



Approval: \_\_\_\_\_ Denial: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
Zoning Administrator

**Planning and Zoning Department**

**Rock/Trench Septic System Application**

**Page 1**

**Applicant(s)/Owner(s):**

Name(s) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Cell # \_\_\_\_\_ Email \_\_\_\_\_

**Installer/Designer:**

Name(s): \_\_\_\_\_

License Number: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Cell#: \_\_\_\_\_ Email: \_\_\_\_\_

**Parcel Information:**

Property ID#(s): \_\_\_\_\_ Parcel Size: \_\_\_\_\_

Complete Legal Description: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Septic System Design Information:**

1. Septic Tank Capacity: \_\_\_\_\_ gallons. (See Table 1.)

**Table 1.** CAPACITY OF SEPTIC TANKS \*

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Single-Family Dwellings - Number of Bedrooms	Multiple Dwelling Units or Apartments - One Bedroom Each	Other Uses - Maximum Fixture Units Served	Minimum Septic Tank Working Capacity in Gallons
1-3		20	1000
4	2	25	1200
5 or 6	3	33	1500
7 or 8	4	45	2000

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2. Soils.

Depth to restrictive layer or mottled soils: \_\_\_\_\_ inches.

Maximum depth of system: \_\_\_\_\_ inches. (Depth to restrictive layer / mottled soils = 24")

Soil Classification or Texture: \_\_\_\_\_.

Percolation rate: \_\_\_\_\_ MPI.

Soil Loading Rate: \_\_\_\_\_ gal/ft<sup>2</sup>/day. (See Table 3 on next page)

Percent Land Slope: \_\_\_\_\_ %.

**Septic System Design Information (Continued):**

**Table 3. Effluent loading rate of an absorption trench based on soil texture. A registered soil classifier should determine the soil texture at the depth where the bottom of the trench will be located.**

Soil Texture	Percolation Rate (minutes/inch)	Depth of rock below the distribution pipe			
		6"	12"	18"	24"
<b>Square feet of trench bottom per bedroom</b>					
Sand and loamy sand	1 to 5	125	100	85	70
Sandy loam	6 to 15	190	150	125	110
Fine sand, very fine sand, loam	16 to 30	250	200	165	145
Silt and silt loam	30 to 45	300	240	200	170
Clay loam, sandy clay, silty clay loam	45 to 60	330	265	220	190
Clay	60 to 120	650	515	440	375
<b>Trench bottom area loading rate, gal/ft<sup>2</sup>/day</b>					
Sand and loamy sand	1 to 5	1.2	1.5	1.8	2.1
Sandy loam	6 to 15	0.8	1.0	1.2	1.4
Fine sand, very fine sand, loam	16 to 30	0.6	0.75	0.90	1.05
Silt and silt loam	30 to 45	0.5	0.63	0.75	0.90
Clay loam, sandy clay, silty clay loam	45 to 60	0.45	0.57	0.68	0.80
Clay	60 to 120	0.23	0.29	0.34	0.4

**3. Trench or Absorption Bed Area.**

Estimated Design Flow: \_\_\_\_\_ gallons per day. (See Table 4.)

Number of Bedrooms	Gallons Per Day
2	300
3	450
4	600
5	750
6	900

**4. Trench Bottom Area Calculation:**

\_\_\_\_\_ gpd(Design Flow) / \_\_\_\_\_(Loading Rate) = \_\_\_\_\_ ft<sup>2</sup>(Trench Bottom Area).

Width of Trench: \_\_\_ ft.

**Length of Trench(s) Calculation:**

\_\_\_\_\_ ft<sup>2</sup> (Trench Bottom Area) / \_\_\_\_\_ ft (Trench Width) = \_\_\_\_\_ ft (Lineal Feet).

**Septic System Design Information (Continued):**

5. Distribution. (Check all that apply)

- Seepage Bed     Distribution Box     Chamber     Pressure
- Drop Boxes     Gravity     Rock

6. Dosing Chamber. (Only for Systems Requiring a Pump)

Minimum Pump Tank Size = \_\_\_\_\_ gallons. (Design Flow)

Maximum Pump Discharge: \_\_\_\_\_ gpm. (must be greater than 7.5 gpm per 100 ft<sup>2</sup> of rock area)

Pump Lift Capacity: \_\_\_\_\_ feet. (must be 5 feet greater that elevation change plus pipe friction loss)

Change in elevation from pump to the top of rock bed: \_\_\_\_\_ feet.

7. Sketch of Proposed System:

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, wells, setbacks and separation distances.

Use attached standard system diagram for detailed dimensions of trenches or seepage bed area.

**Application Fee: \$250 (\$150 w/o Soil Testing)**

I hereby authorize Grand Forks County Planning Staff to enter upon property subject to this application to gather information pertinent to this request.

Signature(s) of Applicant(s): \_\_\_\_\_ Date: \_\_\_\_\_

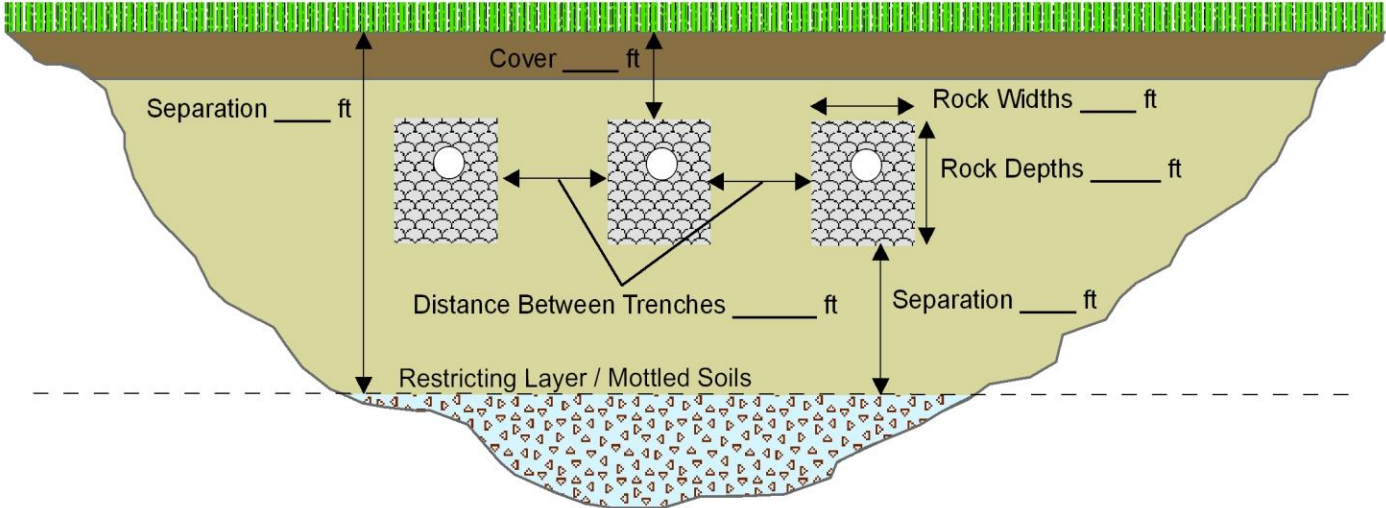
\_\_\_\_\_ Date: \_\_\_\_\_

Signature(s) of Owner(s): \_\_\_\_\_ Date: \_\_\_\_\_

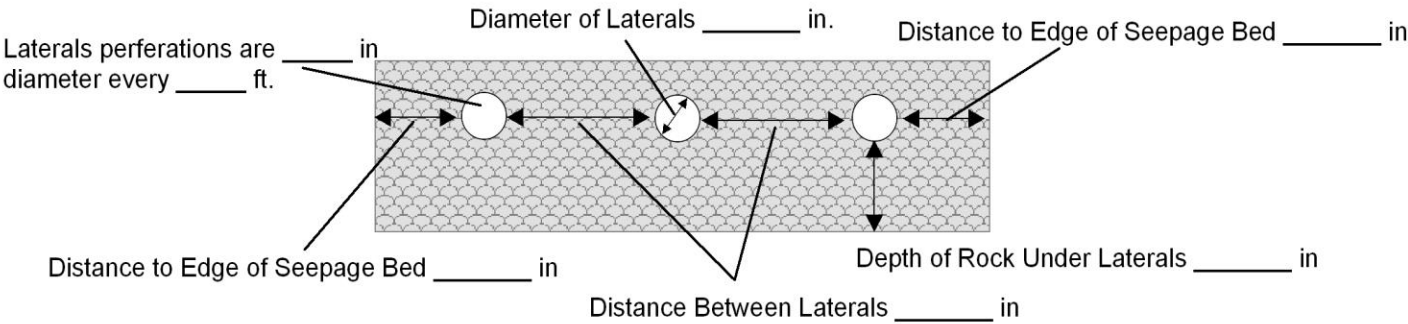
\_\_\_\_\_ Date: \_\_\_\_\_

# Trench Cross-Section

(for seepage beds also complete cross-section below)



# Seepage Bed Cross-Section



# Soil Boring Log

Client: \_\_\_\_\_

Address: \_\_\_\_\_

Date: \_\_\_\_\_

Location: \_\_\_\_\_

Soil Type: \_\_\_\_\_

Disturbed/ Compacted  yes  no

# of Bedrooms: \_\_\_\_\_

Type of observation: Probe Pit Boring

Garbage Disposal:  yes  no

Type: I II III IV

Flow: \_\_\_\_\_

Parent Material: Till Outwash Loess Bedrock Alluvium

Vegetation: Wet Dry Unknown

Slope Form: \_\_\_\_\_

Slope: \_\_\_\_\_ %

Drainage: Good Problems Solutions \_\_\_\_\_

Floodplain:  yes  no

Elevation of Boring: \_\_\_\_\_

Depth of Water: \_\_\_\_\_

Depth to Bedrock: \_\_\_\_\_

Depth of Sat. Soil: \_\_\_\_\_

Max Depth of System: \_\_\_\_\_

Soil Sizing Factor: \_\_\_\_\_

Linear Loading Rate: \_\_\_\_\_

Well Information:

Location: \_\_\_\_\_

Depth: \_\_\_\_\_

Casing Depth: \_\_\_\_\_

10' of Imp. material:  yes  no

Depth (inches)	Texture	Color	Structure
			Blocky Platy Prismatic None
			Blocky Platy Prismatic None
			Blocky Platy Prismatic None
			Blocky Platy Prismatic None
			Blocky Platy Prismatic None

Additional Notes: \_\_\_\_\_

Preliminary design:

Trench \_\_\_\_\_ Bed \_\_\_\_\_ Atgrade \_\_\_\_\_ Mound \_\_\_\_\_ Holding Tank \_\_\_\_\_

Gravity Dist. \_\_\_\_\_ Pressure Dist. \_\_\_\_\_

Sand: Serial \_\_\_\_\_ Pressure \_\_\_\_\_ Liner \_\_\_\_\_ Clay: Liner \_\_\_\_\_