

Location: 6 Tennent Road  
Block 123, Lot 33  
Marlboro, New Jersey  
Date: July 1, 2020

**Soil log 1**

0"-8" Organic layer/Topsoil  
8" - 72" Loamy sand, strong brown (7.5YR 4/6), single grain, loose, moist  
72" - 114" Loamy sand, very pale brown (10YR 7/3), single grain, loose, moist with light grey (10YR 7/1) mottles at 78"

No ground water encountered  
Seasonal high water table encountered at 78"

**Soil log 2**

0"-8" Organic layer/Topsoil  
8" - 60" Loamy sand, strong brown (7.5YR 4/6), single grain, loose, moist  
60" - 120" Loamy sand, very pale brown (10YR 7/3), single grain, loose, moist with light grey (10YR 7/1) mottles at 84"

No ground water encountered  
Seasonal high water table encountered at 84"

**Soil log 3**

0"-12" Organic layer/Topsoil  
12" - 108" Loamy sand, yellowish brown (10YR 7/6), single grain, loose, moist with light grey (10YR 7/1) mottles at 78"

No ground water encountered  
Seasonal high water table encountered at 78"

**Soil log 4**

0"-18" Organic layer/Topsoil

12" - 114" Loamy sand, yellowish brown (10YR 7/6), single grain, loose, moist with light grey (10YR 7/1) mottles at 84"

No ground water encountered  
Seasonal high water table encountered at 84"

**Soil log 5**

0"-14" Organic layer/Topsoil

14" - 108" Loamy sand, yellowish brown (10YR 7/6), single grain, loose, moist with light grey (10YR 7/1) mottles at 80"

No ground water encountered  
Seasonal high water table encountered at 80"

**Soil log 6**

0"-14" Organic layer/Topsoil

14" - 108" Loamy sand, yellowish brown (10YR 7/6), single grain, loose, moist with light grey (10YR 7/1) mottles at 78"

No ground water encountered  
Seasonal high water table encountered at 78"



Cara L. Smith, P.E. Lic. 37929



Form 3b  
Tube Permeameter Test Data

Lot: 33 Block: 123 Soil log # 1

1. Test Number: 1 Replicate (letter): A+B Date collected: 7-1-20

2. Material Tested: Fill: \_\_\_\_\_ Tested in native soil:  Indicate Depth: 70"

3. Type of Sample: Undisturbed:  Disturbed: \_\_\_\_\_

4. Sample dimensions: Inside radius of sample tube, R, in cm 0.75" Length of sample, L, in inches 3"

5. Bulk density determination (disturbed samples only): N/A  
Sample weight (wt. tube containing sample-wt. of empty tube), grams \_\_\_\_\_  
Sample volume (L x 2.54cm./inch x 2.24<sup>2</sup>), cc \_\_\_\_\_  
Bulk density (sample Wt./Sample Volume), grams/cc \_\_\_\_\_

6. Standpipe used: No:  Yes: \_\_\_\_\_ Indicate internal radius, cm: \_\_\_\_\_

7. Height of water level above rim of test basin, in inches:  
At the beginning of each test interval, H1 3"  
At the end of each test interval, H2 2.00 + 2.125"

8. Rate of water level drop (add additional lines if needed):

Time, start of test interval, t1	Time, end of test, interval t2	Length of test interval, t, minutes
		<u>5 min</u>

Drop in Inches  
A 1.00"  
B 0.875"  
↓  
1.00"    0.875"

9. Calculation of permeability:  
 $K, (in/hr) = 60 \text{ min/hr} \times r^2/R^2 \times L(in)/t(min) \times \ln(H1/H2)$   
 $= 60 \text{ min/hr} \times \frac{0.75^2}{0.75^2} \times \frac{3}{5} \times \ln\left(\frac{3}{2.125}\right) = 12.41 \text{ in/hr}$   
 $(3 / 2.00) = 14.60 \text{ in/hr}$

10. Defects in the Sample (Check appropriate items):  
 None     Cracks     Worm Channels  
 Root Channels     Soil/Tube Contact  
 Large Gravel     Large Roots  
 Dry Soil     Smearing     Compaction  
Other (specify): \_\_\_\_\_

11. I hereby certify that the information furnished on Form 3b of this application (and the attachments thereto) is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator: \_\_\_\_\_ Date: 7-1-20  
Signature of Professional Engineer: \_\_\_\_\_ License #: 37989

County: \_\_\_\_\_ Municipality: \_\_\_\_\_



Form 3b  
Tube Permeameter Test Data

Lot: 33 Block: 123

1. Test Number: Soil by #2 Replicate (letter): A+B Date collected: 7-1-20
2. Material Tested: \_\_\_\_\_ Fill: \_\_\_\_\_ Tested in native soil:  Indicate Depth: 72"
3. Type of Sample: Undisturbed:  Disturbed: \_\_\_\_\_
4. Sample dimensions: Inside radius of sample tube, R, in cm 0.75" Length of sample, L, in inches 3"
5. Bulk density determination (disturbed samples only):  
 Sample weight (wt. tube containing sample-wt. of empty tube), grams \_\_\_\_\_  
 Sample volume ( $L \times 2.54\text{cm./inch} \times 2.24^2$ ), cc \_\_\_\_\_  
 Bulk density (sample Wt./Sample Volume), grams/cc \_\_\_\_\_
6. Standpipe used: No:  Yes: \_\_\_\_\_ Indicate internal radius, cm: \_\_\_\_\_
7. Height of water level above rim of test basin, in inches:  
 At the beginning of each test interval, H1 3"  
 At the end of each test interval, H2 2.00 + 1.875"
8. Rate of water level drop (add additional lines if needed):

Time, start of test interval, t1	Time, end of test interval t2	Length of test interval, t, minutes
		5 min
		↓

Drop in Inches

A	B
1.125"	1.00"
↓	↓
1.125"	1.00"

9. Calculation of permeability:  
 $K, (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/t(\text{min}) \times \ln(H1/H2)$   
 $= 60 \text{ min/hr} \times \frac{3}{3} / \frac{15}{15} \times \ln(\frac{3}{2.00}) = 14.60 \text{ in/hr}$   
 $= 60 \text{ min/hr} \times \frac{3}{3} / \frac{15}{15} \times \ln(\frac{3}{1.875}) = 16.92 \text{ in/hr}$

10. Defects in the Sample (Check appropriate items):
- None       Cracks       Worm Channels  
 Root Channels       Soil/Tube Contact  
 Large Gravel       Large Roots  
 Dry Soil       Smearing       Compaction  
 Other (specify): \_\_\_\_\_

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Signature of Soil Evaluator: \_\_\_\_\_ Date: 7-1-20  
Signature of Professional Engineer: \_\_\_\_\_ License #: 37929

County: \_\_\_\_\_ Municipality: \_\_\_\_\_



Form 3b  
Tube Permeameter Test Data

Lot: 3 Block: 123

- 1. Test Number: Soil log #3 Replicate (letter): A+B Date collected: 7-1-20
- 2. Material Tested: \_\_\_\_\_ Fill: \_\_\_\_\_ Tested in native soil:  Indicate Depth: 72"
- 3. Type of Sample: Undisturbed:  Disturbed: \_\_\_\_\_
- 4. Sample dimensions: Inside radius of sample tube, R, in cm 0.75" Length of sample, L, in inches 3
- 5. Bulk density determination (disturbed samples only):  
 Sample weight (wt. tube containing sample-wt. of empty tube), grams \_\_\_\_\_  
 Sample volume ( $L \times 2.54\text{cm./inch} \times 2.24^2$ ), cc \_\_\_\_\_  
 Bulk density (sample Wt./Sample Volume), grams/cc \_\_\_\_\_
- 6. Standpipe used: No:  Yes: \_\_\_\_\_ Indicate internal radius, cm: \_\_\_\_\_
- 7. Height of water level above rim of test basin, in inches:  
 At the beginning of each test interval, H1 3  
 At the end of each test interval, H2 1.75

8. Rate of water level drop (add additional lines if needed):

Time, start of test interval, t1	Time, end of test interval t2	Length of test interval, t, minutes
		<u>5 min</u>
		↓

Drop in Inches

<u>A</u>	<u>B</u>
1.25	1.25
↓	↓
1.25	1.25

9. Calculation of permeability:  
 $K, (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/t(\text{min}) \times \ln(H1/H2)$   
 $= 60 \text{ min/hr} \times \frac{\quad}{\quad} \times \frac{3}{5} \times \ln(3 / 1.75) = 19.40 \text{ in/hr}$

10. Defects in the Sample (Check appropriate items):
- None
  - Root Channels
  - Large Gravel
  - Dry Soil
  - Cracks
  - Soil/Tube Contact
  - Large Roots
  - Smearing
  - Worm Channels
  - Compaction
- Other (specify): \_\_\_\_\_

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Signature of Soil Evaluator: [Signature] Date: 7-1-20  
 Signature of Professional Engineer: [Signature] License #: 37929

County: \_\_\_\_\_ Municipality: \_\_\_\_\_

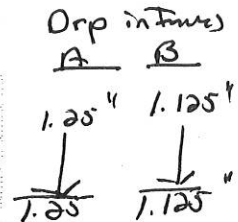


Form 3b  
Tube Permeameter Test Data

Lot: 33 Block: 123

- Test Number: soil log #4 Replicate (letter): A+B Date collected: 7-1-20
- Material Tested: \_\_\_\_\_ Fill: \_\_\_\_\_ Tested in native soil:  Indicate Depth: 72"
- Type of Sample: Undisturbed:  Disturbed: \_\_\_\_\_
- Sample dimensions: Inside radius of sample tube, R, in cm 0.75 Length of sample, L, in inches 3"
- Bulk density determination (disturbed samples only):  
 Sample weight (wt. tube containing sample-wt. of empty tube), grams \_\_\_\_\_  
 Sample volume ( $L \times 2.54\text{cm./inch} \times 2.24^2$ ), cc \_\_\_\_\_  
 Bulk density (sample Wt./Sample Volume), grams/cc \_\_\_\_\_
- Standpipe used: No:  Yes: \_\_\_\_\_ Indicate internal radius, cm: \_\_\_\_\_
- Height of water level above rim of test basin, in inches:  
 At the beginning of each test interval, H1 3"  
 At the end of each test interval, H2 1.75 + 1.875"
- Rate of water level drop (add additional lines if needed):

Time, start of test interval, t1	Time, end of test interval t2	Length of test interval, t, minutes



9. Calculation of permeability:  
 $K, (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/t(\text{min}) \times \ln(H1/H2)$   
 $= 60 \text{ min/hr} \times \frac{3}{5} / \frac{3}{5} \times \frac{3}{5} \times \ln(3/1.75) = 19.40 \text{ in/hr}$   
 $\frac{3}{5} \times \ln(3/1.875) = 16.92 \text{ in/hr}$

10. Defects in the Sample (Check appropriate items):
- None
  - Cracks
  - Worm Channels
  - Root Channels
  - Soil/Tube Contact
  - Large Gravel
  - Large Roots
  - Dry Soil
  - Smearing
  - Compaction
- Other (specify): \_\_\_\_\_

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Signature of Soil Evaluator: \_\_\_\_\_ Date: 7-1-20  
Signature of Professional Engineer: \_\_\_\_\_ License #: 37929

County: \_\_\_\_\_ Municipality: \_\_\_\_\_



Form 3b  
Tube Permeameter Test Data

Lot: 33 Block: 123

1. Test Number: Sail log #5 Replicate (letter): A+B Date collected: 7-1-20

2. Material Tested: \_\_\_\_\_ Fill: \_\_\_\_\_ Tested in native soil:  Indicate Depth: 72"

3. Type of Sample: Undisturbed:  Disturbed: \_\_\_\_\_

4. Sample dimensions: Inside radius of sample tube, R, in cm 6.75" Length of sample, L, in inches 3"

5. Bulk density determination (disturbed samples only): N/A  
Sample weight (wt. tube containing sample-wt. of empty tube), grams \_\_\_\_\_  
Sample volume ( $L \times 2.54 \text{ cm./inch} \times 2.24^2$ ), cc \_\_\_\_\_  
Bulk density (sample Wt./Sample Volume), grams/cc \_\_\_\_\_

6. Standpipe used: No:  Yes: \_\_\_\_\_ Indicate internal radius, cm: \_\_\_\_\_

7. Height of water level above rim of test basin, in inches:  
At the beginning of each test interval, H1 3"  
At the end of each test interval, H2 1.75" + 1.625

8. Rate of water level drop (add additional lines if needed):

Time, start of test interval, t1	Time, end of test interval t2	Length of test interval, t, minutes
		<u>5 min</u>
		<u>↓</u>

Drop in Inches  

<u>A</u>	<u>B</u>
<u>1.375</u>	<u>1.25</u>
<u>↓</u>	<u>↓</u>
<u>1.375</u>	<u>1.25</u>

9. Calculation of permeability:  
 $K, (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/t(\text{min}) \times \ln(H1/H2)$   
 $= 60 \text{ min/hr} \times \frac{3}{3} / \frac{15}{15} \times \ln(\frac{3}{1.625}) = 19.40 \text{ in/hr}$   
 $= 2207 \text{ in/hr}$

10. Defects in the Sample (Check appropriate items):  
 None      \_\_\_\_\_ Cracks      \_\_\_\_\_ Worm Channels  
\_\_\_\_\_ Root Channels      \_\_\_\_\_ Soil/Tube Contact  
\_\_\_\_\_ Large Gravel      \_\_\_\_\_ Large Roots  
\_\_\_\_\_ Dry Soil      \_\_\_\_\_ Smearing      \_\_\_\_\_ Compaction  
Other (specify): \_\_\_\_\_

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Signature of Soil Evaluator: \_\_\_\_\_ Date: 7-1-20  
Signature of Professional Engineer: \_\_\_\_\_ License #: 37929

County: \_\_\_\_\_ Municipality: \_\_\_\_\_



Form 3b  
Tube Permeameter Test Data

Lot: 33 Block: 123

- Test Number: Soillog #6 Replicate (letter): A+B Date collected: 7-1-20
- Material Tested: \_\_\_\_\_ Fill: \_\_\_\_\_ Tested in native soil:  Indicate Depth: 72"
- Type of Sample: Undisturbed:  Disturbed: \_\_\_\_\_
- Sample dimensions: Inside radius of sample tube, R, in cm: 0.75 Length of sample, L, in inches 3"
- Bulk density determination (disturbed samples only): w/A  
 Sample weight (wt. tube containing sample-wt. of empty tube), grams \_\_\_\_\_  
 Sample volume ( $L \times 2.54\text{cm./inch} \times 2.24^2$ ), cc \_\_\_\_\_  
 Bulk density (sample Wt./Sample Volume), grams/cc \_\_\_\_\_
- Standpipe used: No:  Yes: \_\_\_\_\_ Indicate internal radius, cm: \_\_\_\_\_
- Height of water level above rim of test basin, in inches:  
 At the beginning of each test interval, H1 3  
 At the end of each test interval, H2 2.0 + 2.0

8. Rate of water level drop (add additional lines if needed):

Time, start of test interval, t1	Time, end of test, interval t2	Length of test interval, t, minutes
		<u>5 min</u>
		<u>↓</u>

Drop in Inches

<u>A</u>	<u>B</u>
<u>1.0</u>	<u>1.0</u>
<u>↓</u>	<u>↓</u>
<u>1.0</u>	<u>1.0</u>

9. Calculation of permeability:

$$K, (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/t(\text{min}) \times \ln(H1/H2)$$

$$= 60 \text{ min/hr} \times \frac{\quad}{\quad} \times \frac{3}{5} \times \ln(3/2.0) = 14.60 \text{ in/hr}$$

10. Defects in the Sample (Check appropriate items):

- None      \_\_\_\_\_ Cracks      \_\_\_\_\_ Worm Channels  
 Root Channels      \_\_\_\_\_ Soil/Tube Contact  
 Large Gravel      \_\_\_\_\_ Large Roots  
 Dry Soil      \_\_\_\_\_ Smearing      \_\_\_\_\_ Compaction  
 Other (specify): \_\_\_\_\_

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Signature of Soil Evaluator: \_\_\_\_\_ Date: 7-1-20  
 Signature of Professional Engineer: \_\_\_\_\_ License #: 37909

County: \_\_\_\_\_ Municipality: \_\_\_\_\_