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Soilprobe Engineering & Testing, Inc.

March 16, 2021

Eric Schwimmer
17199 Shaddock Lane
Boca Raton, FL 33487

RE: Exfiltration Tests
Proposed Townhouses
1005 and 1009 N. F Street
And 1008 N. E Street
Lake Worth, FL 33460

As per your request, representative of this office performed two FDOT standard exfiltration tests at the referenced site. The purpose of these tests was to determine the type of soil underlying the site and their percolation characteristics required for the design of the storm water drainage system. The following presents the tests data and evaluation:

Test #1

A. Location of test: Approx. center of proposed east parking area.

B. Soil profile:

Depth in feet:	Soil description:
0'-0" to 1'-0"	Dark gray sand.
1'-0" to 10'-0"	Gray sand.

C. Hydraulic conductivity:

$$K = \frac{4\,Q}{\Pi\,(20.25\,H_2 - H_2^{\,2} - 9)} = 2.54338 \times 10^{-4}\ (CFS/FT^2.\ -FT.\ HEAD)$$

Q = Stabilized flow rate = 0.0177778 CFS (8.0 GPM)

H_2 = Depth to water table = 8.00 FT.

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Test # 2

A. Location of test: Approx. center of proposed west parking area.

B. Soil profile:

Depth in feet:	Soil description:
0'-0" to 0'-8"	Dark gray sand.
0'-8" to 10'-0"	Gray sand.

C. Hydraulic conductivity:

$$K = \frac{4\,Q}{II\,(20.25\,H_2 - H_2^{\,2} - 9)} = 2.71454 \times 10^{-4}\ (CFS/FT^2.\ \text{-FT. HEAD})$$

Q = Stabilized flow rate = 0.0188889 CFS (8.50 GPM)

H_2 = Depth to water table = 8.00 FT.

The above tests were performed in substantial accordance with the DOT test method procedures as outlined in the attached Exhibit "A" with the modification of the depth of test to 15 feet.

Should you have any questions regarding the above, or if you require additional information, please contact this office.

Sincerely,
SOILPROBE ENGINEERING & TESTING, INC.

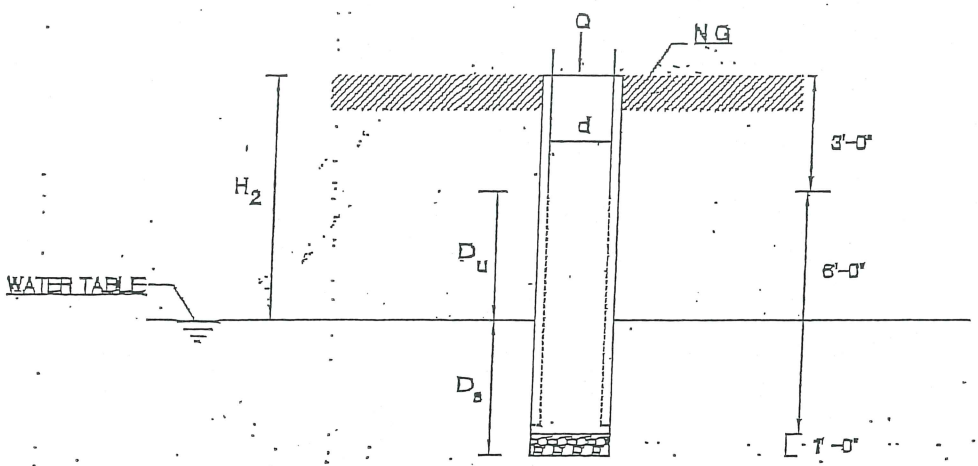
PAUL PEANA
LICENSE
No 37334
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Paul Peana, PE.
#37334

Enc. Exhibit "A"

EXHIBIT " A"

D.O.T. STANDARD TEST



FOR $H_2 > 3.0$ FEET

$$K = \frac{4Q}{\pi(2\ 0.25 H_2 - H_2^2 - 9)}$$

K = HYDRAULIC CONDUCTIVITY (CFS / FT.^{2} - FT. HEAD)
Q = " STABILIZED " FLOW RATE (CFS)
d = DIAMETER OF TEST HOLE (FEET)
D_u = UNSATURATED HOLE DEPTH (FEET)
D_s = SATURATED HOLE DEPTH (FEET)
H_2 = DEPTH TO WATER TABLE (FEET)

FOR $H_2 \leq 3.0$ FEET

$$K = \frac{Q}{11.92\ H_2}$$

EXHIBIT "A"

D.O.T. Standard Test

The Florida Department of Transportation utilizes a standard test for design of seepage trenches in conjunction with highway projects. The D.O.T. test procedure is as follows:

1. Auger a 7 inch diameter hole to a depth of 10 feet below normal ground surface.
2. Record distance from ground surface to water table prior to addition of test water.
3. Pour 1/8 cubic foot of ½ inch diameter gravel in hole to prevent scouring.
4. 4. Lower a 6 inch diameter perforated 10 gauge aluminum casing into hole. Casing to be 9 feet in length with perforations in the bottom 6 feet of the casing.
5. Fill hole with water and maintain water level at ground surface. Record rate of pumping in g.p.m. giving direct readings from water meter at fixed intervals. Use one minute intervals or greater, depending on the hydraulic conductivity of the soil. Continue recording rate of pumping for 10 minutes following the stabilization of the recorded pumping rate.

A schematic cross-section of the D.O.T. test hole is shown in Figure 4 with a formula which relates the hydraulic conductivity to the field data.