



2401 Brentwood Road, Suite 107
Raleigh, NC 27604
P (919) 873-2211
North Carolina Registered F-0869
Terracon.com

August 25, 2023

Wake County Public School System
111 Corning Road, Suite 190
Cary, NC 27518

Attn: Ronnie Stott
P: (919) 586-3596
E: rstott@wcpss.net

Re: Geotechnical Report Addendum
Swift Creek Elementary School
5601 Tryon Road
Raleigh, North Carolina
Terracon Project No. 70215172

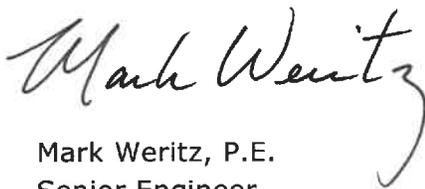
Dear Mr. Stott:

Please find attached Cone Penetrometer Test (CPT) logs and AWT's Seasonal High Water Table Assessment report for the Swift Creek Elementary School project. These field activities and reports/logs were authorized in the Terracon's Supplement to Agreement for Services, dated July 25, 2023.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon



Mark Weritz, P.E.
Senior Engineer



Andrew A. Nash
Andrew A. Nash, P.E.
Geotechnical Department Manager

Attachments: AWT Seasonal High-Water Table Assessment Report, Terracon CPT logs (CPT-1 to CPT-4), Updated Exploration Plan



Agri-Waste Technology, Inc.
 501 N Salem Street, Suite 203, Apex, NC 27502
 agriwaste.com | 919.859.0669

**Seasonal High-Water Table (SHWT) Assessment
 Terracon
 Swift Creek Elementary School
 Raleigh, NC (Wake County)**

PREPARED FOR: Mark Weritz, Terracon

PREPARED BY: Jeff Vaughan, Senior Agronomist/Soil Scientist
 Heath Clapp, Associate Soil Scientist

DATE: August 14, 2023

Seasonal High-Water Table (SHWT) assessments were conducted at the subject property on August 14, 2023. Heath Clapp and Jordan Harris of Agri-Waste Technology, Inc. (AWT) conducted the evaluation. A property reference site plan, as provided by Mark Weritz of Terracon is in Attachment 1. Copies of the boring log notes are included in Attachment 2.

The predominant soil type mapped in the evaluated areas is the Urban land and Cecil soil series. Three soil borings were advanced at the marked locations on August 14, 2023. The soil borings advanced by AWT personnel indicated no perched SHWT within 48 inches for borings 1 and 2, and no perched SHWT within 168 inches for boring 3.

Seasonal High-Water Table (SHWT) and Infiltration Rate Testing Information

<u>Soil Test Location</u>	<u>SHWT Depth</u>
	-----inches-----
SHWT-1	No SHWT Found
SHWT-2	No SHWT Found
SHWT-3	No SHWT Found

We appreciate the opportunity to assist you in this matter. Please contact us with any questions, concerns, or comments.

Sincerely,

Jeff Vaughan

Attachment 1: Reference Site Plan

Attachment 2: Soil Boring Log

Property ID#: 0772858980
 Property Recorded: _____
 County: Wake

SOIL/SITE EVALUATION

Applicant: Mark Weritz, Terracon
 Address: Terracon
2401 Brentwood Road, ste 107
Raleigh, NC 27604

Buyer: ___ Agent: ___ Phone: 919-873-2211
 Date Evaluated: 4/5/2023
 Proposed Facility: School
 Property Size: 15.58

Location Site: 5701 Tryon Road, Raleigh, NC 27606

Water Supply: On Site Well ___ Comm. Well ___ Public X Other ___ Evaluation Method: Auger Boring X Pit ___ Cut ___

TYPICAL PROFILE – SHWT-1

Horizon/ Depth (IN)	Matrix	Mottles	Mottle Abundan ce/ Contrast	(a)(1) Texture	(a)(2) Structur e	(a)(3) Minerology	Consistence Wet	Consistence Moist
A 0-11"	10YR 4/4	None	None	SL	GR	NEXP	NS, NP	Fr
BC 11-20"	2.5YR 4/8	5YR 5/8	2, m, D	SL	GR	NEXP	NS, NP	Fr
C 20-60"	2.5YR 4/4	2.5Y 7/4, 2.5YR 4/3	3, m, P	C	SBK	EXP	S, P	Fi

Comments: SHWT not present within 60" (5 feet) of the soil surface. Indicative of an Urban Land type disturbed soil.

TYPICAL PROFILE – SHWT-2

Horizon/ Depth (IN)	Matrix	Mottles	Mottle Abundan ce/ Contrast	(a)(1) Texture	(a)(2) Structur e	(a)(3) Minerology	Consistence Wet	Consistence Moist
A 0-5"	10YR 4/4	None	None	SL	GR	NEXP	NS, NP	Fr
E 5-11"	10YR 6/4	None	None	SL	GR	NEXP	NS, NP	Fr
BC 11-25"	2.5YR 4/8	5YR 5/8	2, m, D	SL-	SBK	SEXP	SS, SP	Fr
C 25-60"	2.5YR 4/4	2.5Y 7/4, 2.5YR 4/3	3, m, P	SL	SBK	SEXP	SS, SP	Fr

Comments: SHWT not present within 60" (5 feet) of the soil surface. Indicative of an Urban Land type disturbed soil.

TYPICAL PROFILE – SHWT-3

Horizon/ Depth (IN)	Matrix	Mottles	Mottle Abundan ce/ Contrast	(a)(1) Texture	(a)(2) Structur e	(a)(3) Minerology	Consistence Wet	Consistence Moist
A 0-6"	10YR 4/4	None	None	SL	GR	NEXP	NS, NP	Fr
Bt 6-34"	10R 4/8	None	None	C	GR	SEXP	S, P	Fi
BC1 34-50"	2.5YR 4/8	5YR 5/8	2, m, D	C-CL	SBK	SEXP	SS, SP	Fr
BC2 50-68"	2.5YR 4/8	5YR 5/8	2, m, D	CL-L	SBK	SEXP	SS, SP	Fr
C1 68-102"	2.5YR 4/8	5YR 5/8	2, m, D	L	MASS	NEXP	NS, NP	Fr
C2 102-170"	2.5YR 4/4	2.5Y 7/4, 2.5YR 4/3	3, m, P	L	MASS	NEXP	NS, NP	Fr
AR 170"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Comments: SHWT not present within 170" (14 feet, 2 inches) of the soil surface. Indicative of an undisturbed Cecil soil series.

EVALUATED BY: Heath Clapp, Jordan Harris
 COMMENTS: _____

LEGEND OF ABBREVIATIONS FOR SITE EVALUATION FORM

<u>LANDSCAPE POSITION</u>	<u>TEXTURE GROUP</u>	<u>TEXTURE CLASS</u>	<u>.1955 LTAR</u> (gal/day/sqft)
CC - Concave Slope CV - Convex Slope DS - Debris Slump D - Depression DW - Drainage Way FP - Flood Plain FS - Foot Slope H - Head Slope I - Interflueve L - Linear Slope N - Nose Slope P - Pocosin R - Ridge S - Shoulder T - Terrace	I II III IV	S - Sand LS - Loamy Sand SL - Sandy Loam L - Loam SCL - Sandy Clay Loam CL - Clay Loam SiL - Silt Loam Si - Silt SiCL - Silt Clay Loam SC - Sandy Clay C - Clay SiC - Silty Clay O - Organic	1.2 - .08 0.8 - 0.6 0.6 - 0.3 0.4 - 0.1
<u>STRUCTURE</u>	<u>MOIST CONSISTENCE</u>	<u>MOTTLES</u>	<u>WET CONSISTENCE</u>
G - Single Grain M - Massive CR - Crumb GR - Granular SBK - Subgranular Blocky ABK - Angular Blocky PL - Platy PR - Prismatic	Vfr - Very Friable Fr - Friable Fi - Firm Vfi - Very Firm Efi - Extremely Firm	1 - Few 2 - Common 3 - Many F - Faint D - Distinct P - Prominent f - Fine m - Medium c - Coarse	NS - Non Sticky SS - Slightly Sticky S - Sticky VS - Very Sticky NP - Non Plastic SP - Slightly Plastic P - Plastic VP - Very Plastic

Attachment 3: Wake County Soil Survey

TABLE 6.—*Engineering*

[Dashed lines indicate that information is not available, or that the practice is not applicable. Miscellaneous land types Gullied land

Soil series and map symbols	Suitability as source of—		Degree of limitation for—		
	Topsoil	Road fill	Homebuilding sites	Septic tank absorption fields	Recreation
					Campsites
Altavista (AfA)-----	Fair-----	Fair-----	Severe: flooding-----	Severe: flooding-----	Moderate: flooding; fair trafficability.
Appling: (AgB, AgB2)-----	Fair-----	Fair-----	Moderate: coarse fragments.	Moderate: medium percolation rate.	Moderate: coarse fragments.
(AgC, AgC2)-----	Fair-----	Fair-----	Moderate: coarse fragments.	Moderate: medium percolation rate.	Moderate: coarse fragments; slopes of 6 to 10 percent.
(ApB, ApB2, AsB, AsB2)-----	Fair-----	Fair-----	Slight-----	Moderate: medium percolation rate.	Slight-----
(ApC, ApC2, AsC, AsC2)-----	Fair-----	Fair-----	Slight-----	Moderate: medium percolation rate.	Moderate: slopes of 6 to 10 percent.
(ApD)-----	Fair-----	Fair-----	Moderate: slopes greater than 10 percent.	Moderate: medium percolation rate; slopes greater than 10 percent.	Severe: slopes greater than 10 percent.
Augusta (Au)-----	Poor-----	Poor-----	Severe: flooding; high water table.	Severe: flooding; high water table.	Severe: flooding; high water table.
Bibb (Mapped only in an undifferentiated unit with Wehadkee soils).	Poor-----	Fair-----	Severe: flooding; high water table.	Severe: flooding; high water table.	Severe: flooding; high water table; poor trafficability.
Buncombe (Bu)-----	Poor-----	Good-----	Severe: flooding-----	Severe: flooding-----	Severe: flooding-----
Cecil: (CeB, CeB2)-----	Fair-----	Fair-----	Slight-----	Moderate: medium percolation rate.	Slight-----
(CeC, CeC2)-----	Fair-----	Fair-----	Slight-----	Moderate: medium percolation rate.	Moderate: slopes of 6 to 10 percent.
(CeD)-----	Fair-----	Fair-----	Moderate: slopes of 10 to 15 percent.	Moderate: medium percolation rate; slopes of 10 to 15 percent.	Severe: slopes greater than 10 percent.
(CeF)-----	Fair-----	Fair-----	Moderate to severe: slopes of 15 to 45 percent.	Severe: slopes greater than 15 percent.	Severe: slopes greater than 15 percent.
(CgB, CgB2, CgC, CgC2)-----	Fair-----	Fair-----	Moderate: coarse fragments.	Moderate: medium percolation rate.	Moderate: coarse fragments.
(CIB3, CIC3)-----	Poor-----	Fair-----	Moderate: clayey surface layer.	Moderate: medium percolation rate.	Moderate: clayey surface layer.
(CIE3)-----	Poor-----	Fair-----	Moderate: clayey surface layer; slopes of 10 to 20 percent.	Moderate to severe: medium percolation rate; slopes of 10 to 20 percent.	Severe: slopes greater than 10 percent.

CPT Sounding ID C-1



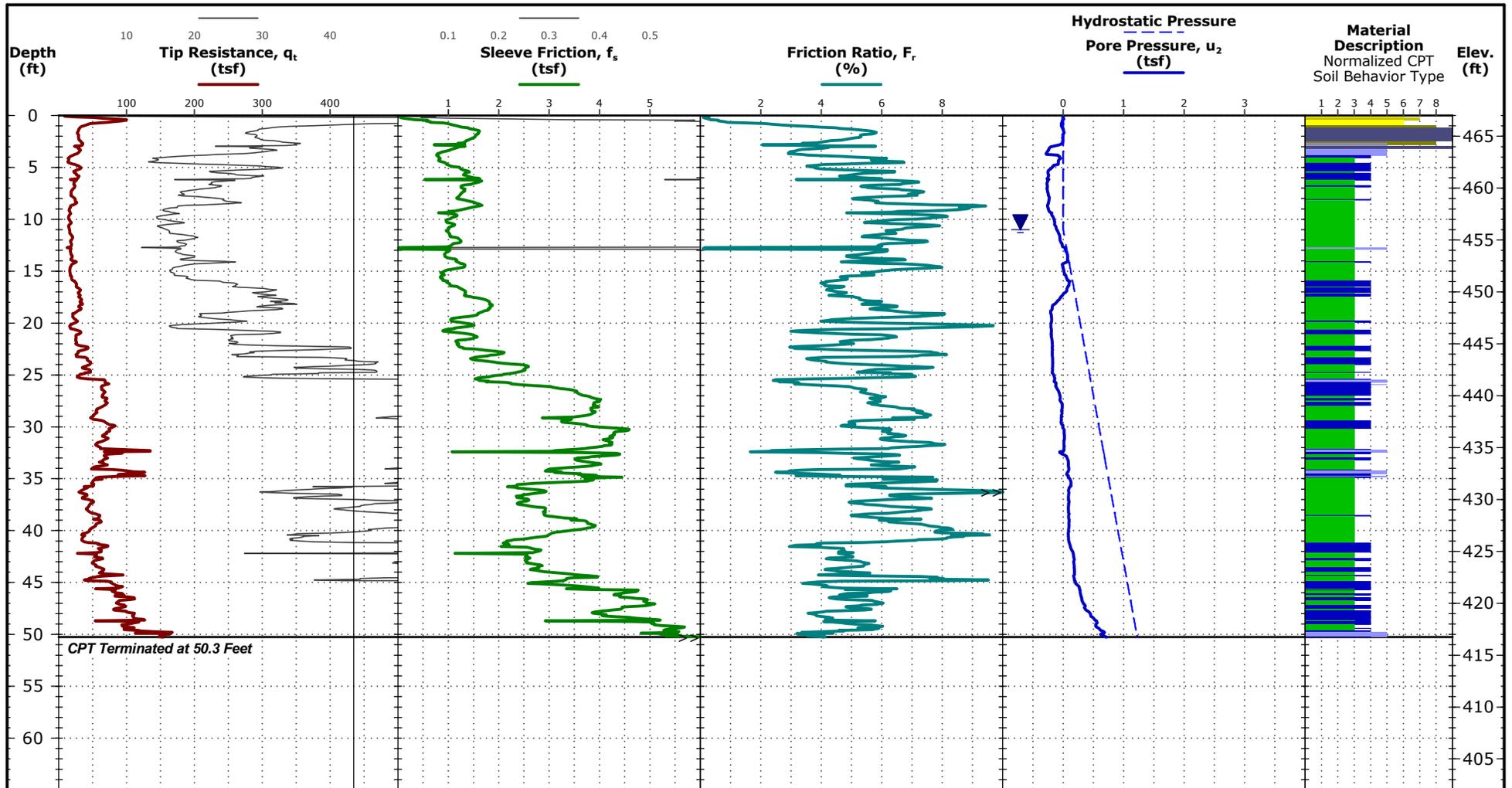
2401 Brentwood Rd Ste 107
 Raleigh, NC

Latitude: 35.744600° Longitude: -78.735230°

Elevation: 467 (ft)

CPT Started: 8/17/2023

CPT Completed: 8/17/2023



See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data, if any.
 See [Supporting Information](#) for explanation of symbols and abbreviations.

Notes

Test Location: See [Exploration Plan](#)

CPT Equipment

CPT Rig:
 Operator: Whitehead
 CPT sensor calibration reports available upon request
 Probe No. 5633 with net area ratio of .85
 U₂ pore pressure transducer location
 Manufactured by Nova- Calibrated 2/21/2022
 Tip and sleeve areas of 15 cm² and 225 cm²
 Ring friction reducer with O.D. of 2 in

Water Level Observation

▼ 11 ft estimated water depth
 (used in normalizations and correlations)

Normalized Soil Behavior Type (Robertson 1990)

- 1 Sensitive, fine grained
- 2 Organic soils - clay
- 3 Clay - silty clay to clay
- 4 Silt mixtures - clayey silt to silty clay
- 5 Sand mixtures - silty sand to sandy silt
- 6 Sands - clean sand to silty sand
- 7 Gravelly sand to dense sand
- 8 Very stiff sand to clayey sand
- 9 Very stiff fine grained

CPT Sounding ID C-2



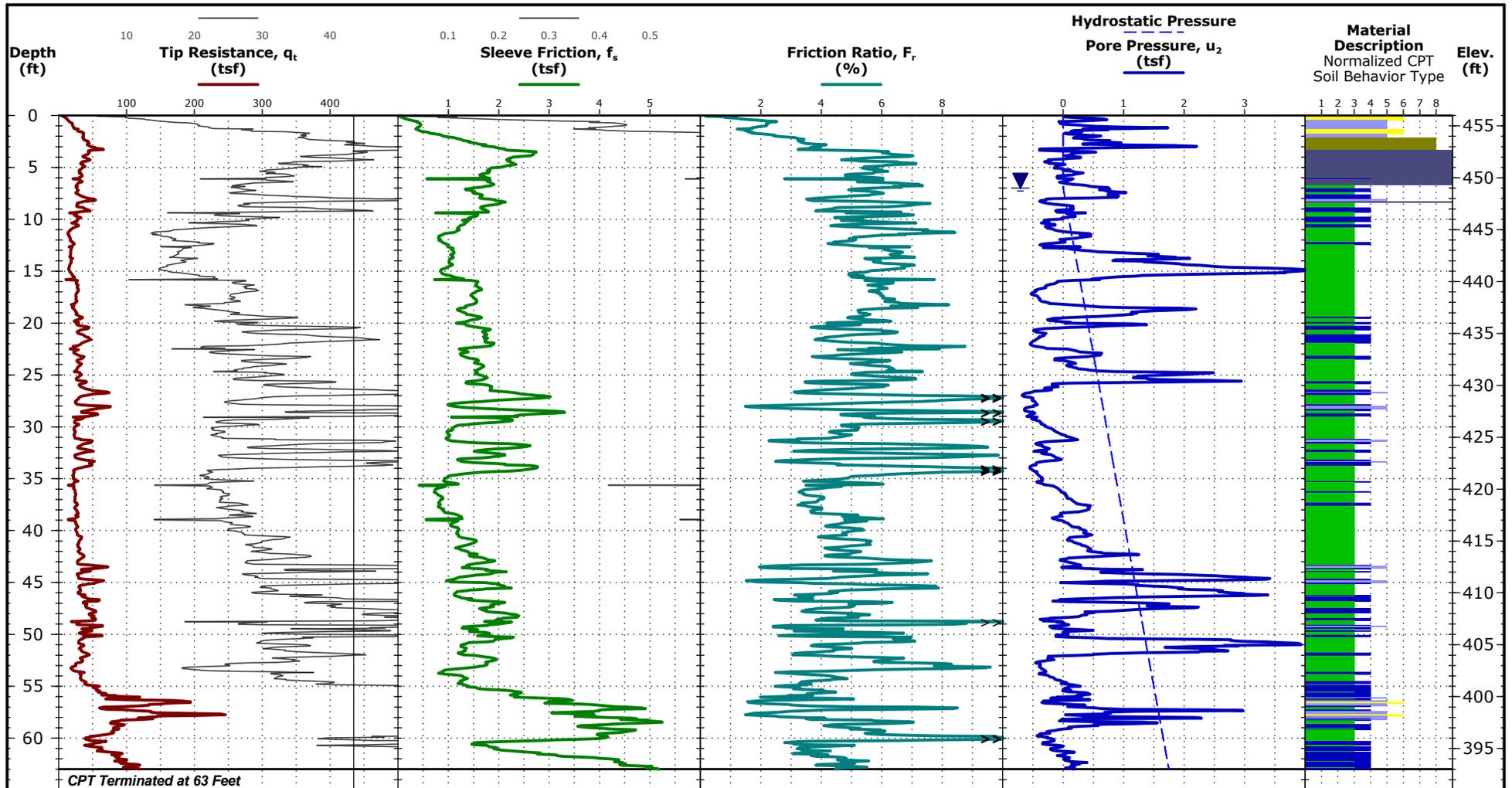
2401 Brentwood Rd Ste 107
 Raleigh, NC

Latitude: 35.744580° Longitude: -78.734410°

Elevation: 456 (ft)

CPT Started: 8/17/2023

CPT Completed: 8/17/2023



See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data, if any.
 See [Supporting Information](#) for explanation of symbols and abbreviations.

Notes

Test Location: See [Exploration Plan](#)

CPT Equipment

CPT Rig:
 Operator: Whitehead
 CPT sensor calibration reports available upon request
 Probe No. 5633 with net area ratio of .85
 U₂ pore pressure transducer location
 Manufactured by Nova- Calibrated 2/21/2022
 Tip and sleeve areas of 15 cm² and 225 cm²
 Ring friction reducer with O.D. of 2 in

Water Level Observation

▼ 7 ft estimated water depth
 (used in normalizations and correlations)

Normalized Soil Behavior Type (Robertson 1990)

- 1 Sensitive, fine grained
- 2 Organic soils - clay
- 3 Clay - silty clay to clay
- 4 Silt mixtures - clayey silt to silty clay
- 5 Sand mixtures - silty sand to sandy silt
- 6 Sands - clean sand to silty sand
- 7 Gravelly sand to dense sand
- 8 Very stiff sand to clayey sand
- 9 Very stiff fine grained

CPT Sounding ID C-3



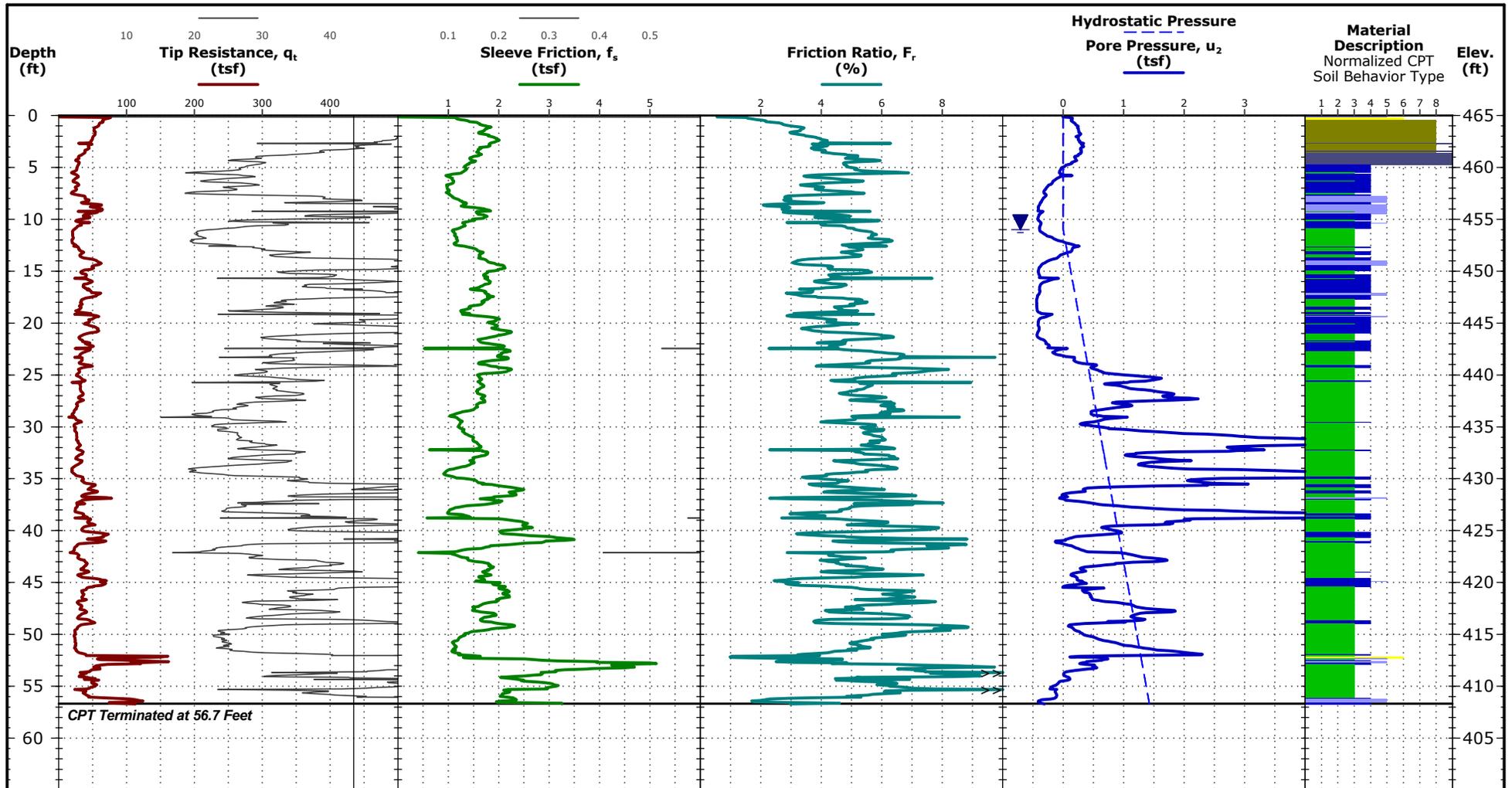
2401 Brentwood Rd Ste 107
 Raleigh, NC

Latitude: 35.744510° Longitude: -78.733460°

Elevation: 465 (ft)

CPT Started: 8/16/2023

CPT Completed: 8/16/2023



See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data, if any.
 See [Supporting Information](#) for explanation of symbols and abbreviations.

Notes

Test Location: See [Exploration Plan](#)

CPT Equipment

CPT Rig:
 Operator: Whitehead
 CPT sensor calibration reports available upon request
 Probe No. 5633 with net area ratio of .85
 U₂ pore pressure transducer location
 Manufactured by Nova- Calibrated 2/21/2022
 Tip and sleeve areas of 15 cm² and 225 cm²
 Ring friction reducer with O.D. of 2 in

Water Level Observation

▼ 11 ft estimated water depth
 (used in normalizations and correlations)

Normalized Soil Behavior Type (Robertson 1990)

- 1 Sensitive, fine grained
- 2 Organic soils - clay
- 3 Clay - silty clay to clay
- 4 Silt mixtures - clayey silt to silty clay
- 5 Sand mixtures - silty sand to sandy silt
- 6 Sands - clean sand to silty sand
- 7 Gravelly sand to dense sand
- 8 Very stiff sand to clayey sand
- 9 Very stiff fine grained

CPT Sounding ID C-4



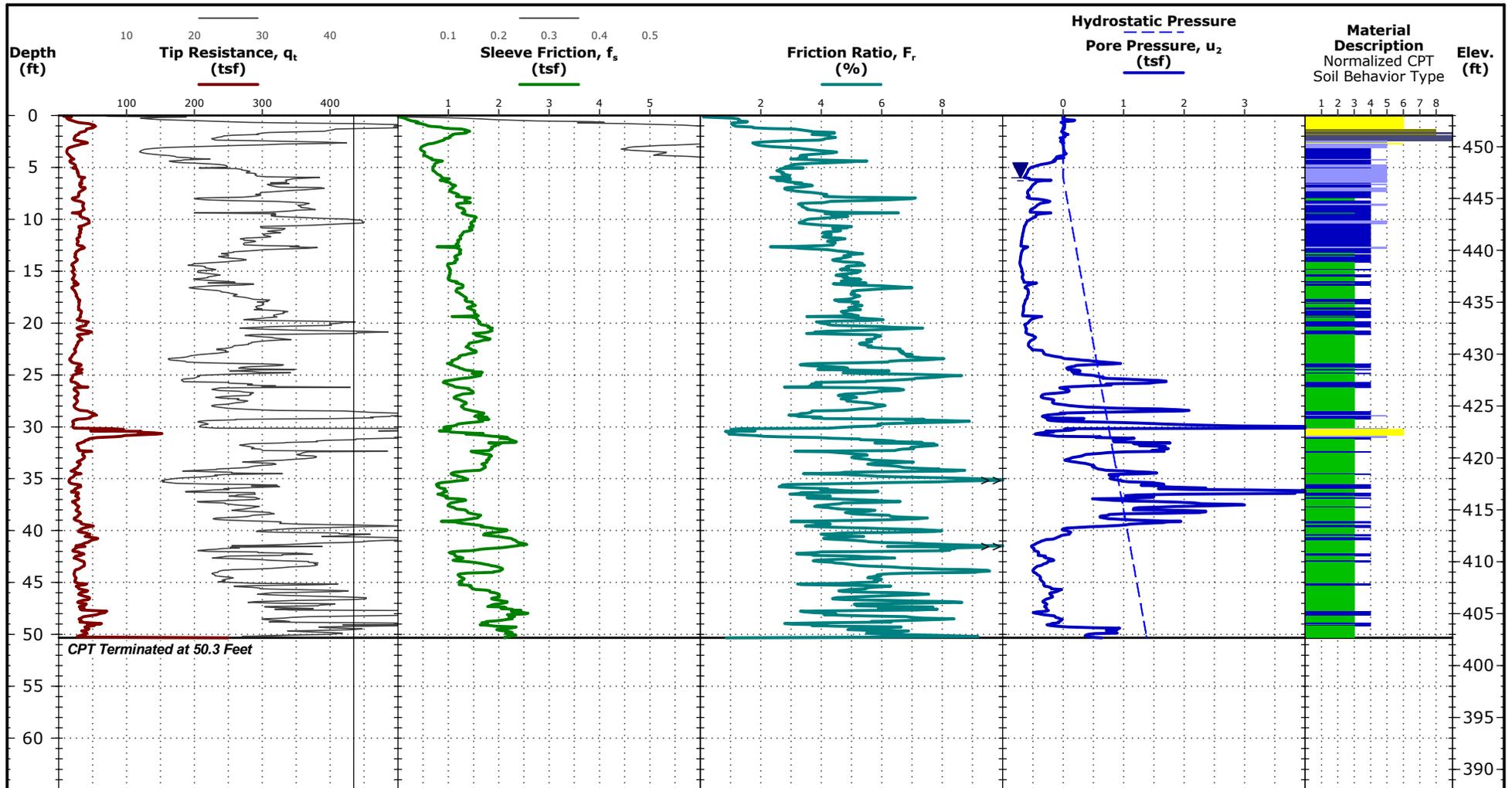
2401 Brentwood Rd Ste 107
 Raleigh, NC

Latitude: 35.743810° Longitude: -78.733710°

Elevation: 453 (ft)

CPT Started: 8/17/2023

CPT Completed: 8/17/2023



See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data, if any.
 See [Supporting Information](#) for explanation of symbols and abbreviations.

Notes

Test Location: See [Exploration Plan](#)

CPT Equipment

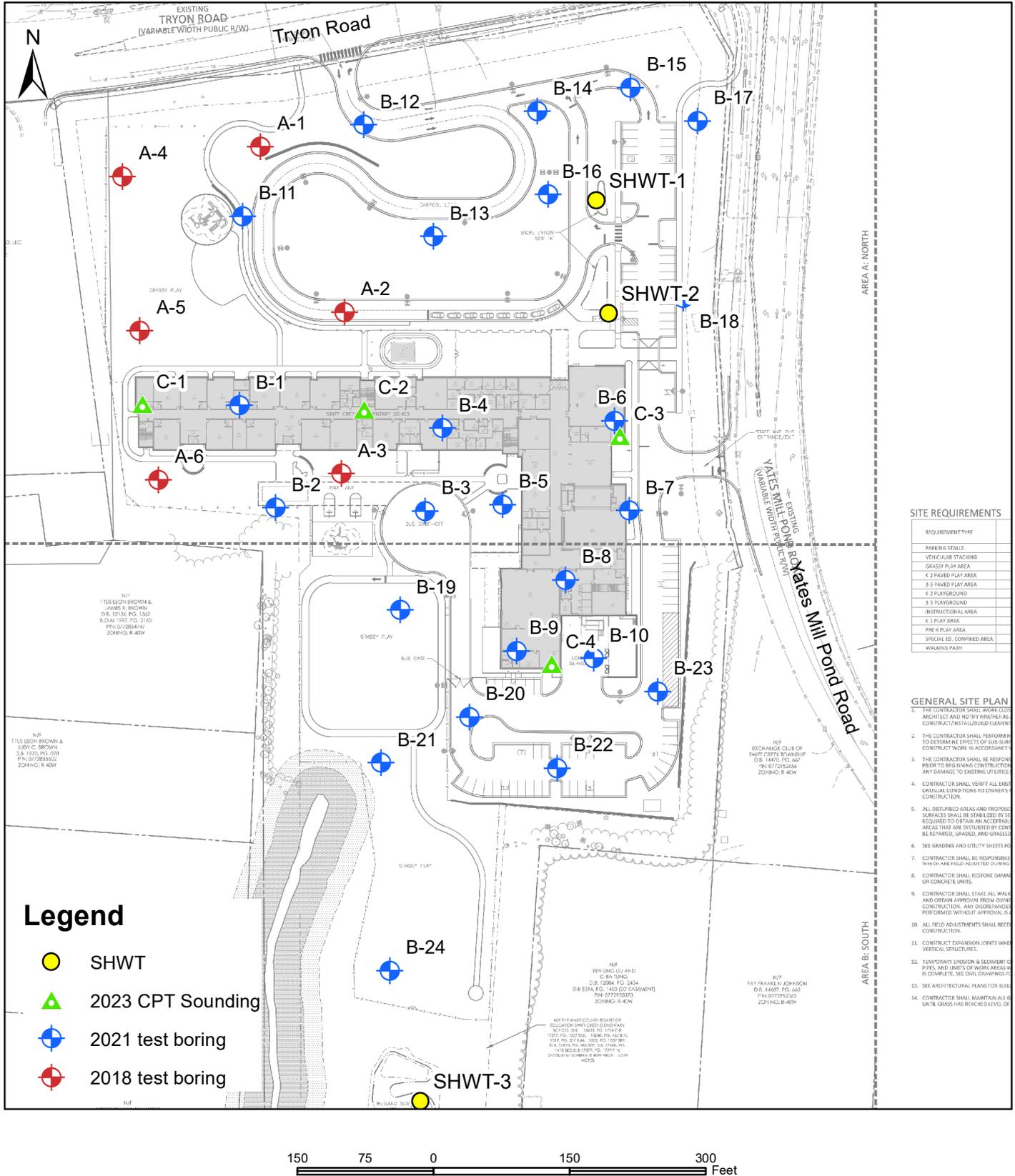
CPT Rig:
 Operator: Whitehead
 CPT sensor calibration reports available upon request
 Probe No. 5633 with net area ratio of .85
 U₂ pore pressure transducer location
 Manufactured by Nova- Calibrated 2/21/2022
 Tip and sleeve areas of 15 cm² and 225 cm²
 Ring friction reducer with O.D. of 2 in

Water Level Observation

▼ 6 ft estimated water depth
 (used in normalizations and correlations)

Normalized Soil Behavior Type (Robertson 1990)

- 1 Sensitive, fine grained
- 2 Organic soils - clay
- 3 Clay - silty clay to clay
- 4 Silt mixtures - clayey silt to silty clay
- 5 Sand mixtures - silty sand to sandy silt
- 6 Sands - clean sand to silty sand
- 7 Gravelly sand to dense sand
- 8 Very stiff sand to clayey sand
- 9 Very stiff fine grained



PM:	MW	Project No.	70215172
Drawn By:	MW	Scale:	1 in = 150 ft
Checked By:		File Path:	
Approved By:		Date:	8/24/2023

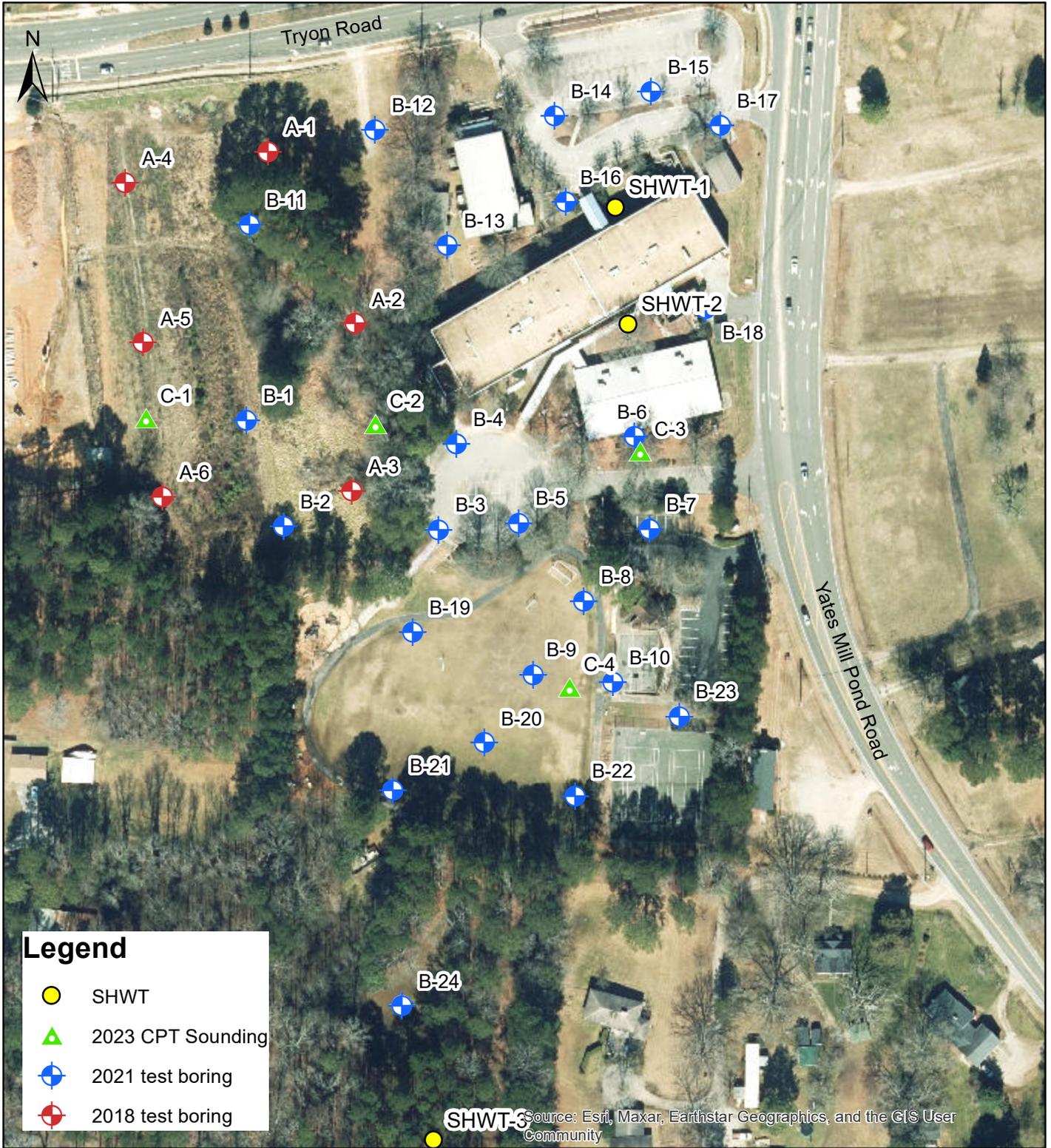
Terracon
Explore with us

2401 Brentwood Drive, Suite 107 Raleigh, NC 27604
Phone: (919) 873-2211 Fax: (919) 873-9555

Exploration Plan

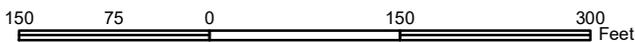
Swift Creek Elementary School
Tryon Road & Yates Mill Pond Road, SWC
Raleigh, North Carolina

EXHIBIT NO.



Legend

- SHWT
- ▲ 2023 CPT Sounding
- ⊕ 2021 test boring
- ⊕ 2018 test boring



PM:	MW	Project No.	70215172
Drawn By:	MW	Scale:	1 in = 150 ft
Checked By:		File Path:	
Approved By:		Date:	8/1/2023

Terracon
Explore with us

2401 Brentwood Drive, Suite 107 Raleigh, NC 27604
Phone: (919) 873-2211 Fax: (919) 873-9555

Exploration Plan Aerial

**Swift Creek Elementary School
Tryon Road & Yates Mill Pond Road, SWC
Raleigh, North Carolina**

EXHIBIT NO.
