Wadena County

PLANNING & ZONING

Deana M. Malone, Administrator
Room 234, The Courthouse
415 Jefferson Street South
Wadena, MN 56482
(218) 631-7604

Parcel # _____

ONSITE SEPTIC SYSTEM DESIGN DATA

LEGAL PROPERTY OWNER: _____ TELEPHONE NUMBER: _____

MAILING ADDRESS: _____

PROPERTY ADDRESS: _____

PROPERTY DESCRIPTION: _____ _____ _____ _____ _____ _____
Township Name | Section | 1/4 | 1/4 | Twp. No. | Range No.

NUMBER OF BEDROOMS _____ SYSTEM DESIGN FLOW _____ GPD

NUMBER OF BATHROOMS _____ SOIL LOADING RATE USED _____

HOT TUB: ☐ YES ☐ NO REQUIRED TREATMENT AREA _____ SQ. FT.

GARBAGE DISPOSAL: ☐ YES ☐ NO ACTUAL TREATMENT AREA _____ SQ. FT.

SYSTEM IS: ☐ NEW ☐ REPLACEMENT ☐ OTHER REQUIRED SEPTIC TANK SIZE _____ GLS

SEWAGE PUMPED FROM DWELLING: ☐ YES ☐ NO ACTUAL SEPTIC TANK SIZE _____ GLS

(Note: All systems to be sized as Type I.) TANK MANUFACTURER & MODEL # _____

DATA PREPARED BY: _____ DATE: _____ CERTIFICATE #: _____

SIGNATURE: _____ ADDRESS: _____ PHONE: _____

SITE PLAN

NOTE: **INCLUDE** ***location of all borings/pits, existing and proposed buildings, existing/proposed wells, well depth, and setbacks from each, easements, property lines, lot dimensions, applicable setbacks, direction and % of slope, OHWL, second site option, and access route for tank maintenance.*** ***(Inadequate detail on site plan may constitute a refusal by County to accept design and permit may not be issued in a timely manner.)***

DESIGN SPECIFICATIONS

TRENCH DESIGN

Design Flow _____GPD

TYPE	TRENCH BOTTOM REQUIRED	LF REQUIRED	ROCK (CUBIC YDS REQUIRED)
☐ **Standard H-10** Chamber (No reduction allowed)	[ ] sq. ft.	[ ] LF	
☐ **High Capacity** Chamber	[ ] sq. ft.	[ ] LF	
☐ **Using 20% allowed reduction**	[ ] sq. ft.	[ ] LF	
☐ 6" rock under pipe	[ ] sq. ft.	[ ] LF	[ ] cu. yds.
☐ 12" rock under pipe	[ ] sq. ft.	[ ] LF	[ ] cu. yds.
☐ 18" rock under pipe	[ ] sq. ft.	[ ] LF	[ ] cu. yds.
☐ 24" rock under pipe	[ ] sq. ft.	[ ] LF	[ ] cu. yds.

Please draw cross section of trench design

Comments:

_____

_____

_____

MOUND / PRESSURE DESIGN

Design flow _____ GPD

Land slope _____%

Rock layer length _____ feet

Rock layer width _____ feet

Cubic yards of rock required _____

Required absorption width _____ feet

Total mound width _____ feet

Total mound length _____ feet

Down-slope dike width _____ feet

Up-slope dike width _____ feet

Number of perforated laterals _____

Number of perforations _____

Header pipe size _____

Please draw cross section of mound/bed construction

Elevation differences between pump and point of discharge _____

Total pipe length from pump to discharge point _____

Selected pump capacity _____ GPM

Total head _____ Feet of total head _____

SOIL OBSERVATION LOG

Is the area disturbed or compacted? Yes No **Is the area located within a floodplain?** Yes No

What is the landscape position? *(circle one)* Summit Shoulder Back/Side Slop Foot Slope Toe Slope

Vegetation type: ______________________________ **Slope %:** ______ **Slope Shape:** ______________________

Parent Material(s): *(circle all that apply)* Outwash Lacustrine Alluvium Loess Organic Material Bedrock

TEST HOLE #1 *(fill in the blanks, circle/check description where applicable – see back page for descriptions)*

DEPTH (INCHES)	TEXTURE	% ROCK FRAG	MATRIX COLOR(S)	MOTTLE COLORS	REDOX KIND(S)	Saturated Soil Ind. (See back pg.)	STRUCTURE SHAPE	STRUCTURE GRADE	CONSIST-ENCY
					Concentration Depletions Gleyed		Blocky Platy Prismatic Single Grain Granular Massive	Weak Moderate Strong Loose	Loose Friable Firm Extreme Firm Rigid
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Bench Mark used: ______________________________

Description from Bench Mark: ______________________________

Type of observation: Boring Pit Probe

Elevation of boring: ______________________________

Soil map unit: ______________________________

Depth to restricting layer: ______________________________

Depth of system: ______________________________

****Coarse sand (granules < 2mm) can be counted as part of the 3' separation unless it has 35%-50% gravel (granules > 2mm) in it, then it only counts as 50%. 50% or greater gravel can't be counted in the separation at all – you can go through it to get to another layer that will work. Must be accomplished in first 7' of soil and bottom of the dispersal area cannot be located in a layer of gravel.**

SOIL OBSERVATION LOG

Is the area disturbed or compacted? Yes No **Is the area located within a floodplain?** Yes No

What is the landscape position? *(circle one)* Summit Shoulder Back/Side Slop Foot Slope Toe Slope

Vegetation type: ______________________ **Slope %:** ______ **Slope Shape:** ______________________

Parent Material(s): *(circle all that apply)* Outwash Lacustrine Alluvium Loess Organic Material Bedrock

TEST HOLE #2 *(fill in the blanks, circle/check description where applicable – see back page for descriptions)*

DEPTH (INCHES)	TEXTURE	% ROCK FRAG	MATRIX COLOR(S)	MOTTLE COLORS	REDOX KIND(S)	Saturated Soil Ind. (See back pg.)	STRUCTURE SHAPE	STRUCTURE GRADE	CONSIST-ENCY
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Bench Mark used: ______________________

Description from Bench Mark: ______________________

Type of observation: Boring Pit Probe

Elevation of boring: ______________________

Soil map unit: ______________________

Depth to restricting layer: ______________________

Depth of system: ______________________

****Coarse sand (granules < 2mm) can be counted as part of the 3' separation unless it has 35%-50% gravel (granules > 2mm) in it, then it only counts as 50%. 50% or greater gravel can't be counted in the separation at all – you can go through it to get to another layer that will work. Must be accomplished in first 7' of soil and bottom of the dispersal area cannot be located in a layer of gravel.**

SOIL OBSERVATION LOG

Is the area disturbed or compacted? Yes No **Is the area located within a floodplain?** Yes No

What is the landscape position? *(circle one)* Summit Shoulder Back/Side Slop Foot Slope Toe Slope

Vegetation type: ______________________ **Slope %:** ______ **Slope Shape:** ______________________

Parent Material(s): *(circle all that apply)* Outwash Lacustrine Alluvium Loess Organic Material Bedrock

TEST HOLE #3 *(fill in the blanks, circle/check description where applicable – see back page for descriptions)*

DEPTH (INCHES)	TEXTURE	% ROCK FRAG	MATRIX COLOR(S)	MOTTLE COLORS	REDOX KIND(S)	Saturated Soil Ind. (See back pg.)	STRUCTURE SHAPE	STRUCTURE GRADE	CONSIST-ENCY
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Bench Mark used: ______________________

Description from Bench Mark: ______________________

Type of observation: Boring Pit Probe

Elevation of boring: ______________________

Soil map unit: ______________________

Depth to restricting layer: ______________________

Depth of system: ______________________

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PERCOLATION TEST DATA

*** TWO TESTS ARE REQUIRED ***

	PERC TEST #1	PERC TEST #2
Diameter of hole		
Depth to bottom of hole		
Did the hole require presoaking?		

PERC TEST #1

Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc

PERC TEST #2

Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc
Time	Interval (minutes)	Water Depth	Water Drop	Perc Rate
____ ____	Start ____	____ ____	____	____/____=____ time drop perc

PERCOLATION RATE: ________ SLR: ________ **PERCOLATION RATE:** ________ SLR: ________

Anticipated construction related concerns: ______________________________

____

Other inforamtion: ______________________________

____

Textures:

c-clay
sic-silty clay
sc-sandy clay
cl-clay loam
sicl-silty clay loam
scl-sandy clay loam
si-silt
sil-silt loam
l-loam
sl-sandy loam*
ls-loamy sand*
s-sand*

* Sand Modifiers
co-coarse
m-medium
f-fine
vf-very fine

Soil Structure
Grade:

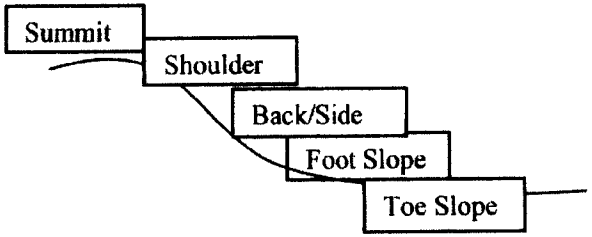
Weak-poorly formed, indistinct peds, barely observable in place

Moderate-Well formed, distinct peds, moderately durable and evident, but not distinct in undisturbed soil

Strong-durable peds that are quite evident in un-displaced soil, adhere weakly to one another, withstand displacement, and become separated when soil is disturbed

Loose-no peds, sandy soil

Landscape Position:



Soil Structure
Shape:

Granular-the peds are approximately spherical or polyhedral and are commonly found in topsoil. These are the small, rounded peds that hang onto roots when soil is turned over.

Platy-the peds are flat and plate like. They are oriented horizontally and are usually overlapping. Platy structure is commonly found in forested areas just below the leaf litter or shallow topsoil.

Blocky-the peds are block-like or polyhedral, and are bounded by flat or slightly rounded surface that are casting of the faces of surrounding peds. Blocky structure is commonly found in the lower topsoil and subsoil.

Prismatic- flat or slightly rounded vertical faces bound the individual peds.
Peds are distinctly longer vertically, and faces are typically cast or molds of adjoining peds. Prismatic structure is commonly found in the lower subsoil.

Single Grain-the structure found in a sandy soil. The individual particles are not held together.

Massive-no observable aggregates, or no orderly arrangement of natural lines of weakness

Consistence:

Loose-intact specimen not available
Friable-slight force between fingers
Firm-moderate force between fingers
Extremely firm-moderate force between hands or slight foot pressure
Rigid-foot pressure

Subsoil Indicator(s) of Saturation:

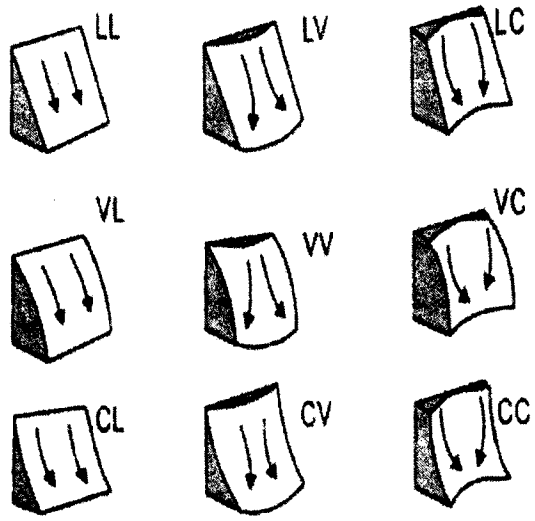
S1. Depleted matrix (value ≥4 and chroma ≤2)
S2. Distinct gray or red redox features
S3. 5Y chroma ≤ 3
S4. 7.5 YR or redder faint redox concentrations or redox depletions

If yes to one of the above indicators then:

Topsoil Indicator(s) of Saturation:

T1. Wetland vegetation
T2. Depressional landscape
T3. Organic texture or organic modifiers
T4. N 2.5/ 0 color
T5. Redox features in topsoil
T6. Hydric soil

Slope Shape - Slope shape is described in two directions: up-and-down slope (perpendicular to the contour), and across slope (along the horizontal contour); e.g., Linear, Convex or LV.



(adapted from Wysocki et al., 2000)

L = Linear
V = Convex
C = Concave

→ Surface flow pathway