

# **All State Engineering & Testing Consultants, Inc.**

TESTING LABORATORIES-ENGINEERS-INSPECTION SERVICES-CHEMISTS-DRILLING-ENVIRONMENTAL SERVICES

April 5, 2019

Lakes Engineering Inc  
1903 Central Drive, Suite 405  
Bedford, TX 76021

RE: **Geotechnical Engineering Study For  
Pedestrian Bridge  
SW 77<sup>th</sup> Avenue 150<sup>th</sup> Street, Palmetto Bay, FL 33157**

To Whom It May Concern,

This letter presents the results of All State Engineering & Testing Consultants, Inc. (ASETC) Geotechnical Engineering Study for the above referenced project. The purpose of the geotechnical engineering study was to evaluate the site subsurface conditions and provide foundation recommendations for the project.

## **Project Description**

Our understanding of the site is based on our observations during our subsurface investigation. Information you provided to us indicates the project consists of the construction of a Pedestrian Bridge.

## **Test Method and Subsurface Investigation**

The borings were conducted in accordance with procedures outlined for Standard Penetration Test and split spoon sampling of soils by ASTM Method D-1586.

Two (2) feet long, two (2) inches O.D. split spoon sampler was driven into the ground by successive blows with a 140 lbs hammer dropping thirty (30) inches. The soil sampler was driven two (2) feet at a time (continuous method) then extracted for visual examination and classification of the soil samples.

The number of blows required for one (1) foot penetration of the sample is designated as "N" (known as the standard Penetration Resistance Value). The N Value provides an indication of the relative density of non-cohesive soils and the consistency of cohesive soils. A general evaluation of soils is made from the established correlation between "N" and the relative density or consistency of soils. This dynamic method of soil testing has been widely accepted by foundation engineers and architects to conservatively evaluate the bearing capacity of soils.

The subsurface investigation consisted of performing two (2), 30-ft deep Standard Penetration Test (SPT) borings (B-1 and B-2). The borings were performed on April 3, 2019.



Based on the information obtained from the SPT borings

Boring B-1 comprised of

Gray silt sand with organics from 0'-0" to 6'-0" with N values ranging from 10 to 16.

Dark tan and tan lime sand with rock fragments from 6'-0" to 11'-0" with N values ranging from 42 to 67.

Tan lime sand with lime rock fragments from 11'-0" to 20'-0" with N values ranging from 67 to 105.

Beige lime sand with lime rock fragments from 20'-0" to 30'-0" with N values ranging from 54 to 85.

Boring B-2 comprised of

Top soil with silt traces from 0'-0" to 2'-0" with an N value of 33.

Gray silt sand with rocks from 2'-0" to 3'-0" with an N value of 20.

Dark tan sand with rock fragments from 3'-0" to 7'-0" with N values ranging from 18 to 41.

Tan lime sand with lime rock fragments and coral rock traces from 7'-0" to 18'-0", N values from 41 to 118.

Beige lime sand with lime rock fragments from 18'-0" to 30'-0" with N values ranging from 60 to 96.

Detailed subsurface information is provided in the attached SPT Soil Boring Reports.

**Groundwater Conditions**

The groundwater table was encountered between 6'-7" to 6'-10" below the existing ground surface during the performance of the borings. The groundwater elevation is expected to change with seasonal and tidal fluctuations, and during storm/hurricane events. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

**Foundation Evaluation and Recommendations**

**Shallow Foundation - Excavation**

**Site Preparation Procedures**

The site preparation work is expected to include site clearing and grubbing, subgrade leveling and proofrolling, and the placement and compaction of fill and backfill material.

The site clearing and grubbing should be performed in all the areas of proposed building construction and support of on-grade site features. Site clearing and grubbing should encompass removing all unsuitable materials such as topsoil, organics, trash, and any other deleterious materials down to clean granular material **up to a depth of 3 feet.**

Proofrolling of the areas of proposed construction or support of on-grade features should be performed. Any soft area observed during proofrolling should be removed and replaced with approved fill material. A heavy self propelled roller should be used to compact all construction areas with no less than 10 passes in each direction to obtain no less than 95% of the Maximum Dry Density as determined by the Modified Proctor Compaction Test (ASTM D-1557).

Excavate entire building area plus 5'-0" outside the perimeter of construction or to the property boundary, whichever is closer. Remove all unsuitable subsurface material to the necessary depth. We anticipate an average excavation depth of approximately 1'-0" below the proposed footings. Re-compact the footing areas with hand held compaction equipment. Where vibratory compactors are not feasible due to existing structures in the vicinity of the construction area, static compaction in 6 inch lifts should be applied.

Any fill and backfill materials **above the groundwater table** shall consist of inorganic granular soils, free from deleterious materials, and shall contain no more than 12 percent fines passing U.S. standard No. 200 sieve and have a Unified Soil Classification System (USCS) designation of Well-graded Gravel (GW),

Poorly-graded Gravel (GP), Well-graded Silty Gravel (GW-GM), Poorly-graded Silty Gravel (GP-GM), Well-graded Sand (SW), or Poorly-graded Sand (SP). No particle greater than 3 inches shall be placed in the top 12 inches of the building pad.

Any fill and backfill materials **below the groundwater table** shall consist of washed free draining gravel like FDOT No. 57 stone or equivalent to about 12 inches above the water, unless the dewatering process is utilized. If the dewatering process is utilized, fill shall consist of inorganic granular soils, free from deleterious materials, and shall contain no more than 5 percent fines passing U.S. standard No. 200 sieve. All materials should be pre-approved by our firm.

Any fill and backfill materials should be placed in lifts which do not exceed twelve (12) inches. The fill and backfill materials are to be compacted to field dry densities of not less than 95% of their Maximum Dry Density as determined by the Modified Proctor Compaction Test (ASTM D-1557).

The footing and slab subgrades should be compacted to field dry densities of not less than 95% of their Maximum Dry Density as determined by the Modified Proctor Compaction Test (ASTM D-1557).

Samples of the on-site and proposed fill material shall be collected and tested to determine the classification and compaction characteristics. Additionally, Field Density Tests shall be conducted on each compacted lift and in each footing pad.

Based on the proposed construction, our evaluation of the site subsurface conditions, the Site Preparation Procedures given above having been achieved and verified, we confirm that spread footings and single column pads may be appropriately designed for a **safe soil bearing capacity of 2500 lb/ft<sup>2</sup>**.

### Limitations

Regardless of the thoroughness of our geotechnical exploration there is always a possibility that conditions on the subject project may be different from those at the test locations. Therefore, should any subsoil conditions different from those reported in our boring logs be encountered during construction, All State Engineering and Testing Consultants, Inc. should be notified immediately.

The conclusions provided by All State Engineering & Testing Consultants, Inc. are based solely on the information presented in this report. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

We appreciate the opportunity to have been of service to you. Please feel free to contact us if there are any questions or comments pertaining to this report.

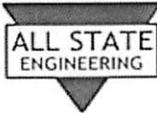
Sincerely,



John Buscher PE#41844  
All State Engineering &  
Testing Consultants, Inc.

ATTACHMENT 1.0 – BORING LOG

ATTACHMENT 1.0 – BORING LOG



# All State Engineering & Testing Consultants, Inc.

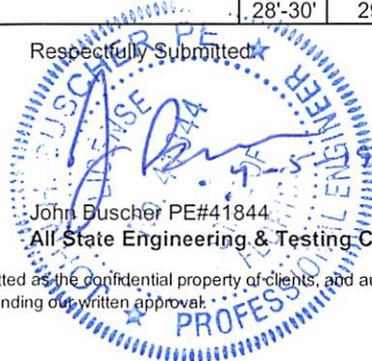
TESTING LABORATORIES-ENGINEERS-INSPECTION SERVICES-CHEMIST-DRILLING-ENVIRONMENTAL SERVICES  
 12949 West Okeechobee Rd. Unit C-4, Hialeah Gardens, Florida 33018 / Phone: 305-888-3373, Fax: 305-888-7443

## SPT SOIL BORING REPORT

<b>CLIENT:</b>		Lakes Engineering Inc	<b>Page:</b>	1 of 1
<b>CLIENT ADDRESS:</b>		1903 Central Drive, Suite 405, Bedford, TX 76021	<b>Report #:</b>	1
<b>PROJECT:</b>		Coral Reef Park Pedestrian Ridge	<b>Boring #:</b>	B-1
<b>PROJECT ADDRESS:</b>		SW 77 Avenue and 150th Avenue, Palmetto Bay, FL 33157	<b>Date:</b>	4/3/19
<b>BORING LOCATION:</b>		South Side of Canal at Bridge Location	<b>Driller:</b>	TH
DEPTH (FEET)	DESCRIPTION OF MATERIALS	Sample No.	Hammer blows on sampler	"N" Value
1	0'-0" to 6'-0" Gray silt sand with organics		5 10	16
2		0'-2'	6 6	
3		2'-4'	5 8	12
4			4 5	
5		4'-6'	5 5	10
6			5 18	
7	6'-0" to 11'-0" Dark tan and tan lime sand with rock fragments		18 22	42
8		6'-8'	20 18	
9		8'-10'	18 32	56
10			24 36	
11			31 28	
12	11'-0" to 20'-0" Tan lime sand with lime rock fragments	10'-12'	39 42	67
13			51 56	
14		12'-14'	49 44	105
15			51 47	
16		14'-16'	48 43	95
17			45 47	
18		16'-18'	46 49	93
19			48 44	
20	18'-20'	40 43	84	
21	20'-0" to 30'-0" Beige lime sand with lime rock fragments			39 41
22		20'-22'	44 40	
23			37 39	81
24		22'-24'	42 38	
25			36 29	62
26		24'-26'	33 30	
27			34 29	62
28		26'-28'	33 36	
29		30 25	54	
30	28'-30'	29 31		

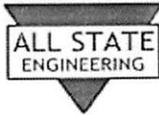
End of Boring @ 30'  
 WATER TABLE: 6'-10" below surface

Respectfully Submitted



John Buscher PE#41844  
 All State Engineering & Testing Consultants, Inc.

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<b>PROJECT:</b>		Coral Reef Park Pedestrian Bridge	<b>Boring #:</b>		B-2		
<b>PROJECT ADDRESS:</b>		SW 77 Avenue and 150th Street, Palmetto Bay, FL 33157	<b>Date:</b>		4/3/19		
<b>BORING LOCATION:</b>		North Side of Canal at Bridge	<b>Driller:</b>		TH		
DEPTH (FEET)	DESCRIPTION OF MATERIALS	Sample No.	Hammer blows on sampler		"N" Value		
1	0'-0" to 2'-0" Top soil with silt traces	0'-2'	12	14	33		
2			19	20			
3	2'-0" to 3'-0" Gray silt sand with rock	2'-4'	8	10	20		
4			10	20			
5	3'-0" to 7'-0" Dark tan sand with rock fragments	4'-6'	8	7	18		
6			11	25			
7			17	15			
8	7'-0" to 18'-0" Tan lime sand & lime rock fragments with coral rock traces	6'-8'	26	45	41		
9			31	39			
10			8'-10'	36		40	75
11				46		49	
12			10'-12'	44		51	93
13				53		57	
14			12'-14'	56		59	113
15				61		60	
16			14'-16'	58		49	118
17				44		47	
18	18'-0" to 30'-0" Beige lime sand with lime rock fragments	16'-18'	40	43	87		
19			44	47			
20			18'-20'	49		50	96
21				44		40	
22			20'-22'	39		41	79
23				38		36	
24			22'-24'	35		30	71
25				31		33	
26	24'-26'	36	29	69			
27		32	35				
28	26'-28'	36	33	71			
29		30	31				
30	28'-30'	28'-30'	29	30	60		

End of Boring @ 30'

WATER TABLE: 6'-7" below surface

Respectfully Submitted,



John Buscher PE#41844

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