



June 21, 2022

Ben Legg  
BHL Group LLC  
434-218-1410  
ben@bhlgroupllc.com

Re: Soil Evaluation for Septic Permitting on a property located on Nocarva Road, Littleton, North Carolina

Dear Mr. Legg:

This letter is in reference to a recent soil evaluation that our office conducted on the above referenced property on June 7, 2022. This evaluation was performed at your request in order to determine the feasibility of septic permitting for this lot.

The attached site map shows where soil documentation was finalized for the proposed design of a future septic system, as outlined in the .1900 regulations. In short, our findings showed that the property is **likely suitable** for a conventional septic using alternative aggregate product. It should be noted however, that while this is an advisory opinion, these results are not final until permitting is completed with the local Environmental Health Department.

If you have any questions about these findings and their implications for this property, please don't hesitate to call.

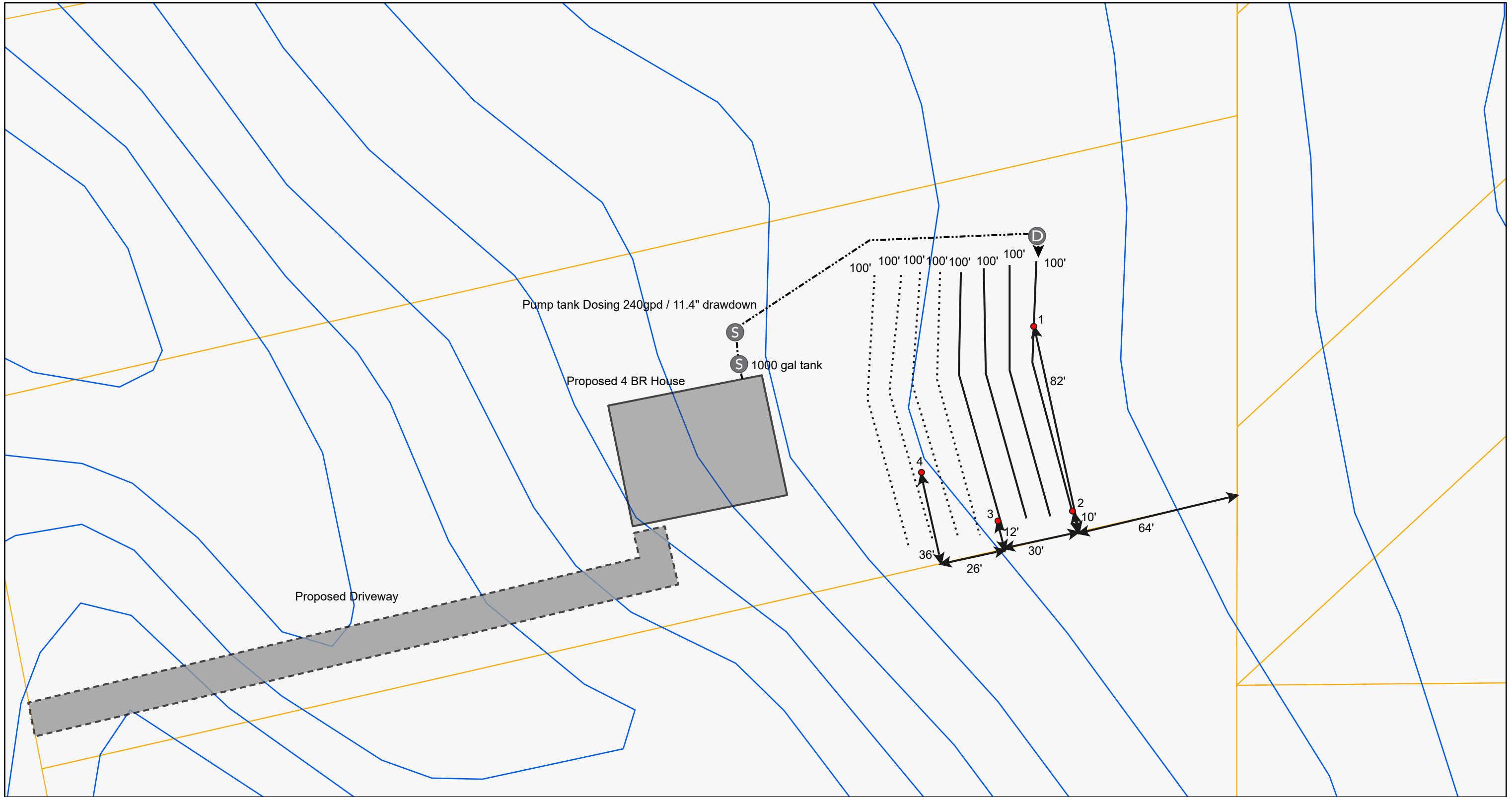
Sincerely,

Tyler Sgro, CPSS, NC LSS #1347  
Davis Horizons

Davis Horizons

Email: [tyler@davishorizons.com](mailto:tyler@davishorizons.com)  
Phone: 843-754-6307

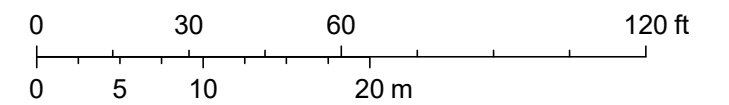
# Legg - Nocarva Road



6/18/2022, 6:20:47 PM

1:564

- |                     |                    |                        |                         |
|---------------------|--------------------|------------------------|-------------------------|
| ● NC Soil Data Form | Septic_Design_804  | ---> Distribution Line | — DEM20ft_Contours_2155 |
| Septic_Design_8153  | ↔ Distance/Setback | Septic_Design_9782     | □ NC1Map_Parcels_4875   |
| Ⓢ Septic Tank       | — Drain Lines      | ■ House                |                         |
| ⓓ Distribution Box  | ⋯ Repair Lines     | - - - Driveway         |                         |



Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**SOIL/SITE EVALUATION**  
**for ON-SITE WASTEWATER SYSTEM**  
 (Complete all fields in full)

PROPERTY ID #:  
 PROJECT NAME: Legg - Nocarva Road  
 COUNTY: Warren



OWNER: ERROR: Value is undefined and could not be converted to an object

APPLICATION DATE:

ADDRESS:

DATE EVALUATED: June 7, 2022

PROPOSED FACILITY: Dwelling

PROPOSED DESIGN FLOW (.1949): 480 gpd

PROPERTY SIZE (in acres):

SITE LOCATION:

PROPERTY RECORDED:

WATER SUPPLY:  Private  Public  Well  Spring  Other:

EVALUATION METHOD:  Auger Boring  Pit  Cut TYPE OF WASTEWATER:  Sewage  Industrial Process  Mixed

P R O F I L E  #	.1940 LANDSCAPE POSITION/ SLOPE %/MEASURED ELEVATIONS (in ft.)	SOIL HORIZONATION	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS					PROFILE CLASS & LTAR
				.1941 STRUCTURE/TEXTURE	.1941 CONSISTENCE/MINERALOGY	.1942 SOIL COLOR	.1942 SOIL WETNESS (CONCENTRATIONS) (DEPLETIONS)	.1943 SOIL DEPTH	.1956 SAPROLITE CLASS	.1944 RESTRICTIVE HORIZON	
1	Linear Slope / 1-5% / 270.091979497256 ft.	A	0-3	GR / LS	VFR / SEXP	10yr 3/3		30	/	38/	0.3 /
1	Linear Slope / 1-5% / 270.091979497256 ft.	Bt	3-38	SBK / C	FR / SEXP	2.5yr 3/6		30	/	38 /	0.3 /
1	Linear Slope / 1-5% / 270.091979497256 ft.	R	38-39	M /	EF / SEXP			30	/	38 /	0.3 /
2	Linear Slope / 1-5% / 270 ft.	A	0-3	GR / LS	VFR / SEXP	10yr 3/3		39	/	40 /	0.3 /
2	Linear Slope / 1-5% / 270 ft.	Bt	3-30	SBK / C	FR / SEXP	2.5yr 4/6		39	/	40 /	0.3 /
2	Linear Slope / 1-5% / 270 ft.	BC	30-40	GR / SiCL	FR / SEXP	Varigated		39	/	40 /	0.3 /
2	Linear Slope / 1-5% / 270 ft.	R	40-41	M /	EF / SEXP			39	/	40 /	0.3 /
3	Linear Slope / 1-5% / 269.8 ft.	A	0-3	GR / LS	VFR / SEXP	10yr 3/3		45	/	/	0.3 /
3	Linear Slope / 1-5% / 269.8 ft.	Bt	3-33	SBK / C	FR / SEXP	2.5yr 3/6		45	/	/	0.3 /
3	Linear Slope / 1-5% / 269.8 ft.	BC	33-45	GR / SiCL	VFR / SEXP	Varigated		45	/	/	0.3 /
4	Linear Slope / 1-5% / 269.5 ft.	A	0-3	GR / LS	VFR / SEXP	10yr 3/3		32	/	33 /	0.3 /
4	Linear Slope / 1-5% / 269.5 ft.	Bt	3-37	SBK / C	FR / SEXP	2.5yr 4/6		32	/	33 /	0.3 /
4	Linear Slope / 1-5% / 269.5 ft.	R	37-38	M /	EF / SEXP			32	/	33 /	0.3 /

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM	Other Factors (.1946):
Available Space (.1945)	yes	yes	Site Classification (.1948): Provisionally Suitable (PS)
System Type(s)	IIa. Conventional Septic System (single-family or 480gpd or less)	IIa. Conventional Septic System (single-family or 480gpd or less)	Evaluated By: Tyler Sgro, LSS # 1347
Site LTAR	0.3	0.3	Others Present:
Comments:			

# SOIL REPORT

## Legg - Nocarva Road

June 18, 2022

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Prepared By:  
Tyler Sgro, L.P.S.C. #119, South Carolina  
Davis Horizons  
843-754-6307  
tyler@davishorizons.com





## Site Location and Characteristics

The project site is located on Nocarva Road in Warren County, North Carolina, identified by Tax ID number 2071214781. Data was recorded on June 7, 2022, utilizing a soil auger. Elevation data recorded at these locations shows elevations ranging no more than 7 inches between sample points.

## Soil Sampling Methodology

In order to measure site elevations, a Trimble R10-2 external GNSS receiver was used to measure elevations at each soil boring location. Fixed real-time kinematic (RTK) positioning was obtained in order to maximize data accuracy. Elevation error was measured to not exceed 1 inch, based on data provided from the GNSS receiver. Orthometric elevation data was recorded at each data point and recorded on the subsequent data sheet. Elevation ranges between the soil borings were obtained by computing the difference between elevation points. In total, 4 data points were recorded for the purposes of finalizing the footprint of the proposed drainfield and associated repair area.

## Applicable Regulations

Recorded soil documentation, included suitability considerations, were observed based on criteria found in the North Carolina Administrative Code, Subchapter 18A, Section 1900, titled "Sewage Treatment and Disposal Systems." Soil conditions such as soil texture, soil structure, soil consistency, soil mineralogy, soil color, soil wetness, observed soil depth, saprolite class, restrictive horizon presence, and subsequent loading rates were identified in accordance with this Section.

This report and subsequent design are being submitted for review under North Carolina Session Law 2018-114 (HB374). As such, the following required statement is included to meet the requirement of the law: **"The LSS Evaluation is being submitted pursuant to and meets the requirements of SL 2018-114 Section 11.(c)."**

## Design Criteria and Recommendations

**Soil wetness conditions were observed at a depth of >33 inches. A restrictive horizon was observed in the soil profile at 37 and 38 inches.** A minimum of a twelve inch separation between soil wetness/restrictive horizons and trench bottoms must be maintained. Horizons with more than trace amounts of organic carbon content existed to maximum depths of 3 inches. The aforementioned soil horizons with more than trace amounts of soil organic carbon do not need to be removed. However, the root mat should be removed prior to adding fill material if required.

A long-term acceptance rate (LTAR) of 0.3 gallons per day (GPD)/square foot (SF) will be utilized for the loading rate<sup>2</sup>. At the completion of the construction of the drain field/disposal area, the fill material over this area will be immediately seeded and protected with straw or mulch or sodded to establish a permanent vegetative cover. Any concerns regarding surface water flow and/or improvement of subsurface drainage conditions should be taken into account by the installer prior to system installation. If questions regarding the final drainage plan arise, this office should be notified for consultation prior to the initiation of work.

Based on the observed soil conditions and applicable regulations, it was determined that a IIa. Conventional Septic System (single-family or 480gpd or less) would be applicable for this site. Based on an expected flow rate of 480 gpd, the minimum linear footage required for the system is 533.333333333333 total linear feet. However, based on the aggregate product listed below, the total system linear footage is to be reduced by 25%.

The proposed system will utilize 3-foot wide trenches with 12 inch Infiltrator Quick 4 Chambers. The system should be installed at a maximum depth of 25. The system should be installed level and along the contour lines, as referenced in the associated site plan included with this report. The repair area will utilize the same aggregate type and system install depth

### **Soil Classification & Site Suitability**

The soils in this area formed from metamorphic rock typical of the Piedmont and in relation to the site's geomorphic position on the landscape. Thus, the soil conditions reflect drainage characteristics typical of soils of the mapped series below. This soil classification was based on the observed soil morphology in the excavated soil profile. Descriptions to further depths are not necessary to make interpretations for onsite wastewater disposal systems. The soil observations provided in this report and the below classification are derived by soil conditions in the observed sampled locations/area only. It should be noted that the below classification does not take into account any inclusions that might exist with the sampled area. Based on the recorded soil data, related soil classification below, and applicable suitability parameters listed in Section .1900, it is recommended that this site be considered **Provisionally Suitable (PS)** for the placement of the engineered designed septic system.

**Similar to soils of the Bethlehem series: Fine, kaolinitic, thermic Typic Kanhapludults**

## Other Considerations



### Adherence to Report:

The depth to the soil wetness conditions, restrictive horizon(s), trench bottom separation, LTAR, and the land preparation prescriptions outlined in this report are site condition minimums that must be adhered to in the design and installation of an onsite wastewater disposal system. Any expenses incurred due to deviations from the soil prescriptions outlined in this report that result in system malfunctions or repairs will be the liability of the responsible party completing the onsite installation and/or grading work.

### Notification Regarding Wetlands:

It is the responsibility of the landowner and/or equipment operators to avoid regulated impacts to waters of the United States (WOTUS), including wetlands. Should any part of the proposed onsite wastewater system be located in WOTUS, including wetlands, approval from the appropriate State and/or Federal agency [i.e., US Army Corps of Engineers, NC Div. of Coastal Management, etc.] must accompany the application for an engineered onsite wastewater system. It is recommended that the landowner and/or equipment operators contact the applicable State and/or Federal agencies prior to initiating site work in order to avoid regulated impacts to WOTUS, including wetlands.

### Footnotes:

<sup>1</sup>. Fill material must be inspected and approved by Tyler Sgro prior to placement of material and system installation, if required.

<sup>2</sup>. Long-term acceptance rates (LTAR) are **estimated** using calculations provided in Rules .1901 - .1968 of Title 15A Subchapter 18A of the North Carolina Administrative Code (T15A.18A .1901 - .1968). The long-term acceptance rate is based on the most hydraulically limiting naturally occurring soil texture from the ground surface to 12 inches below the bottom of the proposed absorption trenches/disposal tubing. Estimates on the acceptance rates are based on soil texture and other applicable soil morphology.