CVIII ENGINEERING GROUP, INC.

GEOTECHNICAL, STRUCTURAL & TRANSPORTATION ENGINEERING

February 28, 2022
Order No. 22-0228

PACHECO ARCHITECTURE
4990 SW 72 AVENUE, SUITE 101. MIAMI, FL 33155

Reference: Report of Subsurface Soil Exploration and Recommendations
Evaluation of Subsurface Conditions
For the Proposed Construction

PROPOSED NEW RESIDENCE AND SWIMMING POOL
8965 SW 63rd COURT. PINECREST, FL 33156

Dear Sir / Madam:

Pursuant to your request and authorization, CVIII Engineering Group, Inc., conducted a subsurface investigation at the above referenced project. The investigation was performed on February 24, 2022.

The purpose of the investigation was to examine and document the existing soil conditions at the site and provide you with geotechnical recommendations for supporting the proposed construction. This report presents our findings and recommendations. To achieve the desired objective, three (3) standard penetration test borings were performed at the above referenced property.

Test Method

The boring was conducted in accordance with procedures outlined for standard penetration test and spilt spoon sampling of soils by ASTM Method D-1586.

A two (2') feet long two (2") inches O.D. Spilt Spoon Sampler was driven into the ground by successive blows with a 140 lb. Hammer dropping thirty (30") inches. The soil sampler was driven two (2') feet at a time then extracted for visual examination and classification of the retained soil sample.

The numbers of blows required for one (1') foot penetration of the sampler 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.

Suitable corrections are applied to this number in order to include the effects of soil overburden pressure and other factors. A general evaluation of soils is made from the established correlation between "N" and the relative density of 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. A continuous drilling and sample procedure were used. The samples were taken at intervals of two (2') feet, or at every change of soil characteristic.

Subsurface Conditions

Sub-surface exploration consisted of three (3) standard penetration test borings conducted conforming to the guidelines as set forth in ASTM D-1586. A review of the Test Boring Report generally indicates that the site is mantled as follow:

(B1) 0'0" to 0'2" topsoil, 0'2" to 1'0" brown sand. Beneath, soft sandy limestone was encountered throughout the maximum explored depth of fifteen (15) feet below existing grade.

(B2) 0'0" to 0'2" topsoil, 0'2" to 2'0" brown sand. Beneath, soft sandy limestone was encountered throughout the maximum explored depth of fifteen (15) feet below existing grade.

(B3) 0'0" to 0'2" topsoil, 0'2" to 1'0" brown sand. Beneath, soft sandy limestone was encountered throughout the maximum explored depth of fifteen (15) feet below existing grade.

Groundwater

The immediate depths to groundwater measurements presented in this report are referenced to adjoining surface grade at the time the soil borings were performed. The stabilized depth to groundwater or that measured a few days later may differ substantially from the immediate depths measured at the time the soil borings were performed and as such may not be an unreliable indicator of future groundwater elevations.

Groundwater elevations may vary substantially over time due to many area specific parameters such as rainfall, droughts, storm events, flood control activities, nearby surface water bodies, tidal activity, construction dewatering, well field activity and other factors. Given these factors and other considerations, the groundwater depth information provided in this report should be considered approximate with substantial variations from those values possible.

Groundwater at the time of testing was encountered at approximate depths of 8'0" BGEL.

Foundation Recommendations

Our observations, exploration, and evaluation, supplemented by a review of sub-surface profile developed from the soil engineering Standard Penetration Test, indicates that the sub-surface conditions at the site can provide support after soil improvement as recommended below is completed. Please refer to the soil improvement recommendation for bearing capacity criteria.

Soil Improvement Recommendation

Bottom of footing:

We recommend any existing vegetation and demolition debris be excavated and stripped from the proposed bottom of footing area until reaching the limestone bedrock formation. After excavation is completed, the bottom of footing should be back filled with lime rock fill material to the desired elevation. Densification and leveling of the soils should be performed at the bottom area plus an extra 2-feet-wide perimeter extending beyond the outside lines of the footprint layout limits where practical. Once soil improvement has taken place as recommended, the footing shall bear a soil bearing capacity not to exceed 2,500 pounds per square foot.

Bottom of Swimming Pool foundation:

We recommend any existing vegetation and demolition debris be excavated and stripped from the proposed bottom of swimming pool area until reaching the designed depth plus an extra foot of material. After excavation is completed, the structural bottom of swimming pool foundation area should be back filled with #57 rock material. Densification and leveling of the soils should be performed at the bottom area plus a 1-foot-wide perimeter extending beyond the outside lines of the swimming pool footprint layout limits where practical. Once soil improvement has taken place as recommended, the bottom of swimming pool foundation shall bear a soil bearing capacity not to exceed 2000 pounds per square foot.

Fill Placement

New fill materials must be placed under engineering supervision of a Geotechnical Engineer. The fill should be inorganic granular soils free from deleterious materials. We recommend using quality crushed lime rock mixed with lime sand. The fill should be placed in lifts of no greater than 12 inches thick, and each lift should be compacted to 95% of the maximum dry density as determined by the Modified Compaction Test (ASTM D1557). In restricted areas where a small compactor must be used, the lift thickness should be reduced to 6 inches, as directed by a Geotechnical Engineer.

Prior to initiating compaction operations, representative samples of the structural fill material to be used and acceptable in-place soils should be collected and tested to determine their compaction and classification characteristics. The maximum dry density, optimum moisture content, gradation and plasticity characteristics should be determined. These tests are needed for compaction quality control of the structural fill and existing soils, and to determine if the fill material is acceptable.

General Information

Regardless of the thoroughness of geotechnical exploration there is always a possibility that conditions on the subject property (site) may be different from those at the test locations reported in our boring log. Changes in the submitted project details or the discovery of any site or varying subsurface conditions prior to and/or during construction which deviate from the data obtained in this exploration should be immediately reported to us so that the condition or change can be evaluated, and appropriate action taken. We request the opportunity to review the final plans and specifications to assure that the intent of the recommendations of this report is properly interpreted and incorporated.

Our client for this geotechnical evaluation was:

PACHECO ARCHITECTURE
4990 SW 72 AVENUE, SUITE 101. MIAMI, FL 33155

The conclusions provided by CVIII Engineering Group, 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. If we can be of any further assistance with the design or construction services, or if you need additional information, please feel free to contact us at your convenience.

Attachments: Limitations of Liability, Boring logs (B1, B2, B3), Boring test location site plan.

Respectfully,

CVIII ENGINEERING GROUP, INC.
Daniel Morao, P.E.
Professional Engineer No. 87771
State of Florida

DANIEL MORAO LICENSE No. 87771 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Daniel Morao
Date: 2022.11.09 14:31:53 -05'00'
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LIMITATIONS OF LIABILITY

WARRANTY

We warrant the service performed by CVIII Engineering Group, Inc., are conducted in a manner consistent with the level of skill and care ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranties expressed, expressed or implied, are made. While the services of CVIII Engineering Group, Inc., are an integral and valuable warrant, guarantee, or insure the quality or completeness of services or satisfaction performance provided by other members of the construction process and/or the construction plans and specifications which we have not prepared, nor the ultimate performance of building site materials.

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.

SUBSURFACE EXPLORATION

Subsurface exploration is normally accomplished by test borings. The soil boring log includes sampling information, description of the materials recovered, approximate depths of boundaries between soil strata and groundwater data. The log represents conditions specifically at the location and time the boring was made. The boundaries between different soil strata are indicated at specific depths; however, these depths are in fact approximate and dependent upon the frequency of sampling. The transition between soil stratum are often gradual. Water level readings are made at the time the boring was performed and cam change with the time, precipitation, canal levels, local well drawdown, and others factors.

Regardless of the thoroughness of a geotechnical exploration there is always a possibility that conditions may be different from those of the locations; therefore, CVIII Engineering Group, Inc., does not guarantee any subsoil condition surrounding the bore test hole. For a more accurate portrayal of subsurface conditions, the site contractor should perform test pits. If different conditions are encountered, CVIII Engineering Group, Inc., shall be notified to review the findings and make any recommendations as needed.

LABORATORY AND FIELD TESTS

Test are performed in accordance with specific ASTM Standards unless otherwise indicated. All criteria included in a given ASTM Standard are not always required and performed. Each test report indicates the measurements and determinations actually made.

ANALYSIS AND RECOMMENDATIONS

The geotechnical report is prepared primarily to aid in the design of site work and structural foundations. Although the information in the report is expected to be sufficient for the purposes, it is not intended to determine the cost of construction or to stand alone as construction specifications. In accepting this report, the client understands that all data from the soil boring is intended for foundation analysis only and is not to be used for excavating, backfilling or pricing estimates. The site contractor must familiarize themselves with the job site conditions.

Report recommendations are based primarily on data from test borings made at the locations shown on the test boring report. Soil variations may exist between boring and may not become evident until construction. If variations are then noted, CVIII Engineering Group, Inc., should be contacted so that field conditions can be examined and recommendations revised if necessary.

The Geotechnical report states our understanding as to the location, dimensions, and structural features proposed of the site. Any significant changes in the nature, design, or location of the site improvements must be communicated to CVIII Engineering Group, Inc., so that the Geotechnical analysis, conclusion, and recommendations can be appropriately adjusted.

CONSTRUCTION OBSERVATIONS

Construction observations and testing is an important element of Geotechnical services. The Geotechnical Engineer's Field representative (Field Rep.) is the "owner's representative" observing the work of the contractor, performing test, and reporting data from such test and observations. The Geotechnical Engineer's Field Representative does not direct the contractor's construction means, methods, operations, or personnel. The Field Rep. does not interfere with the relationship between the owner and the contractor, and except as an observer, does not become substitute owner on site. The Field Rep. is only collecting data for our Engineer to review.

The Field Rep, is responsible for his/her safety only, but has no responsibility for the safety of other personnel and/or the general public at the site. If the Field Rep, does not fell that the site is offering a safe environment for him/her, the Field Rep, will stop his/her observation/ testing until he/she deems the site is safe. The Field Rep, is an important member of a team whose responsibility is to observe the test and work being done and report to the owner whether that work is being carried out in general conformance with the plans and specifications.

CVIII ENGINEERING GROUP, INC.

GEOTECHNICAL, STRUCTURAL & TRANSPORTATION ENGINEERING

Boring Log

PROPOSED NEW RESIDENCE AND SWIMMING POOL
8965 SW 63rd COURT. PINECREST, FL 33156 - Order #: 22-0228 – B1

Depth (Ft.)	Soil Description	Sample No.	HAMMER	BLOWS	"N"
1	0'0" to 0'2" topsoil	1	1	2	
2	0'2" to 1'0" brown sand		6	4	8
3	1'0" to 15'0" soft sandy limestone	2	8	6	
4			10	8	16
5		3	10	10	
6			12	10	22
7		4	10	15	
8			8	20	23
9		5	14	8	
10			12	12	20
11		6	10	10	
12			10	10	20
13		7	12	12	
14			12	14	24
15	End of Boring 15'0"	8	14	12	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Groundwater at the time of testing was encountered at 8'0" BGEL.

CVIII ENGINEERING GROUP, INC.

GEOTECHNICAL, STRUCTURAL & TRANSPORTATION ENGINEERING

Boring Log

PROPOSED NEW RESIDENCE AND SWIMMING POOL
8965 SW 63rd COURT. PINECREST, FL 33156 - Order #: 22-0228 – B2

Depth (Ft.)	Soil Description	Sample No.	HAMMER	BLOWS	"N"
1	0'0" to 0'2" topsoil	1	2	1	
2	0'2" to 2'0" brown sand		1	2	2
3	2'0" to 15'0" soft sandy limestone	2	10	4	
4			6	10	10
5		3	10	6	
6			18	12	14
7		4	8	10	
8			8	10	18
9		5	10	8	
10			12	8	20
11		6	12	8	
12			10	10	18
13		7	10	12	
14			8	10	20
15	End of Boring 15'0"	8	8	10	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Groundwater at the time of testing was encountered at 8'0" BGEL.

CVIII ENGINEERING GROUP, INC.

GEOTECHNICAL, STRUCTURAL & TRANSPORTATION ENGINEERING

Boring Log

PROPOSED NEW RESIDENCE AND SWIMMING POOL
8965 SW 63rd COURT. PINECREST, FL 33156 - Order #: 22-0228 – B3

Depth (Ft.)	Soil Description	Sample No.	HAMMER	BLOWS	"N"
1	0'0" to 0'2" topsoil	1	1	1	
2	0'2" to 1'0" brown sand		1	2	2
3	1'0" to 15'0" soft sandy limestone	2	12	12	
4			18	16	30
5		3	8	10	
6			16	10	26
7		4	16	10	
8			12	8	22
9		5	10	8	
10			10	8	18
11		6	12	10	
12			14	10	24
13		7	14	12	
14			12	10	24
15	End of Boring 15'0"	8	8	8	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Groundwater at the time of testing was encountered at 8'0" BGEL.

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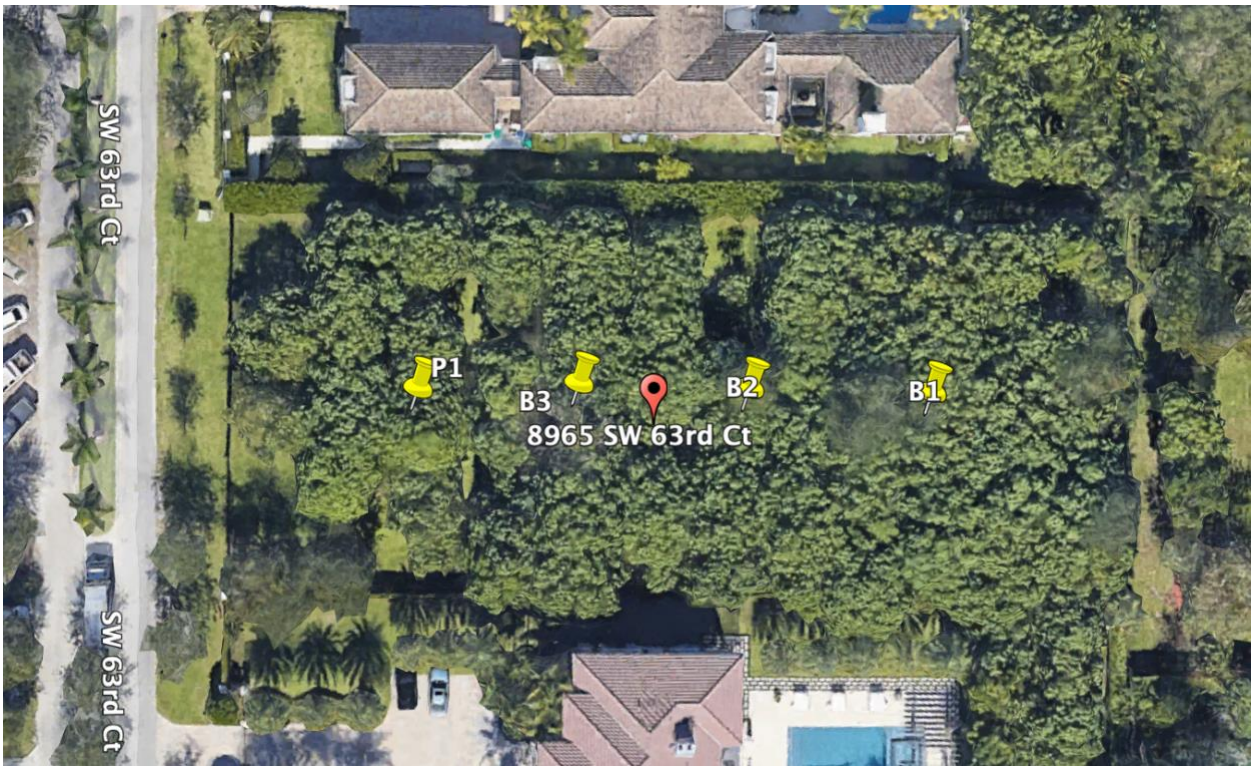
Boring Test Location Site Plan

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