

PRELIMINARY SOIL AND SITE EVALUATION

Mecklenburg County Parcel ID: 13905203
Brookgreen Drive
Charlotte, NC 28212

Prepared For:

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Land Conservation Director
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4530 Park Road, Suite 420
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Prepared By:



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PO Box 541
Midland, NC 28107

February 13, 2021



INTRODUCTION & SITE DESCRIPTION

This Preliminary Soil and Site Evaluation was performed on a 28.370-acre tract located on Brookgreen Drive, Charlotte, North Carolina (Mecklenburg County Parcel ID: 13905203).

Thompson Environmental Consulting, Inc. (TEC) was retained to determine whether the soils were suitable for the installation of onsite subsurface wastewater treatment and disposal systems. The property was evaluated in accordance with North Carolina statutes for waste disposal (“Laws and Rules for Sewage Treatment and Disposal Systems”, amended April 1, 2017).

INVESTIGATION METHODOLOGY & SITE PHYSICAL CHARACTERISTICS

Individual soil borings were evaluated, and soil color was determined with a Munsell Soil Color Chart. Observations of the landscape (slope, drainage patterns, etc.) as well as soil properties (depth, texture, structure, seasonal wetness, restrictive horizons, etc.) were recorded.

The project study area is currently undeveloped and is vegetated by a mixed deciduous forest. Several unsuitable landscape features, as well as Mecklenburg County Water Quality Buffers, were observed through GIS data layers and at the time of our evaluation. These features are depicted in the attached Figure 1.

FINDINGS

A field survey was conducted on February 11, 2021 by Michael Wood, LSS, Larry Thompson, LSS, and Ethan Wood, ES. Nineteen soil borings were advanced, and their locations noted in the attached figure.

All soil borings were rated as Provisionally Suitable for the installation of subsurface wastewater treatment and disposal systems utilizing Accepted System drainfield product and are denoted in the attached Figure as green points. Surfaces typically exhibited friable to firm sandy loam to sandy clay loam textures with weak, medium, granular to subangular blocky structure 2 to 19 inches in depth. Lower subsurface horizons exhibited firm clay textures with moderate, medium, subangular blocky structure to a depth of 28 to 40+ inches. A long-term acceptance rate (LTAR) of 0.3 gal./day/sq. ft. would be recommended for these soils.

DISCUSSION

The soils observed within the project study area will support the installation of a subsurface wastewater treatment and disposal systems utilizing Accepted System drainfield product. It is estimated that 7,000 square feet of suitable soil area would need to be allocated and left completely available for the installation of, and the proposed repair of, an Accepted Septic System for a 4-bedroom single-family residence. An additional 25% reduction in square footage can be realized using a Prefabricated Permeable Block Panel System (PPBPS).

Based on GIS calculations, there is approximately 362,000 square feet of Provisionally Suitable soil within the project study area.

CONCLUSION

The findings presented herein represent TEC's professional opinion based on our Soil and Site Evaluation and knowledge of the current laws and rules governing on-site wastewater systems in North Carolina. 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.



LEGEND

- Mecklenburg County GIS Parcel Lines
- Mecklenburg County GIS 2-Foot Contour Lines
- Water Quality Buffers
- Unsuitable Landscape Features
- Soil Boring Locations



Prepared For:
Catawba Lands
Conservancy

Preliminary Soil and Site Evaluation

Mecklenburg County Parcel ID: 13905203
Brookgreen Drive
Charlotte, NC 28212

Mecklenburg County

Date:
February 2021

Scale:
0 100 200 ft

TEC Job #:
21-42

Figure

1

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

OWNER: Catawba Lands Conservancy

ADDRESS: 4530 Park Road, Ste 420, Charlotte, NC 28229

PROPOSED FACILITY: Res PROPOSED DESIGN FLOW (.1949):

LOCATION OF SITE: Brookgreen Drive, Charlotte, NC 28227

DATE EVALUATED: 2-11-21

PROPERTY SIZE: 28.370 ac

PROPERTY RECORDED:

WATER SUPPLY: ☐ Private ☐ Public ☐ Well ☐ Spring ☐ OtherEVALUATION METHOD: ☒ Auger Boring ☐ Pit ☐ CutTYPE OF WASTEWATER: ☒ Sewage ☐ Industrial Process ☐ Mixed

P R O F I L E #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
1	LS 7%	0-4	Gr/SL	FR/NS/WP/NEP	—	40	TIT CL	—	PS 0.3
		4-12	SBK/SC	FI/SS/SP/SEF					
		12-40	SBK/CL	FR/SS/SP/SEF					
		40+	M/CL	FR/SS/SP/SEF					
2	LS 15%	0-2	SBK/CL	FI/SS/SP/SEF	—	40+	—	—	PS 0.3
		2-35	SBK/C	FI/SP/SEF					
		35-40+	SBK/CL	FR/SS/SP/SEF					
3	LS 10%	0-3	SBK/CL	FI/NS/WP/NEP	—	40+	—	—	PS 0.3
		3-40+	SBK/C	FI/SP/SEF					
4	LS 12%	0-3	SBK/SC	FI/SS/SP/SEF	—	32"	II SL	—	PS 0.3
		3-19	SBK/C	FI/SP/SEF					
		19-32	SBK/SC	FR/SS/SP/SEF					
		32+	M/CL	FR/SS/SP/SEF					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM	OTHER FACTORS (.1946):
Available Space (.1945)	PS	PS	SITE CLASSIFICATION (.1948): Provisionally Suitable
System Type(s)	Accepted/PPBS "	"	EVALUATED BY: Michael Wood, LSS
Site LTAR	0.3	0.3	OTHER(S) PRESENT: Larry Thompson, LSS Ethel Wood, ES

COMMENTS: * Suitable for all system types in "Provisionally Suitable" soil areas.

SOIL/SITE EVALUATION
(Continuation Sheet-Complete all field in full)

Sheet 2 of 4

PROPERTY ID #: 13905208
DATE OF EVALUATION: 2-11-21
COUNTY: Mecklenburg

P R O F I L E #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZ ON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
5	LS 7%	0-3	SBK/SCl	FI/SS/KP/SEXP	—	40 ⁺	—	—	Ps D.3
		3-40 ⁺	SBK/C	FI/S/P/SEXP					
6	LS 5%	0-3	SBK/SCl	FI/SS/KP/SEXP	—	42 ⁺	—	—	Ps D.3
		3-33	SBK/C	FI/S/P/SEXP					
		33-42 ⁺	SBK/CL	FR/SS/KP/SEXP					
7	CV 8%	0-3	SBK/SCl	FI/KG/KP/SEXP	—	40 ⁺	—	—	Ps D.3
		3-34	SBK/C	FI/K/P/KCXP					
		34-40 ⁺	SBK/CL	FR/SS/KP/SEXP					
8	LS 6%	0-16	SBK/SCl	FR/SS/KP/SEXP	—	40 ⁺	—	—	Ps D.3
		16-40	SBK/C	FI/S/P/SEXP					
9	CV 10%	0-5	GL/SL	FR/WS/KP/SEXP	—	33	II SL	—	Ps D.3
		5-22	SBK/SCl	FR/KG/KP/SEXP					
		22-33	SBK/SL	FR/WS/KP/SEXP					

COMMENTS: _____

SOIL/SITE EVALUATION
(Continuation Sheet-Complete all field in full)

Sheet 3 of 4

PROPERTY ID #: 13905203
DATE OF EVALUATION: 2-11-21
COUNTY: Rocklenburg

P R O F I L E #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZ ON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
10	CV 10%	0-16	SBK/SC	FR/S/P/SEXP	—	37"	—	37" CL	PS 0.3
		16-37	SBK/C	FR/S/P/SEXP					
		37+	CL						
11	L 10%	0-6	SBK/SC	FR/S/P/SEXP	—	40+	—	—	PS 0.3
		6-40	SBK/C	FR/S/P/SEXP					
12	L 4%	0-8	SBK/SC	FR/S/P/SEXP	—	40+	—	—	PS 0.3
		8-40+	SBK/C	FR/S/P/SEXP					
13	LS 4%	0-10	GR/SC	FR/NS/HP/SEXP	—	40+	—	—	PS 0.3
		10-40+	SBK/C	FR/S/P/SEXP					
14	LS 4%	0-3	GR/SC	FR/NS/HP/SEXP	—	40+	—	—	PS 0.3
		3-32	SBK/C	FR/S/P/SEXP					
		32-40+	SBK/CL	FR/SS/SP/SEXP					

COMMENTS: _____

SOIL/SITE EVALUATION
(Continuation Sheet-Complete all field in full)

Sheet 4 of 4

PROPERTY ID #: 13905203
DATE OF EVALUATION: 2-11-21
COUNTY: Mecklenburg

P R O F I L E #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZ ON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
15	LS 4 1/2%	0-19	SBK/CL	FI/S/S/SC/SP	-	40+	-	-	PS 0.3
		19-40	SBK/C	FI/S/P/SC/SP					
16	LS 5%	0-28	SBK/C	FI/S/P/SC/SP	-	34	II SL	-	PS 0.3
		28-34	SBK/CL	FI/S/S/SC/SP					
		34+	M/SL	FR/NS/SP/SP					
17	LS 7 1/2%	0-16	SBK/C	FI/S/P/SC/SP	-	28	II C	-	PS 0.3
		16-28	SBK/CL	FI/S/S/SC/SP					
		28+	M/L	FR/NS/SP/SP					
18	LS 7 1/2%	0-20	SBK/C	FI/S/P/SC/SP	-	32	II SL		PS 0.3
		20-32	SBK/SC	FI/S/S/SC/SP					
		32+	M/SL	FR/NS/SP/SP					
19	LS 12 1/2%	0-36	SBK/C	FI/S/P/SC/SP	-	40+	-	-	PS 0.3
		36-40+	SBK/CL	FI/S/S/SC/SP					

COMMENTS: _____

LEGEND

use the following standard abbreviations

LANDSCAPE POSITION	GROUP	SOIL TEXTURE	CONVENTIONAL .1955 LTAR*	LPP .1957 LTAR*	MINERALOGY/ CONSISTENCE	STRUCTURE
CC (Concave Slope)	I	S (Sand)	1.2 - 0.8	0.6 - 0.4	SEXP (Slightly Expansive) EXP (Expansive)	G (Single Grain)
CV (Convex Slope)		LS (Loamy Sand)				M (Massive)
D (Drainage Way)	II	SL (Sandy Loam)	0.8 - 0.6	0.4 - 0.3		CR (Crumb)
DS (Debris Slump)		L (Loam)				GR (Granular)
FP (Flood Plain)	III	Si (Silt)	0.6 - 0.3	0.3 - 0.15		SBK (Subangular Blocky)
FS (Foot Slope)		SiCL (Silty Clay Loam)				ABK (Angular Blocky)
H (Head Slope)		CL (Clay Loam)				PL (Platy)
L (Linear Slope)		SCL (Sandy Clay Loam)				PR (Prismatic)
N (Nose Slope)		SiL (Silt Loam)				
R (Ridge)						
S (Shoulder Slope)	IV	SC (Sandy Clay)	0.4 - 0.1	0.2 - 0.05	VFR (Very Friable) FR (Friable) FI (Firm) VFI (Very Firm v. Very Sticky) EFI (Extremely Firm)	NS (Non-sticky)
T (Terrace)		SiC (Silty Clay)				SS (Slightly Sticky)
		C (Clay)				S (Sticky)
		O (Organic)				VS (Very Sticky)
			None	None		NP (Non-plastic)
						SP (Slightly Plastic)
						P (Plastic)
						VP (Very Plastic)

*Adjust LTAR due to depth, consistence, structure, soil wetness, landscape, position, wastewater flow and quality.

NOTES

HORIZON DEPTH

In inches below natural soil surface

DEPTH OF FILL

In inches from land surface

RESTRICTIVE HORIZON

Thickness and depth from land surface

SAPROLITE

S(suitable) or U(unsuitable)

SOIL WETNESS

Inches from land surface to free water or inches from land surface to soil colors with chroma 2 or less - record Munsell color chip designation

CLASSIFICATION

S (Suitable), PS (Provisionally Suitable), or U (Unsuitable)

Evaluation of saprolite shall be by pits.

Long-term Acceptance Rate (LTAR): gal/day/ft²

Show profile locations and other site features (dimensions, reference or benchmark, and North).

