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Soil Boring, Environmental Services, Applied Soil Mechanics & Laboratory Testing, Soil Boring, Environmental Services, Applied Soil Mechanics & Laboratory Testing

November 20, 2020

The Nader Group, LLC
111 Mill Street
Hackettstown, NJ 07840

Attn.: Mr. Paul A. Couvrette, PE, CME
Director of Civil Engineering

Re: **Subsurface Soil Investigation & Foundation Recommendation Report**
Proposed New Building near the existing building
Byram Municipal Building
10 Mansfield Drive
Stanhope, NJ

Dear Mr. Couvrette:

Enclosed, please find three (3) copies of the Subsurface Soil Investigation & Foundation Recommendation Report for the total of three (3) Soil Borings performed on October 30, 2020 at the project referenced above.

Soil Samples collected during soil boring program will be discarded after thirty (30) days from the date of this report, if not requested in advance to do otherwise. We thank you very much for providing us an opportunity to service you on this project.

Should you have any questions or require additional information, please do not hesitate to contact the undersigned at (908)754-8383.

Sincerely,
ANS Geo, Inc.

A handwritten signature in blue ink, appearing to read 'Atul N. Shah', is written over a horizontal blue line.

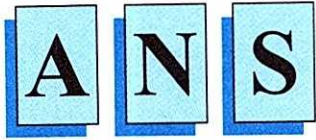
Atul N. Shah, PE
President
NJ PE License #24GE03443900
ANS/RM

Reported: The Nader Group, LLC– (3); File – (1)

File: GEO-269_01.SB

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Dear Mr. Couvrette:

Enclosed, please find three (3) copies of the Subsurface Soil Investigation & Foundation Recommendation Report for the total of three (3) Soil Borings performed on October 30, 2020 at the project referenced above. The soil boring work was performed in accordance with our signed proposal dated October 02, 2020.

Our **Scope of Services** included the following:

1. Drilling and fulltime inspection of total of three (3) soil borings, down to maximum 27'-0" depth or to refusal, including recording of groundwater level, if encountered in the contracted depth.
2. Performance of engineering evaluation to determine the stratification and physical properties of the subsurface materials.
3. Preparation of a written report summarizing all findings and recommendations.

PROPOSED CONSTRUCTION:

The project site is located at 10 Mansfield drive, Stanhope, New Jersey in Sussex County. At the present time, the subject property consists of a Municipal Building, Court and a Police Station. We understand that the new building is proposed at the subject site near the existing building. Since, detailed construction drawings were not provided, our recommendations are based upon IBC-2018- ASCE 7-16 and construction material loads for the Building Construction based upon American National Standards. Please see soil boring location plan in Appendix-A for the exact location of the soil borings and photographs in Appendix-C for the existing site conditions.

SITE CONDITIONS:

The subject site is located towards southside of Mansfield Drive. The site was noted to be fairly level during soil boring activities. The subject site is primarily surrounded by commercial properties. It is at Latitude N 40° 56' 11.51", Longitude W 74° 42' 23.98" on the USGS Digital

Elevation Model. It is at an approximate elevation of 716' above mean sea level. See the site location plan in Appendix-A for more details.

FIELD INVESTIGATION

The soil boring locations were selected and marked by an ANS field representative based upon the equipment access. Surface utility mark-out was performed by New Jersey One-Call System. Once, cleared the soil boring work began on October 30, 2020.

A total of three (3) soil borings, B-1 to B-3 were drilled during the geo-technical investigation at the site on October 30, 2020. All the soil boring locations are shown in the Soil Boring Location Plan which is included in Appendix-A. Soil boring work was performed under the direction and supervision of field Engineer Mr. Syed Abbas. The borings were drilled using a 3" diameter hollow stem auger. Soil encountered was sampled continuously down to a depth of 12'-0" and then at a distance of 5'-0" intervals down to augur refusal noted between 14.75 feet to 19.16 feet depth in all the borings B-1 to B-3. Soil samples were extracted using a 2" diameter split spoon sampler as per the procedure specified in ASTM 1586-99.

Samples for both the borings were obtained by the Standard Penetration Test (SPT) Method (ASTM D 1586), which consists of driving a 2-inch outside-diameter split-spoon sampler into the soil with a 140-pound weight falling freely from a distance of 30 inches. The samplers were driven in four successive 6-inch increments, with the number of blows per increment being recorded. The number of blows required to advance the sampler in the middle 12 inches is termed as the Standard Penetration Resistance (N-value) and is presented on the Field Test Boring Logs in Appendix-A.

During drilling operations, extracted soil samples were visually examined and classified by our Field Engineer. The soil sample description, Standard penetration test (SPT) blow counts and locations, strata changes, groundwater depth and other pertinent information were recorded on a detailed field log. Soil samples obtained from the split spoon sampler were visually classified according to the Unified Soil Classification System (USCS). Samples were later returned to our laboratory for further review and testing.

LABORATORY TESTING:

A total of three (3) soil samples, one each from borings B-1 to B-3 were laboratory tested to determine in-place moisture content and to classify the soil as per Unified Soil Classification System, ASTM-D2487-93. The findings are summarized below. Laboratory test reports are enclosed in Appendix -B.

Soil Boring Number	Soil Sample Number	Depth Sample collected	% Moisture Content	Fines thru #200 Sieve	USCS Classification Symbol
B-1	S-1	4'- 6'	11.3	14.0	SM
B-2	S-2	6'- 8'	12.9	13.6	SM
B-3	S-3	8'- 10'	12.5	11.2	SP-SM

SM: silty sands SP-SM: A mixture of Poorly graded Sands and Silty Sands

SUBSURFACE CONDITIONS:

Detailed description of the soil encountered in the test boring is documented in the boring log which is presented in Appendix-A. The following gives a general description of the subsurface conditions encountered at the borings. While the borings may indicate that the