owner/Authorized Representative First Name: Chad | Initial: M | Last Name: Barr

Business or Legal Entity Name (if applicable):

Owner Address: Po Box 98 | City: Valparaiso | State: NE | Zip: 68065

Phone Number: 402-430-6634 | Email: cccbar@gmail.com

☐ Check here if authorized representative and include a description of the representative's authority to sign on behalf of the owner

Professional Engineer, Master Installer or Registered Environmental Health Specialist

(Print or Type)

First Name: Jeffery | Initial: N | Last Name: Schoeneck | Certification/License Number: E8989

Company Name: Horizon Enviratech LLC

Mailing Address: 1291 County Rd V | City: Fremont | State: NE | Zip: 68025

Phone Number: 402-720-9209 | Email: jeffhet@1791.com

Location *Legal description* OR *Geographical coordinates to 4 decimal points*

¼ ¼ Section Township Range | County: Lancaster | Latitude: 41.0096 | Longitude: -96.8143

Physical address if different than owner's mailing address: 6910 W Benes Creek Rd, Raymond, NE

System Information

☒ Dwelling-Peak single day flow 400 gals OR ☐ Non-dwelling-Peak single day flow _____ gals

☒ Domestic Wastewater ☐ Non-Domestic Wastewater -Description of non-domestic wastewater sources (i.e. restaurant, laundry, butcher shop, camper dump station or other)

☒ New System ☐ Modification, reconstruction or alteration of existing system

☐ Septic System ☒ Mound ☐ Holding tank ☐ Lagoon ☒ Other (if other, describe here) Modified Mound

Depth to seasonal high groundwater for planned location of the soil absorption system 78 ft.

Percolation rate 760 min/inch Maximum ground slope 8 %

I swear or affirm that the application information and documentation submitted are true, complete and accurate.

Owner/Authorized Representative Signature

Date: 4-8-2021

NOTICE: Failure to complete the form or include the appropriate fee(s) will delay the application. NDEQ issued construction permit is required prior to any construction.

Version 6-2012

SCANNED

HS002196

NEBRASKA

Good Life. Great Resources.

DEPT. OF ENVIRONMENT AND ENERGY

Construction Permit No. 21OWT018

is hereby issued to

Chad Barr

for the

400 Gallon per Day Septic and Modified Mound System for 6910 W Benes Creek Road, Raymond, NE 68428

Description:

A new three bedroom home will install one new 1,500 gal septic tank with effluent filter. Wastewater will flow by gravity to a 1,000 gal pump tank to be fitted with a submersible effluent pump sized at 20 gpm at 26 TDH. The pump will be controlled by float switches with an alarm level for high water. The pump will dose two modified mound beds of 12 inch diameter polystyrene bundles. The overall bed width will be nine foot by 60 ft length. Each bed will have two EZflow bundles of 3 ft width each laid adjacent to one another in the center of the bed with a 50 ft length. A 1.5 inch diameter PVC force main will connect the pump with a automatic distributor which will alternate between the two mound beds. The perforated lateral pipe will be 1.5 inch with 3/16 inch holes at 30 inch spacing to the end of the 50 ft polystyrene bundles. The two mound beds will have a total of 1,080 sq ft of soil absorption area which exceeds the Basal loading requirement of 1000 sq ft - a product of the 400 gal per day divided by 0.4 gal/sq ft/day for silty clay loam w/moderate prismatic/blocky soil structure. The laterals will be bedded on 12 inches of sand infiltrating to native silty clay loam having a percolation rate of greater than 60 minutes per inch and topped with filter fabric and overlaid with 12 inches of native soil cap. The distance to groundwater is greater than 8 ft. by soil boring and the laterals have a 100 ft. setback from owner's private well. A maintenance agreement with a certified installer is recommended for the life of the system.

located at

6910 W Benes Creek Road, Raymond, NE 68428

46.0096 Latitude, -96.8143 Longitude

Pursuant to a Delegation Memorandum dated November 23, 2020, and signed by the Director, the undersigned hereby executes this document on behalf of the Director.

Signed 5/19/2021

Shelley Schneider PE, Permitting & Engineering Div. Administrator

245 Fallbrook Blvd, P. O. Box 98922, Lincoln, Nebraska, 68509-8922
Phone (402) 471-2186, Fax (402) 471-2909, e-mail ndee.moreinfo@nebraska.gov

HORIZON ENVIROTECH, LLC
1291 County Rd V
Fremont, NE 68025
Office: (402) 720-9209
Email: jeffhet@1791.com

SCANNED

April 8, 2021

Onsite Wastewater Section Supervisor
NE Department of Environment and Energy
P.O. Box 98922
Lincoln, NE 68509-8922

RE: Barr Residence 6910 W Benes Creek Rd, Raymond, NE
Onsite Wastewater Plan – Permit Packet

Dear Acting Section Supervisor:

Enclosed is submittal information for a Construction/Operating permit for an onsite septic system. The average soil percolation rate exceeded 60 min/in, and the owner does not want a lagoon, As a result, a modified sand mound treatment and absorption system is proposed. This modified sand mound design has been approved/permitted for several projects in the last couple of years.

Please review the attached information and do not hesitate to contact me with any questions or comments you may have.

I will mail (1) hard copy, along with payment, for the permit application.

Kind Regards,

Jeffery N. Schoeneck P.E.

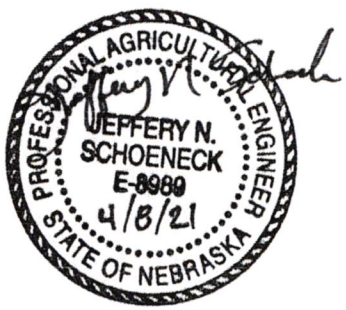
Enclosures: (1) Sets Submittals & Plans, Construction Permit Application w/Fee Payment & Citizen Attestation Form

SCANNED

RESIDENTIAL SEPTIC SYSTEM DESIGN – 6910 W Benes Creek Rd, Raymond, NE MODIFIEDMOUND/ SAND FILTER TREATMENT

Prepared by: Jeffery N. Schoeneck, P.E.

Owner: Chad Barr – PO Box 98, Valpraiso, NE 68065



HORIZON ENVIROTECH,LLC

1291 COUNTY RD V
FREMONT, NE 68025

(402)-720-9209

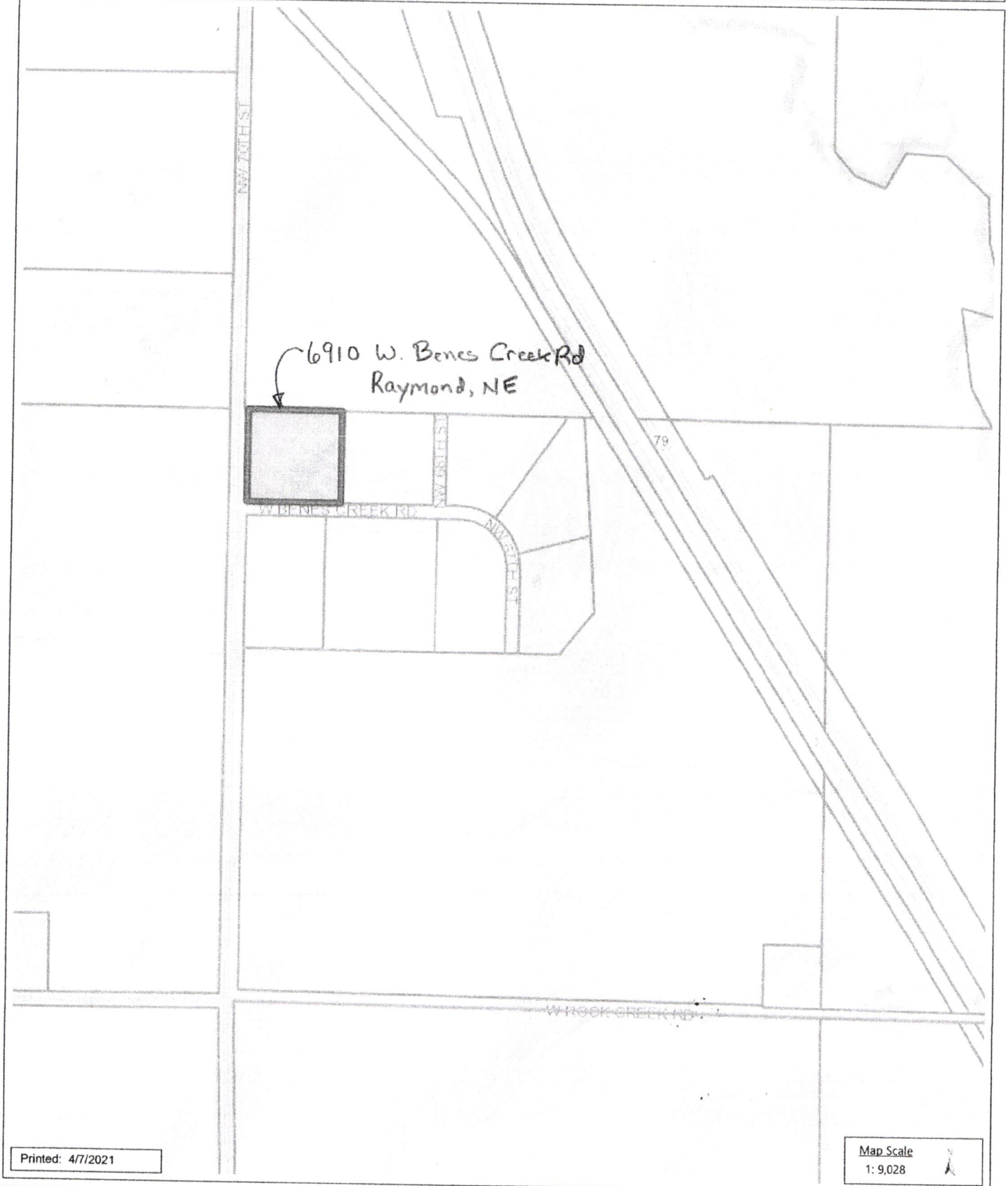
E-mail jeffhet@1791.com

4/8/2021

SCANNED

GIS Viewer
CITY OF LINCOLN - LANCASTER COUNTY, NE

City of Lincoln\Lancaster County GIS Map



Printed: 4/7/2021

Map Scale
1: 9,028

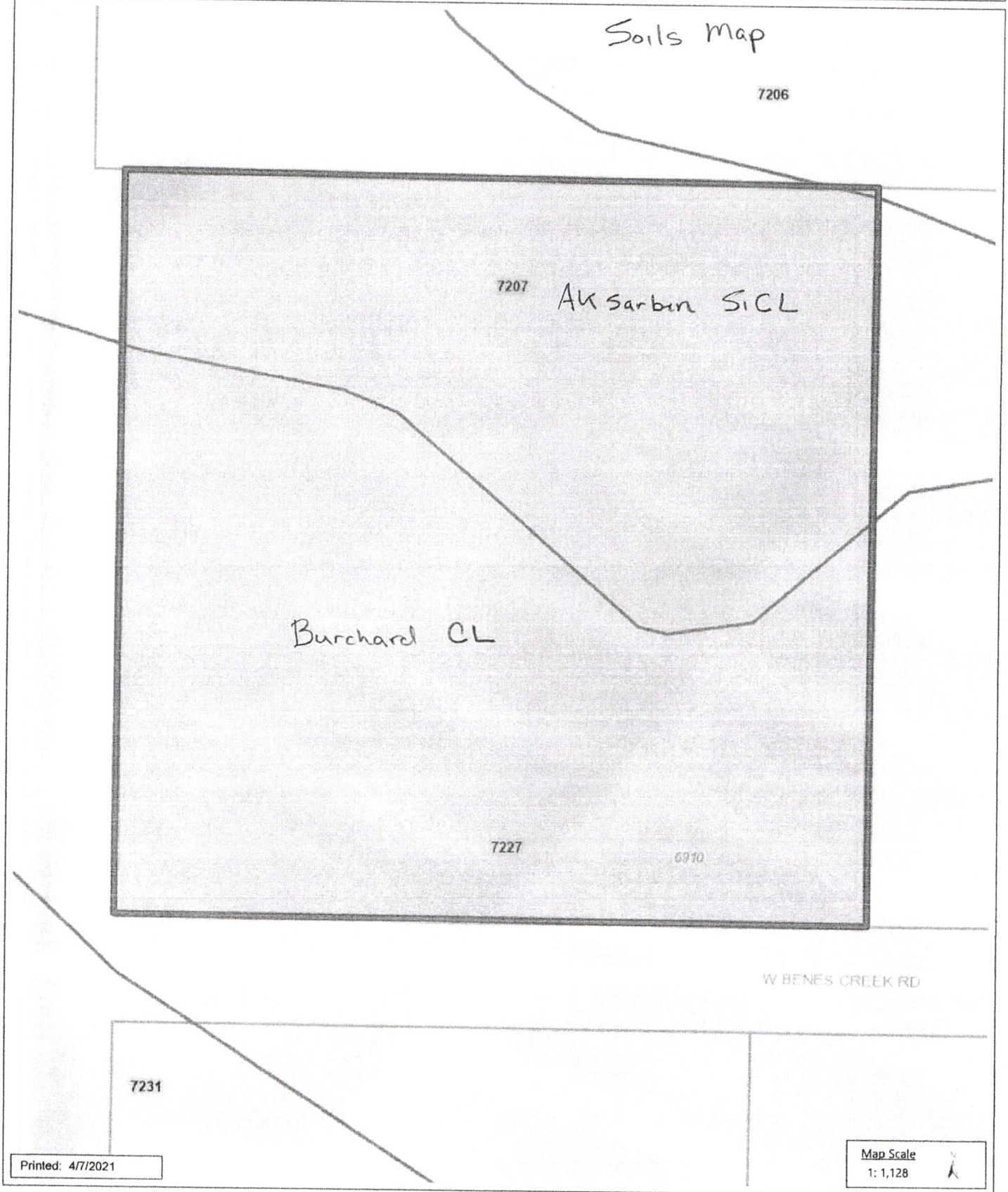
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SCANNED

GIS Viewer
CITY OF LINCOLN - LANCASTER COUNTY, NE

City of Lincoln\Lancaster County GIS Map

Soils map



Printed: 4/7/2021

Map Scale
1: 1,128

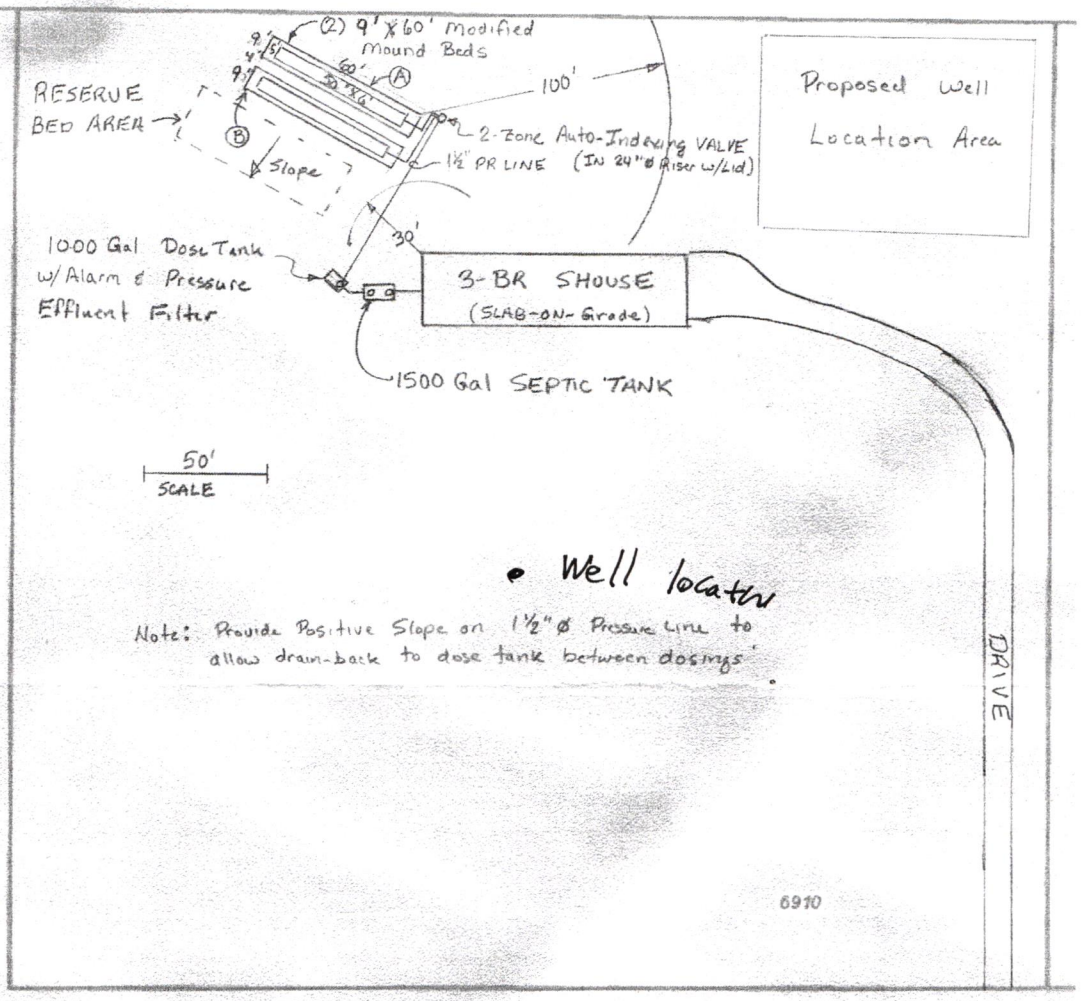
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Development Viewer
CITY OF LINCOLN - LANCASTER COUNTY, NE

SCANNED

Proposed SEPTIC PLAN

6910 W Benes Creek Rd, Raymond, NE



1:1,128

DISCLAIMER: The information is presented on a best efforts basis, and should not be relied upon for making financial, survey, legal or other co
questions or comments regarding the data displayed on this map, please email plan@lincoln.ne.gov and you will be directed to the appro

Legend
Address Labels

Prepared By: Jeffery N Schoeneck, P.E.
Horizon Envirotech, LLC
1291 CR V, Fremont, NE 68025
402-720-9209

PROFESSIONAL AGRICULTURAL ENGINEER
JEFFERY N. SCHOENECK
E-9989
4/8/21
STATE OF NEBRASKA

SCANNED

Barr Residential Septic System Design
6910 W Benes Creek Rd, Raymond, NE 68428

Site Conditions - Proposed 3-bedroom home on 4 Acre Lot
Soils on Lot are Aksarben Silty Clay Loam & Burchard Clay Loam
Average Soil Percolation Rate Exceeds 60 min/in

Proposed Septic Plan -

Construct (2) 700 sq ft Modified Mound System for Pretreatment and Absorption
(2) - Zone Automatic Switching Valve to Alternate Dosing between Beds
Propose 1,500 gallon septic tank and 1,000 gallon dose tank
Effluent Filter Required on Septic Tank Outlet or Pressure Filter on Pump

Peak Daily Design Load - 3 Bedroom Home - 400 gpd

Soil Percolation Rate - Rates ranged from 40 to 120 min/in
Soil Type @ Proposed Beds - Aksarben Silty Clay Loam w/moderate prismatic/blocky structure

Modified Mound Sizing -

Sizing of Treatment Media Bed (to use (3)-12" Polystyrene Bundles over medium sand)
Loading Rate of Sand Media Layer - 1.2 gal/sq ft
Area Required - 400gpd/1.2 gpd/sq ft = 333 sq ft
Propose 200 Ln Ft of Bundles @ 3 sq ft/ft = 600 Sq Ft

Basal Loading Requirement (Sizing of Sand to Soil Area) - SiCL
Soil Loading Rate (Pretreated to < 30 mg/l BOD5 & TSS) - 0.6 gal/sq ft/day (Propos
Area Required = 400 gpd / 0.4 = 1,000 Sq Ft
Proposed Area - (2) Beds 9ft X 60ft = 1,080 sq ft
* Contractor to Follow (In-general) Mound Construction Practices per NDEQ Title 124

Septic Tank Sizing - 3 Bedroom - minimum size of 1,250 **(Propose 1,500 gallons)**
(Garbage grinder and No over-sized tub)

Dose Tank Size - Propose 1,000 gallons
Dose Volume - 400 gpd /4 doses per day = 100 gallons each
Pump Sizing - Minimum 15gpm @ 15 Ft TDH
Pump Draw-down - Based on Accurate Conc 1,000 gal tank@22.2 gal/in = 4.5"
Set High-water Alarm to Activate @ 3" Above Pump-On Level

Electical Requirements - Requires (1) Dedicated 20 Amp, 120V, 1ph GFI Circuit for Pump and
Separate 15 Amp (min),120V, 1ph Circuit for High-water Alarm

SCANNED

Barr Residential Septic System Design

6910 W Benes Creek Rd, Raymond, NE 68428

LATERAL LINE SCHEDULE (1-1/2" Diameter)

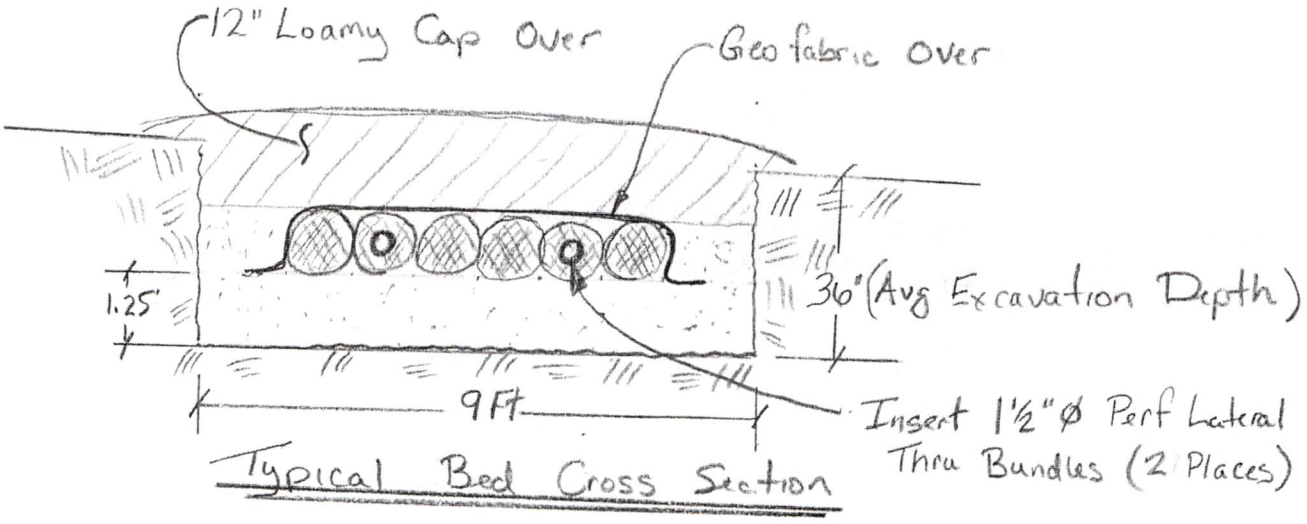
LATERAL	BUNDLE LENGTH ft	PIPE LENGTH FT	HOLE SPACING FT	NO OF HOLES	HOLE SIZE	LATERAL FLOW GPM
1	50	51	2.5	20	3/16"	8.40
2	50	51	2.5	20	3/16"	8.40
				TOTAL FLOW		**16.80**

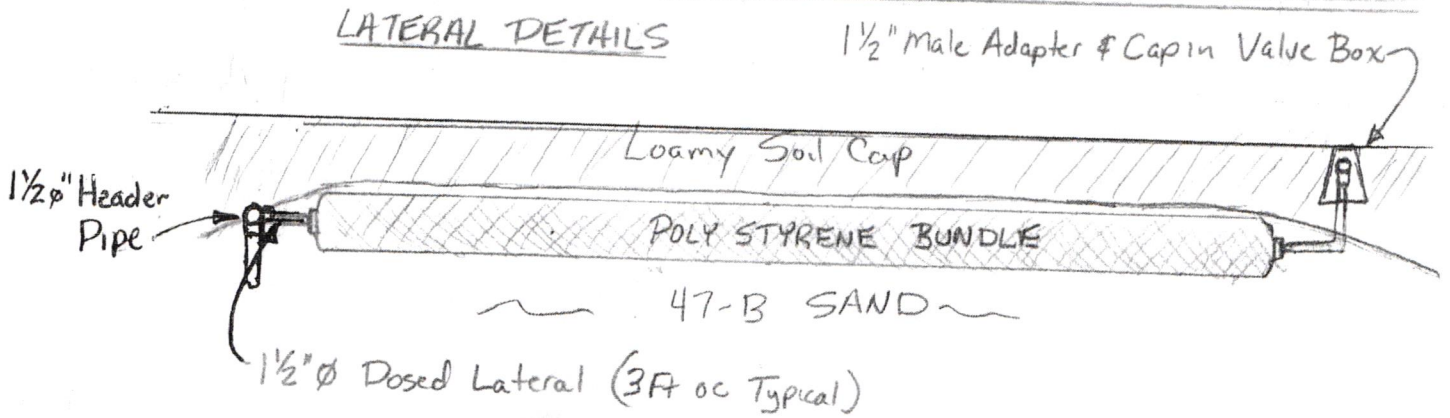
Notes:

1. Drill first hole 21" from end of pipe.
2. Flow Rate Based on 0.42 gpm @ 1Ft Head per Hole
3. Orient Holes in Corrugated Pipe @ 5 or 7 O'clock to Avoid Blockage
4. Use drilled end-caps or foam ends of corrugated pipe to prevent soil intrusion
5. Position Header Pipe to be at high point to drain pipes between dosings

Mound Annual Maintenance - Flush Laterals till clear w/pump - Open (1) cap at a time @ the end of the lateral. (typically less than (1) minute flushing per lateral)

Effluent Filter Maintenance - Remove & clean w/hose every 6 months. or as required.





SCANNED

Barr Residential Septic System Design

6910 W Benes Creek Rd, Raymond, NE 68428

Septic System Critical Elevations	
DESCRIPTION	ELEVATION
Top of Foundation	100.00
Average Top of Ground @ Bed "A" Site	104.80
Average Top of Ground @ Bed "B" Site	104.00
Sewer Line Outlet @ Building	98.00
Septic Tank - Inlet	97.50
Septic Tank - Outlet	97.25
Dose Tank Inlet	97.00
Pump Inlet	93.15
Zone Valve Top	104.50
Mound Bed "A" Bottom Excavation	101.80
Mound Bed "B" Bottom Excavation	101.00
Top of Medium Sand Layer (Bed "A")	103.05
Top of Medium Sand Layer (Bed "B")	102.25
Pressure Lateral Header "A"	103.40
Pressure Lateral Header "B"	102.60
Avg Finished Ground Elevation Over Modified Mound "A"	105.05
Avg Finished Ground Elevation Over Modified Mound "B"	104.25

Notes:

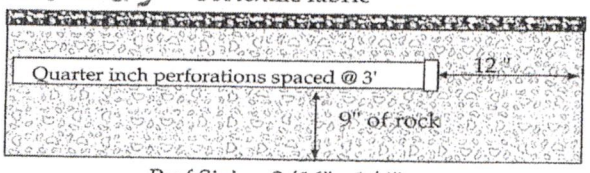
1. Orientation & Location of Septic Tank, Dose Tank & Pressure Line May Vary Slightly From Shown
2. Owner to have property pins clearly marked prior of excavation
3. Place 6 to 12" moderately compacted lifts of Medium (47-B) Sand
4. Avoid foot or equipment traffic over excavated soil until min placement of 6'" of sand
5. Contractor Responsible for Contacting 811 for Primary Utilities
6. Installer to verify if local septic permits and inspections are required.
   In addition, contractor to coordinate inspections with design engineer.
7. Septic Installation Shall Also Meet Minimum Requirements of NDEQ Title 124 and Shall
   Be Registered With NDEQ Onsite Department
8. Contractor to Warrant Workmanship Items for a Period of 2-Years (Equipment Warranties
   Limited To Mfg. Warranty Terms and Coverage)
9. Fine grading & Seeding to be completed soon after completion of construction.
10. Owner To Keep Trees From Growing Within 15 Ft of the Absorption Field Area
11. Absorption Site to be Protected From Any Vehicle Traffic.
12. Effluent Filter is required on septic tank outlet or pressure effluent line.
14. Slope pressure dose pipe to completely drain between dosings.

Prepared By: **Jeffery N. Schoeneck, P.E.**
Horizon Envirotech, LLC
1291 County Rd V
Fremont, NE 68025
402-720-9209
jeffhet@1791.com

SCANNED

PRESSURE DISTRIBUTION SYSTEM (Each Bed)

Geotextile fabric



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

1. Select number of perforated laterals 2 /Bed

2. Select perforation spacing = 2.5 ft

3. 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.

   50 (Rock layer length / EZ-Flow) - 2 ft (2.5) = 47.5 ft

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

   Perforation spacing = 47.5 ft ÷ 2.5 ft = 19 spaces

5. 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.*

   19 spaces + 1 = 20 perforations/lateral

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

   20 perfs/lat x 2 lat = 40 perforations

   B. Calculate the square footage per perforation.
   Recommeded value is 6-10 sqft/perf. *Does not apply to at-grades.*
   Rock bed area = rock width (ft) x rock length (ft)
   50 ft x 6 ft = 300 sqft
   Square foot per perforation = Rock bed area ÷ number of perfs (6)
   300 sqft ÷ 40 perfs = 7.5 sqft/perf

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

   40 perfs x 0.42 gpm/perfs = 16.8 gpm

8. 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.

9. 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 = _____ inches.

E-4: Maximum allowable number of ~~1/4-inch~~ 3/16 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

20 OK for 3/16 ϕ

E-6: Perforation Discharge in gpm

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

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

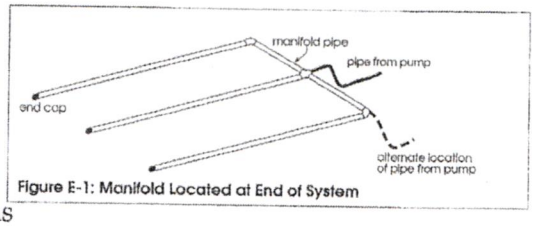


Figure E-1: Manifold Located at End of System

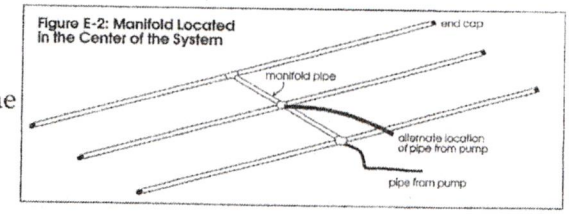


Figure E-2: Manifold Located in the Center of the System

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

Jeffery N Schmuck (signature) E8989 (license #) 4/8/21 (date)

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Figure E-25: Pump Selection Worksheet

PUMP SELECTION PROCEDURE

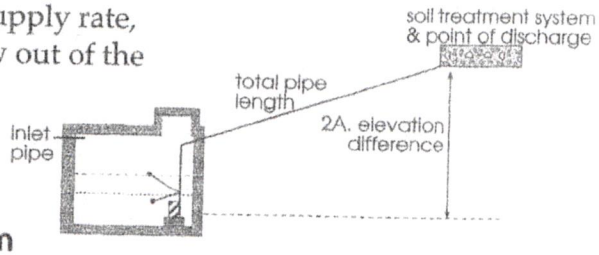
1. Determine pump capacity:

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



From A or B Selected pump capacity: 16.8 gpm

2. Determine pump head requirements:

A. Elevation difference between pump and point of discharge?
11.35 feet

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

Special Head Requirements	
Gravity Distribution	0 ft
Pressure Distribution	5 ft

C. Calculate Friction loss

1. Select pipe diameter 1½ 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 = 2.5 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
   100 feet x 1.25 = 125 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.
   = 2.5 ft/100ft x 125 ÷100 = 3.1 ft

Friction Loss in Plastic Pipe			
	nominal pipe diameter		
flow rate gpm	1.5"	2"	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	0.30
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

D. Total head required is the sum of elevation difference (A), special head requirements (B), and total friction loss (C4)
5 ft + 11.35 ft + 3.1 ft + 0.5 Ft + (2.5 x 2.31)
(Filter) Zone Valve
Total head: 25.7 feet

3. Pump selection

A pump must be selected to deliver at least 20 gpm (1A or B) with at least 26 feet of total head (2D)

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

Jeffrey N Schoenech (signature) E8989 (license #) 4/8/21 (date)

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Soil Absortion Test Data Sheet

Owner Information:

Owner: Chad Barr Phone: 402-430-6634

Address: 6852 Bethany Park Dr, Lincoln, NE 68505

Location: Coyote Ridge Addition, Block 2, Lot 1

Latitude 41.0096 Longitude -96.8143

Township _____ Range _____ Sec. _____ 1/4 sec. _____

County: Lancaster Area: 3.85 Acres

Soil Boring		
	0 - 10"	DGBr SiCl
	10 - 27"	Br SiCl
	27 - 96"	Br SiCl w/few grey & red/br mottles

No Indication of a Season High Water Table Within 8ft of Surface

Test Dates

Start Date	End Date
3/18/21	3/19/21

Test Day Weather

Weather Sunny Temp. 52F

Precipitation None

Percolation test data:

Hole No.	Hole Depth (in.)	Final Percolation Readings: Start Date Mo./Day	Start Time (Hr./Min.)	Start Water Level (in.)	End (Hr./Min.)	End Water Level (in.)	Final Results: Elapsed Time (Min.)	Water Level Drop (in.)	Percolation Rate (Min./Inch)
1	36	3/19/21	1:44 PM	7.10	2:14 PM	6.75	30	0.35	85.7
2	36	3/19/21	1:45 PM	7.40	2:15 PM	6.60	30	0.80	37.5
3	36	3/19/21	1:46 PM	8.00	2:16 PM	7.70	30	0.30	100.0
4	36	3/19/21	1:47 PM	7.60	2:17 PM	7.35	30	0.25	120.0
5	36	3/19/21	1:48 PM	7.75	2:18 PM	7	30	0.75	40.0

Jeffery N Scheeneck

Jeffery N Scheeneck, P.E. - E8989
Horizon Envirotech, LLC
1291 Co Rd V
Fremont, NE 68025
(402) 720-9209
Phone

Sum of Percolation rates = 383.2

Number of test holes = 5

Average of rates in Minutes/inch = 76.6

*If rates vary more than 20 minutes/inch, do not average but use the slowest rate for design purposes.

Development Viewer
CITY OF LINCOLN - LANCASTER COUNTY, NE

Coyote Ridge BLK 2, LOT 1



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Table 4-3. Suggested hydraulic and organic loading rates for sizing infiltration surfaces

Texture	Structure		Hydraulic loading (gal/ft²-day)		Organic loading (lb BOD/1000ft²-day)	
	Shape	Grade	BOD=150	BOD=30	BOD=150	BOD=30
Coarse sand, sand, loamy coarse sand, loamy sand	Single grain	Structureless	0.8	1.6	1.00	0.40
Fine sand, very fine sand, loamy fine sand, loamy very fine sand	Single grain	Structureless	0.4	1.0	0.50	0.25
Coarse sandy loam, sandy loam	Massive	Structureless	0.2	0.6	0.25	0.15
	Platy	Weak	0.2	0.5	0.25	0.13
		Moderate, strong				
	Prismatic, blocky, granular	Weak	0.4	0.7	0.50	0.18
		Moderate, strong	0.6	1.0	0.75	0.25
Fine sandy loam, very fine sandy loam	Massive	Structureless	0.2	0.5	0.25	0.13
	Platy	Weak, mod., strong				
	Prismatic, blocky, granular	Weak	0.2	0.6	0.25	0.15
		Moderate, strong	0.4	0.8	0.50	0.20
Loam	Massive	Structureless	0.2	0.5	0.25	0.13
	Platy	Weak, mod., strong				
	Prismatic, blocky, granular	Weak	0.4	0.6	0.50	0.15
		Moderate, strong	0.6	0.8	0.75	0.20
Silt loam	Massive	Structureless		0.2	0.00	0.05
	Platy	Weak, mod., strong				
	Prismatic, blocky, granular	Weak	0.4	0.6	0.50	0.15
		Moderate, strong	0.6	0.8	0.75	0.20
Sandy clay loam, clay loam, silty clay loam	Massive	Structureless				
	Platy	Weak, mod., strong				
	Prismatic, blocky, granular	Weak	0.2	0.3	0.25	0.08
		Moderate, strong	0.4	0.6	0.50	0.15
Sandy clay, clay, silty clay	Massive	Structureless				
	Platy	Weak, mod., strong				
	Prismatic, blocky, granular	Weak				
		Moderate, strong	0.2	0.3	0.25	0.08

Source: Adapted from Tyler, 2000.

PROFESSIONAL AGRICULTURAL ENGINEER
JEFFERY N. SCHOENECK
E-8989
4/8/21
STATE OF NEBRASKA

END OF SECTION

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"Quality Pumps Since 1939"

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

ZOELLER PUMP CO.

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961
(502) 778-2731 • 1 (800) 928-PUMP • FAX (502) 774-3624

visit our web site:
http://www.zoeller.com

FM2090
0502
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ZOELLER ON-SITE WASTEWATER PRODUCTS

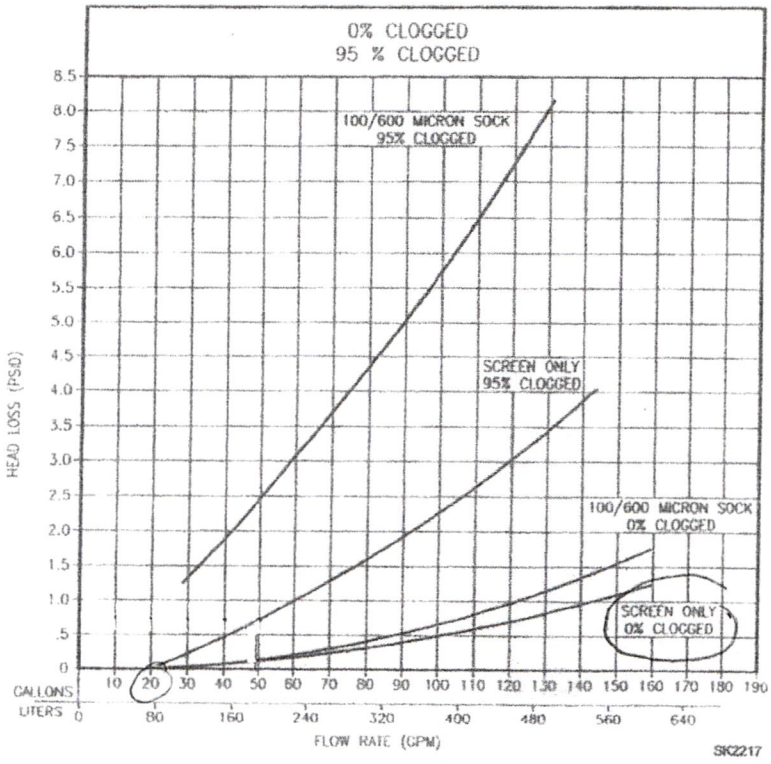
ZOELLER SEPTIC SYSTEM FILTERS

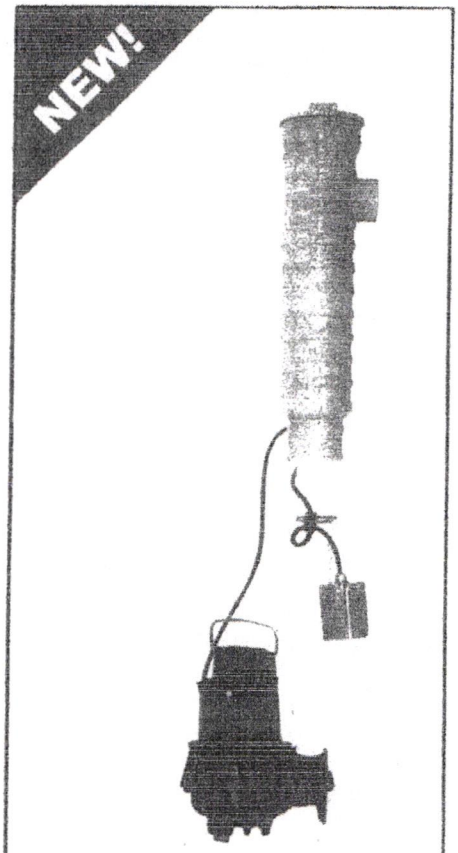
Zoeller Pressure Effluent Filter - P/N 5000-0001

The Zoeller Pressure Filter will help prolong the life of an on-site drainfield by filtering out solids which cause plugging. Used in both residential and commercial applications, this unique design and mounting location allows the filtering screen to be scrubbed while in operation, providing maximum maintenance intervals and unmatched performance.

The filter screen is a type 347 S.S. with .062 diameter holes, which controls the particle sizes leaving the tank. By using sock inserts, filtration to 100 or 600 microns is achieved. The element is 3 inches in diameter and 18 inches long with a 69.5 square inch open area. The large open area results in minimal head loss (see below).

Use in low-pressure pipe, drip, or enhanced flow applications. Use as a prefilter for dosed treatment devices such as recirculating media filters.





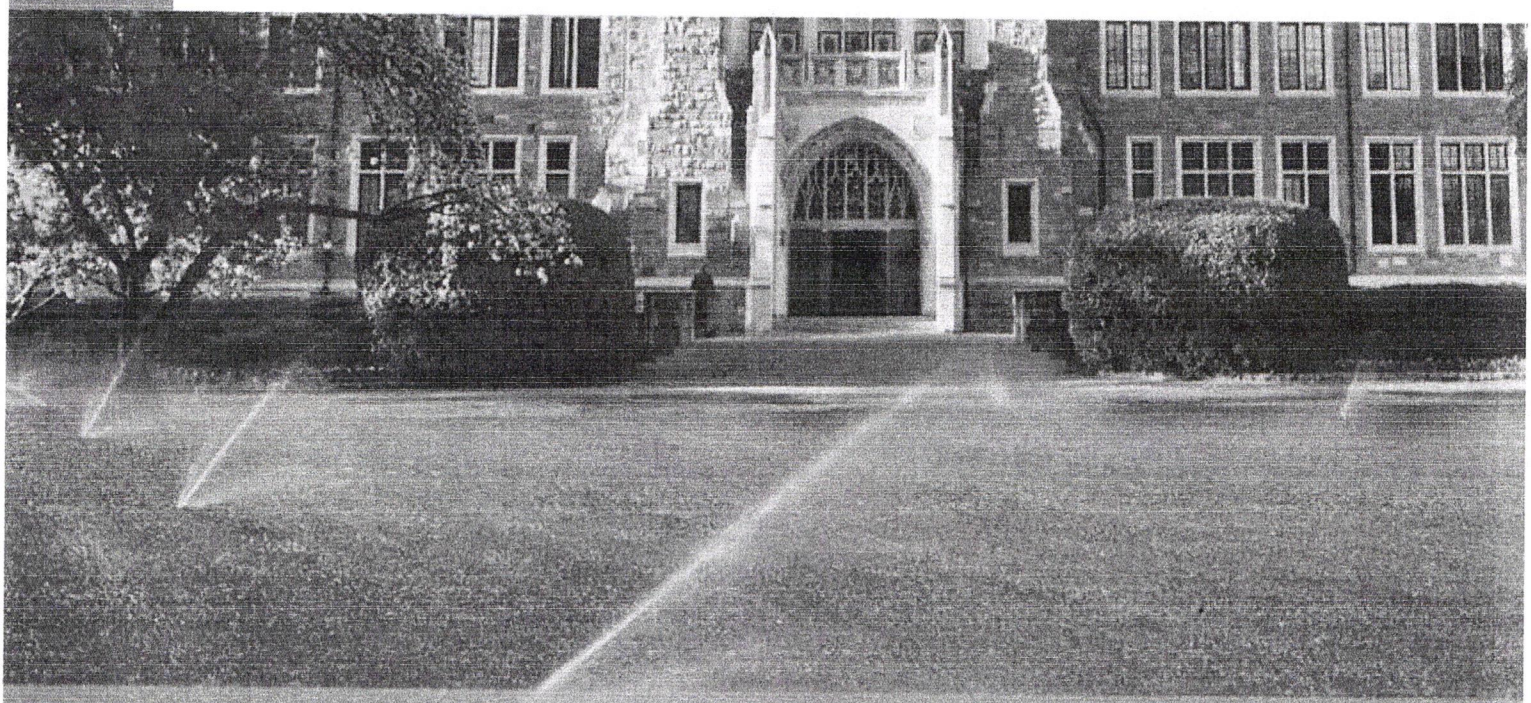
NOTE: Pump and switch not included.

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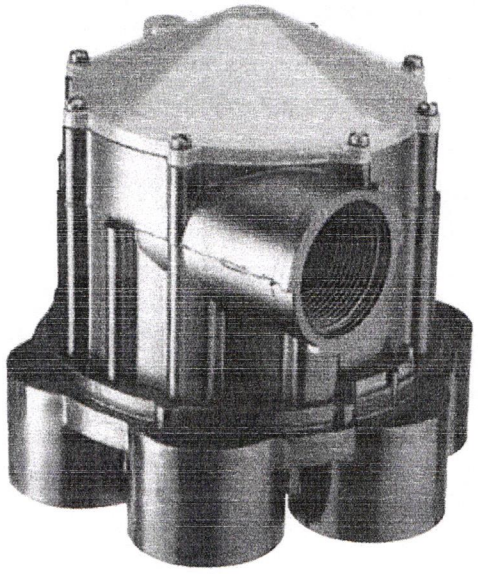
6000-RCW INDEXING VALVE

ONSITE WASTEWATER DISTRIBUTING VALVES



The 6000 line of indexing valves offers exceptional reliability and durability even under the dirtiest water conditions.

- **Metal Die-Cast Body** — Durable, long lasting and capable of high pressure applications.
- **Available in 4 and 6 Outlet Models** — Can quickly and easily change from two to six watering zones.
- **Simplicity of Design** — Valves are easily maintained and serviced for long product life.
- **Operates at Minimum 15 GPM (57 LPM) at Pressures of 25–150 PSI (1,7-10,3 bar)** — Ideal for pump-fed systems or high-flow city water systems.
- **Built-in Atmospheric Vacuum Breaker** — Releases any vacuum created between the pump and the valve on shut down.



K-RAIN®

K-Rain Manufacturing Corp.
1640 Australian Avenue
Riviera Beach, FL 33404 USA
561.844.1002
FAX: 561.842.9493
1.800.735.7246 | www.krain.com

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K-Rain Model 6000-RCW: Onsite Wastewater Distributing Valve

With a metal die-cast body, the 6000 valves are capable of high pressure applications and are recommended to be used on pump fed systems or high-flow city water systems. The 6000 is also ideal for onsite wastewater and effluent water applications.

The 6000 valve is available in 4 or 6 outlet models that are cammed for 2 to 6 zone operation. With only one moving part (the stem and disc assembly), the valve is easily serviced and maintained.

The valve requires 15 GPM (57 LPM) to operate and works at pressures from 25 to 150 PSI (1,7 to 10,3 bar).

Models

FOUR OUTLET MODELS

→ **6402-RCW** Cammed for 2 Zone Operation
6403-RCW Cammed for 3 Zone Operation
6404-RCW Cammed for 4 Zone Operation

SIX OUTLET MODELS

6605-RCW Cammed for 5 Zone Operation
6606-RCW Cammed for 6 Zone Operation

Specifications

- Construction:
  Valve Top/Housing: Die Cast Metal
  Valve Outlets: High Strength ABS Polymer
- Inlet:
  Threaded 1 1/2" (3,8 cm) NPT Connection
- Outlets: Slip and Glue Connections to 1 1/2" (3,8 cm) PVC Pipe

OPERATING SPECIFICATIONS

- Pressure Rating: 25 - 150 PSI (1,7 to 10,3 bar)
- Flow Range: 15-150 GPM (57-568 LPM)
- Pressure Loss:

4 OUTLET VALVE

Flow Rate - GPM	20	40	60	80	100
PSI Loss	2.5	3.5	5.0	7.5	10.0

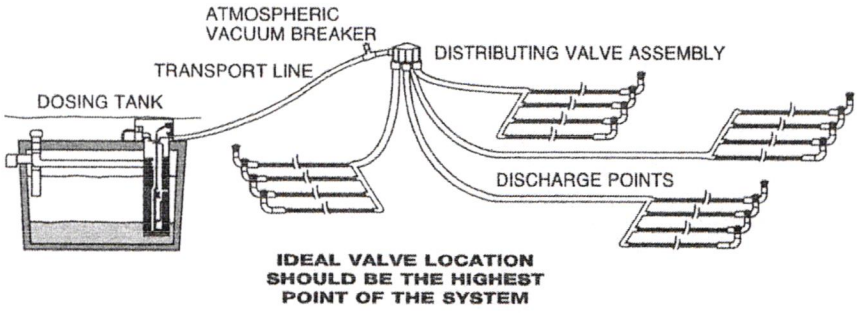
6 OUTLET VALVE

Flow Rate - GPM	20	40	60	80	100
PSI Loss	3.0	4.0	6.0	9.0	11.0

DIMENSIONS

- Height: 7" (17,8)
- Width: 8" (20,3)

Installation Diagram



© K-Rain Manufacturing Corporation
AN ISO 9001 CERTIFIED COMPANY

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50'
SCALE

Note: Provide Positive Slope on 1½" Ø Pressure Line to allow drain-back to dose tank between dosings

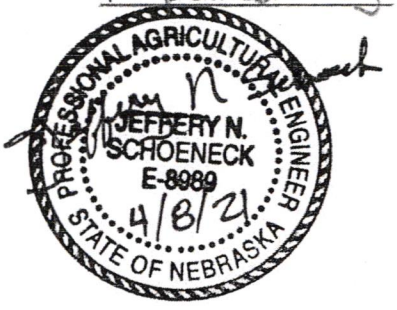
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DISCLAIMER: The information is presented on a best-efforts basis, and should not be relied upon fo
questions or comments regarding the data displayed on this map, please email plan@lincoln.n

Legend

Address Labels

Prepared By:



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Horizon Envirotech, LLC
1291 CR V, Fremont, NE
402-720-9209

Lincoln-Lancaster County HEALTH DEPARTMENT
Environmental Public Health Division
3140 N Street • Lincoln NE 68510-1514
Phone: 402-441-8643

Exhibit 5

Permit Number: HS002196

SCANNED

Onsite Wastewater Treatment System

Inspection Sheet

Date 8/20/21 Legal Description ____ ¼ ¼ Section/Township/Range

Onsite System Location

Address (no rural route) 6910 W. Bear Creek City ____

Owner ____ Address ____

Mark One: ☒ Dwelling ☐ Non-dwelling

☒ New System ☐ Alteration [☐ Tank Only ☐ Trench Only] ☐ Lateral Only

☐ Temporary modification (Describe problem causing discharge and reason for temporary modification): ____

Drainfield Absorption System:

☐ Lateral ☐ Bed ☒ Non-standard (engineer-designed and NDEQ approved) ☐ Holding Tank ☐ Trench

Total square feet of drainfield 1,080 Sq. Ft. Tank Size 1,500 w/second 1,000 gallon Gals pump tank

Total length of laterals ____ Type of Distribution: ☐ Chamber ☐ Perforated Pipe ☐ Other (describe) ____

Bed System – System installed as designed – Permit #210WT019

No. of Absorption Laterals ____ Width ____ No. of Drop Boxes ____ Distribution Box ____

Levelling Method Used ____

See enclosed Permit + Site Drawing

Setbacks (Check the Boxes Below if the Required Setback has been Satisfied):

Distance From:	Private Well	Public Well	Surface Water	Ground water	Pressure Water Lines	Property Lines
Tank (ft)	50 ☐	500 ☐	50 ☐	NA ☐	10 ☐	5 ☐
Field (ft)	100 ☐	500 ☐	50 ☐	4 ☐	25 ☐	5 ☐

Geographical Coordinates to 6 Decimals:

Tank ____ NA

Lateral #1 ____ Lateral #3 ____

Lateral #2 ____ Lateral #4 ____

Comments:

Field Note Drawing (See Reverse Side):

Inspections prior to Final Approval

Initial ____ Date 8/19/21

Follow-Up ____ Date ____

Follow-Up ____ Date ____

Installation Final Written Approval By ____

Date 8/20/21