

**LEE COUNTY PLANNING BOARD
REGULAR MEETING**

Monday, February 17, 2020, 6:00 PM

Lee Co. Government Center, 106 Hillcrest Drive – Gordon Wicker Conference Room

CALL TO ORDER – 6:00 PM - NO PUBLIC HEARING REQUIRED.

PLEASE GO STRAIGHT TO THE GORDON WICKER CONFERENCE ROOM AND START THE MEETING.

Introduction by Chairman: The Lee County Planning Board is an advisory council on matters relating to land development and long-range planning and provides recommendations to the Lee County Commissioners. All information relevant to each case should have been presented during the public hearing. The Planning Board may ask for clarification of information received during the public hearing, but may not receive new information. Recommendations made this evening will be presented to the Commissioners for consideration on March 2, 2020 and action may or may not be taken at that time per the discretion of the Commissioners.

- A. APPROVAL OF AGENDA**
- B. APPROVAL OF MINUTES – *January 21, 2020***
- C. DISCLOSURE OF CONFLICT OF INTEREST**
- D. OLD BUSINESS (*None*)**
- E. NEW BUSINESS**

- 1. MAJOR SUBDIVISION PRELIMINARY PLAT (*No public hearing required*)

Application by Harrington Properties of NC to develop a 40 lot residential single-family home subdivision on a vacant 43 ± acre tract of land with frontage on Cox Maddox Road (between 812/814 and 828 Cox Maddox Road) and frontage on Wilmer Road (opposite 299 Wilmer Road). The subject property was rezoned from Residential Agricultural (RA) to Residential Restricted (RR) in January of 2020 and is identified as Tax Parcel 9661-83-4636-00 as depicted on Lee County Tax Map 9661.04.

- F. OTHER BUSINESS (*None, unless added by the board.*)**
- G. ADJOURNMENT**

****** REFERENCE THE FULL SIZE PRELIMINARY PLAT AND SOIL REPORT
INCLUDED WITH THE AGENDA PACKET ******

**MINUTES OF THE REGULAR MEETING OF THE
LEE COUNTY PLANNING BOARD
SANFORD, NORTH CAROLINA**

The Lee County Planning Board met in regular session at the Gordon Wicker Conference Room, on Tuesday, January 21, 2020. The meeting was called to order at 6:00 PM.

ROLL CALL

Members Present: Herman Morris, Vice-Chair
Walter Ferguson
Frank Gilliam
Dave Turner
Charles Baker
Oscar Roberto

Members Absent: Kay Coles, Chair

Staff Present: Clerk to the Board Angela Baker; and Amy McNeill, Zoning Administrator.

MEETING CALLED TO ORDER

Having noted the presence of a quorum, Vice-Chair Morris called the meeting to order.

APPROVAL/DISAPPROVAL OF AGENDA

Moved by Board member Gilliam seconded by Board member Ferguson and carried unanimously.

APPROVAL OF MINUTES

Moved by Board member Roberto seconded by Board member Gilliam and carried unanimously.

DISCLOSURE OF CONFLICTS OF INTEREST

There were none.

NEW BUSINESS

1. REZONING APPLICATION

Application by SACR Development, LLC to rezone two vacant tracts of land totaling 26.21 +/- acres with frontage on St. Andrews Church Road (between 2013 and 2207 St. Andrews Church Road) from Residential Agricultural (RA) to Residential Single Family (R-20). The subject property is identified as Tax Parcels 9650-59-9227-00 and 9650-58-5534-00 as depicted on Lee County Tax Map 9650.02

DISCUSSION

Concerns of the Board included sedimentation and erosion control; the wetlands located at the back of the property and preventing water from flowing onto neighboring property.

Amy McNeill stated that those concerns were controlled by the State/NCDEQ or the U.S Army Corp. of Engineers.

DECISION

Board member Turner made a motion to recommend that the County Commissioners approve the rezoning based on it being consistent with the long-range plan; and that the sedimentation/erosion control issues and traffic/driveway permits are approved at the State level. Seconded by Board member Roberto. The motion carried unanimously.

ADJOURNMENT

With no further business to come before the Board, upon, seconded by Board member Ferguson, the meeting was adjourned at 7:15 P.M.

Adopted this _____ day of _____, 2020.

BY: _____
Herman Morris, Vice-Chair

ATTEST:

Angela M. Baker, Clerk

LEE COUNTY
PLANNING BOARD STAFF REPORT
February 17, 2020

Cox Maddox Road Subdivision Preliminary Plat

Introduction: Harrington Properties of NC is requesting preliminary plat approval for a 40-lot residential subdivision located off of Cox Maddox Road and Wilmer Road. All lots are proposed to be served by public water, individual private septic systems, and public streets.

Location:	Off of Cox Maddox Road (SR 15277) and Wilmer Road (SR 1528), both a NCDOT maintained public streets
Property Owner:	Donna Leigh Thomas (per GIS)
Project Developer:	Harrington Properties of NC
Project Engineer:	J Thomas Engineering, Inc.
Township:	Jonesboro
Tax Parcel:	9661-83-4636-00
Tax Maps:	9661.04
Zoning:	Residential Restricted (RR)
Total Lots:	40 lots, plus three areas that are designated as Open Space
Acreage:	42.73
Minimum Lot Size:	30,000sf
Smallest Residential Lot:	30,000sf or 0.68 of an acre and there are two
Largest Residential Lot:	53,184sf or 1.22 acres
Linear Feet of Street:	2,880 ± linear feet total
Street:	Public Streets with a 60ft right-of-way width, NCDOT
Water & Sewer:	Public Water and Private Septic Systems
Fire District:	Cape Fear Fire Dept., per GIS

Area & Site Description: The site is located in southwestern Lee County, south of US 421 Hwy, east of the US 421 Hwy Bypass and west of Cox Mill Road, off of Cox Maddox Road. Carolina Trace Subdivision, a gated residential community that surrounds Lake Trace and has a country club and two golf courses, is located on adjoining land southwest of the site. The other area surrounding the site is either developed with single-family homes, is farmland, or wooded.

Zoning District Information

Current Zoning

The minimum lot width is 100ft, with a minimum lot size of 30,000sf, and a max building height of 40ft.

The minimum building setbacks for a principal structure or house is as follows:

Front:	30 feet, as measured from the right-of-way line of the proposed public street
Rear:	30 feet, measured from the rear property line
Side(s):	15 feet, measured from the side property lines

Adjoining Zoning

North:	Residential Restricted (RR), opposite Cox Maddox Road
South:	Residential Agricultural (RA) and Residential Restricted (RR)
East:	Residential Restricted Conditional Use (RR-CU) and Residential Agricultural (RA)
West:	Residential Agricultural (RA) and Residential Single-family (R-20)

Area Plans and Overlay Districts

Long Range Plan: The *Plan SanLee* land use plan identifies the future land use place type for this tract of land as “Countryside”, which has the following characteristics:

- agricultural and undeveloped lands outside the Urban Service Area
- preservation of the country’s agricultural heritage encouraged
- conservation and maintenance of rural lifestyle supported
- limited residential density

Land use designations include schools, churches, single-family detached dwellings, farmland, forests, and conservation land. Forms of transportation include automobiles that share the roads with agricultural activity (with vehicular connectivity encouraged in new development) and pedestrians walking & bicycling on off-street trails. The zoning districts are Residential Agricultural (RA) and Residential Restricted (RR). The maximum development density is one dwelling unit per two acres with deep building setbacks and a 35ft height limit. Utility infrastructure is well water and on-site wastewater disposal. The features character is two-lane rural highways, dispersed development pattern, and agricultural fields & forests.

Local Overlay District Notes: Per GIS, the subject property is not located within a historic district, a Watershed Conservation Overlay District or a Flood Hazard Area/Floodplain.

Local Overlay District Notes: Per GIS, the subject property is not located within an area with a historic district, an established Flood Hazard Area/Floodplain or a Watershed Conservation Overlay District. There is a pond with associated wetlands on site, which would need to be taken into consideration when/if the site is developed. Specifically, the pond is within the 6 acre Open Space area and encroaches into the rear of lots 35 and 36.

Utilities: The subject property appears to have access to public water via a 6-inch public water main that runs parallel to Cox Maddox Road. All public water extensions must be reviewed and approved by the City of Sanford Engineering/Public Works Department.

The subject property has been evaluated by a licensed soil scientist in order to determine the suitability of soils for individual private septic systems and the project designer has utilized this general information when creating the lot configurations. The preliminary plat illustrates the “unsuitable soils for septic systems” for your reference and both Planning staff and the Lee County Environmental Health Department have a copy of the study created by the soil scientist. Future residential development on each lot would be served by individual private septic systems that would need to be approved by the Lee County Environmental Health Department at the time that the developer or individual lot owner proposes to construct a house.

Transportation: The site has 102ft ± of road frontage on Cox Maddox Road (SR1527), a NCDOT maintained paved public highway (asphalt) with a 60ft right-of-way. It also has 1,358ft ± of road frontage on Wilmer Road (SR1528), a NCDOT maintained soil public highway (dirt road) with a 60ft right-of-way. At this time, NCDOT does not have plans to further improve or pave this roadway. The closest traffic count in the area is a 2016 traffic count of 1,000 vehicles per day on Mt. Pisgah Church Road, just north of the Cox Maddox intersection, which is 2,600ft ± northwest of the site.

Staff Analysis: No architectural plans are required to be reviewed/approved as part of this subdivision review since the zoning is a standard RR district and not a conditional zoning district. Also, no sidewalks or curb & gutter are required since the lots are 20,000sf or greater.

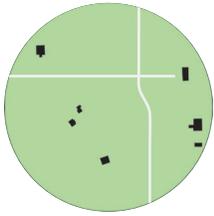
The topography slopes downward from middle of the site. Sanford/Lee County does not have a local grading permit and relies on the North Carolina Department of Environmental Quality (NCDEQ) to regulate land disturbing activities. A sedimentation and erosion control plan for this project must be approved by NCDEQ

and a copy of the approval must be on file with the Planning Department prior to recordation of the final subdivision plat.

Please be aware that the subdivision design as illustrated on the preliminary plat does not appear to comply with the UDO standard in that the maximum allowed cul-de-sac street length for a street serving lots with an average of 20,000 square feet or greater is 1,000 linear feet. The proposed street is 1,245 linear feet; therefore, it exceeds the UDO requirement by 245 feet. The UDO has specific language which states that a subdivision which is designed to include only one street which is terminating in a cul-de-sac may be allowed to exceed the maximum length provided certain physical conditions exist which prohibit the logical or practical extension of additional streets. The Planning Board shall make this determination as part of their review of an application for preliminary subdivision plat approval. The project engineer has provided a letter that is included within your agenda packet providing the rationale for this exception.

Other Conditions/ Requirements/Notes:

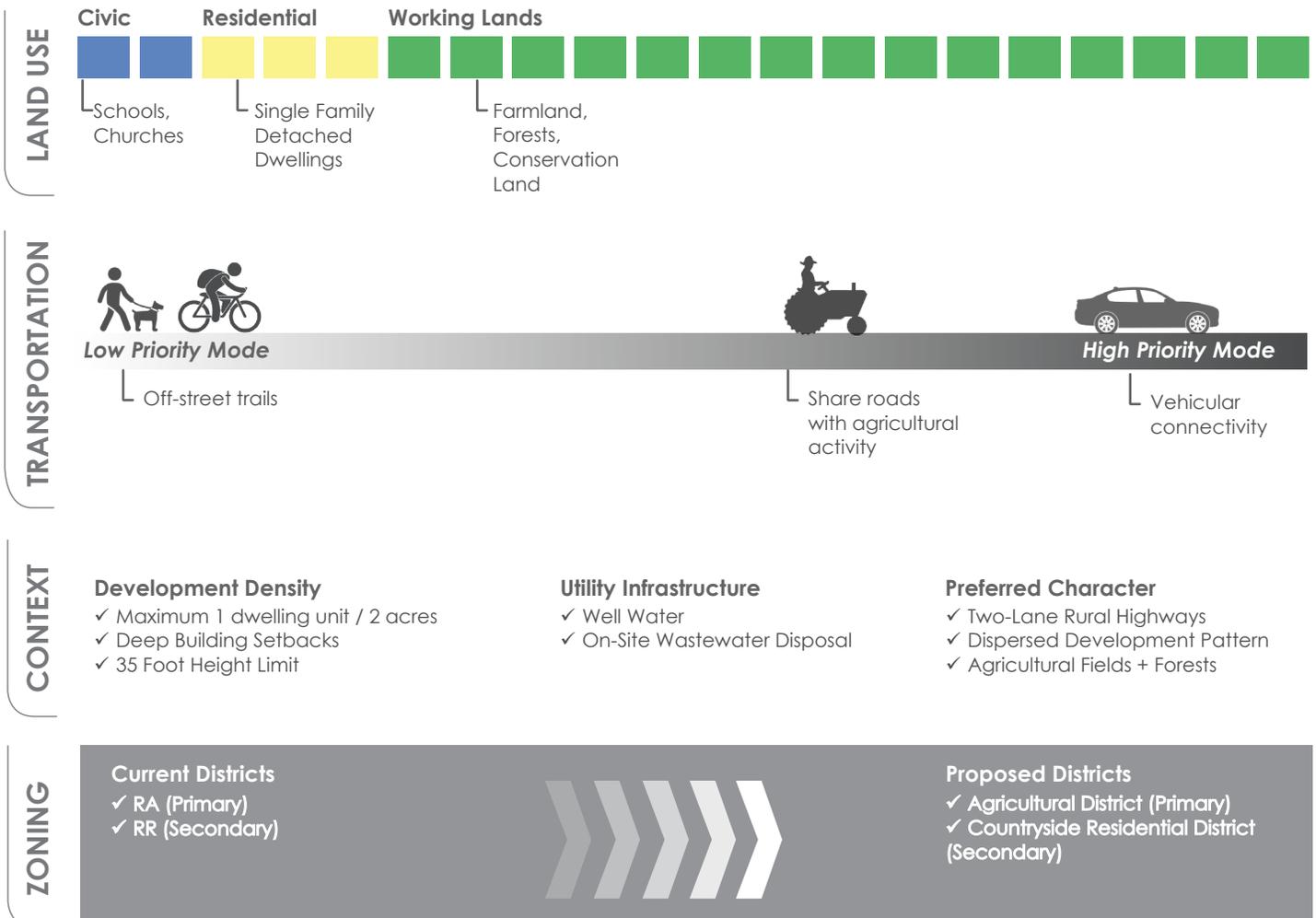
- 1.) The TRC this plat on January 30, 2020 and was agreeable with the preliminary plat moving forward for review & approval by the Planning Board and the Lee County County Commissioners. All TRC technical revisions must be addressed prior to the final plat being recorded.
- 2.) A copy of the NCDEQ approval will be required prior to recordation of the final plat for each phase.
- 3.) A copy of the NCDOT approval will be required prior to recordation of the final plat for each phase.
- 4.) The preliminary plat shall be valid for two years if approved by the Lee County Commissioners.



COUNTRYSIDE

- ✓ Agricultural and undeveloped lands outside the Urban Service Areas
- ✓ Preservation of county's agricultural heritage encouraged
- ✓ Conservation and maintenance of rural lifestyle supported
- ✓ Limited residential density

Local Example - Avents Ferry Road Corridor in northeast Lee County



Received
Planning *EN*
Date: 02.05.2020
Time: PM

J THOMAS ENGINEERING, INC.

CIVIL ENGINEERING & PLANNING

143 Charlotte Avenue, Suite 104
Sanford, North Carolina 27330
919-777-6010 phone
www.jthomasengineering.com
License No. C-3389

February 5, 2020

Ms. Amy McNeill
Zoning Administrator
Sanford / Lee County Zoning and Design Review
115 Chatham Street
Sanford, NC 27330

**Reference: Preliminary Plat Planning Board Submittal
Harrington Properties of NC Residential Development
Proposed 40-Lot Subdivision off Cox Maddox Road
Lee County, North Carolina**

Dear Amy:

For submittal to the Planning Board, please find enclosed twelve (12) copies of the Preliminary Plat for the Harrington Properties of NC Residential Development. I will forward you the digital plan by email.

Review comments were received during the TRC review process and have been addressed. Planning staff indicated that the proposed subdivision design does not meet the UDO in one respect. However, the UDO does provide language to allow the Governing Board to approve the one proposed exception where practical difficulties exist. I offer the following response to hopefully demonstrate that practical difficulty does indeed exist:

Proposed Exception 1): The proposed cul-de-sac street for Road 'A' is 1,245 linear feet (as measured per UDO Table 6.7-1), exceeding the UDO maximum cul-de-sac street length (1,000 linear feet) by 245 linear feet.

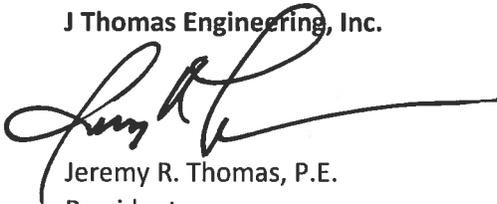
JTE Response: The Road 'A' cul-de-sac is necessary as connectivity to an existing street is not practical at its terminus. The existing Chelsea Drive is located to the west but is not accessible through the private development of Carolina Trace. The existing Wilmer Road is located to the south but private property (Cole property and Kelly property) exists between the development site and Wilmer Road. Therefore, it is my professional opinion a practical difficulty exists in providing a maximum cul-de-sac street length of 1,000 linear feet.

Ms. Amy McNeill
Preliminary Plat Planning Board Submittal – Cox Maddox Rd Residential
February 5, 2020
Page 2 of 2

If you require any additional information regarding this matter, please contact me at your convenience. I plan to attend the Planning Board meeting on February 17th should any questions arise. Thank you for your assistance on this project.

Sincerely,

J Thomas Engineering, Inc.

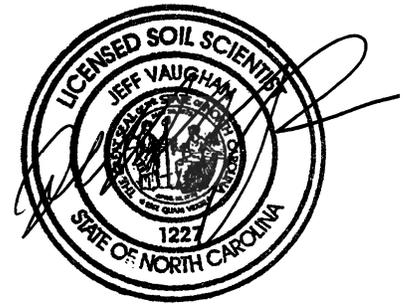
A handwritten signature in black ink, appearing to read 'Jeremy R. Thomas', with a long horizontal flourish extending to the right.

Jeremy R. Thomas, P.E.
President

Enclosures: Preliminary Plat Application
Preliminary Plat (12 copies)
Site Specific Soils Report (for septic system suitability)



Agri-Waste Technology, Inc.
501 North Salem Street
Suite 203
Apex, NC 27502
919-859-0669
www.agriwaste.com



Soil Suitability for Domestic Sewage Treatment and Disposal Systems

Cox Maddox Road,
Sanford, NC
Lee County

Prepared For: Mr. Brandon Harrington, Harrington Properties of
NC

Prepared By: Jeff Vaughan, Ph.D., L.S.S.
Senior Agronomist/Soil Scientist

Julie Peele
Environmental Technician

Report Date: September 25, 2019



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**Soil Suitability for Domestic Sewage Treatment and Disposal Systems
Cox Maddox Road, Sanford, NC (Lee County)**

PREPARED FOR: Mr. Brandon Harrington, Harrington Properties of NC

PREPARED BY: Jeff Vaughan
Julie Peele

DATE: September 25, 2019

Soil suitability for domestic sewage treatment and disposal systems was evaluated on September 25, 2019, for property located on Cox Maddox Road near Sanford, NC. Sloan Griffin, Chris McGee, Heath Clapp, Jeff Vaughan of Agri-Waste Technology, Inc. (AWT) conducted the soil evaluation. The detailed soil evaluation of the land area will follow. A property reference map is in Attachment 1. A review of the soil and landscape characteristics that dictate soil suitability for domestic sewage treatment and disposal systems can be found in Attachment 2.

The total property area is approximately 43 acres. The property is partially wooded and partially in open fields. There are several drainage features with moderate slopes on the property (Attachment 3). There is a pond and an old tobacco barn on the property.

Soil Suitability for Domestic Sewage Treatment and Disposal Systems

The aerial map in Attachment 3 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 ribbon (provisionally suitable). Approximately 63 soil borings were advanced within the provisionally suitable soils area on the property (Attachment 3). A portion of the property contained drainage features, complex topography, 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 possible 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.

One area (see map in Attachment 3) exhibited soil characteristics and soil depths (24" or greater) that is provisionally suitable for conventional or shallow conventional trench septic systems. This area is approximately 34 acres.

Typical profile descriptions of the provisionally suitable soil for this property are in Attachment 4. Three distinct soil profiles were observed in the soil borings on the property: a deep red sandy clay loam to sandy clay subsoil, a shallower red sandy clay loam to sandy clay subsoil, or a subsoil with a deep E horizon.

The provisionally suitable soil borings had the following characteristics. No restrictive horizons were found in any provisionally soil borings within 36" of the soil surface. Soil texture was provisionally suitable and was estimated to be loamy sand near the soil surface (A and E horizons) and sandy clay loam to sandy clay in the subsoil (B horizons). Soil structure was provisionally suitable and was estimated to be granular near the soil surface (A horizons) and subangular blocky in the subsoil (B horizons). Clay mineralogy was provisionally suitable with very friable to friable moist soil consistence and non-sticky to slightly sticky and non-plastic to slightly plastic wet soil consistence.

The major soil types on this property are Fuquay loamy sand (map symbol FuB), Dothan loamy sand (map symbol DoB), and Tatum silt loam (map symbol TaD). The Lee County Soil Survey indicates that moderate to severe limitations exist for septic systems installed in these soils types (Attachment 5).

The land area required for a conventional or shallow 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 provisionally suitable soils on this property is 0.1 – 0.4 GPD/ft² based on the most restrictive soil texture in the subsoil. Table 1 below presents estimated conventional or shallow conventional septic system land area requirements for several home sizes and LTAR's on this property. The LTAR suggested by AWT for a majority of the provisionally suitable soil is 0.3 GPD/ft², but the final LTAR for specific septic system types and septic drainfield locations will be set by the Lee County Health Department. The detailed computations are in Attachment 6.

Table 1. Estimated Conventional Septic System Land Requirements (including repair area) for Several Home Sizes and Long-Term Acceptance Rates (LTAR) on this Property.

<u>House Size</u>	<u>Long-Term Acceptance Rate (LTAR)</u>	<u>Area Required for Conventional Septic System</u>	<u>Minimum Area Required for Innovative Conventional Septic System</u>
	-----GPD/ft ² -----	-----ft ² -----	-----ft ² -----
3 bedrooms	0.1 – 0.4	6,750 – 32,400	8,100 – 24,300
3 bedrooms	0.3	~10,800	~8,100
4 bedrooms	0.1 – 0.4	9,000 – 43,200	6,750 – 32,400
4 bedrooms	0.3	~14,400	~10,800
5 bedrooms	0.1 – 0.4	11,250 – 54,000	8,438 – 40,500
5 bedrooms	0.3	~18,000	~13,500

Conclusions

Based on the results of this evaluation, the installation of conventional or shallow conventional septic systems seems very probable on this property in the area designated on the map in Attachment 3.

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

cox Maddox road

ATTACHMENT 1: Property Reference Map

J THOMAS ENGINEERING, INC.
 CIVIL ENGINEERING & PLANNING
 143 Churchville Avenue, Suite 104
 Sanford, North Carolina 27330
 (919) 777-6010 phone
 www.jthomaseengineering.com
 license no. 05-12899

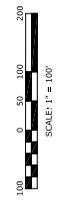
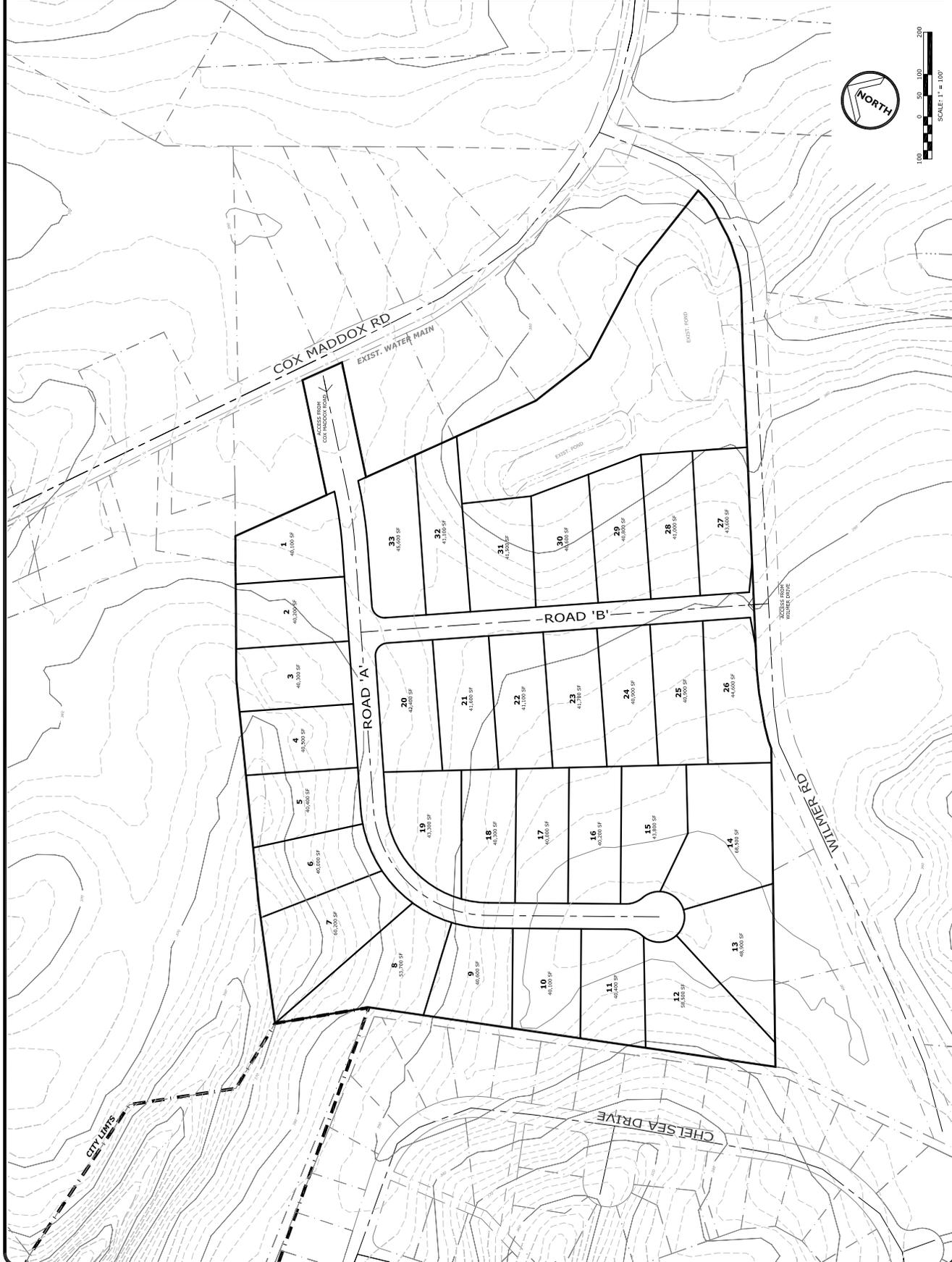
PROFESSIONAL ENGINEER'S SEAL

**COX MADDOX ROAD
 RESIDENTIAL DEVELOPMENT**
 LEE COUNTY, NORTH CAROLINA
 PRELIMINARY LOT LAYOUT (OPTION 1)

REVISIONS

PRELIMINARY
 DO NOT USE FOR
 CONSTRUCTION

Scale:	SEE SCALE BAR	Drawn by:	JRT
Sheet:	1 of 1	Designed by:	JRT
Project Number:	1P-014	Reviewed by:	JRT
		Dates:	06 AUG 2019



**ATTACHMENT 2: Review of Rules Pertaining to Domestic
Sewage Treatment and Disposal Systems**

Five categories of soil and landscape characteristics are evaluated to determine soil suitability for domestic sewage treatment and disposal systems and include: topography and landscape position, soil morphological characteristics, soil wetness conditions, soil depth, and restrictive horizons. The soil and landscape characteristics found in a particular location dictate the type(s) of domestic sewage treatment and disposal system that can be used on a parcel of land. The detailed rules can be found in Section .1900 – Sewage Treatment and Disposal Systems, but a general review of the five categories and other relevant rules can be found in the sections below.

.1940 TOPOGRAPHY AND LANDSCAPE POSITION

Uniform slopes less than 15 percent are considered suitable, uniform slopes between 15 and 30 percent are considered provisionally suitable, and slopes greater than 30 percent are considered unsuitable for domestic sewage treatment and disposal systems. Complex slope patterns and slopes dissected by gullies and ravines are considered unsuitable for domestic sewage treatment and disposal systems. Depressions and wetlands are also considered unsuitable for domestic sewage treatment and disposal systems.

.1941 SOIL MORPHOLOGICAL CHARACTERISTICS

Sandy and coarse loamy textured soils (sand, loamy sand, sandy loam, and loam) are considered suitable for domestic sewage treatment and disposal systems. Fine loamy and clayey textured soils (silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay) are considered provisionally suitable for domestic sewage treatment and disposal systems.

Crumb, granular, and single-grained soil structures are considered suitable for domestic sewage treatment and disposal systems. Blocky soil structures are considered provisionally suitable for domestic sewage treatment and disposal systems. Platy, prismatic, and massive soil structures are considered unsuitable for domestic sewage treatment and disposal systems.

Slightly expansive clay mineralogy is considered suitable for domestic sewage treatment and disposal systems. Slightly expansive clay minerals exhibit loose, very friable, friable, or firm moist soil consistence. Expansive clay mineralogy is considered unsuitable for domestic sewage treatment and disposal systems. Expansive clay minerals exhibit very firm or extremely firm moist soil consistence. Organic soils are considered unsuitable for domestic sewage treatment and disposal systems.

.1942 SOIL WETNESS CONDITIONS

Soil wetness conditions are caused by seasonal high water table, perched water table, tidal water, seasonally saturated soils, or lateral water movement. Soil wetness conditions are indicated by soil colors, either in mottles or mass, with a chroma of 2 or less according to the Munsell color charts. Soil wetness conditions detected 48 inches in depth or deeper are considered suitable for domestic sewage treatment and disposal systems. Soil wetness conditions detected between 36 to 48 inches in depth are considered provisionally suitable for domestic sewage treatment and disposal systems. Soil wetness conditions detected 36 inches in depth or shallower are considered unsuitable for domestic sewage treatment and disposal systems.

.1943 SOIL DEPTH

Soil depths to rock, parent material, or saprolite greater than 48 inches are considered suitable for domestic sewage treatment and disposal systems. Soil depths to rock, parent material, or saprolite between 36 and 48 inches are considered provisionally suitable for domestic sewage treatment and disposal systems. Soil depths to rock, parent material, or saprolite less than 36 inches are considered unsuitable for domestic sewage treatment and disposal systems. Saprolite has a massive, rock-controlled structure, and retains the mineral arrangement of its parent rock in at least 50 percent of its volume. Saprolite only forms from metamorphic and igneous rock parent materials and is typically referred to as “rotten rock”.

.1944 RESTRICTIVE HORIZONS

Restrictive horizons are capable of perching ground water or sewage effluent and are strongly compacted or cemented. Restrictive horizons resist soil excavation or augering. Soils with restrictive horizons three inches or more in thickness at depths greater than 48 inches are considered suitable for domestic sewage treatment and disposal systems. Soils with restrictive horizons three inches or more in thickness at depths between 36 and 48 inches are considered provisionally suitable for domestic sewage treatment and disposal systems. Soils with restrictive horizons three inches or more in thickness at depths less than 36 inches are considered unsuitable for domestic sewage treatment and disposal systems.

.1950 LOCATION OF SANITARY SEWAGE SYSTEMS

WAKE COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES NOTICE

No area for domestic sewage treatment and disposal system installation (or repair in Wake County) may be disturbed by clearing, excavation, filling, vehicle or equipment traffic, or storage of building materials.

.1947 DETERMINATION OF OVERALL SITE SUITABILITY

.1948 SITE CLASSIFICATION

All of the criteria for the five categories above are to be determined and classified as suitable, provisionally suitable, or suitable according to the respective rules described above. If all criteria are classified the same, that overall site classification will prevail. If there is a variation in the classification of several criteria, the most limiting classification will be used to determine the overall site classification.

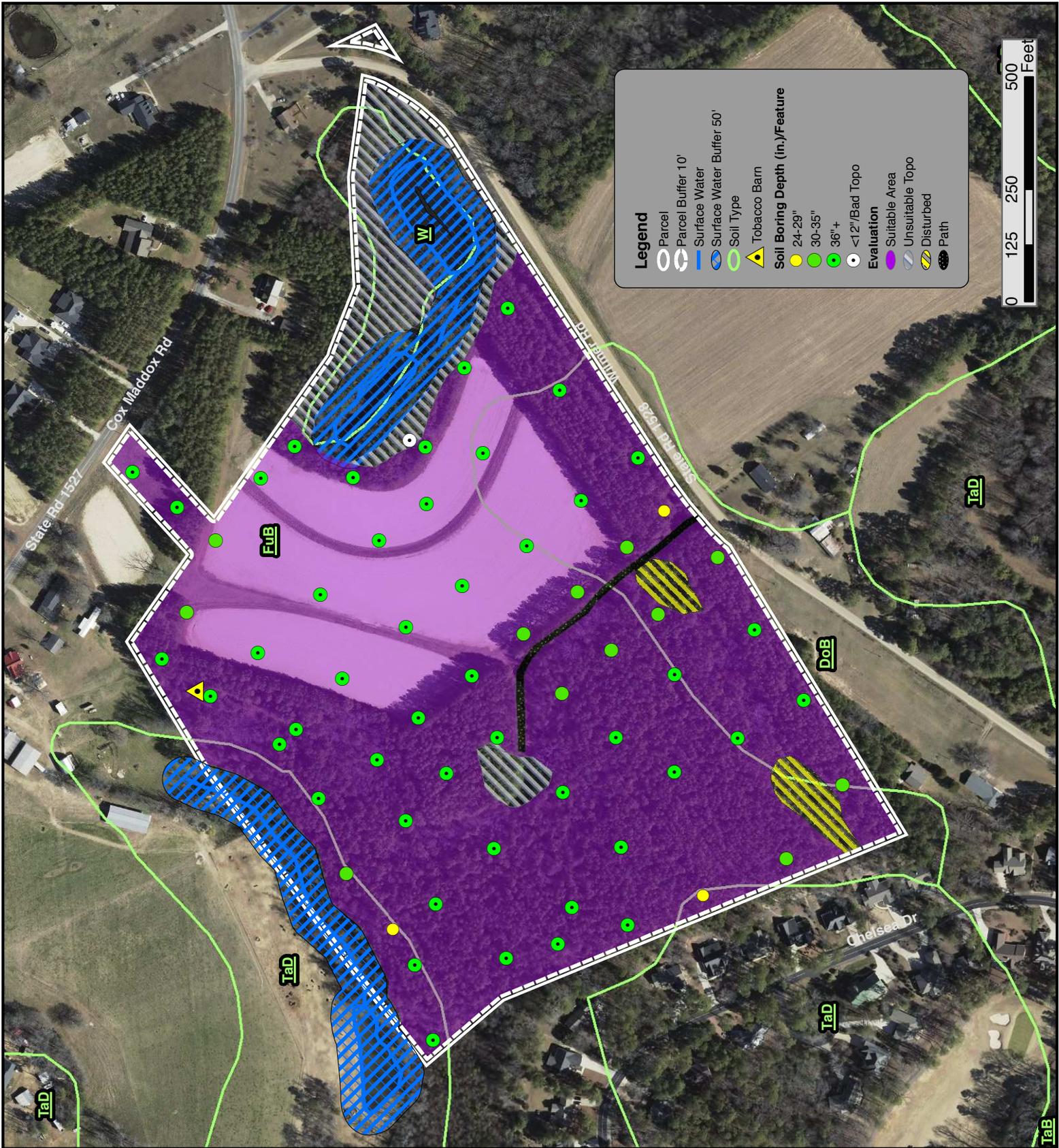
A suitable classification generally indicates soil and landscape conditions favorable for the operation of a domestic sewage treatment and disposal system or slight limitations that can be readily overcome by proper design and installation. A provisionally suitable classification indicates soil and/or landscape conditions have moderate limitations for the operation of a domestic sewage treatment and disposal system, but modifications and careful planning, design, and installation can result in satisfactory system function. An unsuitable classification indicates severe soil and/or landscape limitations for the operation of a domestic sewage treatment and disposal system.

SUMMARY

Suitable/provisionally suitable landscapes and soils to a depth of 36 inches can, in general, be used for conventional gravity driven septic systems. Suitable/provisionally suitable landscapes

and soils to a depth of 24 –36 inches can, in general, be used for alternative septic systems such as shallow conventional and low pressure pipe systems, among others. All alternative systems for provisionally suitable landscapes and soils must be proposed to and approved by the Lee County Health Department. Any landscapes or soils classified as unsuitable may be reclassified as provisionally suitable by the Lee County Health Department after a site investigation by department personnel.

**ATTACHMENT 3: Property Map Detailing Soil Suitability
for Septic Systems and Soil Types**



*** This map was created for proposed planning purposes only. It is not intended to be used as a plat or survey map of any type.***

AWT
Engineers and Soil Scientists

Agri-Waste Technology, Inc.
501 N. Salem St. Suite 203
Apex NC 27502
P: 919.859.0669
www.agriwaste.com

**Preliminary
Soil Evaluation Map**

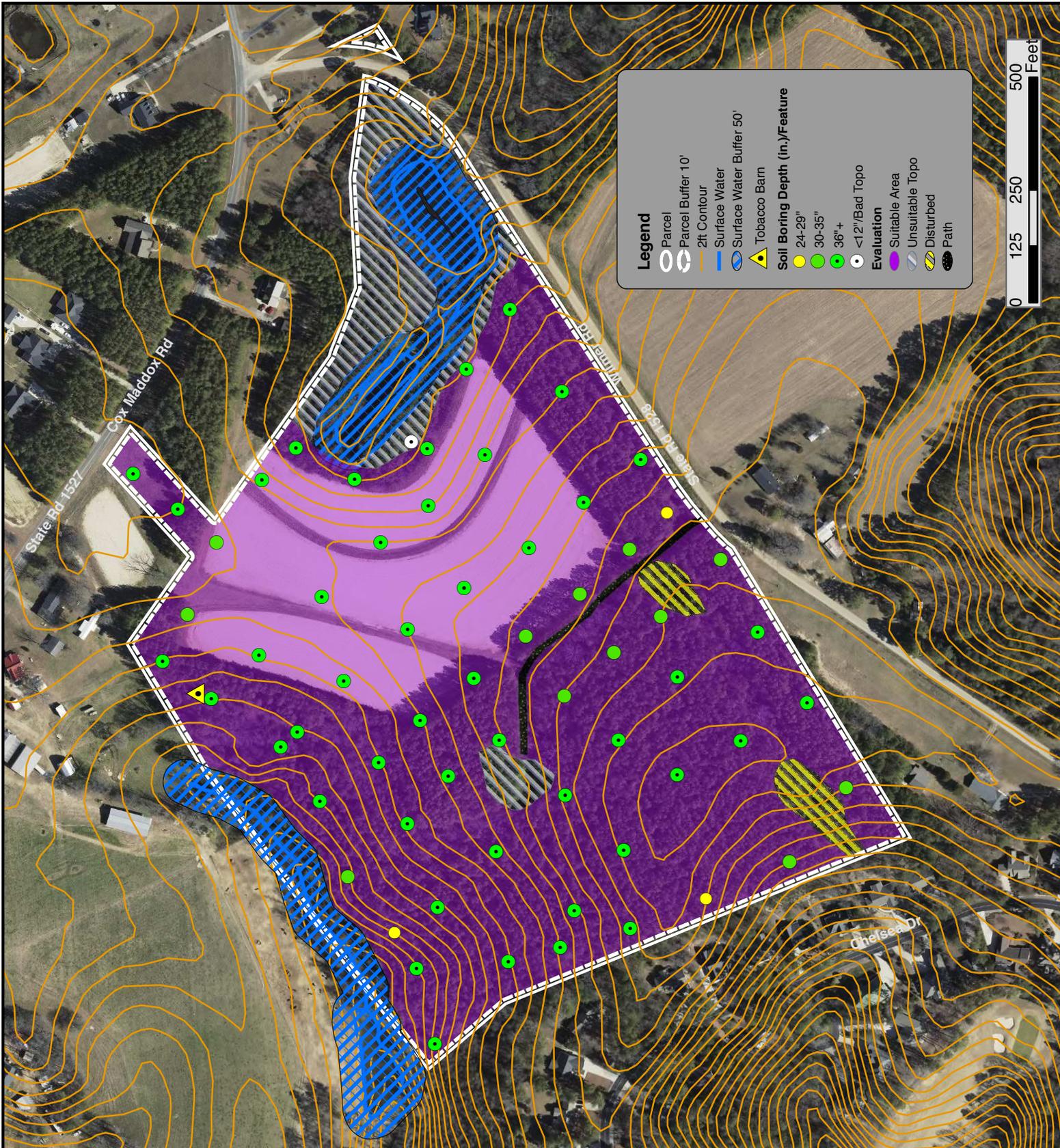
Brandon Harrington
Lee Co., NC
PIN: 9661-83-4636-00



Suitable Area:
1,488,247 sqft

Soil Types:
DoB-Dothan loamy sand
FUB-Fuquay loamy sand
TaD-Tarrus silt loam
W-water

Drawn By: Julie Davidson
Reviewed By: Jeff Vaughan
Date: 9/24/19



Legend

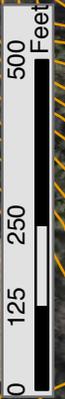
- Parcel
- Parcel Buffer 10'
- 2ft Contour
- Surface Water
- Surface Water Buffer 50'
- Tobacco Barn

Soil Boring Depth (in.)/Feature

- 24-29"
- 30-35"
- 36"+
- <12"/Bad Topo

Evaluation

- Suitable Area
- Unsuitable Topo
- Disturbed
- Path



AWT
Engineers and Soil Scientists

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Preliminary
Soil Evaluation Map

Brandon Harrington
Lee Co., NC
PIN: 9661-83-4636-00



Suitable Area:
1,488,247 sqft

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FuB-Fuquay loamy sand
TaD-Tarrus silt loam
W-water

Drawn By: Julie Davidson
Reviewed By: Jeff Vaughan
Date: 9/24/19

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**ATTACHMENT 4: Typical Profile Descriptions of
Provisionally Suitable Soil**

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

Comments: Some cobbles in some borings at interface of E and Bt1.

EVALUATED BY: Sloan Griffin, Chris McGee, Heath Clapp, 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	I	S - Sand	1.2 - .08
CV - Convex Slope		LS - Loamy Sand	
DS - Debris Slump	II	SL - Sandy Loam	0.8 - 0.6
D - Depression		L - Loam	
DW - Drainage Way			
FP - Flood Plain	III	SCL - Sandy Clay Loam	0.6 - 0.3
FS - Foot Slope		CL - Clay Loam	
H - Head Slope		SiL - Silt Loam	
I - Interflueve		Si - Silt	
L - Linear Slope		SiCL - Silt Clay Loam	
N - Nose Slope	IV	SC - Sandy Clay	0.4 - 0.1
P - Pocosin		C - Clay	
R - Ridge		SiC - Silty Clay	
S - Shoulder		O - Organic	
T - Terrace			

<u>STRUCTURE</u>	<u>MOIST CONSISTENCE</u>	<u>MOTTLES</u>	<u>WET CONSISTENCE</u>
G - Single Grain	Vfr - Very Friable	1 - Few	NS - Non Sticky
M - Massive	Fr - Friable	2 - Common	SS - Slightly Sticky
CR - Crumb	Fi - Firm	3 - Many	S - Sticky
GR - Granular	Vfi - Very Firm	F - Faint	VS - Very Sticky
SBK - Subgranular Blocky	Efi - Extremely Firm	D - Distinct	NP - Non Plastic
ABK - Angular Blocky		P - Prominent	SP - Slightly Plastic
PL - Platy		f - Fine	P - Plastic
PR - Prismatic		m - Medium	VP - Very Plastic
		c - Coarse	

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

Comments:

EVALUATED BY: Sloan Griffin, Chris McGee, Heath Clapp, 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	I	S - Sand	1.2 - .08
CV - Convex Slope		LS - Loamy Sand	
DS - Debris Slump	II	SL - Sandy Loam	0.8 - 0.6
D - Depression		L - Loam	
DW - Drainage Way			
FP - Flood Plain	III	SCL - Sandy Clay Loam	0.6 - 0.3
FS - Foot Slope		CL - Clay Loam	
H - Head Slope		SiL - Silt Loam	
I - Interflueve		Si - Silt	
L - Linear Slope		SiCL - Silt Clay Loam	
N - Nose Slope	IV	SC - Sandy Clay	0.4 - 0.1
P - Pocosin		C - Clay	
R - Ridge		SiC - Silty Clay	
S - Shoulder		O - Organic	
T - Terrace			

<u>STRUCTURE</u>	<u>MOIST CONSISTENCE</u>	<u>MOTTLES</u>	<u>WET CONSISTENCE</u>
G - Single Grain	Vfr - Very Friable	1 - Few	NS - Non Sticky
M - Massive	Fr - Friable	2 - Common	SS - Slightly Sticky
CR - Crumb	Fi - Firm	3 - Many	S - Sticky
GR - Granular	Vfi - Very Firm	F - Faint	VS - Very Sticky
SBK - Subgranular Blocky	Efi - Extremely Firm	D - Distinct	NP - Non Plastic
ABK - Angular Blocky		P - Prominent	SP - Slightly Plastic
PL - Platy		f - Fine	P - Plastic
PR - Prismatic		m - Medium	VP - Very Plastic
		c - Coarse	

ATTACHMENT 5: Soil Survey Information

TABLE 13.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
BaB----- Blaney	Severe: percs slowly, poor filter.	Severe: seepage.	Slight-----	Severe: seepage.	Good.
BaD----- Blaney	Severe: percs slowly, poor filter.	Severe: seepage, slope.	Moderate: slope.	Severe: slope, seepage.	Fair: slope.
CaB----- Candor	Slight-----	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy, seepage.
CfB----- Cecil	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----	Fair: too clayey, hard to pack.
CfD----- Cecil	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
Ch----- Chewacla	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: hard to pack, wetness.
Cp----- Congaree	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
CrB----- Creedmoor	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
CrD----- Creedmoor	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness, too clayey.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.
DoA----- Dothan	Severe: wetness, percs slowly.	Moderate: seepage.	Moderate: wetness.	Slight-----	Good.
DoB----- Dothan	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Moderate: wetness.	Slight-----	Good.
DuB----- Durham	Moderate: percs slowly.	Moderate: seepage.	Slight-----	Slight-----	Good.
FuB----- Fuquay	Moderate: percs slowly.	Moderate: slope.	Slight-----	Slight-----	Fair: too sandy.
GhB----- Gilead	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.

TABLE 13.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
StA----- State	Moderate: wetness.	Severe: seepage.	Severe: seepage, wetness.	Moderate: wetness.	Fair: too clayey, thin layer.
TaB----- Tatum	Moderate: depth to rock, percs slowly.	Moderate: slope, seepage, depth to rock.	Severe: too clayey, depth to rock.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
TaD----- Tatum	Moderate: slope, depth to rock, percs slowly.	Severe: slope.	Severe: too clayey, depth to rock.	Moderate: slope, depth to rock.	Poor: too clayey, hard to pack.
TaE----- Tatum	Severe: slope.	Severe: slope.	Severe: slope, too clayey, depth to rock.	Severe: slope.	Poor: slope, too clayey, hard to pack.
ToB----- Tetotum	Severe: wetness.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: too clayey, wetness.
Ud. Udorthents					
Ur. Urban land					
VaB----- Vauluse	Severe: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too clayey.
VaD----- Vauluse	Severe: percs slowly.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
VaE----- Vauluse	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Wn----- Wehadkee	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
WsB----- White Store	Severe: wetness, percs slowly.	Severe: wetness.	Severe: depth to rock, wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
WsD----- White Store	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: depth to rock, wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
WwB----- Wickham	Slight-----	Moderate: seepage, slope.	Severe: seepage.	Slight-----	Fair: thin layer.

**ATTACHMENT 6: Septic System Area Computation
Spreadsheets**

Conventional Septic System Area Computation

Created by: JV
Created on: 6/20/2001
Updated on: 9/25/2019

Client Name: *Cox Maddox Road*
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: *Cox Maddox Road*
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: *Cox Maddox Road*
Number Bedrooms: 3
Design Flow (gal/day): 360 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.3
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.

Conventional Septic System Area Computation

Created by: JV
Created on: 6/20/2001
Updated on: 9/25/2019

Client Name: *Cox Maddox Road*
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: *Cox Maddox Road*
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: *Cox Maddox Road*
Number Bedrooms: 4
Design Flow (gal/day): 480 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.3
Trench Bottom Area (ft²): 1600 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 533.3333

Minimum Field Area Required (ft²): 4800 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 3600 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 12000 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 9000 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 14400 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 10800 (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: 9/25/2019

Client Name: *Cox Maddox Road*
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: *Cox Maddox Road*
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: *Cox Maddox Road*
Number Bedrooms: 5
Design Flow (gal/day): 600 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.3
Trench Bottom Area (ft²): 2000 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 666.6667

Minimum Field Area Required (ft²): 6000 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 4500 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 15000 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 11250 (25% reduction from above)
Total Field Area Required (ft²)⁽¹⁾: 18000 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 13500 (25% reduction from above)

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