



Agri-Waste Technology, Inc.
501 N Salem Street, Suite 203, Apex, NC 27502
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Soil Suitability for Domestic Sewage Treatment and Disposal Systems

Happy Valley Farm Drive,
Hillsborough, NC
Orange County

Prepared For:	Mr. Frank Christensen, Owner
XCOPY:	Mr. Tom Wiltberger, Terra Nova Compass
Prepared By:	Jeff Vaughan, Ph.D., L.S.S. Senior Agronomist/Soil Scientist
	William Snoeyink GIS Technician
Report Date:	September 13, 2024



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PREPARED BY: Jeff Vaughan
William Snoeyink

DATE: September 13, 2024

Soil suitability for domestic sewage treatment and disposal systems was evaluated on September 10, 2024, for property located on Happy Valley Farm Road near Hillsborough, NC. Trent Bostic, Heath Clapp, Brent Purdum, and Jeff Vaughan of Agri-Waste Technology, Inc. (AWT) conducted the soil evaluation. The detailed soil evaluation of the land area will follow. Property reference maps are in Attachment 1.

The total property area is approximately 128.89 acres. The property is completely wooded with a road bisecting the tract. There are creeks and several drainage features with moderate to steep slopes on the property (Attachment 2). There are also a number of rock outcrops on the property.

Soil Suitability for Domestic Sewage Treatment and Disposal Systems

The aerial map in Attachment 2 details the approximate property boundaries, soil boring locations, soil types, and soil areas for septic systems. Soil borings were flagged in the field with blue, red, and yellow ribbon. Approximately 106 soil borings were advanced on the property (Attachment 2). A portion of the property contained drainage features, complex topography, existing uses, and/or unsuitable soils and, thus, are unsuitable for septic systems. However, this evaluation was merely a preliminary review to determine what potential this land might have for domestic sewage treatment and disposal systems. Therefore, specific types of septic systems, exact locations of future drainfields and repair areas, plus buffers from property lines (current and potential future lot lines), building foundations, wells, etc. are not fully considered. These things will need to be more fully considered as the plans develop for the potential future of this site. It is likely that additional soil evaluations will be required once lot layouts are considered and developed

for this property so that septic system types and the location of a septic drainfield can be more fully and appropriately considered.

Eleven areas (see map in Attachment 2) evaluated on the property exhibited soil characteristics and soil depths (18" or greater) that are suitable for conventional trench or drip septic systems. The areas for each of these are shown on the maps in Attachment 2.

Typical profile descriptions of the suitable soil for this property are in Attachment 3. Three distinct soil profiles were observed in the soil borings on the property: a deep red clay subsoil, a shallower red clay subsoil, or a shallower reddish yellow clay subsoil with redoximorphic features.

The suitable soil borings had the following characteristics. No restrictive horizons were found in any soil borings within 18" of the soil surface. Soil texture was suitable and was estimated to be silt loam near the soil surface (A horizons) and clay in the subsoil (B horizons). Soil structure was suitable and was estimated to be granular near the soil surface (A horizons) and subangular blocky in the subsoil (B horizons). Clay mineralogy was suitable with very friable to firm moist soil consistence and non-sticky to sticky and non-plastic to plastic wet soil consistence. Indications of saprolite were detected in some soil borings, but were not dominant in profiles to a depth of 18" or more.

The mapped soil types on this property are Georgeville silt loam (map symbols GeB and GeC), Enon loam (map symbol EnB), Tarrus silt loam (map symbols TaD and TaE), and Chewacla soils (map symbol Ch). The Orange County Soil Survey indicates that moderate to severe limitations exist for septic systems installed in these soils types (Attachment 4).

The land area required for a conventional septic system is calculated based on the size of the proposed home and the Long-Term Acceptance Rate (LTAR) of the soil. The LTAR range for the suitable soils on this property is 0.1 – 0.4 GPD/ft² for conventional septic systems based on the most restrictive soil texture in the subsoil. The LTAR suggested by AWT is 0.25 GPD/ft², but the final LTAR for specific septic system types and septic drainfield locations may be set by the Orange County Health Department. The detailed computations are in Attachment 5.

The land area required for a drip septic system is calculated based on the size of the proposed home and the Long-Term Acceptance Rate (LTAR) of the soil. The LTAR range for the suitable soils on this property is 0.05 – 0.15 GPD/ft² for drip septic systems based on the most restrictive soil texture in the subsoil. The LTAR suggested by AWT is 0.1 GPD/ft², but the final LTAR for specific septic system types and septic drainfield locations will be set by the Orange County Health Department and possibly will be based on saturated hydraulic conductivity tests. The detailed computations are in Attachment 5.

Typically, the area required for a septic system is 3,000 – 5,000 ft² (initial and repair) per bedroom.

Conclusions

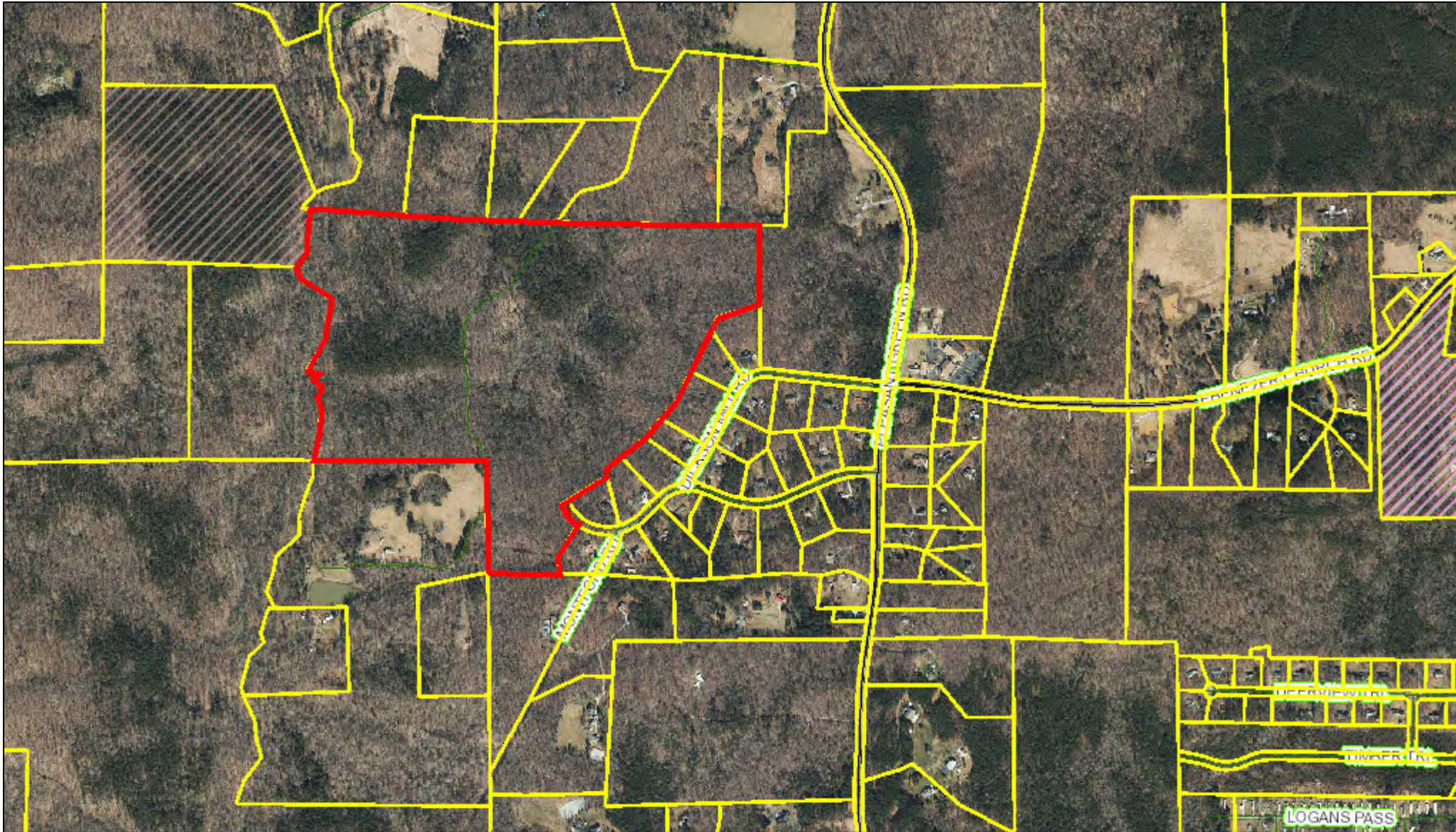
Based on the results of this evaluation, the installation of conventional or drip septic systems seems very probable on this property in the areas designated on the maps in Attachment 2.

We appreciate the opportunity to assist you in this matter. Please contact us with any questions, concerns, or comments.

christensen

ATTACHMENT 1: Property Reference Map

Aerial



August 14, 2024

This map contains parcels prepared for the inventory of real property within Orange County, and is compiled from recorded deed, plats, and other public records and data. Users of this map are hereby notified that the aforementioned public primary information sources should be consulted for verification of the information contained on this map.

The county and its mapping companies assume no legal responsibility for the information on this map.

PIN: 0805050049

OWNER 1: CHRISTENSEN PROPERTIES LLC SIZE:

129.89 A

OWNER 2:

DEED REF: 5243/409

ADDRESS 1: 400 CARAWAY XING

RATECODE: 09

ADDRESS 2:

TOWNSHIP ENO

CITY: CHAPEL HILL

STATE, ZIP: NC 27517

LEGAL DESC: W/O SR 1567

BLDG SQFT:

YEAR BUILT:

BUILDING COUNT:

LAND VALUE:

BLDG_VALUE:

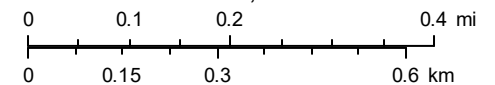
USE_VALUE:

TOTAL VALUE:

DATE SOLD: 10/25/2011

TAX STAMPS:

1:12,000




ORANGE COUNTY
NORTH CAROLINA

Aerial Close-Up



August 14, 2024

This map contains parcels prepared for the inventory of real property within Orange County, and is compiled from recorded deed, plats, and other public records and data. Users of this map are hereby notified that the aforementioned public primary information sources should be consulted for verification of the information contained on this map.

The county and its mapping companies assume no legal responsibility for the information on this map.

PIN: 0805050049

OWNER 1: CHRISTENSEN PROPERTIES LLC SIZE:

129.89 A

OWNER 2:

DEED REF: 5243/409

ADDRESS 1: 400 CARAWAY XING

RATECODE: 09

ADDRESS 2:

TOWNSHIP ENO

CITY: CHAPEL HILL

STATE, ZIP: NC 27517

LEGAL DESC: W/O SR 1567

BLDG SQFT:

YEAR BUILT:

BUILDING COUNT:

LAND VALUE:

BLDG_VALUE:

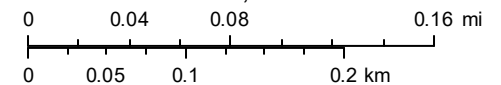
USE_VALUE:

TOTAL VALUE:

DATE SOLD: 10/25/2011

TAX STAMPS:

1:4,800




ORANGE COUNTY
NORTH CAROLINA

**ATTACHMENT 2: Property Map Detailing Soil Suitability
for Septic Systems and Soil Types**



Agri-Waste Technology, Inc.
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agriwaste.com | 919.859.0669

Preliminary Soil Evaluation

Frank Christensen
Orange Co., NC
PIN: 0805050049



Area for Septic:

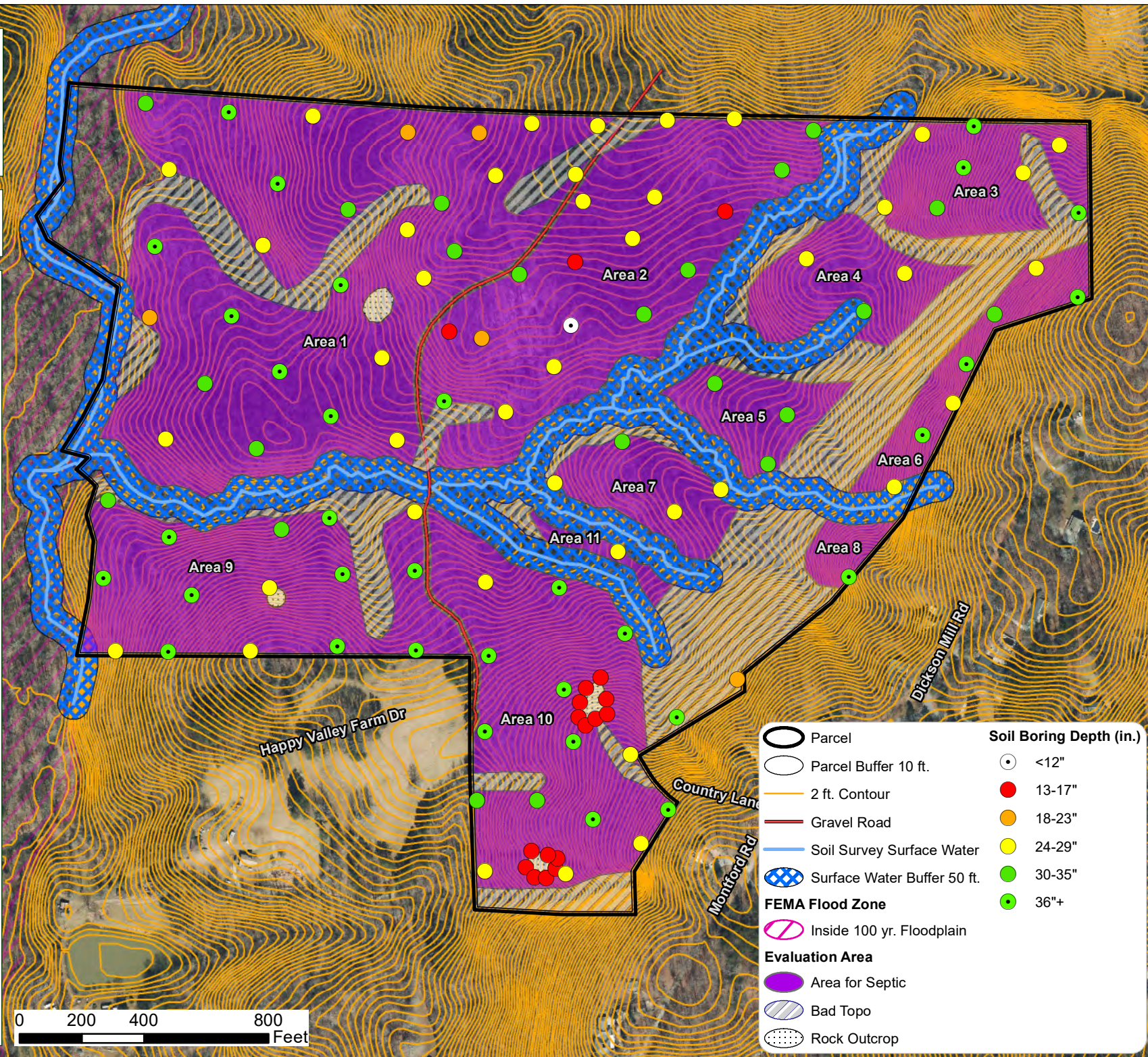
Area 1: ~1,199,199 sq.ft.
Area 2: ~660,851 sq.ft.
Area 3: ~194,389 sq.ft.
Area 4: ~167,426 sq.ft.
Area 5: ~113,874 sq.ft.
Area 6: ~127,566 sq.ft.
Area 7: ~129,357 sq.ft.
Area 8: ~38,499 sq.ft.
Area 9: ~447,823 sq.ft.
Area 10: ~536,793 sq.ft.
Area 11: ~25,124 sq.ft.

Soil Types:

Ch: Chewacla loam
EnB/EnC: Enon loam
GeB/GeC: Georgeville silt loam
TaD/TaE: Tarrus silt loam

Drawn By: William Snoeyink
Reviewed By: Jeff Vaughan
Date: 9/13/2024

0 200 400 800
Feet



Preliminary Soil Evaluation

Frank Christensen
Orange Co., NC
PIN: 0805050049

Area for Septic:

Area 1: ~1,199,199 sq.ft.
Area 2: ~660,851 sq.ft.
Area 3: ~194,389 sq.ft.
Area 4: ~167,426 sq.ft.
Area 5: ~113,874 sq.ft.
Area 6: ~127,566 sq.ft.
Area 7: ~129,357 sq.ft.
Area 8: ~38,499 sq.ft.
Area 9: ~447,823 sq.ft.
Area 10: ~536,793 sq.ft.
Area 11: ~25,124 sq.ft.

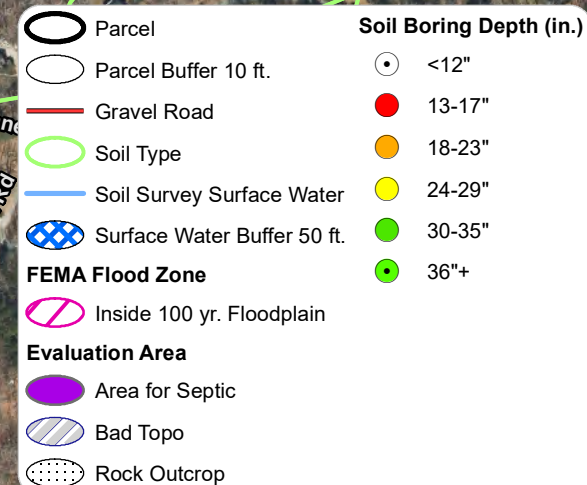
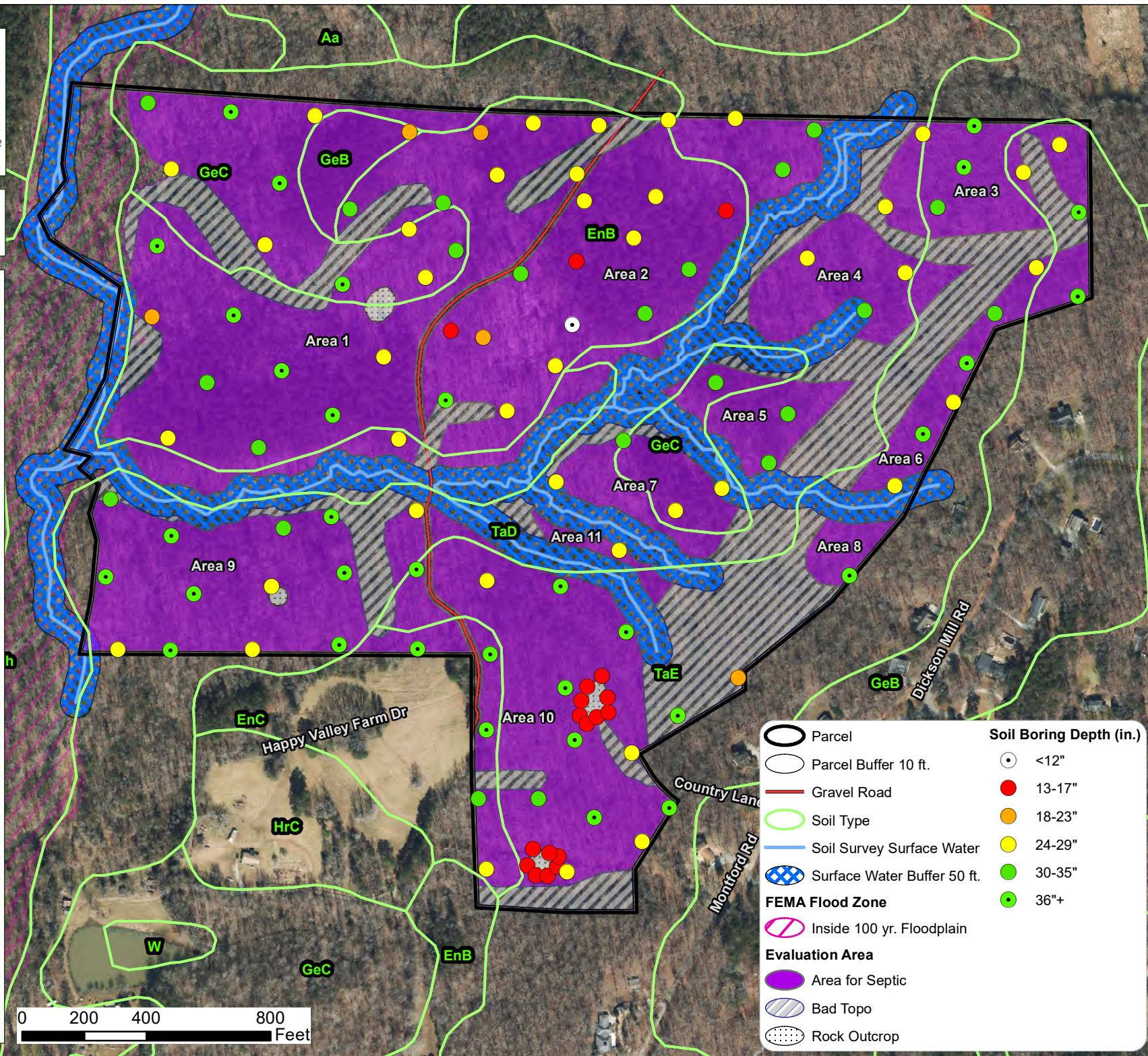
Soil Types:

Ch: Chewacla loam
EnB/EnC: Enon loam
GeB/GeC: Georgeville silt loam
TaD/TaE: Tarrus silt loam

Drawn By: William Snoeyink
Reviewed By: Jeff Vaughan
Date: 9/13/2024



0 200 400 800
Feet



**ATTACHMENT 3: Typical Profile Descriptions of
Provisionally Suitable Soil**

County: Orange

SOIL/SITE EVALUATION FOR ON-SITE WASTEWATER SYSTEM

Chapel Hill, NC 27517

Property Size: Approximately 128.892 acres

Location Site: Happy Valley Farm Drive, Hillsborough, NC

Water Supply: On Site Well X Comm. Well__ Public__ Other__

Evaluation Method: Auger Boring_X_Pit__Cut__

TYPICAL PROFILE

[illegible]

.1940 Landscape Pos/Slope %	- Suitable, <15%	Profile LTAR	- 0.4 – 0.1 GPD/ft ²
.1942 Wetness Condition	- Suitable	System Type	- Suitable for shallow conventional systems due to texture, structure, and depth.
.1943/.1956 Saprolite	- Suitable		
.1944 Restrictive Horizon	- Suitable		
.1948 Profile Classification	- Suitable		

Comments: Some indications of saprolite beginning around 30", but not dominant.

TYPICAL PROFILE

[illegible]

.1940 Landscape Pos/Slope %	- Suitable, <15%	Profile LTAR	- 0.4 – 0.1 GPD/ft ²
.1942 Wetness Condition	- Suitable	System Type	- Suitable for shallow conventional systems due to texture, structure, and depth.
.1943/.1956 Saprolite	- Suitable		
.1944 Restrictive Horizon	- Suitable		
.1948 Profile Classification	- Suitable		

Comments:

EVALUATED BY: Trent Bostic, Heath Clapp, Brent Purdum, and Jeff Vaughan

COMMENTS: _____

LEGEND OF ABBREVIATIONS FOR SITE EVALUATION FORM

<u>LANDSCAPE POSITION</u>	<u>TEXTURE GROUP</u>	<u>TEXTURE CLASS</u>	<u>.1955 LTAR</u> (gal/day/sqft)
CC - Concave Slope CV - Convex Slope DS - Debris Slump D - Depression DW - Drainage Way FP - Flood Plain FS - Foot Slope H - Head Slope I - Interflueve L - Linear Slope N - Nose Slope P - Pocosin R - Ridge S - Shoulder T - Terrace	I	S - Sand LS - Loamy Sand	1.2 - .08
	II	SL - Sandy Loam L - Loam	0.8 - 0.6
	III	SCL - Sandy Clay Loam CL - Clay Loam SiL - Silt Loam Si - Silt SiCL - Silt Clay Loam	0.6 - 0.3
	IV	SC - Sandy Clay C - Clay SiC - Silty Clay O - Organic	0.4 - 0.1
<u>STRUCTURE</u>	<u>MOIST CONSISTENCE</u>	<u>MOTTLES</u>	<u>WET CONSISTENCE</u>
G - Single Grain M - Massive CR - Crumb GR - Granular SBK - Subgranular Blocky ABK - Angular Blocky PL - Platy PR - Prismatic	Vfr - Very Friable Fr - Friable Fi - Firm Vfi - Very Firm Efi - Extremely Firm	1 - Few 2 - Common 3 - Many F - Faint D - Distinct P - Prominent f - Fine m - Medium c - Coarse	NS - Non Sticky SS - Slightly Sticky S - Sticky VS - Very Sticky NP - Non Plastic SP - Slightly Plastic P - Plastic VP - Very Plastic

County: Orange

SOIL/SITE EVALUATION FOR ON-SITE WASTEWATER SYSTEM

Chapel Hill, NC 27517

Property Size: Approximately 128.892 acres

Location Site: Happy Valley Farm Drive, Hillsborough, NC

Water Supply: On Site Well X Comm. Well__ Public__ Other__

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TYPICAL PROFILE

[illegible]

.1940 Landscape Pos/Slope %	- Suitable, <15%	Profile LTAR	- 0.05 – 0.15 GPD/ft ²
.1942 Wetness Condition	- Suitable	System Type	- Suitable for drip systems due to texture, structure, and depth.
.1943/.1956 Saprolite	- Suitable		
.1944 Restrictive Horizon	- Suitable		
.1948 Profile Classification	- Suitable		

Comments:

TYPICAL PROFILE

[illegible]

.1940 Landscape Pos/Slope %		Profile LTAR	
.1942 Wetness Condition		System Type	
.1943/.1956 Saprolite			
.1944 Restrictive Horizon			
.1948 Profile Classification			

Comments:

EVALUATED BY: Trent Bostic, Heath Clapp, Brent Purdum, and Jeff Vaughan

COMMENTS: _____

LEGEND OF ABBREVIATIONS FOR SITE EVALUATION FORM

<u>LANDSCAPE POSITION</u>	<u>TEXTURE GROUP</u>	<u>TEXTURE CLASS</u>	<u>.1955 LTAR</u> (gal/day/sqft)
CC - Concave Slope CV - Convex Slope DS - Debris Slump D - Depression DW - Drainage Way FP - Flood Plain FS - Foot Slope H - Head Slope I - Interflueve L - Linear Slope N - Nose Slope P - Pocosin R - Ridge S - Shoulder T - Terrace	I	S - Sand LS - Loamy Sand	1.2 - .08
	II	SL - Sandy Loam L - Loam	0.8 - 0.6
	III	SCL - Sandy Clay Loam CL - Clay Loam SiL - Silt Loam Si - Silt SiCL - Silt Clay Loam	0.6 - 0.3
	IV	SC - Sandy Clay C - Clay SiC - Silty Clay O - Organic	0.4 - 0.1
<u>STRUCTURE</u>	<u>MOIST CONSISTENCE</u>	<u>MOTTLES</u>	<u>WET CONSISTENCE</u>
G - Single Grain M - Massive CR - Crumb GR - Granular SBK - Subgranular Blocky ABK - Angular Blocky PL - Platy PR - Prismatic	Vfr - Very Friable Fr - Friable Fi - Firm Vfi - Very Firm Efi - Extremely Firm	1 - Few 2 - Common 3 - Many F - Faint D - Distinct P - Prominent f - Fine m - Medium c - Coarse	NS - Non Sticky SS - Slightly Sticky S - Sticky VS - Very Sticky NP - Non Plastic SP - Slightly Plastic P - Plastic VP - Very Plastic

ATTACHMENT 4: Soil Survey Information

ORANGE COUNTY, NORTH CAROLINA

69

TABLE 7.--SANITARY FACILITIES

["Percs slowly" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "severe" and other terms used to rate soils. Absence of an entry means soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Altavista: Aa-----	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Good.
Appling: ApB-----	Moderate: percs slowly.	Moderate: slope, seepage.	Moderate: too clayey.	Slight-----	Fair: too clayey.
ApC-----	Moderate: slope, percs slowly.	Severe: slope, seepage.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey, slope.
¹ AuC: Appling part-----	Moderate: percs slowly.	Moderate: slope, seepage.	Moderate: too clayey.	Slight-----	Fair: too clayey.
Urban land part.					
Cecil: CfB-----	Moderate: percs slowly.	Moderate: seepage.	Severe: too clayey.	Slight-----	Fair: too clayey.
CfC-----	Moderate: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Fair: too clayey.
Chewacla: Ch-----	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Good.
Congaree: Cp-----	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Good.
Creedmoor: CrB-----	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey.
Enon: EnB-----	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----	Poor: too clayey.
EnC-----	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey.
Georgeville: GeB, ¹ GhC-----	Moderate: percs slowly.	Moderate: slope, seepage.	Moderate: too clayey.	Slight-----	Poor: too clayey.
GeC-----	Moderate: percs slowly, slope.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Poor: too clayey.
Goldston: Gld, GlF-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: seepage.	Poor: small stones, thin layer.
Helena: HeB-----	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----	Poor: too clayey.

See footnote at end of table.

SOIL SURVEY

TABLE 7.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Helena: ¹ HhA:					
Helena part-----	Severe: percs slowly.	Slight-----	Severe: too clayey.	Slight-----	Poor: too clayey.
Sedgefield part--	Severe: percs slowly, wetness.	Slight-----	Severe: too clayey.	Moderate: wetness.	Poor: too clayey.
Herndon:					
HrB-----	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight-----	Poor: too clayey.
HrC-----	Moderate: percs slowly, slope.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Poor: too clayey.
Hiwassee:					
HwB-----	Moderate: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----	Fair: too clayey.
HwC-----	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Fair: too clayey.
Iredell:					
IrB-----	Severe: percs slowly.	Moderate: slope.	Severe: too clayey, depth to rock.	Slight-----	Poor: too clayey.
¹ IuB:					
Iredell part-----	Severe: percs slowly.	Moderate: slope.	Severe: too clayey, depth to rock.	Slight-----	Poor: too clayey.
Urban land part.					
Lignum:					
Lg-----	Severe: percs slowly, wetness.	Severe: wetness.	Severe: depth to rock, wetness.	Severe: wetness.	Poor: too clayey.
Louisburg:					
LoC-----	Moderate: depth to rock.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: slope.
LoF-----	Severe: slope.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: slope.
Orange:					
Or-----	Severe: percs slowly, wetness.	Moderate: depth to rock.	Severe: depth to rock, wetness, too clayey.	Severe: wetness.	Poor: too clayey.
Pits:					
Pt.					
Tatum:					
TaD-----	Severe: depth to rock.	Severe: slope.	Severe: depth to rock.	Moderate: slope.	Poor: too clayey.
TaE-----	Severe: slope.	Severe: slope.	Severe: depth to rock.	Severe: slope.	Poor: slope.
Urban land:					
Ur.					
Vance:					
VaB-----	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----	Poor: too clayey.

See footnote at end of table.

**ATTACHMENT 5: Septic System Area Computation
Spreadsheets**

Conventional Septic System Area Computation

Created by: JV
Created on: 6/20/2001
Updated on: 9/12/2024

Client Name: *Christensen*
Number Bedrooms: 3
Design Flow (gal/day): 360 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.1
Trench Bottom Area (ft²): 3600 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 1200

Minimum Field Area Required (ft²): 10800 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 8100 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 27000 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 20250 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 32400 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 24300 (25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 3
Design Flow (gal/day): 360 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.4
Trench Bottom Area (ft²): 900 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 300

Minimum Field Area Required (ft²): 2700 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 2025 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 6750 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 5062.5 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 8100 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 6075 (25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 3
Design Flow (gal/day): 360 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.25
Trench Bottom Area (ft²): 1440 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 480

Minimum Field Area Required (ft²): 4320 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 3240 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 10800 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 8100 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 12960 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 9720 (25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Conventional Septic System Area Computation

Created by: JV
Created on: 6/20/2001
Updated on: 9/12/2024

Client Name: *Christensen*
Number Bedrooms: 4
Design Flow (gal/day): 480 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.1
Trench Bottom Area (ft²): 4800 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 1600

Minimum Field Area Required (ft²): 14400 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 10800 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 36000 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 27000 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 43200 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 32400 (25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 4
Design Flow (gal/day): 480 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.4
Trench Bottom Area (ft²): 1200 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 400

Minimum Field Area Required (ft²): 3600 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 2700 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 9000 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 6750 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 10800 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 8100 (25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 4
Design Flow (gal/day): 480 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.25
Trench Bottom Area (ft²): 1920 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 640

Minimum Field Area Required (ft²): 5760 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 4320 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 14400 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 10800 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 17280 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 12960 (25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Conventional Septic System Area Computation

Created by: JV
Created on: 6/20/2001
Updated on: 9/12/2024

Client Name: *Christensen*
Number Bedrooms: 5
Design Flow (gal/day): 600 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.1
Trench Bottom Area (ft²): 6000 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 2000

Minimum Field Area Required (ft²): 18000 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 13500 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 45000 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 33750 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 54000 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 40500 (25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 5
Design Flow (gal/day): 600 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.4
Trench Bottom Area (ft²): 1500 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 500

Minimum Field Area Required (ft²): 4500 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 3375 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 11250 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 8437.5 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 13500 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 10125 (25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 5
Design Flow (gal/day): 600 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.25
Trench Bottom Area (ft²): 2400 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 800

Minimum Field Area Required (ft²): 7200 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 5400 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 18000 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 13500 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 21600 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 16200 (25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Drip Septic System Area Computation

Created by: JV
Created on: 6/20/2001
Updated on: 9/12/2024

Client Name: *Christensen*
Number Bedrooms: 3
Design Flow (gal/day): 360 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.05
Trench Bottom Area (ft²): 7200 (Design flow/LTAR)
Trench Width (ft): 0
On-center distance between trenches (ft): 2
Trench Bottom Length (ft): 3600

Minimum Field Area Required (ft²): 7200 (Trench Bottom Length*Trench on-center distance)
Total Field Area Required (ft²)⁽¹⁾: 18000 (Minimum field area*2.5)
Total Field Area Required (ft²)⁽¹⁾: 21600 (Minimum field area*3)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 3
Design Flow (gal/day): 360 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.15
Trench Bottom Area (ft²): 2400 (Design flow/LTAR)
Trench Width (ft): 0
On-center distance between trenches (ft): 2
Trench Bottom Length (ft): 1200

Minimum Field Area Required (ft²): 2400 (Trench Bottom Length*Trench on-center distance)
Total Field Area Required (ft²)⁽¹⁾: 6000 (Minimum field area*2.5)
Total Field Area Required (ft²)⁽¹⁾: 7200 (Minimum field area*3)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 3
Design Flow (gal/day): 360 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.1
Trench Bottom Area (ft²): 3600 (Design flow/LTAR)
Trench Width (ft): 0
On-center distance between trenches (ft): 2
Trench Bottom Length (ft): 1800

Minimum Field Area Required (ft²): 3600 (Trench Bottom Length*Trench on-center distance)
Total Field Area Required (ft²)⁽¹⁾: 9000 (Minimum field area*2.5)
Total Field Area Required (ft²)⁽¹⁾: 10800 (Minimum field area*3)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Drip Septic System Area Computation

Created by: JV
Created on: 6/20/2001
Updated on: 9/12/2024

Client Name: *Christensen*
Number Bedrooms: 4
Design Flow (gal/day): 480 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.05
Trench Bottom Area (ft²): 9600 (Design flow/LTAR)
Trench Width (ft): 0
On-center distance between trenches (ft): 2
Trench Bottom Length (ft): 4800

Minimum Field Area Required (ft²): 9600 (Trench Bottom Length*Trench on-center distance)
Total Field Area Required (ft²)⁽¹⁾: 24000 (Minimum field area*2.5)
Total Field Area Required (ft²)⁽¹⁾: 28800 (Minimum field area*3)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 4
Design Flow (gal/day): 480 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.15
Trench Bottom Area (ft²): 3200 (Design flow/LTAR)
Trench Width (ft): 0
On-center distance between trenches (ft): 2
Trench Bottom Length (ft): 1600

Minimum Field Area Required (ft²): 3200 (Trench Bottom Length*Trench on-center distance)
Total Field Area Required (ft²)⁽¹⁾: 8000 (Minimum field area*2.5)
Total Field Area Required (ft²)⁽¹⁾: 9600 (Minimum field area*3)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 4
Design Flow (gal/day): 480 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.1
Trench Bottom Area (ft²): 4800 (Design flow/LTAR)
Trench Width (ft): 0
On-center distance between trenches (ft): 2
Trench Bottom Length (ft): 2400

Minimum Field Area Required (ft²): 4800 (Trench Bottom Length*Trench on-center distance)
Total Field Area Required (ft²)⁽¹⁾: 12000 (Minimum field area*2.5)
Total Field Area Required (ft²)⁽¹⁾: 14400 (Minimum field area*3)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Drip Septic System Area Computation

Created by: JV
Created on: 6/20/2001
Updated on: 9/12/2024

Client Name: *Christensen*
Number Bedrooms: 5
Design Flow (gal/day): 600 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.05
Trench Bottom Area (ft²): 12000 (Design flow/LTAR)
Trench Width (ft): 0
On-center distance between trenches (ft): 2
Trench Bottom Length (ft): 6000

Minimum Field Area Required (ft²): 12000 (Trench Bottom Length*Trench on-center distance)
Total Field Area Required (ft²)⁽¹⁾: 30000 (Minimum field area*2.5)
Total Field Area Required (ft²)⁽¹⁾: 36000 (Minimum field area*3)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 5
Design Flow (gal/day): 600 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.15
Trench Bottom Area (ft²): 4000 (Design flow/LTAR)
Trench Width (ft): 0
On-center distance between trenches (ft): 2
Trench Bottom Length (ft): 2000

Minimum Field Area Required (ft²): 4000 (Trench Bottom Length*Trench on-center distance)
Total Field Area Required (ft²)⁽¹⁾: 10000 (Minimum field area*2.5)
Total Field Area Required (ft²)⁽¹⁾: 12000 (Minimum field area*3)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: *Christensen*
Number Bedrooms: 5
Design Flow (gal/day): 600 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.1
Trench Bottom Area (ft²): 6000 (Design flow/LTAR)
Trench Width (ft): 0
On-center distance between trenches (ft): 2
Trench Bottom Length (ft): 3000

Minimum Field Area Required (ft²): 6000 (Trench Bottom Length*Trench on-center distance)
Total Field Area Required (ft²)⁽¹⁾: 15000 (Minimum field area*2.5)
Total Field Area Required (ft²)⁽¹⁾: 18000 (Minimum field area*3)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.