



Mr. C. Adam Tucker
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October 26, 2018

Subject: Soils Testing Letter Report
Surfside Corner
2320 Southwest 21st Avenue
Cape Coral, Lee County, Florida
Strap #: 28-44-23-C4-05916.0000
Velocity Project Number 18-225

Dear Mr. Tucker:

Velocity Engineering Services, LLC (Velocity) previously provided a Geotechnical Engineering Services Report dated September 11, 2018 for this project. During the geotechnical exploration program, Velocity encountered hard limestone at depths ranging from 0.5 to 4 feet below the ground surface (BGS) within soil borings B-1, B-2, B-3, B-5, B-7, B-9, and B-14. Furthermore, upon visual classification of the soils recovered during the geotechnical exploration program, Velocity identified the presence of phosphate in the samples recovered from approximately 8 to 30 feet below the ground surface (BGS) in all of the test borings performed. Radon-226, the source of radon gas, is often found in phosphate. Therefore, the client requested that Velocity perform a test pit exploration program to further explore the impact that the limestone will have on the excavation of foundations and the installation of utilizes at the project site. Additionally, the client also requested a Soil Radium 226 Analysis of selected soil samples.

Test Pit Results

A total of seven (7) test pits (numbered TP-1 through TP-7) were performed adjacent to test boring locations where hard limestone was encountered. The test pits were performed using a Takeuchi TB2150 excavator and were backfilled upon completion. The subsurface soil conditions encountered in the test pits generally consist of sand (SP) with varying amounts of root and rock and a trace of silt from the existing ground surface to the termination depths of approximately 1.5 to 6 feet BGS. It should be noted that limestone boulders up to 26 inches in diameter were excavated in the test pits from the ground surface to the termination depths. Furthermore, refusal of the excavating equipment (Takeuchi TB2150 Excavator with a 36 inch bucket) was encountered at test pit TP-2 and TP-6 at 3 feet and 1.5 feet, respectively. Based on the test pits performed, it is likely that the refusal encountered within TP-2 and TP-6 was caused by boulders larger than 36 inches in diameter.

It should be noted that the test results indicate the subsurface soil conditions at the boring/test pit locations only and the possibility that hard rock may exist at other depths or in other locations cannot be ruled out. Excavation contractors should not rely on Velocity's report in preparing their bids for this project. Velocity recommends that the excavation contractor(s) perform test pits at the site to confirm that the subsurface conditions they encounter are consistent with those presented in Velocity's boring logs and/or record of test pits. Detailed records of each test pit and a Test Pit Location Plan are attached to this report.

Radon Testing Results

Samples containing phosphate taken from depths of approximately 15 to 35 feet below the ground surface were selected and used to create composite samples for Soil Radium 226 Analysis. Presented below is a list of the samples selected:

- ✓ Sample #1 – Sample from boring B-9 taken at 8 to 10 feet BGS
- ✓ Sample #2 – Sample from boring B-1 taken at 13.5 to 15 feet BGS
- ✓ Sample #3 – Sample from boring B-4 taken at 18.5 to 20 feet BGS
- ✓ Sample #4 – Sample from boring B-7 taken at 23.5 to 25 feet BGS

The 14-day test results for sample #1 through #4 ranged from 1.0 to 2.1 pCi/g Radium 226, placing these materials in the “Fill Material (FM)” to “Potential Resource (PR)” categories. “Fill Material (FM)” is classified as soils that can be placed directly under any building. “Potential Resource (PR)” is classified as “moderate potential for radon if naturally in the first ten (10) feet of earth”.

Based upon the test results, soil samples recovered within borings B-4 and B-9 are classified as “Fill Material (FM)” and are suitable for the intended use. The soil samples recovered within borings B-1 and B-7 are classified as “Potential Resource (PR)”. However, these soil samples were recovered from depths exceeding 10 feet BGS; therefore, these soils do not require radon mitigation at this time. The results of the analyses which are presented in a report titled “14 Day Soil Radium 226 Analysis of Soils from 2320 Southwest 21st Avenue” dated October 23, 2018 which is also attached to this report.

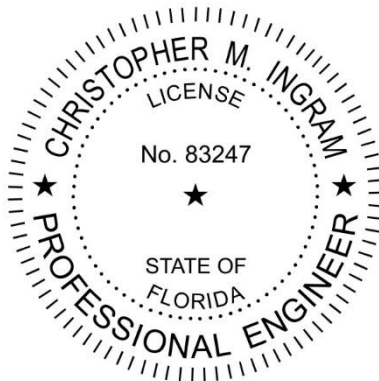
Closing

It has been a pleasure assisting you on this project. Please do not hesitate to contact us if you have any questions or if we may further assist you.

Sincerely,

Velocity Engineering Services, LLC
FBPE CA# 30362

Christopher M. Ingram, P.E.
Project Manager



Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

A handwritten signature in cursive script that reads "Felipe Compean".

Felipe Compean, E.I.
Project Engineer

Attachment: Test Pit Location Plan
Record of Test Pits
14 Day Soil Radium 226 Analysis of Soils from 2320 Southwest 21st Avenue





TEST PIT LOCATION PLAN

Surfside Corner

2320 Southwest 21st Avenue
Cape Coral, Lee County, Florida
Velocity Project Number: 18-225



RECORD OF TEST PITS

Project: Surfside Corner
Project No.: 18-225

Test Pit: TP-1

Water Table: 4 feet

Date: 10/12/2018

Test Pit Results

Depth	Soil Description
0.0 - 0.8	Tan to grey sand (SP) with some root
0.8 - 3.0	Light tan sand (SP) with a trace of rock and root
3.0 - 4.5	Dark tan sand (SP) with some rock and a traces of silt and wood debris
4.5 - 6.0	Light tan sand (SP) with rock

Notes: Boulders 26 inches and larger in diameter at 3 feet BGS

Test Pit: TP-2

Water Table: Not Encountered

Date: 10/12/2018

Test Pit Results

Depth	Soil Description
0.0 - 0.5	Grey sand (SP) with a trace of root
0.5 - 1.5	Light tan sand (SP) with a trace of rock
1.5 - 3.0	Dark tan to orange sand (SP) with sand with a trace of silt

Notes: Boulders up to 17 inches in diameter, Refusal of excavating equipment at 3 feet BGS

Test Pit: TP-3

Water Table: 4 feet

Date: 10/12/2018

Test Pit Results

Depth	Soil Description
0.0 - 1.0	Grey sand (SP) with a trace of root
1.0 - 2.5	Dark tan to orange sand (SP) with rock and some sand and a trace of silt
2.5 - 3.5	Light tan sand (SP) with rock with a trace of root
3.5 - 5.5	Light grey sand (SP) with rock

Notes: Boulders 24 inches and larger in diameter at 2.5 feet BGS

Test Pit: TP-4

Water Table: 4 feet

Date: 10/12/2018

Test Pit Results

Depth	Soil Description
0 - 0.5	Grey sand (SP) with a trace of root
0.5 - 2.5	Light grey sand (SP) with a trace of rock
2.5 - 4.5	Dark tan to orange sand (SP) with a trace of silt
4.5 - 6.0	Light grey sand (SP) with rock

Notes: Boulders 15 inches and larger in diameter at 3 feet BGS



RECORD OF TEST PITS

Project: Surfside Corner
Project No.: 18-225

Test Pit: TP-5

Water Table: 4.5 feet

Date: 10/12/2018

Test Pit Results

Depth	Soil Description
0.0 - 1.0	Grey sand (SP) with a trace of root
1.0 - 2.5	Light tan sand (SP) with a trace of rock
2.5 - 5.0	Dark tan to orange sand (SP) with rock and a trace of silt
5.0 - 6.0	Light grey sand (SP) with rock

Notes: Boulders 18 inches and larger in diameter at 3 feet BGS

Test Pit: TP-6

Water Table: Not Encountered

Date: 10/12/2018

Test Pit Results

Depth	Soil Description
0.0 - 0.5	Grey to tan sand (SP) with a trace of root
0.5 - 1.5	Tan sand (SP) with a trace of rock

Notes: Refusal of excavating equipment at 1.5 feet BGS

Test Pit: TP-7

Water Table: 5 feet

Date: 10/12/2018

Test Pit Results

Depth	Soil Description
0.0 - 1.5	Grey sand (SP) with a trace of root
1.5 - 2.5	Light tan sand (SP) with a trace of rock
2.5 - 5.0	Tan sand (SP) with a trace of rock and silt
5.0 - 6.0	Tan to grey sand (SP) with a trace of rock

Notes: Minimal rock
