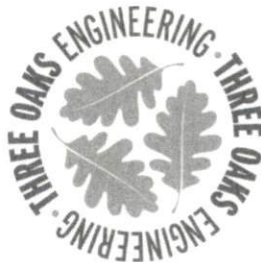


RECONNAISSANCE SOIL & SITE EVALUATION

NPS Associates Tract 11
Harnett County, NC
Three Oaks Job # 19-719

Prepared For:
Jason Wolvington
167 Brent Wood Ct.
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Prepared By:



324 Blackwell Street, Suite 1200
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(919) 732-1300

March 15, 2019



Evan T. Morgan



INTRODUCTION & SITE DESCRIPTION

A Reconnaissance Soil & Site Evaluation was performed on approximately 8-acre portion of NPS Associates Tract 11 located off Pinewoods Drive in Harnett County, NC (PIN:9586-01-2286.000). Three Oaks Engineering (Three Oaks) was obtained to evaluate the current soil and site conditions and identify any suitable areas for placement of an on-site subsurface wastewater system for a single-family residence. The property was evaluated in accordance with North Carolina statutes for waste disposal ("Laws and Rules for Sewage Treatment and Disposal Systems", amended July 1, 2016).

The site is wooded. A drainageway is located in the northern third of the tract surrounded by dense underbrush. A small pond is located at the bottom of the drainageway. The tract is to be serviced by private water.

INVESTIGATION METHODOLOGY

The field survey was conducted on March 5, 2019, by Evan T. Morgan, LSS. Soil borings were advanced with a hand-auger and soil color was determined using a Munsell Soil Color Chart. Observations of the landscape as well as soil properties (depth, texture, structure, soil wetness, restrictive horizons, etc.) were recorded. Soil borings were described per the USDA-NRCS, *Field Book for Describing and Sampling Soils, version 3.0*. Soil borings were marked in the field with blue flagging. Borings were located using a hand-held GPS unit with sub-meter accuracy. The property corners were flagged on the day of the investigation.

FINDINGS

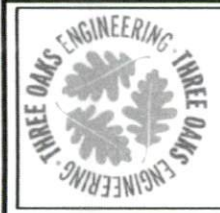
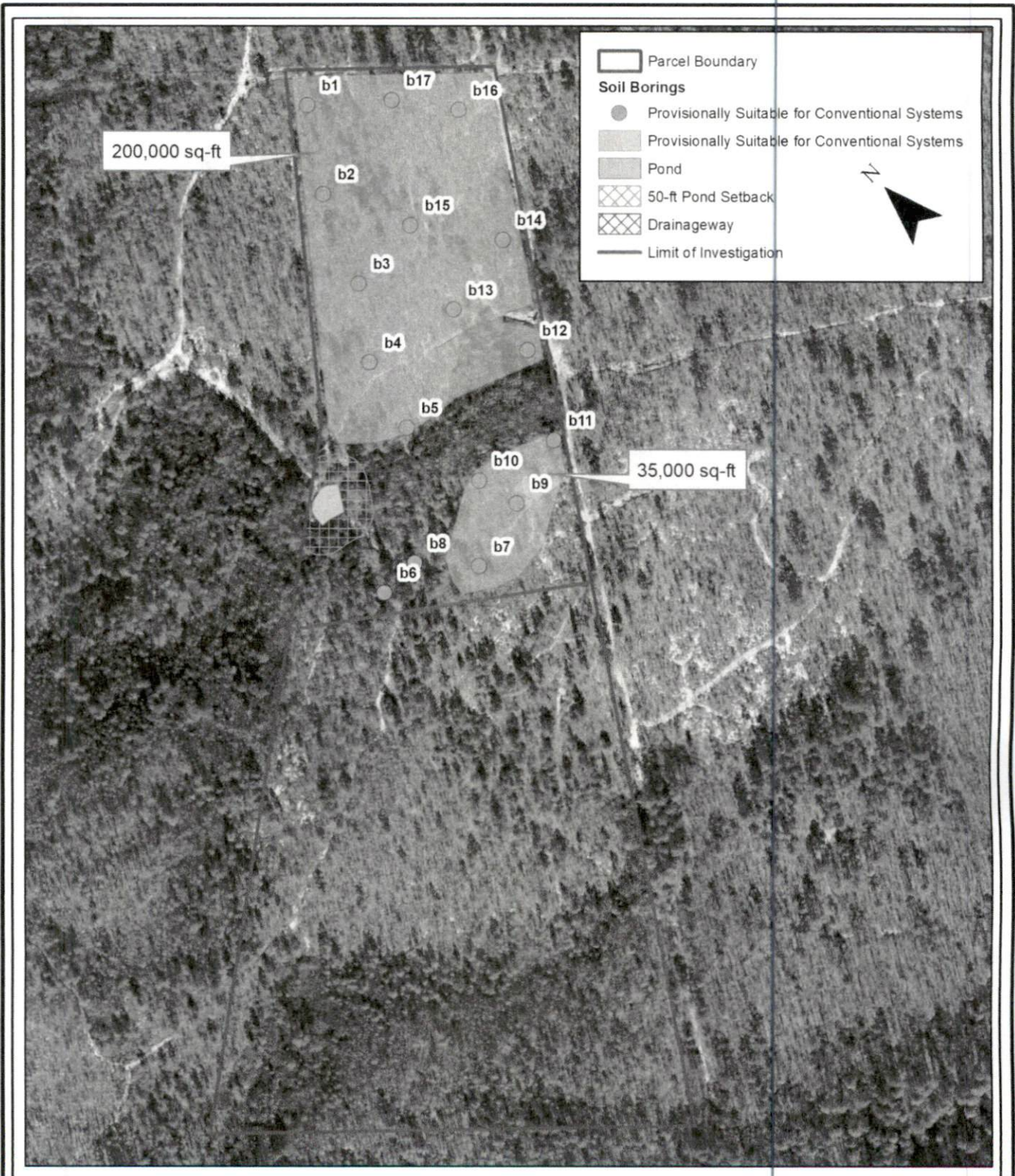
Seventeen (17) soil borings were advanced and their locations noted on Figure 1. Detailed soil boring descriptions are attached.

Soil borings rated as Provisionally Suitable for Conventional Systems typically exhibited a very friable sand or loamy sand textured surface with a friable sandy loam, or firm sandy clay or clay textured subsurface that ranged in depth from 33 to greater than 48 inches from the existing surface. These soils appeared adequate to support a long-term acceptance rate (LTAR) of 0.3 to 0.8 GPD/sq-ft.

A drainageway was located on the property and is considered as Unsuitable for placement of subsurface septic systems (Figure 1). A pond is located at the bottom of the drainageway and will require a 50-ft setback to a septic system.

DISCUSSION

The investigated portion of the tract is dominated by usable soils. Two areas of soil rated as Provisionally Suitable for Conventional Systems were identified and encompasses approximately 5.4 acres (235,000 sq-ft). Usable soil depths ranged from 33 to greater than 48 inches in these areas. It is estimated a minimum of 6,000 to 8,000 sq-ft of usable soil would be required to support the initial septic system and 100% repair area for a typical three-bedroom home. Based on topographic position and soil depth, an LTAR of 0.3 to 0.8 GPD/sq-ft is expected for these areas; with most of the borings supporting an LTAR of 0.8 GPD/sq-ft. In the larger usable soil area, borings B13 and B15 are less desirable for septic systems and may be better suited as a home site.



Reconnaissance Soil & Site Evaluation

NPS Associates Tract 11

Harnett County, North Carolina

Date: March 2019

Scale: 0 60 120 Feet

Job No.: 19-719

Drawn By: ETM Checked By: JCR

Figure

1

A channel was observed within the drainageway depicted in the northern portion of the property. If the channel is determined to be jurisdictional, there would be at least a 50-ft setback for a stream based on the buffer requirements.

CONCLUSIONS

The findings presented herein represent Three Oaks' professional opinion based on our Reconnaissance Soil and Site Evaluation and knowledge of the current laws and rules governing on-site wastewater systems in North Carolina. The investigated portion of the tract was dominated by areas of usable soil. It is anticipated 6,000 to 8,000 sq-ft of usable soil would be needed to support an initial system and repair area for a three-bedroom home utilizing an LTAR of 0.8 GPD/sq-ft.

Soils naturally change across a landscape and contain many inclusions. As such, attempts to quantify them are not always precise and exact. Due to this inherent variability of soils and the subjectivity when determining limiting factors, there is no guarantee that a regulating authority will agree with the findings of this report.

Soil Evaluation Form

Three Oaks Engineering
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 Durham, NC 27701
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Sheet 2 of 2
 Job: 19-719 NPS Associates Tract 11
 County: Harnett
 Date: 3-5-2019

Soil Borings

	B11	B12	B13	B14	B15	B16	B17		
Landscape Position	L	L	L	L	L	L	L		
Slope (%)	20	15	10	15	10	15	15		
Horizon 1 Depth	48	40	24	42	24	44	32		
Texture	S	S	S	S	S	S	S		
Consistence	VFR	VFR	VFR	VFR	VFR	VFR	VFR		
Structure	GR	GR	GR	GR	GR	GR	GR		
Clay Mineralogy	ME	ME	ME	ME	ME	ME	ME		
Horizon 2 Depth		48	34	48	33		44		
Texture		SL	SL	SL	SL		LS		
Consistence		FE	FE	FR	FE		FR		
Structure		SBR	SBR	SBR	SBR		GR		
Clay Mineralogy		SE	SE	SE	SE		ME		
Horizon 3 Depth			36		30				
Texture			C		C				
Consistence			VFE		VFF				
Structure			ABK		ABK				
Clay Mineralogy			E		E				
Horizon 4 Depth									
Texture									
Consistence									
Structure									
Clay Mineralogy									
Horizon 5 Depth									
Texture									
Consistence									
Structure									
Clay Mineralogy									
Soil Wetness			34		33				
Restrictive Horizon									
Saprolite									
Other									
CLASSIFICATION	S	S	PS	S	PS	S	S		
LTAR (gpd/ft ²)	0.8	0.8	0.35	0.8	0.35	0.8	0.8		

Comments:

Evaluated by: ETM

Soil Evaluation Form

Three Oaks Engineering
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Sheet 1 of 2
 Job: 19-719 NPS Associates Tract II
 County: Harnett
 Date: 3-5-2019

Soil Borings

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
Landscape Position	L	L	L	L	L	L	L	L	L	L
Slope (%)	12	4	15	20	15	15	15	15	15	15
Horizon 1 Depth	36	30	48	28	38	24	48	20	48	48
Texture	S	S	S	S	S	LS	S	LS	S	S
Consistence	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR
Structure	GR	GR	GR	GR	GR	GR	GR	GR	GR	GR
Clay Mineralogy	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Horizon 2 Depth	48	48		48	48	40		28		
Texture	S	S		LS	SL	SC		SE		
Consistence	VFR	VFR		VFR	FR	FI		FR		
Structure	GR	GR		GR	GR	ABX		GR		
Clay Mineralogy	NE	NE		NE	NE	S,P		NE		
Horizon 3 Depth								40		
Texture								SC		
Consistence								FI		
Structure								ABX		
Clay Mineralogy								S,P		
Horizon 4 Depth										
Texture										
Consistence										
Structure										
Clay Mineralogy										
Horizon 5 Depth										
Texture										
Consistence										
Structure										
Clay Mineralogy										
Soil Wetness										
Restrictive Horizon										
Saprolite										
Other										
CLASSIFICATION	S	S	S	S	S	PS	S	PS	S	S
LTAR (gpd/ft ²)	0.8	0.8	0.8	0.8	0.8	0.3	0.8	0.3	0.8	0.8

Comments:

Evaluated by: ETM