



SUPPLEMENTAL RESULTS OF  
THE SUBSURFACE SOIL INVESTIGATION

Moccasin Wallow Road & Carter Road  
Signal Pole  
Manatee County, Florida

DESI Project No. DES 208603

Prepared for  
Stantec  
6900 Professional Parkway East  
Sarasota, Florida 34240

Attn: Alexandra Johnson

Prepared by  
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November 29, 2024

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November 29, 2024

Stantec  
6900 Professional Parkway East  
Sarasota, Florida 34240

Attn: Ms. Alexandra Johnson

**RE: Supplemental Results of the Subsurface Soil Investigation  
Moccasin Wallow Road & Carter Road  
Signal Pole  
Manatee County, Florida  
Our File: DES 208603-S3-S**

Dear Ms. Johnson:

Pursuant to your authorization, **DRIGGERS ENGINEERING SERVICES, INC.** has completed a series of supplemental exploratory borings for the subject signal pole project. Presented herein are the results of our field testing together with our geotechnical recommendations.

### **FIELD INVESTIGATION PROGRAM**

**SIGNAL POLE BORINGS** – A program of four (4) Standard Penetration Test (SPT) borings was performed to check subsurface soil and groundwater conditions at the four relocated signal pole locations at Moccasin Wallow Road and Carter Road. The Standard Penetration Test (SPT) borings were advanced to nominal depths of 25 feet below present grade at the survey staked locations depicted on Plate I of the report attachments. Each boring location was survey-staked by the project surveyor.

The Standard Penetration method of testing and sampling was used to provide soil samples for visual classification and to develop Standard Penetration resistance data reflective of the strength and bearing capability of the soils penetrated. The results of the borings are included in the report appendix. The boring logs present visual soil descriptions and estimated Unified Soil Classifications versus depth below existing grade, as well as penetration resistances and

groundwater information. Also attached is a brief description of this method of sampling and testing.

### **INDICATED SUBSURFACE CONDITIONS**

**SOIL CONDITIONS** – The borings have identified fine sands with variable silt and clay fines with variable phosphatic sands content to a depth of 25 feet below grade. These sands were primarily classified as SP, SP-SM, SM and SC soils in the Unified Soil Classification System (USCS). Standard Penetration resistance data suggests the fine sands are generally very loose to dense in relative density.

**GROUNDWATER** - Groundwater was encountered at depths of 3.7 to 7.3 feet below existing grade. Borings were all recorded in November of 2024, during a drier time of the year.

### **GEOTECHNICAL EVALUATION**

**SIGNAL POLES** – We understand that four (4) traffic signal structures are proposed at the intersection of Carter Road and Moccasin Wallow Road. It is our understanding that the signal pole structures will induce combined compression, overturning, sliding and torsional forces on the planned foundation element. At the time of this writing, the desired foundation type has been determined to be a deep foundation or drilled shaft.

It is our understanding that each signal pole may be supported by a single drilled shaft penetrating a sufficient depth to provide the necessary compression, overturning/lateral and torsional resistance. The required penetration of the drilled shaft will be established by the project structural engineer.

The design soil strength parameters are tabulated and included in Plate II of the report attachments. The soil parameters must be utilized in conjunction with appropriate factors of safety as well as design procedures applicable to drilled shaft foundation constructed in a wet-hole environment. This information should be utilized in developing the drilled shaft embedment and size requirements consistent with the design loading conditions and an appropriate factor of safety.

It is further recommended that a program of continued geotechnical inspection be implemented. Careful inspection should be planned to check for the proper installation and

penetration depth based upon the project specifications, including concrete quality assurance testing.

**DRIGGERS ENGINEERING SERVICES, INC.** appreciates the opportunity to assist you on this project. If you have any questions concerning our findings, please contact the undersigned at your convenience.

Respectfully submitted,

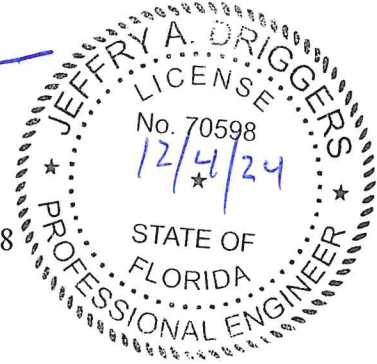
**DRIGGERS ENGINEERING SERVICES, INC.**



Jeffrey A. Driggers, P.E.

Vice President

FL Registration No. 70598



JAD-REP\208603-S3-S

Copies submitted: Email:

## **APPENDIX**

### **PLATE I – BORING LOCATION PLAN AND DESIGN SOIL STRENGTH PARAMETERS**

### **STANDARD PENETRATION TEST BORING LOGS**

### **HAND AUGER BORING LOGS**

### **METHOD OF TESTING**

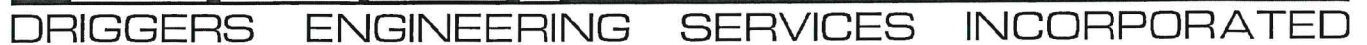
**PLATE I - BORING LOCATION PLAN  
AND DESIGN SOIL STRENGTH PARAMETERS**





## **STANDARD PENETRATION TEST BORING LOGS**





Project No. <u>DES 208603</u>		BORING NO. <u>B-3</u>							
Project <u>Signal Pole Structures, Moccasin Wallow Road &amp; Carter Road, Manatee County, Florida</u>									
Location <u>See Plate II</u>		Foreman <u>S.F.</u>							
Completion Date <u>11/18/24</u>		Depth To Water <u>5.4'</u>							
Depth <u>26.5'</u>		Time <u>11/18/24</u>							
DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
			SURF. EL:		10	20	40	60	80
0			Dark brown organic Fine SAND with roots (SP-SM/Pt) (A-8)						
			Brown slightly silty Fine SAND (SP-SM) (A-3)						
5			Grayish-brown Fine SAND (SP) (A-3)						
			Loose brown Fine SAND (SP) (A-3)	3/4/4					
10			Medium dense to dense light brown to brown silty Fine SAND (SM) (A-2-4)	4/5/10					
			Loose gray phosphatic Fine SAND (SP) (A-3)	14/16/17					
15			Loose gray phosphatic Fine SAND (SP) (A-3)	6/5/5					
			Medium dense gray phosphatic, slightly silty Fine SAND (SP-SM) (A-3)	7/6/7					
20			Dense gray phosphatic, silty Fine SAND (SM) (A-2-4)	26/20/16					
25			Dense brown phosphatic Fine SAND (SP) (A-3)	12/15/23					
30									
Remarks _____					Casing Length _____				



# DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 208603

**BORING NO. B-4**

Project Signal Pole Structures, Moccasin Wallow Road & Carter Road, Manatee County, Florida

Location See Plate II

Foreman S.F.

Completion

Depth 26.5'

Date 11/18/24

Depth To

Water 7.3'

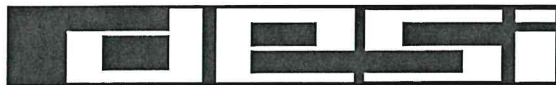
Time \_\_\_\_\_

Date 11/18/24

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
0			SURF. EL: Brown Fine SAND with roots (SP) (A-3) Brown silty Fine SAND (SM) (A-2-4) Brownish-gray slightly silty Fine SAND (SP-SM) (A-3)						
5			Gray clayey Fine SAND (SC) (A-2-6) Loose grayish-brown Fine SAND (SP) (A-3)	3/2/3					
			Medium dense brown silty Fine SAND (SM) (A-2-4)	9/8/8					
10			Dense brown slightly silty Fine SAND (SP-SM) (A-3)	15/18/22					
			Medium dense gray to light brownish-gray silty Fine SAND (SM) (A-2-4)	7/6/7					
15				9/8/7					
			Very dense tan dolomitic, cemented Fine SAND (SP) (A-3)	20/45/22					
20									
			Medium dense grayish-brown phosphatic Fine SAND (SP) (A-3)	9/10/12					
25									
30									

Remarks \_\_\_\_\_

Casing Length \_\_\_\_\_



# DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 208603

**BORING NO. B-5**

Project Signal Pole Structures, Moccasin Wallow Road & Carter Road, Manatee County, Florida

Location See Plate II

Foreman

S.F.

Completion

Depth 26.5'

Date

11/19/24

Depth To

Water

4.5'

Time

Date

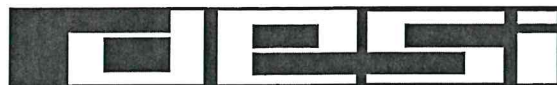
11/19/24

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
0			SURF. EL: Brownish-gray Fine SAND (SP) (A-3)						
			Brown Fine SAND (SP) (A-3)						
			Loose brownish-gray slightly silty Fine SAND (SP-SM) (A-3)	2/3/2					
5			Loose brown silty, slightly clayey Fine SAND (SM) (A-2-4)	4/4/4					
			Medium dense to dense grayish-brown to light grayish-brown silty Fine SAND (SM) (A-2-4)	4/7/10					
10			Medium dense light grayish-brown slightly phosphatic, silty Fine SAND (SM) (A-2-4)	13/17/17					
			Loose light gray phosphatic, silty Fine SAND (SM) (A-2-4)	15/10/15					
15			Loose light gray phosphatic, silty Fine SAND (SM) (A-2-4)	2/2/3					
			Medium dense brownish-gray phosphatic Fine SAND (SP) (A-3)	4/3/3					
20			Medium dense brownish-gray phosphatic Fine SAND (SP) (A-3)	15/12/15					
25			Very stiff brown CLAY with seam of grayish-brown phosphatic Fine SAND (CH/SP) (A-7-6/A-3)	10/15/14					
30									

Remarks

Casing Length





# DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 208603

**BORING NO. B-6**

Project Signal Pole Structures, Moccasin Wallow Road & Carter Road, Manatee County, Florida

Location See Plate II

Foreman S.F.

Completion

Depth 26.5'

Date 11/19/24

Depth To

Water 3.2'

Time \_\_\_\_\_

Date 11/19/24

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
0			SURF. EL: Very loose dark gray highly organic, silty Fine SAND (Pt) (A-8)	2/2/2					
5			Medium dense light grayish-brown Fine SAND (SP) (A-3)	6/5/6					
			Medium dense grayish-brown slightly silty Fine SAND (SP-SM) (A-3)	8/12/15					
			Medium dense light grayish-brown slightly phosphatic, slightly silty Fine SAND (SP-SM) (A-3)	10/12/12					
10			Medium dense gray phosphatic Fine SAND (SP) (A-3)	10/11/11					
			Medium dense tan dolomitic, cemented Fine SAND with trace of phosphate (SP) (A-3)	12/11/12					
15			Dense gray phosphatic, silty Fine SAND (SM) (A-2-4)	22/22/15					
			Dense brownish-gray to grayish-brown phosphatic Fine SAND (SP) (A-3)	20/22/26					
20									
25				21/21/24					
30									

Remarks \_\_\_\_\_

Casing Length \_\_\_\_\_



## **HAND AUGER BORING LOGS**



PROJECT: Signal Pole Structures Moccasin Wallow Road & Carter Road Manatee County, Florida Project No.: DES 208603	CLIENT: Stantec Consulting Services, Inc.	
	WATER TABLE: 5.4'	DATE: 11/18/24
TECHNICIAN: S.F./R.A.	DATE: 11/18/24	COMPLETION DEPTH: 6.0'
LOCATION: See Plate II	TEST NUMBER: B-3	

ELEV. (FT)	DESCRIPTION	DEPTH (FT)	SYMBOL	HAND CONE TIP RESISTANCE (TSF)
	Dark brown organic Fine SAND with roots (SP-SM/Pt) (A-8)	0	[Symbol]	
	Brown slightly silty Fine SAND (SP-SM) (A-3)	1	[Symbol]	
		2	[Symbol]	
		3	[Symbol]	
	Grayish-brown Fine SAND (SP) (A-3)	4	[Symbol]	
		5	[Symbol]	
		6	[Symbol]	
	<b>LEGEND:</b>  ● + Denotes Penetration Resistance in excess of 50 TSF	7		



PROJECT: Signal Pole Structures Moccasin Wallow Road & Carter Road Manatee County, Florida Project No.: DES 208603	CLIENT: Stantec Consulting Services, Inc.	
	WATER TABLE: See "Note"	DATE: 11/18/24
TECHNICIAN: S.F./R.A.	DATE: 11/18/24	COMPLETION DEPTH: 6.0'
LOCATION: See Plate II	TEST NUMBER: B-4	

ELEV. (FT)	DESCRIPTION	DEPTH (FT)	SYMBOL	HAND CONE TIP RESISTANCE (TSF)
	Brown Fine SAND with roots (SP) (A-3)	0	[Symbol]	
	Brown silty Fine SAND (SM) (A-2-4)	1	[Symbol]	
	Brownish-gray slightly silty Fine SAND (SP-SM) (A-3)			
		2		
		3		
		4		
	Gray clayey Fine SAND (SC) (A-2-6)	5	[Symbol]	
		6		
	Note: Water Table not encountered above shallow clayey soils.			
	<u>LEGEND:</u>			
	• + Denotes Penetration Resistance in excess of 50 TSF	7		

## **METHOD OF TESTING**



# **STANDARD PENETRATION TEST AND SOIL CLASSIFICATION**

## **STANDARD PENETRATION TEST (ASTM D-1586)**

In the Standard Penetration Test borings, a rotary drilling rig is used to advance the borehole to the desired test depth. A viscous drilling fluid is circulated through the drill rods and bit to stabilize the borehole and to assist in removal of soil and rock cuttings up and out of the borehole.

Upon reaching the desired test depth, the 2 inch O.D. split-barrel sampler or "split-spoon", as it is sometimes called, is attached to an N-size drill rod and lowered to the bottom of the borehole. A 140 pound hammer, attached to the drill string at the ground surface, is then used to drive the sampler into the formation. The hammer is successively raised and dropped for a distance of 30 inches using a rope and "cathead" assembly. The number of blows is recorded for each 6 inch interval of penetration or until virtual refusal is achieved. In the above manner, the samples are ideally advanced a total of 18 inches. The sum of the blows required to effect the final 12 inches of penetration is called the blowcount, penetration resistance or "N" value of the particular material at the sample depth.

After penetration, the rods and sampler are retracted to the ground surface where the core sample is removed, sealed in a glass jar and transported to the laboratory for verification of field classification and storage.

## **SOIL SYMBOLS AND CLASSIFICATION**

Soil and rock samples secured in the field sampling operation were visually classified as to texture, color and consistency. The Unified Soil Classification was assigned to each soil stratum per ASTM D-2487. Soil classifications are presented descriptively and symbolically for ease of interpretation. The stratum identification lines represent the approximate boundary between soil types. In many cases, this transition may be gradual.

Consistency of the soil as to relative density or undrained shear strength, unless otherwise noted, is based upon Standard Penetration resistance values of "N" values and industry-accepted standards. "N" values, or blowcounts, are presented in both tabular and graphical form on each respective boring log at each sample interval. The graphical plot of blowcount versus depth is for illustration purposes only and does not warrant continuity in soil consistency or linear variation between sample intervals.

The borings represent subsurface conditions at respective boring locations and sample intervals only. Variations in subsurface conditions may occur between boring locations. Groundwater depths shown represent water depths at the dates and time shown only. The absence of water table information does not necessarily imply that groundwater was not encountered.