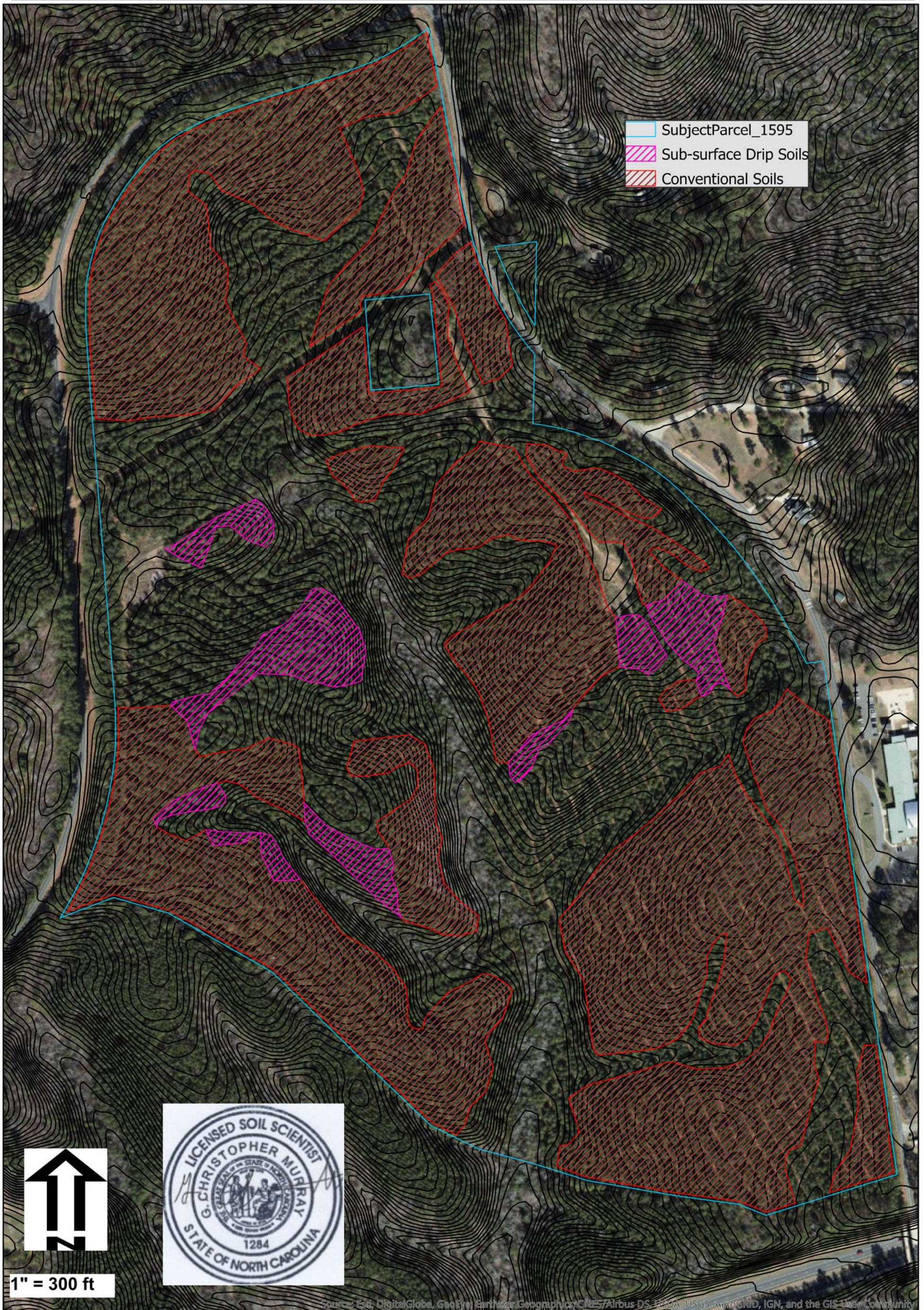




Esplanade Communities, Moncure 154 Acre Tract - Chatham County, NC





**PIEDMONT**  
**ENVIRONMENTAL**  
ASSOCIATES, P.A.

December 30, 2019

Project # 1595

Mark Lyczkowski  
Esplanade Communities  
149 US Hwy 70  
Garner, NC 27529

RE: Detailed Soil/Site Evaluation, Jordan Dam Rd., Chatham County, NC, Parcel Number 11229, +/- 154 Acres

Mr. Lyczkowski,

This report details the findings of a detailed site soil evaluation performed on the tract referenced above. The evaluation was conducted at the clients written request in order 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 strength 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, Jim Beeson, Edwin Stott and Ryan Smith, North Carolina Licensed Soil Scientists, in December, 2019. The evaluation was conducted during moist soil conditions with the use of hand-augers 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 entire area requested.

Findings are conveyed by showing areas on the enclosed map that are usable for different system types. Areas that are suitable for conventional or approved accepted septic systems are hatched in red and have usable topography and a minimum soil depth of 24 inches. Areas that are suitable for sub-surface drip septic systems are hatched in pink and have usable topography and a minimum soil depth of 14 inches. The hatched areas are generated by using gps 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. This site has a clay texture so would have an estimated long-term acceptance rate (LTAR) of 0.25 gallons per square foot of trench bottom per day. The minimum required area or square footage on the ground for the primary septic system and the repair area with this LTAR would be approximately 12,000 square feet. This area 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 any and all permit requirements on that property before purchase and obtain those permits prior to a final financial commitment.**

If you have any further questions, please feel free to call.



G. Christopher Murray  
NC Licensed Soil Scientist #1284  
Piedmont Environmental Associates, PA

Attachments: I – Setbacks  
II – Soil Map

## 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.<br>from mean high water mark  | 100 feet |
| (5) Other coastal waters<br>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<br>from normal pool elevation  | 100 feet |
| (8) Any permanent storm water retention pond<br>from flood pool elevation  | 50 feet  |
| (9) Any other lake or pond<br>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<br>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.**