PIEDMONT ENVIRONMENTAL ASSOCIATES, P.A.

November 15, 2021 Project # 2123

Mr. Chris Ehrenfeld
50051 Governors Drive
Chapel Hill, NC 27517

RE: Detailed Soil/Site Evaluation on Selected Portions of the Williams Corner Tract (Approximately 25 acres evaluated)

Mr. Ehrenfeld,

This report details the findings of a detailed site and soil evaluation performed on portions of the tract referenced above. The evaluation was conducted at the clients written request to determine the site's suitability for the installation of sub-surface wastewater disposal systems to serve domestic strength wastewater. This evaluation was for residential wastewater applications. Any other type of use may require additional testing and/or stricter setbacks. This report does not address systems receiving more than 3,000 gallons per day of flow.

The evaluation was conducted by Chris Murray, North Carolina Licensed Soil Scientist in October/November 2021. The evaluation was conducted during dry soil conditions with the use of a hand-auger to determine soil suitability for on-site sewage disposal systems in accordance with 15A NCAC 18A .1900 "Laws and Rules for Sewage Treatment and Disposal Systems". 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 the requested portions of this tract.

Findings are conveyed by showing areas on the enclosed map that are usable for different system types. Areas that are suitable for conventional depth wastewater systems are hatched in red. These areas have usable topography and a minimum slope-corrected soil depth of 24 inches. Areas that are suitable for low profile chamber depth wastewater systems (which are considered conventional systems but are more space intensive) are hatched in orange. These areas have usable topography and a minimum slope-corrected soil depth of 20 inches. Areas that are suitable for pre-treatment subsurface drip wastewater systems (which are 2-3 times the cost of a conventional system) are hatched in pink. These areas have usable topography and a minimum slope-corrected soil depth of 15 inches. All hatched areas are generated using gps technology in the field and are not survey located.

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 have a daily calculated flow of 480 gallons. The daily flow is divided by the loading rate based on the soil texture. We recommend at least 10,000 square feet of suitable soil to be allocated per lot to accommodate any of the system types outlined above. These 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. It is for this reason that **Piedmont strongly recommends to anyone considering a financial commitment on any piece of property be completely aware of all permit requirements on that property before purchase and obtain those permits prior to a final financial commitment.** We are pleased to be of service in this matter. If you have any further questions, please feel free to call (336) 662-5487.

Sincerely,

G. Christopher Murray
NC Licensed Soil Scientist #1284
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.

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Williams Corner - Subsurface Mapping, Fall 2021

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Client: Chris Ehrenfield
County: Chatham