Ardaman & Associates, Inc.
Geotechnical, Environmental and
Materials Consultants

AAI File No. 21-1733
November 12, 2021

Hobe Sound Bible College
11298 SE Gomez Avenue
Hobe Sound, Florida 33455

Attention: Wesley Holden, Project Manager

SUBSURFACE EXPLORATION AND GEOTECHNICAL EVALUATION
NEW PEMB GYMNASIUM AT 11298 GOMEZ AVENUE
HOBE SOUND, FLORIDA

INTRODUCTION

In accordance with your request and authorization, Ardaman & Associates, Inc. has completed a subsurface exploration and geotechnical engineering evaluation for the above referenced project. We explored the general subsurface conditions in order to obtain a measure of pertinent engineering properties of subsurface materials, and to provide recommendations for site preparation and foundation design. Our work included soil borings, a field permeability test and an engineering analyses. This report describes our exploration, reports the findings, and summarizes our conclusions and recommendations.

SITE LOCATION AND DESCRIPTION

The project site is located at 11298 SE Gomez Avenue (Section 34 Township 38 South, and Range 42 East) in Hobe Sound, Palm Beach County, Florida. The project site was developed with various sporting courts (volleyball, racquetball, etc.) at the time this exploration was completed. A site vicinity map is presented as our attached Figure 1.

PROJECT DESCRIPTION

It is our understanding that a new Pre-Engineered Metal Building (PEMB) Gymnasium is planned at the referenced project site. We were not provided with any detailed structural plans; however, we expect the proposed construction to have maximum wall loads (if any) on the order of 4 kips per lineal foot and maximum column loads on the order of 75 kips. We have anticipated that less than 2 feet of fill will be used to bring the current site grade to finished design grade in the building area.

If any of this information is incorrect or anticipated to change, please notify our office so that we can review the changes and make corrections as needed.

FIELD EXPLORATION

To explore the subsurface conditions at the site, five (5) Standard Penetration Test (SPT) borings were performed at the approximate locations shown in Figure 2. Our borings were advanced using a truck-mounted drill rig and were terminated at depths of 15 to 25 feet. The borings were performed in general accordance with the procedures described in ASTM D-1586. The boring logs and a description of our drilling and testing procedures are attached.

In order to estimate the hydraulic conductivity of the upper soils, a field permeability test was performed at the approximate location shown in Figure 2. This test was conducted in general accordance with the usual open-hole exfiltration test method described in the South Florida Water Management District (SFWMD) Permit Information Manual, Volume IV. Descriptions of the soils observed in the test borehole and the test results are presented in the attached field permeability test log. In brief, the exfiltration test yielded a hydraulic conductivity value of 5.61×10^{-4} cfs/sqf - ft head. The hydraulic conductivity across a given site should be expected to vary according to soil type and the degree of compaction. Appropriate safety factors should be considered as needed.

Our field exploration was completed on October 28 and 29, 2021. The boring locations were laid out in the field in reference to the recognized property boundaries and other distinguishable site features. We estimate that the actual boring locations are within approximately 25 feet of the locations shown in Figure 2.

LABORATORY TESTING

Our drilling crew examined soils recovered from the soil sampler, placed the recovered soil samples in moisture proof containers, and maintained a log for each boring. The field soil boring logs and recovered soil samples were transported to our West Palm Beach soils laboratory from the project site. Each soil sample was then examined by an Engineer and visually classified in general accordance with the Unified Soil Classification System (USCS). The soil classifications and other pertinent data obtained from our explorations and laboratory examinations and tests are reported on the attached boring logs. The soil samples recovered from our explorations will be kept in our laboratory for 60 days, then discarded unless you request otherwise.

GENERAL SUBSURFACE CONDITIONS

The attached boring logs present a detailed description of the soils encountered at each location throughout the explored depths. The soil stratification shown on the boring logs is based on examination of recovered soil samples and interpretation of the driller's field logs. It indicates only the approximate boundaries between soil types. The actual transitions between adjacent soil strata may be gradual and indistinct.

Borings performed through the existing courts encountered from 1 to 1.5 inches of asphalt and 6.0 to 7.0 inches of shellrock base. The soils below the court/pavement sections and in other explored locations consisted generally of very loose to loose fine sands with occasional roots and some random pockets of medium dense fine sand to the termination depth of our deepest borings at 25 feet below existing site grades.

GROUNDWATER CONDITIONS

Groundwater was greater than 10 feet below the existing grades (estimated to be between 10 and 13 feet) in our borings at the time our exploration was completed. A viscous drilling fluid was introduced at depths of about 10 feet to advance the SPT boreholes to the next sample interval (which precluded us from accurately measuring the groundwater depth). Under normal conditions, groundwater levels on this site should be anticipated to fluctuate throughout the year due to a variety of factors, the most important of which are rainfall, tidal fluctuations and established drainage patterns. Groundwater levels somewhat above the present levels should be expected after major storm events and periods of heavy or prolonged rainfall.

DISCUSSIONS AND RECOMMENDATIONS

Based on the findings of our site exploration and our evaluation of the encountered subsurface conditions, we conclude that the soils underlying this site are generally satisfactory to support the proposed construction on conventional spread foundations or on a thickened edge monolithic slab. The bearing capacity of the near-surface sands should be improved in order to reduce the risk of unsatisfactory foundation performance. Following are specific recommendations for site preparation procedures and the design of foundation systems.

Site Preparation Recommendations

The construction areas within lines five feet outside the building perimeters and areas to be paved should be cleared, grubbed and stripped of all topsoil, trash, debris and other deleterious materials. Remnants of old foundations, pavement components and underground utility lines should be removed from the site and/or rerouted around the construction areas and their excavations/depressions backfilled with approved granular fill placed and compacted in thin lifts as recommended below.

The construction areas should be proofrolled with a heavy (10 to 12 ton) vibratory roller. Any soft, yielding soils detected during the proofrolling operations should be excavated and replaced with approved fill conforming to the specifications below. Sufficient passes should be made during the proofrolling operations to produce minimum dry densities of 98 percent of the Modified Proctor (ASTM D-1557) maximum dry density value of the compacted subgrade soils to a depth of 2 feet below the compacted surface. The proofrolled areas should receive at least 10 overlapping passes of the vibratory roller, half of them in each of two perpendicular directions.

After the construction areas have been proofrolled and tested to verify that the specified compaction level has been attained, the construction areas may be filled to the desired finish grades. All fill material should consist of clean sands, free of organics and other deleterious materials, with less than 8 percent of fines (particles passing the No. 200 sieve) and no particle larger than 3 inches in diameter. It should be placed in uniform layers, 12 inches or less in loose thickness, individually compacted with the vibratory roller to a minimum dry density of 98 percent of its Modified Proctor maximum dry density value.

After completion of the general compaction and filling operations, when the excavations for the construction of foundations are made through the compacted soils, the bottom of the foundation excavations should be compacted to densify soils loosened during or after the excavation process and washed or sloughed into the excavation prior to the placement of the forms. A heavy-duty vibratory rammer should be used for this final compaction, immediately prior to the placement of reinforcing steel, with previously described minimum dry density requirements to be maintained below the foundation level.

After the foundations are cast and the forms are removed, backfill around the foundations should be placed in thin layers, six inches or less in loose thickness, individually compacted with a heavy-duty vibratory rammer to a minimum dry density of 98 percent of the Modified Proctor maximum dry density value of the backfill material.

Construction Considerations

Care must be exercised prior to, during and after construction to prevent erosion effects or undermining of foundations. The integrity of the raised building "pad" must hence be maintained for a distance of at least five feet beyond the foundation levels, with gutters disposing of rainfall runoff beyond the pad limits.

Foundation concrete should not be cast over a foundation surface containing topsoil or organic soils, trash of any kind, surface made muddy by rainfall runoff, or groundwater rise, or loose soil caused by excavation or other construction work. Reinforcing steel should also be clean at the time of concrete casting. If such conditions develop during construction, the reinforcing steel must be lifted out and the foundation surface reconditioned and approved by the Foundation Engineer.

The site preparation contractor should closely monitor the ground vibrations produced by the operation of the compaction equipment to minimize the risk of structural damage to any adjacent structures and avoid creating excessive nuisance. A seismograph with a suitable indicator range should be arranged along the edge of the nearest structure to ensure that ground vibrations do not reach objectionable levels. We can assist you in the planning and implementation of a suitable vibration monitoring program if deemed necessary.

Foundation Recommendations

After the foundation soils have been prepared in accordance with the above site preparation recommendations, the site should be suitable for supporting the proposed structure on conventional shallow foundations or a thickened edge monolithic slab proportioned for a maximum allowable bearing stress of 2,500 pounds per square foot (psf). All continuous foundations should be at least 18 inches wide and individual column foundations should have minimum widths of 24 inches. All monolithic slabs should bear at least 12 inches, and spread foundations should bear at least 18 inches below adjacent finish grades.

The floor slabs can be placed directly on the compacted subgrade. In our opinion, a highly porous base material is not necessary. We recommend the use of a polyolefin film vapor barrier with a minimum thickness of 10 mils. Care must be exercised in installing control joints as needed shortly after placing the concrete, and in placing and maintaining the steel reinforcement at its designated elevation within the floor slab.

Based upon the boring information and the assumed loading conditions, we estimate that the recommended allowable bearing stress will provide a minimum factor of safety in excess of two against bearing capacity failure. With the site prepared and the foundations designed and constructed as recommended, we anticipate total settlements of 1 inch or less, and differential settlement between adjacent similarly loaded footings of less than one half of an inch. For design purposes, we recommend using a subgrade reaction modulus of 125 pounds per cubic inch (pci) for the well compacted shallow sands.

QUALITY ASSURANCE & CONTROL

We recommend establishing a comprehensive quality assurance and control program to verify that all site preparation and foundation construction is conducted in accordance with the appropriate plans and specifications. Materials testing and inspection services should be provided by Ardaman & Associates, Inc.

As a minimum, an on-site engineering technician should monitor all stripping and grubbing to verify that all deleterious materials have been removed and should observe the proofrolling operation to verify that the appropriate numbers of passes are applied to the subgrade. In-situ density tests should be conducted during filling activities and below all footings and floor slabs to verify that the required densities have been achieved. In-situ density values should be compared to laboratory Proctor moisture-density results for each of the different natural and fill soils encountered. Finally, we recommend inspecting and testing the construction materials for the foundations and other structural components.

In-Place Density Testing Frequency

In Southeast Florida, earthwork testing is typically performed on an on-call basis when the contractor has completed a portion of the work. The test result from a specific location is only representative of a larger area if the contractor has used consistent means and methods and the soils are practically uniform throughout. The frequency of testing can be increased and full-time construction inspection can be provided to account for variations. We recommend that the following minimum testing frequencies be utilized.

In proposed structural areas, the minimum frequency of in-place density testing should be one test for each 2,500 square feet of structural area (minimum of five test locations). In-place density testing should be performed at this minimum frequency for a depth of 1 foot below natural ground and for every 1-foot lift of fill placed in the structural areas. In addition, density tests should be performed in each column footing for a depth of 2 feet below the bearing surface. For continuous or wall footings, density tests should be performed at a minimum frequency of one test for every 50 lineal feet of footing, and for a depth of 2 feet below the bearing surface.

Utility backfill should be tested at a minimum frequency of one in-place density test for each 12-inch lift for each 200 lineal feet of pipe. Additional tests should be performed in backfill for manholes, inlets, etc.

Representative samples of the various natural ground and fill soils should be obtained and transported to our laboratory for Proctor compaction tests. These tests will determine the maximum dry density and optimum moisture content for the materials tested and will be used in conjunction with the results of the in-place density tests to determine the degree of compaction achieved.

Please note that the reliance on Ardaman' s recommendations presented herein is predicated on an Ardaman representative being onsite to verify that the all subgrade soils have been prepared and the foundations are installed in compliance with our report recommendations.

CLOSURE

This report has been prepared specifically for subject project. It is intended for the exclusive use of Hobe Sound Bible College. Our work has used methods and procedures consistent with local foundation engineering practices. No other warranty, expressed or implied, is made. We do not guarantee project performance in any respect, only that our work meets normal standards of professional care. Environmental concerns, including (but not limited to) the possibility that hazardous materials or petroleum-contaminated soils or groundwater may be present on the subject site, were not included in the scope of work. The recommendations submitted in this report are based on the data obtained from our exploration program and our understanding of the proposed construction and loading conditions as described herein. This report may not account for any variations that may exist between conditions observed in the borings and conditions at locations that were not explored. The nature and extent of any such variations may not become evident until construction is underway. If variations are then observed, we should be requested to review the conclusions and recommendations in this report.

In the event any changes occur in the design, nature or location of any project facilities, we should be requested to review the conclusions and recommendations in this report. We also recommend that we be requested to review the final foundation drawings and earthwork specifications so that our recommendations may be properly interpreted and implemented in the contract documents.

It has been a pleasure to assist you on this phase of your project. Please contact us whenever we may be of service to you, and please call if you have any questions concerning this report.

ARDAMAN & ASSOCIATES, INC.
FL. Certificate of Authorization No. 5950

11/12/2021
Chris Tornello, E.I.
Assistant Project Engineer

KEVIN FERGUSON LICENSE No. 60712 STATE OF FLORIDA PROFESSIONAL ENGINEER

11-12-21
Kevin Ferguson, P.E.
Geotechnical Engineer
Fla. Reg. No. 60712

Attachments: Site Vicinity Map - Figure 1
Boring Location Plan - Figure 2
Subsurface Exploration Information
Boring Logs (5)
Field Permeability Test Log (1)

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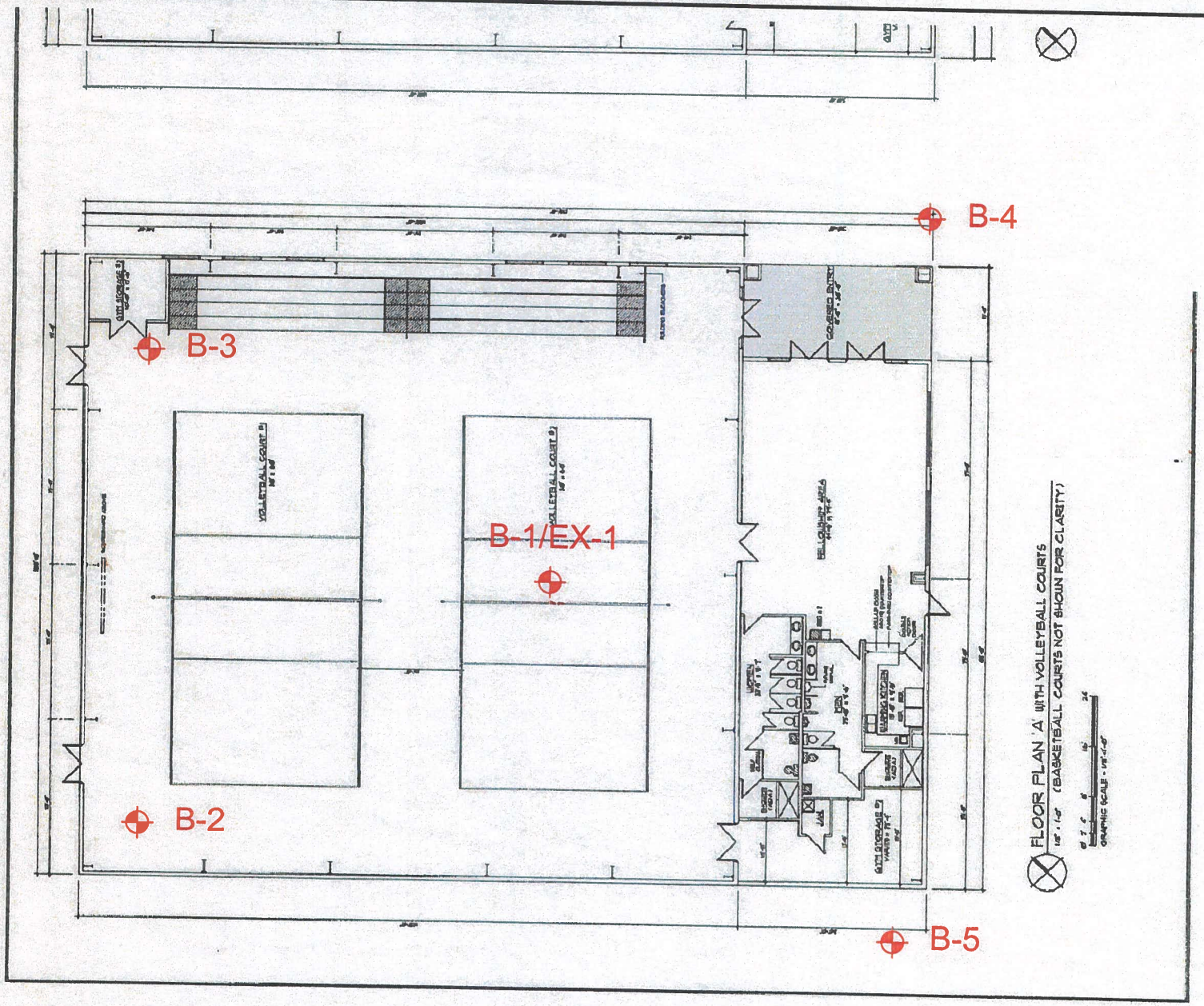
SUBSURFACE EXPLORATION
PEMB GYMNASIUM AT 11298 SE GOMEZ AVENUE
HOBE SOUND, FLORIDA

SITE VICINITY MAP

Figure No. 1

File No.:	21-1733
Prepared By:	KF
Date:	11/12/21



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SUBSURFACE EXPLORATION
PEMB GYMNASIUM AT 11298 SE GOMEZ AVENUE
HOBE SOUND, FLORIDA

BORING LOCATION PLAN

Figure No. 2

File No.:	21-1733
Prepared By:	KF
Date:	11/12/21

Ardaman & Associates, Inc.

Geotechnical, Environmental and Materials Consultants

SUBSURFACE EXPLORATION INFORMATION

GENERAL

Our borings describe subsurface conditions only at the locations drilled and at the time drilled. They provide no information about subsurface conditions below the bottom of the boreholes. At locations not explored, surface conditions that differ from those observed in the borings may exist and should be anticipated.

The information reported on our boring logs is based on our drillers' logs and on visual examination in our laboratory of disturbed soil samples recovered from the borings. The distinction shown on the logs between soil types is approximate only. The actual transition from one soil to another may be gradual and indistinct.

The groundwater depth shown on our boring logs is the water level the driller observed in the borehole when it was drilled. These water levels may have been influenced by the drilling procedures, especially in borings made by rotary drilling with bentonitic drilling mud. An accurate determination of groundwater level requires long-term observation of suitable monitoring wells. Fluctuations in groundwater levels throughout the year should be anticipated.

The absence of a groundwater level on certain logs indicates that no groundwater data is available. It does not mean that no groundwater will be encountered at that boring location.

STANDARD PENETRATION TEST BORINGS

The Standard Penetration Test is a widely accepted method of testing foundation soils in place. The N-Value obtained from the test has been correlated empirically with various soil properties. These empirical correlations allow satisfactory estimates to be made of how the soil is likely to behave when subjected to foundation loads. Tests are usually performed in the boreholes at intervals of five feet. In addition, our Firm performs tests continuously in the interval directly below the expected foundation bearing grade where the soil will be most highly stressed.

Boreholes where Standard Penetration Tests will be performed are drilled with a truck-mounted drilling rig. The boreholes are advanced by rotary drilling with a winged bit that makes a hole about three inches in diameter. A bentonitic drilling mud is recirculated in order to remove the cuttings and support the walls of the borehole. The drag bit is specially modified to direct the mud upward and reduce disturbance of the soil ahead of the bit. If access is not available for our truck-mounted drilling equipment, portable tripod drilling equipment can be used instead.

Occasionally, running or squeezing ground is encountered that cannot be stabilized by the drilling mud alone. In addition, drilling mud may be lost into the soil or rock strata that are unusually pervious. In such cases, flush-joint steel casing with an outside diameter of about 3.5 inches is driven as a liner for the borehole.

After the borehole has been advanced to the depth where a Standard Penetration Test will be performed, the soil sampler used to run the test is attached to the end of the drill rods and lowered to the bottom of the borehole. The testing procedure used conforms closely to the methods recommended in ASTM D-1586. The sampler used has a split-barrel 24 inches long and an outside diameter of 2.0 inches. It is driven into the ground below the bottom of the borehole using a hammer that weighs 140 pounds and falls 30 inches. The driller records the number of hammer blows needed to advance the sampler in successive increments of six inches. The total number of blows required to advance the sampler the second and third six-inch increments constitutes the test result; that is, the N-value at the depth. The test is completed after the sampler has been driven not more than 24 inches or when refusal is encountered, whichever occurs first. Refusal occurs when 50 hammer blows advance the sampler less than 6 inches. After the test is completed, the sampler is removed from the borehole and opened.

The drillers examines and classifies the soil recovered by the sampler, place representative soil specimens from each test in glass jars or plastic bags and take them to our laboratory. In the laboratory, additional evaluations and tests are performed, if needed. The driller's classifications may be adjusted, if necessary, to conform more closely with the Unified Soil Classification System (USCS). Jar samples are retained in our laboratory for sixty days, then discarded unless our clients request otherwise.

The following tables relate N-values to a qualitative description of the relative soil density.

	Description	SPT N Value
Cohesionless Soils	Very loose	0-4
	Loose	5-9
	Medium dense	10-29
	Dense	30-49
	Very dense	50+

	Description	SPT N Value
Cohesive Soils	Very soft	0-2
	Soft	3-4
	Medium stiff	5-8
	Stiff	9-15
	Very stiff	16-30
	Hard	31+

HAND AUGER BORINGS

Hand auger borings are used, if soil conditions are favorable, when the soil strata are to be determined within a shallow (approximately 5 foot) depth, or when access is not available for our truck-mounted drilling equipment. The testing procedure used conforms closely to the methods recommended in ASTM D-1452. A portable, manually operated, 3-inch diameter bucket auger with a cutting head is simultaneously turned and pressed into the ground. The bucket auger is retrieved at approximately 6-inch increments and its content emptied for inspection. The soil samples obtained are described and representative samples put in jars or bags and transported to our laboratory for further classification and testing, if necessary.

SFWMD EXFILTRATION TESTS

In order to estimate the hydraulic conductivity of the upper soils, constant head or falling head exfiltration tests can be performed. These tests are performed in accordance with methods described in the South Florida Water Management District (SFWMD) Permit Information Manual, Volume IV. In brief, a 6 to 9 inch diameter test hole is augered to the desired test depth (typically 6 feet), then a screen is lowered into the test hole, the depths of the test hole and groundwater level are recorded, then the surroundings of the test hole are saturated by pouring water into the screen as needed to maintain the water level in the test hole at the ground surface for 10 minutes.

If a constant head test is performed, the rate of pumping will be recorded at fixed intervals of 1 minute for a total of 10 minutes, following the saturation period.

If a falling head test is performed (typically for relatively high permeability soils), water is added until the water level reaches the ground surface. Then the water flow is stopped and the drop in water level for discrete time intervals is recorded until the water level in the test hole has dropped to at least half the distance to the groundwater table.

LEGEND FOR BORING LOGS

The following abbreviations are often used in our boring logs:

MC: Moisture content (percent of dry weight)
OC: Organic content (percent of dry weight)
PL: Moisture content at the plastic limit
LL: Moisture content at the liquid limit
PI: Plasticity index (LL-PL)
Qu: Unconfined compressive strength (tons per square foot, unless otherwise noted)
-200: Percent passing a No. 200 sieve (200 wash)

Ardaman & Associates, Inc.

STANDARD PENETRATION TEST BORING LOG

BORING B-1

PROJECT: PEMB Gymnasium at 1128 Gomez Avenue
Hobe Sound, Florida

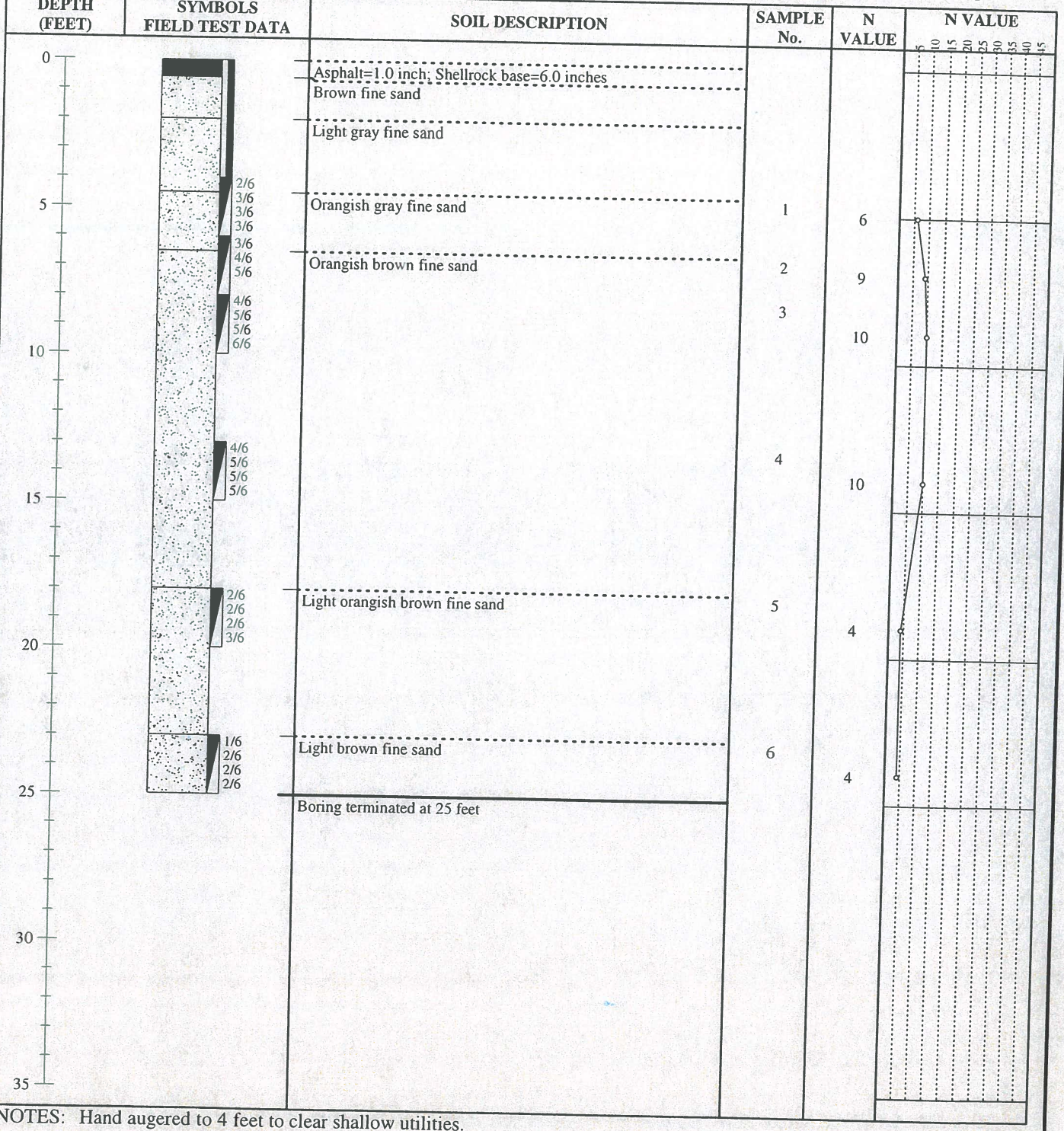
FILE No.: 21-1733

BORING LOCATION: As per plan.

DRILL CREW: DG/QK

WATER OBSERVED AT DEPTH Greater than 10 feet (est. 10-13')

DATE DRILLED: 10/28/21



NOTES: Hand augered to 4 feet to clear shallow utilities.
Boring terminated at 25 feet.

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN" **140-LB HAMMER, 30-INCH FALL.** **(ASTM D-1586)**

Ardaman & Associates, Inc.

STANDARD PENETRATION TEST BORING LOG

BORING B-2

PROJECT: PEMB Gymnasium at 1128 Gomez Avenue
Hobe Sound, Florida

FILE No.: 21-1733

BORING LOCATION: As per plan.

DRILL CREW: DG/QK

WATER OBSERVED AT DEPTH Greater than 10 feet (est. 10-13')

DATE DRILLED: 10/28/21

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE
0		Asphalt=1.5 inch; Shellrock base=7.0 inches		
		Brown fine sand	1	
	2/6 3/6 2/6 3/6	Orangish brown fine sand	2	5
5	2/6 2/6 2/6 3/6		3	4
	2/6 3/6 2/6 2/6		4	5
	2/6 3/6 3/6 3/6		5	6
10				
	2/6 3/6 3/6 3/6		6	6
15				
	4/6 5/6 7/6 7/6	Light orangish brown fine sand	7	12
20				
	4/6 5/6 6/6 9/6		8	11
25		Boring terminated at 25 feet		
30				
35				

N VALUE: 5 10 15 20 25 30 35 40 45

NOTES: Hand augered to 2 feet to clear shallow utilities.
Boring terminated at 25 feet.

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN" **140-LB HAMMER, 30-INCH FALL.** **(ASTM D-1586)**

Ardaman & Associates, Inc.

STANDARD PENETRATION TEST BORING LOG

BORING B-3

PROJECT: PEMB Gymnasium at 1128 Gomez Avenue
Hobe Sound, Florida

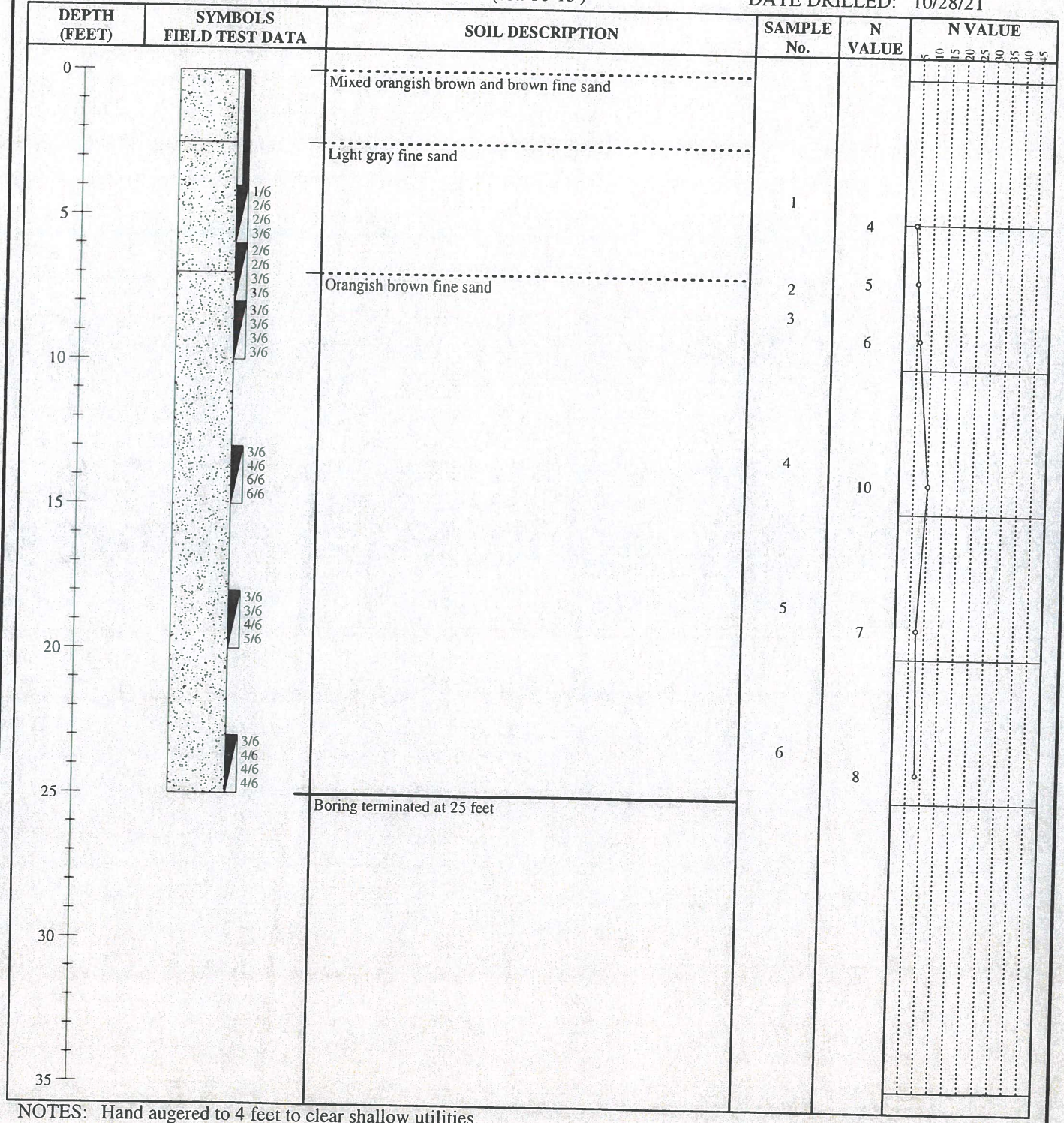
FILE No.: 21-1733

BORING LOCATION: As per plan.

DRILL CREW: DG/QK

WATER OBSERVED AT DEPTH Greater than 10 feet (est. 10-13')

DATE DRILLED: 10/28/21



NOTES: Hand augered to 4 feet to clear shallow utilities.
Boring terminated at 25 feet.

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN" **140-LB HAMMER, 30-INCH FALL.** **(ASTM D-1586)**

Ardaman & Associates, Inc.

STANDARD PENETRATION TEST BORING LOG

BORING B-4

PROJECT: PEMB Gymnasium at 1128 Gomez Avenue
Hobe Sound, Florida

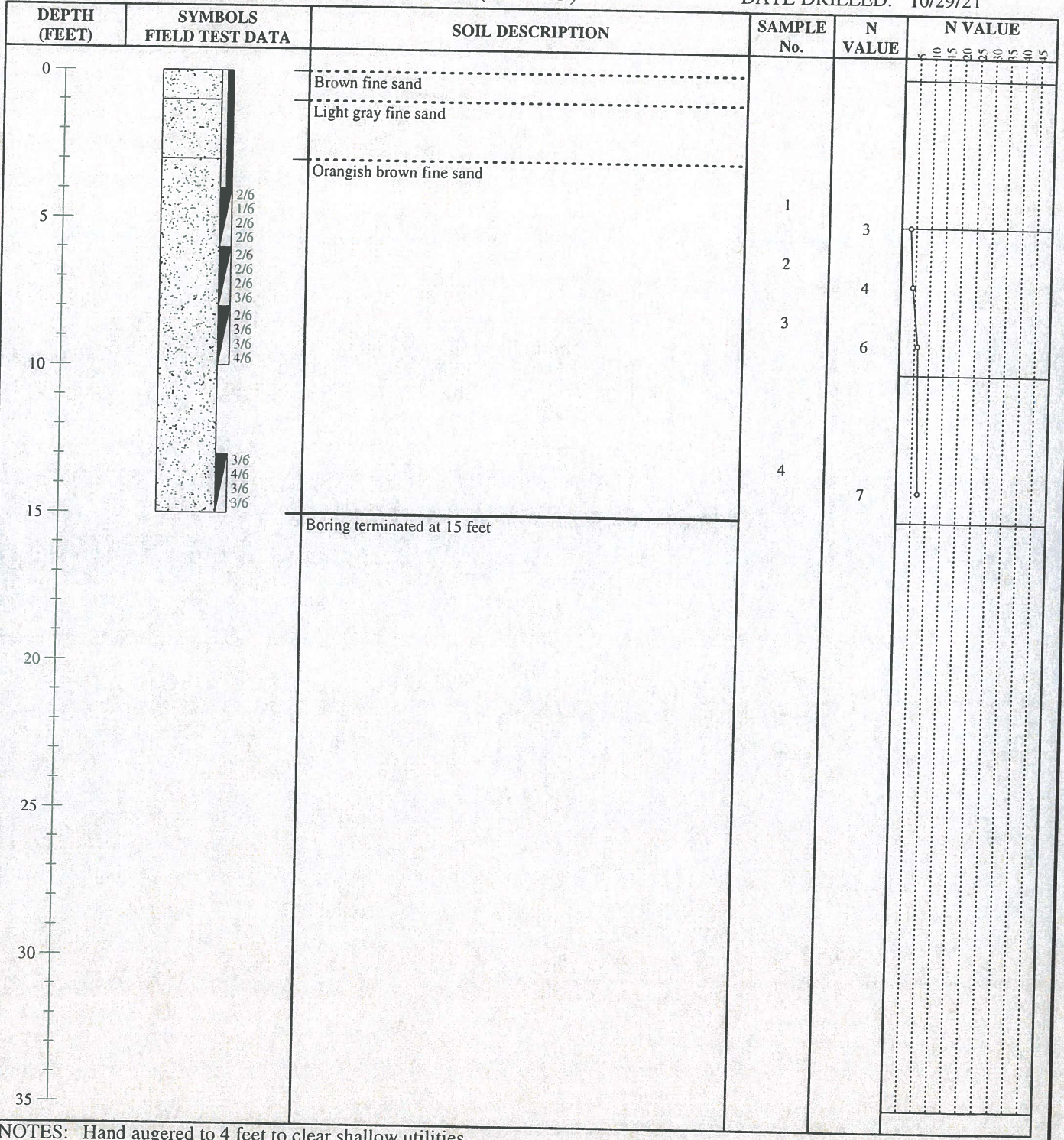
FILE No.: 21-1733

BORING LOCATION: As per plan.

DRILL CREW: DG/QK

WATER OBSERVED AT DEPTH Greater than 10 feet (est. 10-13')

DATE DRILLED: 10/29/21



NOTES: Hand augered to 4 feet to clear shallow utilities.
Boring terminated at 15 feet.

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN" **140-LB HAMMER, 30-INCH FALL.** **(ASTM D-1586)**

Ardaman & Associates, Inc.

STANDARD PENETRATION TEST BORING LOG

BORING B-5

PROJECT: PEMB Gymnasium at 1128 Gomez Avenue
Hobe Sound, Florida

FILE No.: 21-1733

BORING LOCATION: As per plan.

DRILL CREW: DG/QK

WATER OBSERVED AT DEPTH Greater than 10 feet (est. 10-13')

DATE DRILLED: 10/29/21

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE	N VALUE
0		Gray fine sand			
		Orangish brown fine sand			
5	1/6, 1/6, 1/6, 2/6		1	2	
	2/6, 1/6, 2/6, 2/6		2	3	
10	3/6, 2/6, 3/6, 3/6		3	5	
	3/6, 3/6, 2/6, 2/6		4	5	
15		Boring terminated at 15 feet			
20					
25					
30					
35					

N VALUE scale: 5, 10, 15, 20, 25, 30, 35, 40, 45

NOTES: Hand augered to 4 feet to clear shallow utilities.
Boring terminated at 15 feet.

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN" **140-LB HAMMER, 30-INCH FALL.** **(ASTM D-1586)**

Ardaman & Associates, Inc.

FIELD PERMEABILITY TEST LOG
SFWMD USUAL OPEN-HOLE TEST
EX-1

PROJECT: PEMB Gymnasium at 1128 Gomez Avenue
Hobe Sound, Florida

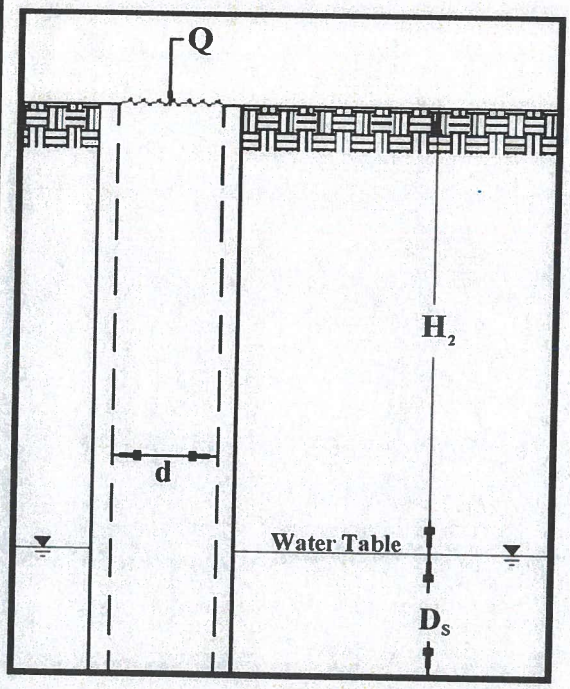
FILE No.: 21-1733

TEST LOCATION: As per plan.

DRILL CREW: DG/QK

GROUNDWATER OBSERVED AT DEPTH Greater then 6 feet.

TEST DATE: 10/28/21



$$K = \frac{4Q}{\pi d(2H_2^2 + 4H_2 D_s + H_2 d)}$$

Q ["Stabilized" Flow Rate (cfs)] = 1.65×10^{-2}

K [Hydraulic Conductivity (cfs/sqf - ft head)] = 5.61 x 10^{-4}

d [Diameter of Test Hole (ft)] = 0.375

H_2 [Depth to Water Table (ft)] = +6

* D_S [Saturated Hole Depth (ft)] = 0

* By Groundwater

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Aspahlt=1.0 inch; Shellrock base=6.0 inches	
1		Brown fine sand	
2		Light gray fine sand	
3			
4			
5		Orangish gray fine sand	
6			

NOTES: Test terminated at 6 feet.