CVIII ENGINEERING GROUP, INC.

GEOTECHNICAL, STRUCTURAL & TRANSPORTATION ENGINEERING

August 13, 2024
Order No. 22-0228 REV

PACHECO ARCHITECTURE

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

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 24th, 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 and one (1) percolation test 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

A review of the test boring logs indicates that the site is mantled as follow:

(B1-B2-B3) 0'0" to 0'2" topsoil, 0'2" to 1'0" brown sand. Beneath, soft to dense 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 areas' 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 8'0" BGEL.

Field Permeability Test

Summary test results of the open hole field permeability test as per SFWMD. Below test report are un-factored and represent the condition at the test location at the time of testing.

PERCOLATION (ID)	TEST DEPTH (FT)	K VALUE (CFS/FT^2 - FT OF HEAD)
P1	15(ft) – 7gal/min	1.11578E-04

Foundation Recommendations

See below soil recommendation for supporting the proposed construction and allowance soil bearing capacity criteria.

Construction Recommendation

Bottom of footing preparation

We recommend any existing vegetation, demolition debris, and unsuitable soils be stripped from the proposed bottom footing area to the designed depth exposing the limestone strata. Densification and/or leveling of the soils should be performed at the bottom of footing excavation were practical. We anticipate that the foundation and footings shall be appropriately proportioned for a safe allowance soil bearing capacity not to exceed 2,500 pounds per square foot. To achieve this bearing pressure, the footings must bear directly on well compacted structural fill or the existing sandy limestone bedrock formation.

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 excavation has taken place as recommended, the bottom of swimming pool foundation shall bear and allowance soil bearing capacity not to exceed 2000 pounds per square foot.

Fill Placement

If needed new fill materials must be placed under engineering supervision of a Geotechnical Engineer. The fill should be inorganic granular structural fill material (clean mix on a 60% gravel / 40% sand ratio) containing no more than 5% by weight organic matter, silt-size fine particles (material passing the No. 200 sieve) in fill material shall be limited to 10% by weight; the maximum size of fill particles (rocks) withing 12 inches below the floor slab shall be no more than 3 inches in diameter. Structural fill material should be placed with loose lift thickness of no more that 12-inches, moistures conditioned to within two (2%) percent of the optimum moisture content based on ASTM D-1557 and compacted to 95% percent relative compaction; we recommend using a mix of sand and gravel. Granular, uniformly fill graded material.

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.

Our client for this geotechnical evaluation was.

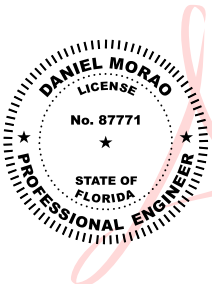
PACHECO ARCHITECTURE

The conclusions provided by CVIII Engineering Group, Inc., are based solely on the information presented in this report. 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



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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 ensure 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 is 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 other 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 each ASTM Standard are not always required and performed. Each test report indicates the measurements and determinations 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.

Boring Test Location Site Plan

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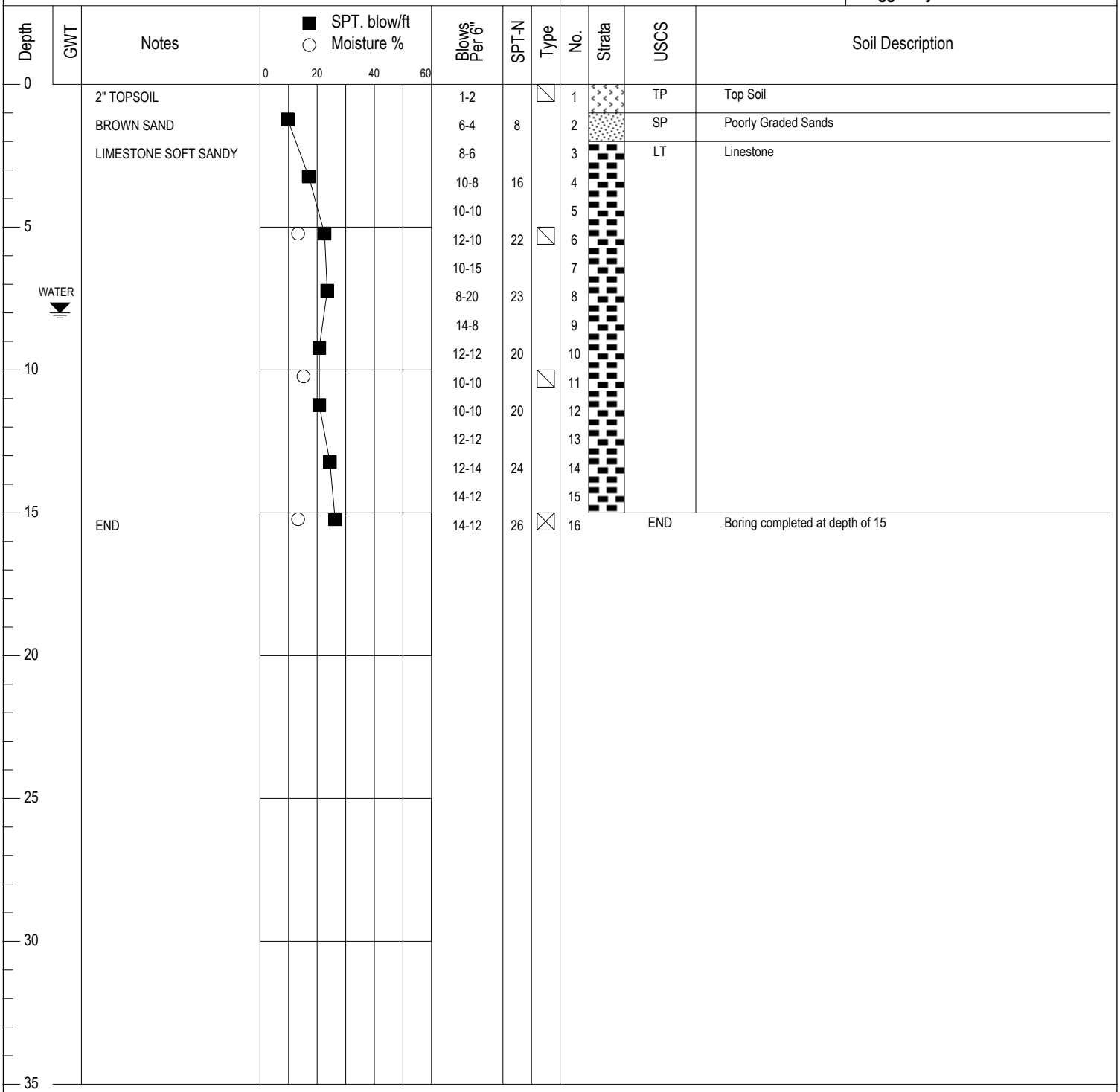
GEOTECHNICAL DRILLING

Boring Log No. B-1
NEW RESIDENCE AND SWIMMING POOL

Location: 8965 SW 63 CT. PINCREST, FL 33153			**WO#: 22-0228**
Method: SPT			**Ground EL: 0'0"**
Hammer: AUTO		**Hammer weight (lb): 140**	**Hole depth (ft): 15'0"**
Sampler: CONT	**Drop (in): 30"**	**G.W.T. @ Drilling (ft): 8'0"**	**Sampled by: DM/SM**
Driller: DM/SM		**Drill Date: 02/24/2022**	**Logged by: DM**



Remarks:

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PLATE 1

GEOTECHNICAL DRILLING

Boring Log No. B-2
NEW RESIDENCE AND SWIMMING POOL

Location: 8965 SW 63 CT. PINCREST, FL 33153			**WO#: 22-0228**
Method: SPT			**Ground EL: 0'0"**
Hammer: AUTO		**Hammer weight (lb): 140**	**Hole depth (ft): 15'0"**
Sampler: CONT	**Drop (in): 30"**	**G.W.T. @ Drilling (ft): 8'0"**	**Sampled by: DM/SM**
Driller: DM/SM		**Drill Date: 02/24/2022**	**Logged by: DM**

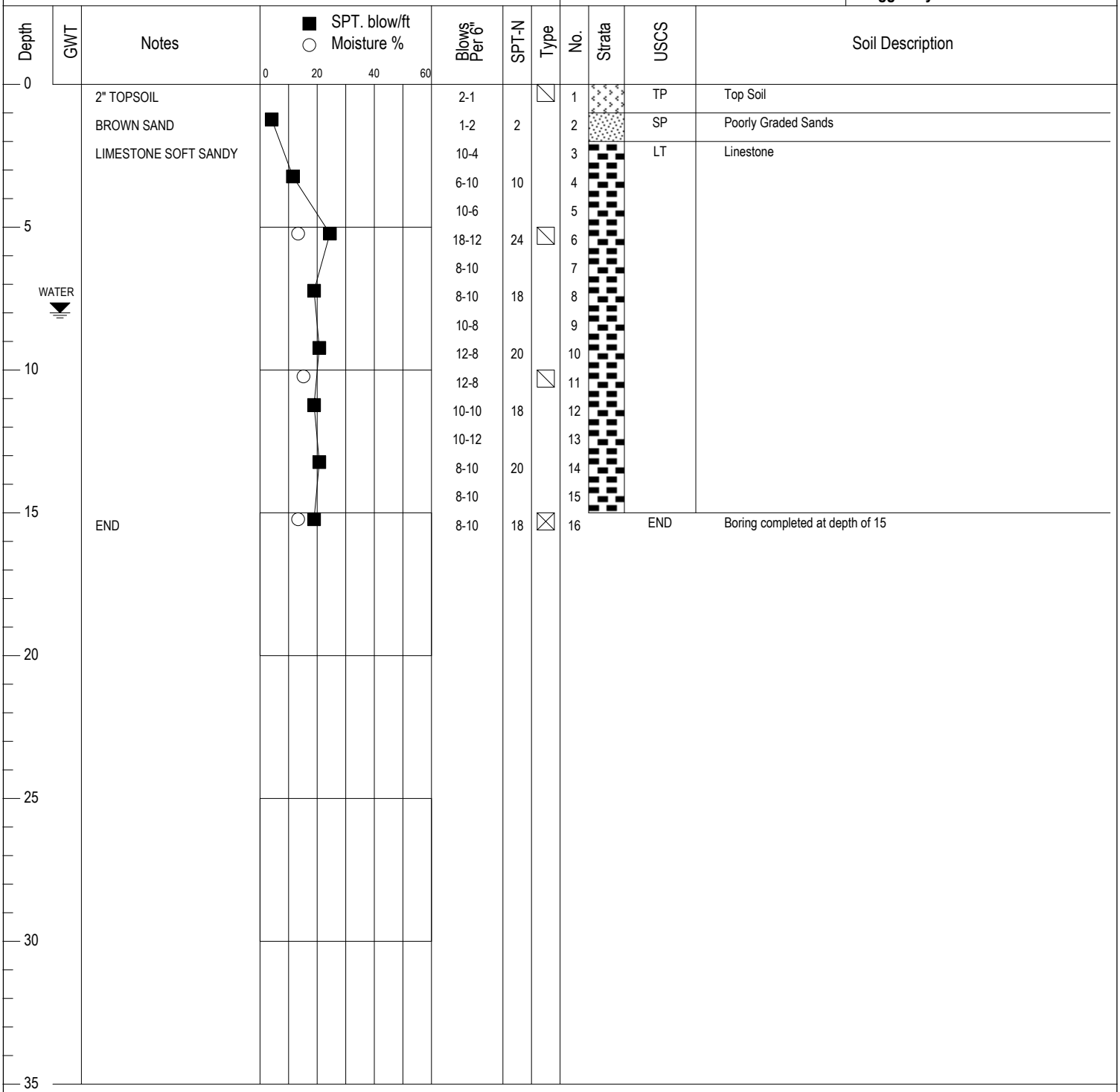

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PLATE 2

GEOTECHNICAL DRILLING

Boring Log No. B-3
NEW RESIDENCE AND SWIMMING POOL

Location: 8965 SW 63 CT. PINCREST, FL 33153			**WO#: 22-0228**
Method: SPT			**Ground EL: 0'0"**
Hammer: AUTO		**Hammer weight (lb): 140**	**Hole depth (ft): 15'0"**
Sampler: CONT	**Drop (in): 30"**	**G.W.T. @ Drilling (ft): 8'0"**	**Sampled by: DM/SM**
Driller: DM/SM		**Drill Date: 02/24/2022**	**Logged by: DM**

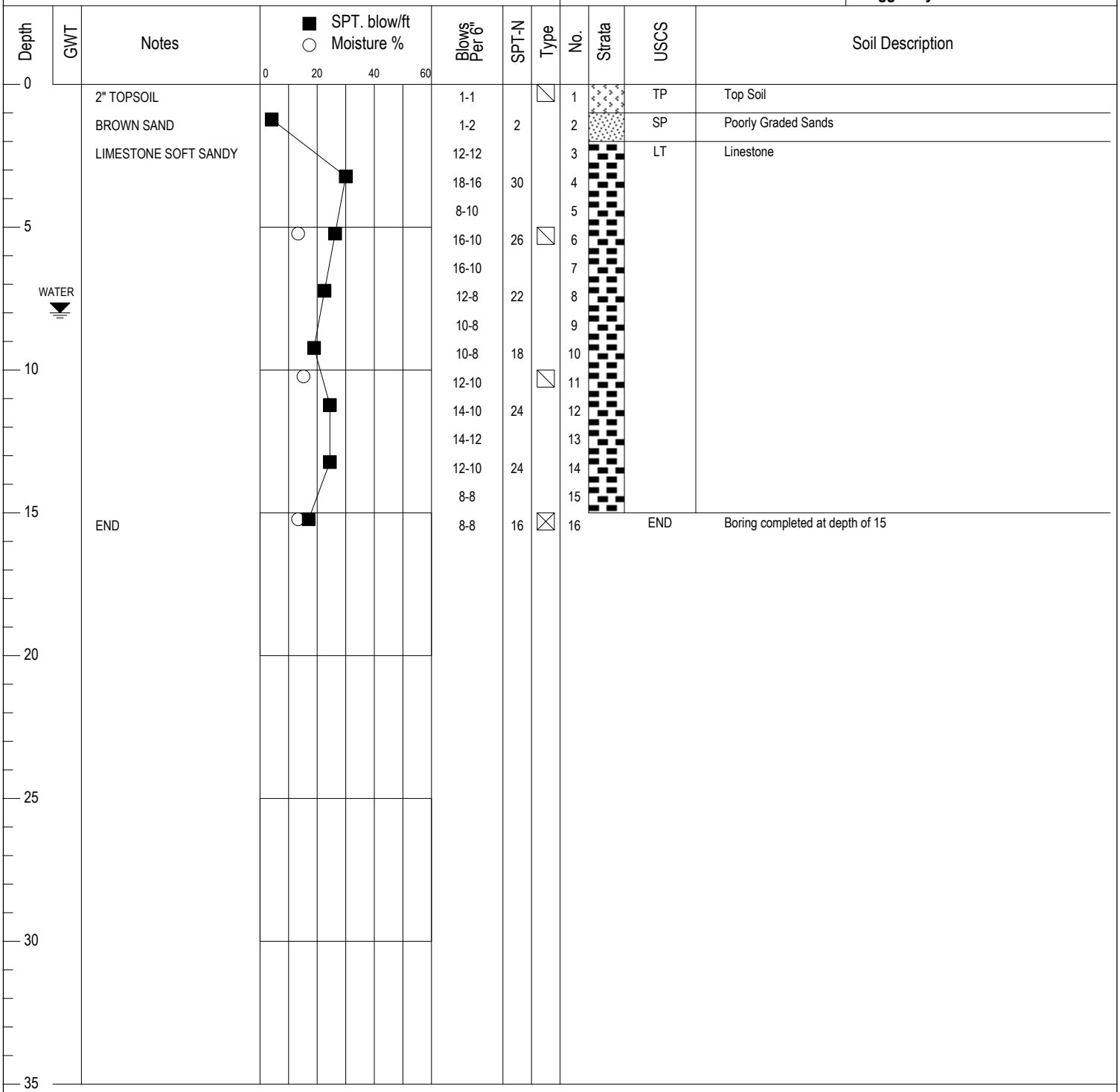

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PLATE 3