



PIEDMONT
ENVIRONMENTAL
A S S O C I A T E S , P . A .

11/20/2019

Project # 1385

Mr. Brad Zadell
910 Windy Rd.
Apex, NC 27502

Re. Conservancy at Jordan Lake – Preliminary Soils Investigation

This report details the findings of a detailed site and soil evaluation performed on approximately 112 acres located off Old U.S. 1 in Chatham County, NC. The evaluation was conducted at the clients request in order to determine the site's suitability for the installation of sub-surface wastewater disposal systems to serve domestic strength wastewater. This report does not address systems receiving more than 3,000 gallons per day of flow.

The evaluation was conducted by Chris Murray who is a licensed soil scientist. The evaluation was conducted during moist soil conditions in March and July 2019 with the use of a hand-auger. Characteristics that affect the suitability of sub-surface systems include soil depth to expansive clay, seasonal high-water table, rock, and unusable saprolite. Topography and slope also affect the suitability of an area for septic systems. The evaluation of these components was conducted on the site. The level of the evaluation was detailed for this tract.

Findings are conveyed by showing areas on the enclosed map that are usable for different system types. Conventional soil areas are hatched in green. These areas have usable topography and a minimum soil depth of 24 inches. Anaerobic, subsurface drip soil areas are hatched in orange. These areas have usable topography and a minimum soil depth of 18 inches. These areas could be permitted at the county level with no additional soils work (saturated hydraulic conductivity (ksat testing)) required. TSII, subsurface drip soil areas are hatched in magenta. These areas have usable topography and a minimum soil depth of 12 inches. These areas could be permitted at the county level, but additional soils work (ksat testing) will be required. Surface drip soil areas are hatched in cyan. These areas would be permitted at the state level, and additional soils work (ksat testing) and engineering would be required prior to attaining a permit. All the hatched soil areas are generated by using a global position system in the field. These areas are not surveyed and therefore may be lacking in accuracy.

Once the soils map is complete the size of area required for a septic system can be estimated. Residential systems are sized according to the number of bedrooms in the proposed dwelling. Systems are not sized based on the number of bathrooms in the dwelling. Each bedroom in the proposed dwelling is calculated to generate a daily flow

of 120 gallons. A four-bedroom dwelling would therefore have a daily calculated flow of 480 gallons. The daily flow is divided by the loading rate based on the soil texture. This site has a clay texture so would have an estimated long-term acceptance rate (LTAR) of 0.1 gallons per square foot in the case of a subsurface drip septic system. Based on previous experience, the required area for the primary septic system and the repair with this LTAR would be approximately 10,000-12,000 square feet. Septic areas must meet all setbacks from property lines, wells, water lines and structures as well as any other easement imposed by other entity. All lots will require an application and evaluation by the county health department on an individual basis.

This report discusses the general location of potentially usable soils for on-site wastewater disposal and the soil and site limitations on the property that exists at the time of the evaluation. Piedmont Environmental Associates, PA (“Piedmont”) provides professional consulting specializing in the practice of soil science and wastewater management. Piedmont is therefore hired for its professional opinion regarding these matters. Laws and rules governing wastewater treatment and disposal are forever evolving and subject to the interpretation and opinion of individuals which are employed by local and state agencies that govern these laws and rules. Due to this fact, Piedmont cannot guarantee in any way that any area located in the field, shown on a sketch, or discussed with the client will be permitted by any of these agencies.

The next step would be to apply for improvements permits through Chatham County Environmental Health.

If you have any further questions, please feel free to call (336) 662-5487.



G. Christopher Murray, MS
NC Licensed Soil Scientist
Piedmont Environmental Associates, PA

Attachment I

.1950 Location of Sanitary Sewage Systems

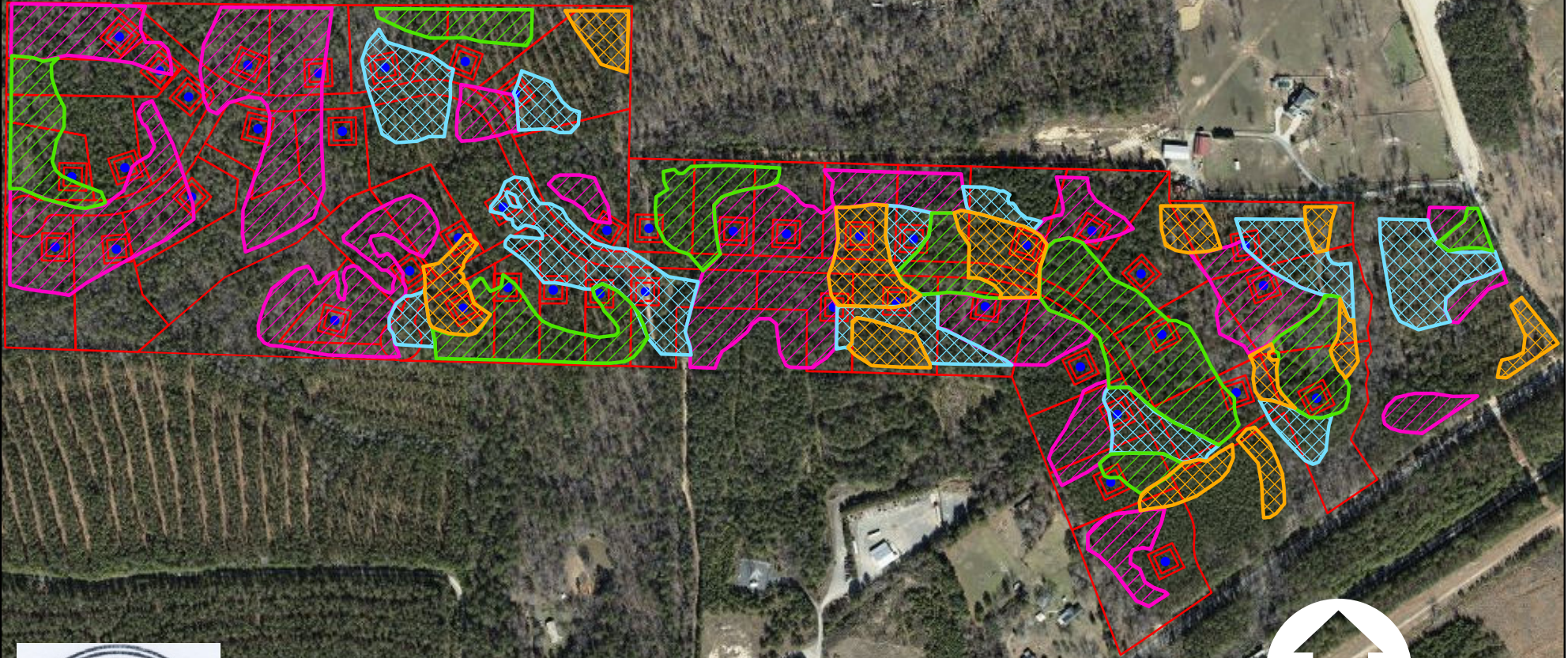
(c) Every sanitary sewage treatment and disposal system shall be located at least the minimum horizontal distance from the following:

- | | |
|--|----------|
| (1) Any private water supply source including a well or spring | 100 feet |
| (2) Any public water supply source | 100 feet |
| (3) Streams classified as WS-I | 100 feet |
| (4) Water classified as S.A.
from mean high water mark | 100 feet |
| (5) Other coastal waters
from mean high water mark | 50 feet |
| (6) Any other stream, canal, marsh, or other surface waters | 50 feet |
| (7) Any Class I or Class II reservoir
from normal pool elevation | 100 feet |
| (8) Any permanent storm water retention pond
from flood pool elevation | 50 feet |
| (9) Any other lake or pond
from normal pool elevation | 50 feet |
| (10) Any building foundation | 5 feet |
| (11) Any basement | 15 feet |
| (12) Any property line | 10 feet |
| (13) Top of slope of embankments or cuts of 2 feet or more
vertical height | 15 feet |
| (14) Any water line | 10 feet |
| (15) Drainage systems: | |
| (A) Interceptor drains, foundation drains and storm water diversions | |
| (i) upslope | 10 feet |
| (ii) sideslope | 15 feet |
| (iii) downslope | 25 feet |
| (B) Groundwater lowering ditched and devices | 25 feet |
| (16) any swimming pool | 15 feet |
| (17) any other nitrification field (except repair area) | 20 feet |
| (b) Ground absorption, sewage treatment and disposal systems may be located closer than 100 feet from a private well supply, except springs and uncased wells located downslope and used as a source of drinking water, repairs, space limitations and other site-planning considerations but shall be located the maximum feasible distance and, in no case, less than 50 feet. | |
| (c) Nitrification fields and repair areas shall not be located under paved areas or areas subject to vehicular traffic. If effluent is to be conveyed under areas subject to vehicular traffic, ductile iron or its equivalent pipe shall be used. However, pipe specified in Rule .1955 (e) may be used if a minimum of 30 inches of compacted cover is provided over the pipe. | |


Note: Systems over 3000 GPD or an individual nitrification fields with a capacity of 1500 GPD or more have more restrictive setback requirements, see .1950 (a) (17) (d) for specifics.



Brad Zadell - Old U.S. 1 Project_REVISED



Legend

-  Anaerobic Drip
-  Conventional Soils
-  Surface Drip
-  TSII Drip



1 inch = 500 feet