



JOHN D. HYNES & ASSOCIATES, INC.

*Geotechnical and Environmental Consultants
Monitoring Well Installation
Construction Inspection and Materials Testing*

September 22, 2021

Alan J. Hill
Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Re: Report of Subsurface Exploration and Geotechnical
Consulting Services
Bridgeville Town Center
Bridgeville, Delaware
Project No.: JDH-10/21/195

Dear Mr. Hill:


John D. Hynes & Associates, Inc. has completed the subsurface exploration and geotechnical consulting services for the stormwater management (SWM) improvements for the proposed Bridgeville Town Center project in Bridgeville, Delaware. Our services were performed, generally, in accordance with our proposals dated March 19 and July 6, 2021. This report was prepared to replace the Report of Subsurface Exploration and Geotechnical Consulting Services dated August 25, 2021. This report incorporates corrections and modifications that were made to the August 25 report.

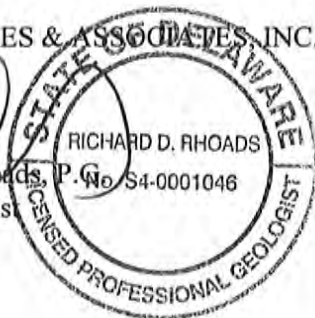
This report describes the exploration methods employed, exhibits the data obtained, and presents our evaluations and recommendations. In this report, we include subsurface soil and groundwater conditions at the test locations. We provide the estimated seasonal high groundwater levels, at boring locations and we include infiltration test data at test pit locations. We, also, include recommended design infiltration rates at the test pit locations.

We appreciate the opportunity to be of service to you. If you have any questions regarding the contents of this report or if we may be of further assistance, please contact our office.

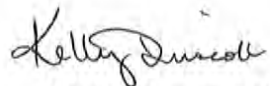
Respectfully,

JOHN D. HYNES & ASSOCIATES, INC.


Richard D. Rhoads, P.E.
Project Geologist



RDR: JDH/kd


for: John D. Hynes, P.E.
President



**REPORT OF
SUBSURFACE EXPLORATION
AND
GEOTECHNICAL CONSULTING SERVICES**

**BRDIGEVILLE TOWN CENTER
BRIDGEVILLE, DELAWARE**

**PREPARED FOR
HILLCREST ASSOCIATES**

**SEPTEMBER 22, 2021
PROJECT NO.: JDH-10/21/195**



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PURPOSE AND SCOPE

The subsurface exploration study was performed to evaluate the subsurface conditions with respect to the following:

1. Potential stormwater management areas;
2. Location of groundwater and estimated seasonal high groundwater at the potential stormwater management locations;
3. Infiltration test data at selected boring locations and depths; and
4. The recommended design infiltration rate at the test locations.

The boring logs present the estimated (visual) soil classifications in accordance with the USCS and USDA soil classification systems. Refer to the boring log sheets in the Appendix for the subsurface conditions at each boring location.

EXISTING SITE CONDITIONS

As shown on the Project Location Map (Drawing JDH-10/21/195-A) in the Appendix, the project site is located between Sussex Highway and Seashore Highway, on the south side of Bridgeville Center Road, in Bridgeville, Delaware. At the time of our exploration, the site was undeveloped agricultural land. The site is located in a primarily commercial and agricultural area. Topographically, the site slopes gently to the east. The closest surface water feature is Ake Ditch, which is located approximately 400 feet to the northeast of the project area.

PROJECT CHARACTERISTICS

The proposed project includes the construction of a proposed multi-building commercial complex and associated parking areas. The project, also, includes stormwater management (SWM) facilities. We include exploration results in support of the proposed SWM facilities.

FIELD EXPLORATION AND STUDY

In order to determine the nature of the subsurface conditions at the stormwater management structure locations, 17 test borings were drilled at the site on April 8, 2021 at the approximate locations shown on our Boring Location Plan (Drawing No. JDH-10/21/195-B) in the Appendix. The borings were designated B-1 through B-17. The test borings were drilled to depths of 5 to 7 feet below the ground surface. The test borings were drilled with a hand auger. In addition, 40 soil borings, were drilled at each of the infiltration test locations. The full list of borings is included in Table 1. The borings, which ranged in depth from 1 to 4 feet, were drilled between July 6 and July 13, 2021.

Soil sampling and testing were carried out in accordance with established guidelines for the test borings. A brief description of our field procedures is included in the Appendix. The results of all boring and sampling operations are shown on the boring logs.

Samples of the subsurface soils were examined by our engineering staff and were visually classified in accordance with the Unified Soil Classification System (USCS) and in accordance with the United States Department of Agriculture (USDA) classification system. The estimated USCS symbols and USDA descriptions appear on the boring logs and keys to the systems' nomenclature are provided in the Appendix of this report. Also included are reference sheets which define the terms and symbols used on the boring logs. The Munsell soil color code description is, also, provided for each stratum.



We note that the test boring records represent our interpretation of the field data based on visual examination and selected soil classification tests. Indicated interfaces between materials may be gradual.

The field exploration data was supplemented with laboratory testing data. The laboratory at John D. Hynes & Associates, Inc. performed 5 Sieve Analysis tests. The test results are noted on the boring logs in the Appendix.

SUBSURFACE CONDITIONS

At the time of our field exploration, approximately 6 to 24 inches of organic bearing soil were encountered at the ground surface at the test boring locations. Varying thicknesses of organic bearing soil or other surficial materials and material thicknesses may be encountered at other locations on site.

Subsurface soils, visually classified in accordance with the USCS, consisted of interbedded layers of SAND (SP) Silty SAND (SM), Clayey SAND (SC), SAND with silt and clay (SM-SC) Clayey SILT (ML), and Silty Clay (CL) to the boring termination depths. The test samples were, also, classified in accordance with the USDA classification system. The USDA classifications were Sand, Loamy sand, Sandy Loam, Clay Loam, Sandy Clay Loam, and Silty Clay Loam. Refer to the test boring logs in the Appendix for the USDA classification for each strata encountered.

The site is located in the Atlantic Coastal Plain Physiographic Region. The Atlantic Coastal Plain is characterized by interbedded layers of unconsolidated sands, silts, clays and gravels. Based on information provided on the Delaware Geologic Society (DGS) Web Data Viewer, the site is mapped as the Beaverdam Formation. The Beaverdam Formation is described as a "Heterogeneous unit ranging from very coarse sand with pebbles to silty clay. The predominant lithologies at the land surface are white to mottled light-gray and reddish-brown, silty to clayey, fine to coarse sand with rare mica. Laminae and beds of very coarse sand with pebbles are common. Laminae and beds of bluish-gray to light-gray silty clay are also common."

Based on information available on the NRCS Web Soil Survey website, the site is located in an area that is mapped with four soil types. These include Hambrook sandy loam, 0 to 2 percent slopes (HbA), Ingleside-Hammonton-Fallingston complex, 0 to 5 percent slopes (ImB), Woodstown sandy loam, 0 to 2 percent slopes (WddA) and Ingleside sandy loam, 0 to 2 percent slopes (IgA). The typical profile for HbA is described as sandy loam from 0 to 10 inches, loam from 10 to 14 inches, sandy clay loam from 14 to 28 inches, loamy sand from 48 to 65 inches, and silt loam from 65 to 80 inches. Groundwater is typically found at depths of more than 80 inches. The typical profile for ImB is described sandy loam from 0 to 43 inches, loamy sand from 43 to 56 inches, and silt loam from 56 to 80 inches. Groundwater is typically found at depths of more than 80 inches. The typical profile for WddA is described as sandy loam from 0 to 29 inches, fine sandy loam from 29 to 45 inches, and loamy sand from 45 to 80 inches. Groundwater is typically found at depths of more than 80 inches. The typical profile for IgA is described as sandy loam from 0 to 43 inches, loamy sand from 43 to 56 inches, and silt loam from 56 to 80 inches. Groundwater is typically found at depths of more than 80 inches.

Groundwater was encountered between depths of 3 to 6.5 feet at the "B" boring locations. Water level data from nearby DGS Well ID Pe54-51 is included in the Appendix for reference. The DGS well is 20.0 feet deep and penetrates the Columbia Aquifer. In consideration of this information, based on subsurface conditions encountered at the time of drilling, and based on information provided by Sussex Conservation District (SCD), the seasonal high water table was estimated to be similar to conditions that were encountered at the time of drilling.



Groundwater depths ranged from 3 to 6.5 feet below the ground surface at the boring locations. The 17 borings were drilled at the locations at various locations at the proposed Town Center. The boring number, ground surface Elevation, depth to groundwater, and estimated Seasonal High Water Table (SHWT) Elevation at each boring location is summarized in the table below.

Table: Summary of Groundwater Information

Boring	Surface Elevation (ft.)	Depth to Groundwater (ft.)	Estimated SHWT Elevation (ft.)
B-1	41.5	4.0	37.5
B-2	40.5	6.0	35.5
B-3	40.0	6.5	34.0
B-4	40.0	6.5	34.0
B-5	39.0	3.0	36.0
B-6	38.0	6.5	34.0
B-7	38.0	4.0	34.0
B-8	39.0	4.0	35.0
B-9	40.0	4.0	36.0
B-10	42.0	5.0	37.0
B-11	42.0	5.5	37.0
B-12	44.0	5.0	39.0
B-13*	43.5	6.5	37.5
B-14*	41.5	6.5	35.5
B-15*	42.5	6.5	36.5
B-16*	42.5	6.5	36.5
B-17*	39.5	6.5	33.5

Note: *Restrictive soils were noted between 0 to 4 feet below the ground surface.

We note that redoximorphic features can indicate seasonal high groundwater, "perched water", or a restrictive soil layer. Redoximorphic features were noted at boring locations B-3, B-6, B-7, B-8, and B-13. The presence of restrictive soils at locations B-13 to B-17 may cause perched water conditions after precipitation events. Based on our observations of the subsurface conditions at the site and in consideration of groundwater level data from DGS Well ID Pe54-51, we estimate that seasonal high groundwater is similar to the conditions encountered during our exploration as noted in the Table. We note that seasonal high groundwater may vary across the site.

INFILTRATION TESTING

Infiltration tests were performed at 40 boring locations. The list of boring designations are summarized in Table 1. The infiltration tests were performed at depths ranging from 1.0 to 4.1 feet below the ground surface. The testing was completed at the approximate depths that were specified by Hillcrest Associates. Standard falling head infiltration tests were completed at each location. In accordance with our discussions with the Sussex Conservation District



(SCD), 4-inch diameter cased borehole falling head tests were completed. The testing was completed in general accordance with DNREC guidelines (ASTM-D5126). The test locations, surface elevation, infiltration test depth, and measured infiltration rates are summarized in the table below. The SWM Facility Number was provided by Hillcrest Associates.

Table 1: Summary of Infiltration Test Results

Test Location	SWM Facility Number	Surface Elevation (ft.)	Infiltration Test Depth (ft.)	Infiltration Test Elevation (ft.)	K_m (in./hr.) (Infiltration Rate)
TP-1A	1	41.0	2.1	38.9	3.1
TP-1B	1	42.0	2.9	39.1	8.8
TP-1C	1	42.0	3.1	38.9	9.0
TP-2A	2	42.0	3.9	38.1	5.6
TP-2B	2	41.5	3.6	37.9	0.9
TP-2C	2	41.5	3.6	37.9	2.6
TP-2D	2	42.0	4.0	38.0	3.7
TP-3A	3	41.5	3.5	38.0	5.4
TP-3B	3	41.5	3.5	38.0	0
TP-3C	3	41.5	3.6	37.9	9.0
TP-3D	3	41.5	3.4	38.1	1.4
TP-4A	4	43.0	4.0	39.0	4.0
TP-4B	5	43.0	4.0	39.0	4.8
TP-5	6	42.5	3.9	38.6	5.4
TP-6A	6A	43.5	2.5	41.0	4.0
TP-6B	6A	43.5	2.5	41.0	1.5
TP-6C	6B	42.0	3.0	39.0	0
TP-6D	6B	42.0	2.8	39.2	2.0
TP-7A	7	40.0	4.1	35.9	3.0
TP-7B	7	40.0	4.0	36.0	2.8
TP-7C	7	40.0	4.0	36.0	4.0
TP-9A	9	42.5	3.6	38.9	9.0
TP-9B	9	43.0	4.0	39.0	5.9
TP-9C	9	43.0	4.0	39.0	5.9
TP-9D	9	42.5	3.5	39.0	4.3
TP-9E	9	42.5	3.5	39.0	3.3
TP-10A	10	39.5	4.0	35.5	1.8
TP-10B	10	39.3	3.9	35.4	1.0
TP-10C	10	38.5	3.0	35.5	5.5
TP-11A	11	37.5	1.0	36.5	1.8



Test Location	SWM Facility Number	Surface Elevation (ft.)	Infiltration Test Depth (ft.)	Infiltration Test Elevation (ft.)	K _m (in./hr.) (Infiltration Rate)
TP-11B	11	37.0	1.0	36.0	0.4
TP-12A	12	42.5	3.5	39.0	5.0
TP-12B	12	42.0	3.0	39.0	4.9
TP-12C	12	41.0	2.0	39.0	2.9
TP-12D	12	40.9	1.8	39.1	4.4
TP-13A	13	40.5	3.5	37.0	9.9
TP-13B	13	40.0	3.1	36.1	9.4
TP-13C	13	39.0	2.1	36.9	2.3
TP-14A	14	39.0	2.0	37.0	4.8
TP-14B	14	39.0	1.9	37.1	1.3

Note: No test locations were designated TP-8

Refer to the "Infiltration Data Table" and "Single Ring Infiltration" test procedures in the Appendix for additional information regarding the infiltration tests. Elevations were depicted on plans provided by Hillcrest Associates.

RECOMMENDATIONS

Based on the location of the proposed SWM structures, subsurface conditions at each of the 14 SWM Facility locations were utilized in our design evaluation. In consideration of the measured infiltration rates, we recommend design infiltration rates as presented in Table 2. The recommended rate at each facility was calculated based on the geometric mean of the infiltration rates that were measured in each facility. The DNREC required safety factor of 2.5 for 4 inch diameter casing was applied to the recommended infiltration rate for falling head tests.

Table 2: Recommended Design Infiltration Rates

SWM Facility Number	Recommended Infiltration Rate (in./hr.)	Elevation At Which Recommended Rate is Applicable (ft.)
1	2.5	39.0
2	1.0	38.0
3	0.6	38.0
4	1.7	39.0
5	2.1	38.6
6A	1.0	41.0
6B	0.2	39.1
7	1.3	36.0
9	2.2	39.0
10	0.8	35.5
11	0.3	36.2
12	1.7	39.0



SWM Facility Number	Recommended Infiltration Rate (in./hr.)	Elevation At Which Recommended Rate is Applicable (ft.)
13	2.4	36.7
14	1.0	37.0

We note that at Facility 6 and 12 the allowable design infiltration rate is equal to or greater than 1.0 inch per hour. However, based on the presence of restrictive soils at the test Elevation at individual test locations 6A, 6B and 12B, use of infiltration practices at these locations is not recommended. Based on observed soil conditions at the test locations, it is our opinion that the recommended design rates are valid as summarized in Table 2. We note that soil conditions and infiltration rates may vary between the test locations, and may, also, vary with depth.

REMARKS

This report has been prepared solely and exclusively for Hillcrest Associates to provide preliminary soil and groundwater data for the proposed Bridgeville Town Center project in Bridgeville, Delaware. It has not been developed to meet the needs of others, and application of this report for other than its intended purpose could result in substantial difficulties. The Consulting Engineer cannot be held accountable for any problems which occur due to the application of this report to other than its intended purpose. This report in its entirety should be attached to the project specifications.

These analyses and recommendations are, of necessity, based on the concepts made available to us at the time of the writing of this report, and on-site conditions, surface and subsurface that existed at the time the exploratory borings were drilled. Further assumption has been made that the limited exploratory borings, in relation both to the areal extent of the site and to depth, are representative of conditions across the site. It is, also, recommended that we be given the opportunity to review all plans for the project in order to comment on the interaction of soil conditions as described herein and the design requirements.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted engineering principles and practices.



APPENDIX

1. Investigative Procedures
2. Project Location Map
3. Boring Location Plan
4. Boring Logs
5. Infiltration Test Data
6. Infiltration Test Procedures
7. DGS Well ID Pe54-51 Data
8. Unified Soil Classification Sheet
9. USDA Soil Classification System Sheet
10. Field Classification Sheet
11. Important Information Sheet



INVESTIGATIVE PROCEDURES

SOIL TEST BORINGS

Soil drilling and sampling operations were performed in accordance with ASTM Specification D-1586. The borings were advanced by mechanically turning continuous hollow stem auger flights into the ground. At regular intervals, samples were obtained with a standard 1.4 inch I.D., 2.0 inch O.D. splitspoon sampler. The sampler was first seated 6 inches to penetrate any loose cuttings and then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot is the "Standard Penetration Resistance". The penetration resistance, when properly evaluated, is an index to the soil's strength, density and behavior under applied loads. The soil descriptions and penetration resistances for each boring are presented on the Test Boring Records in the Appendix.

SOIL CLASSIFICATION

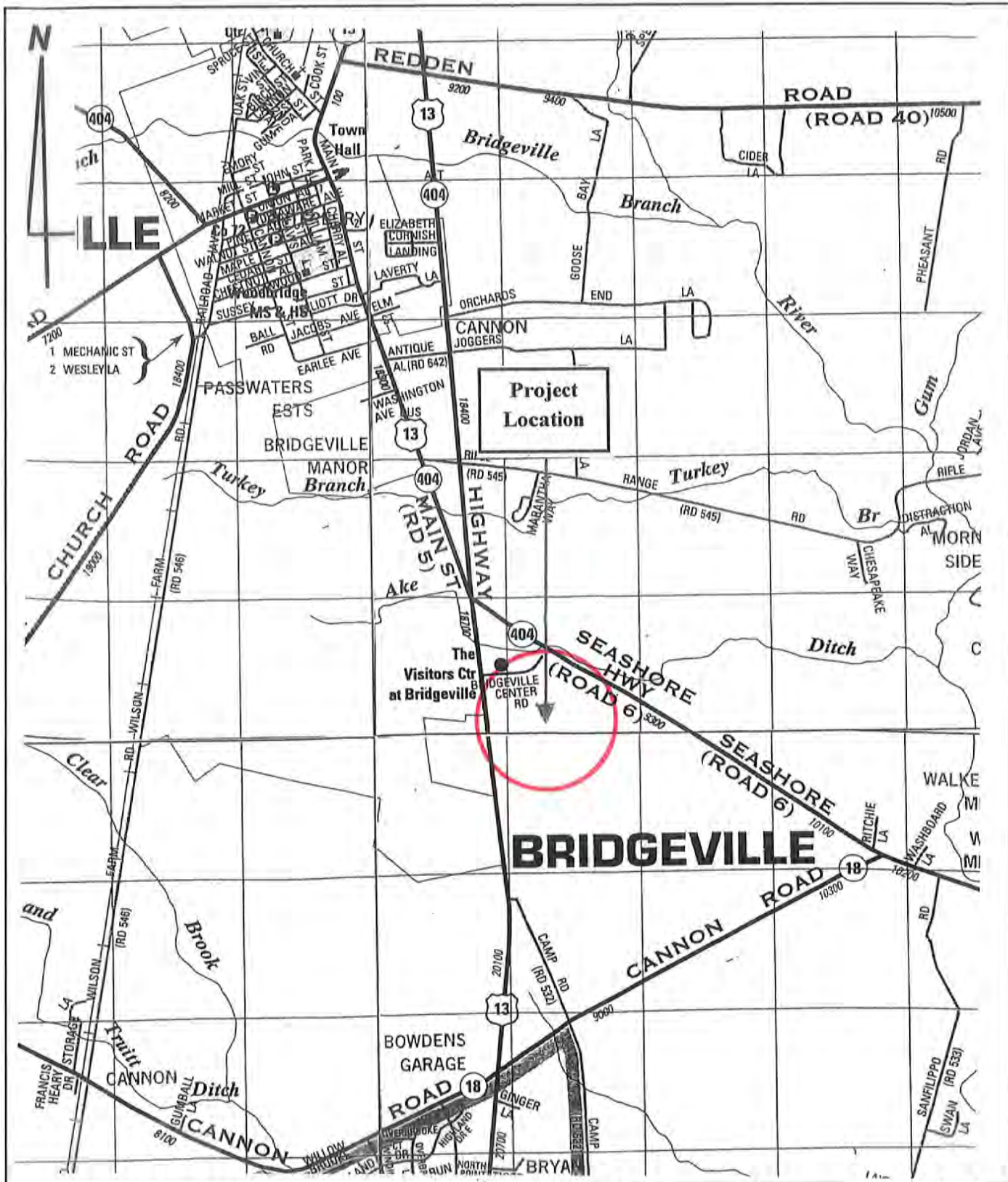
Soil classifications provide a general guide to the engineering properties of various soil types and enable the engineer to apply his past experience to current problems. In our investigation, jar samples obtained during drilling operations are examined in our laboratory and visually classified by the geotechnical engineer in accordance with ASTM Specification D-2488. The soils are classified according to the Unified Classification System (ASTM D-2487). Each of these classification systems and the in-place physical soil properties provides an index for estimating the soil's behavior.

SIEVE ANALYSIS

Gradational analysis tests were performed to determine the particle size and distribution of the samples tested. The grain size distribution of soils coarser than a No. 200 sieve is determined by passing the sample through a standard set of nested sieves. The percentage of materials passing the No. 200 sieve is determined by washing the material over a No. 200 sieve. These tests are in accordance with ASTM D-421, D-422 and D-1140. The results are presented in the Appendix to our report.

ATTERBERG LIMITS TEST

Portions from representative soil samples obtained during drilling operations were selected for Atterberg Limits tests. The Atterberg Limits are indicative of the soil's plasticity characteristics. The liquid limit is the moisture content at which the soil will flow as a heavy viscous fluid and is determined in accordance with ASTM Specification D-4318. The plastic limit is the moisture content at which the soil begins to lose its plasticity and is determined in accordance with ASTM Specification D-4318.

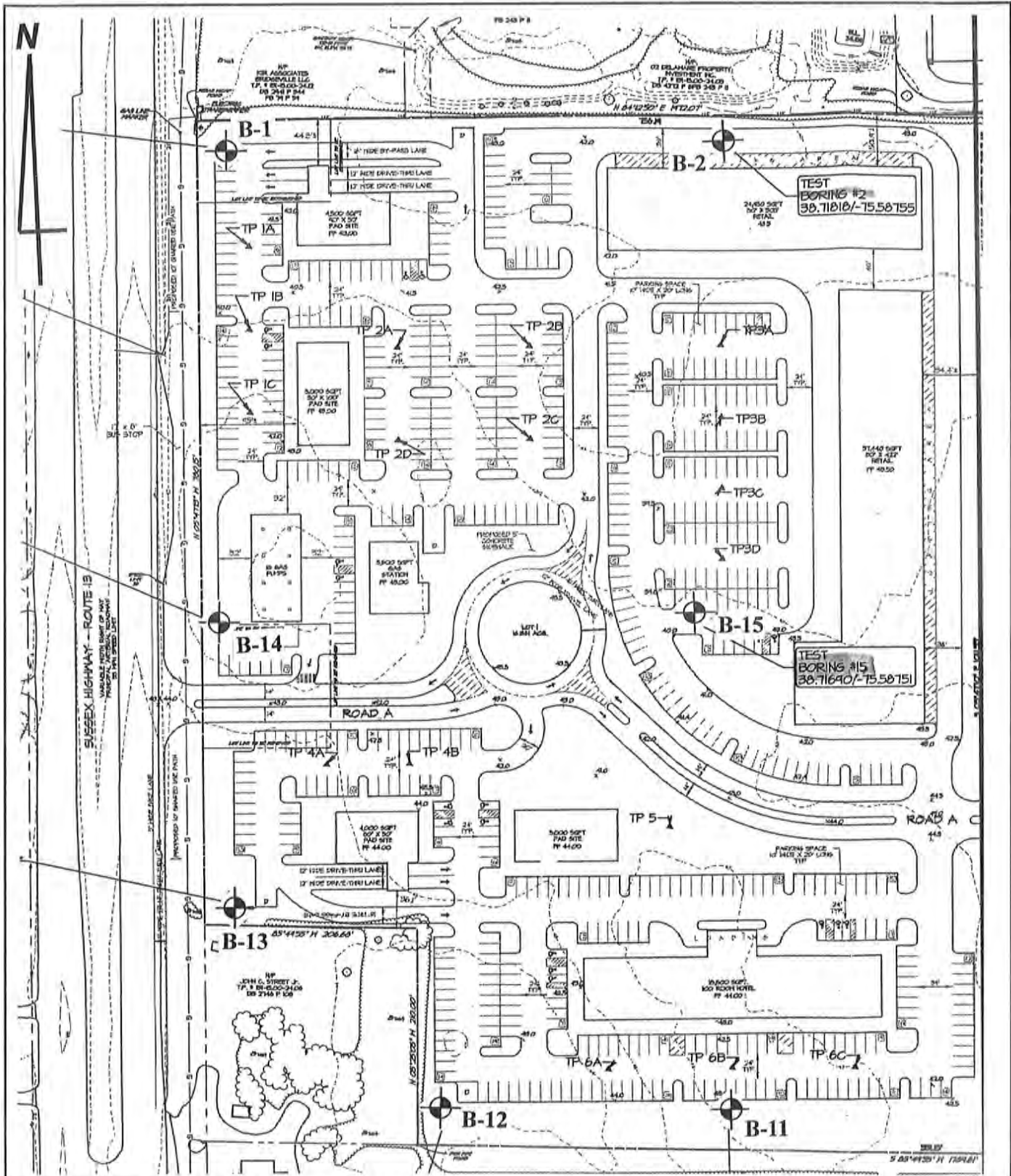


HYNES JOHN D. HYNES & ASSOCIATES, INC.
 32185 Beaver Run Drive • Salisbury, Maryland 21804
 410-546-6462 / Fax: 410-548-5346

Date: April 13, 2021
 Scale: 1 in. = 2,000 ft.
 Drawn: ADC Map

Project Location Map
 Bridgeville Town Center
 Bridgeville, Delaware

DWG. No.
 JDH-10/21/195-A



JOHN D. HYNES & ASSOCIATES, INC.

32185 Beaver Run Drive • Salisbury, Maryland 21804
410-546-6462 / Fax: 410-548-5346

Date: April 13, 2021

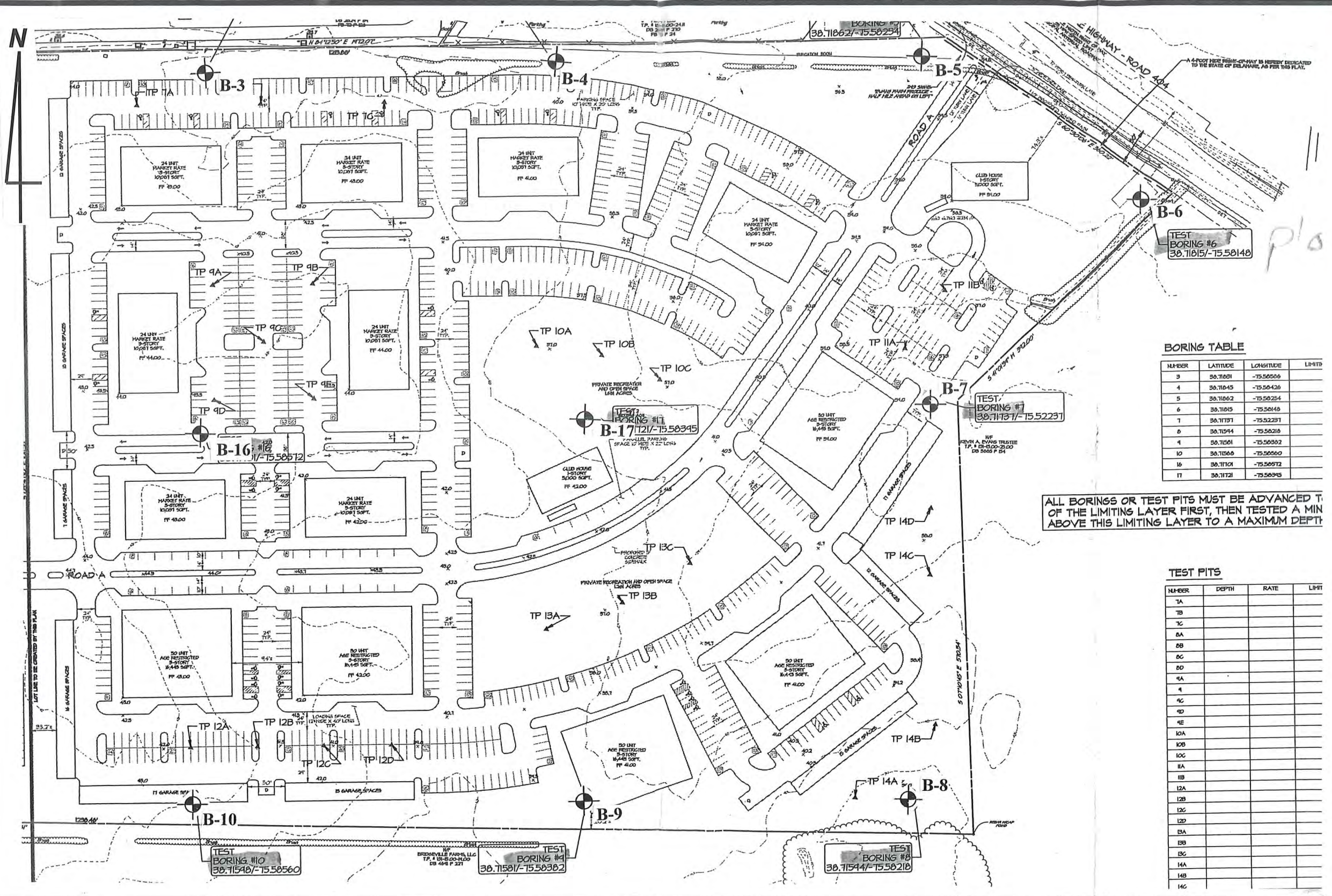
Scale: 1 in. = 60 ft.

Drawn: Hillcrest

DWG. No.

JDH-10/21/195-B

Boring Location Map
Bridgeville Town Center
Bridgeville, Delaware



BORING TABLE

NUMBER	LATITUDE	LONGITUDE	DEPTH
3	30.71001	-75.50506	
4	30.71045	-75.50426	
5	30.71002	-75.50254	
6	30.71015	-75.50148	
7	30.71151	-75.52231	
8	30.71544	-75.50210	
9	30.71501	-75.50302	
10	30.71560	-75.50560	
16	30.71101	-75.50972	
17	30.71121	-75.50945	

ALL BORINGS OR TEST PITS MUST BE ADVANCED TO THE LIMITING LAYER FIRST, THEN TESTED A MIN ABOVE THIS LIMITING LAYER TO A MAXIMUM DEPTH.

TEST PITS

NUMBER	DEPTH	RATE	DEPTH
1A			
1B			
1C			
1A			
1B			
1C			
1D			
1A			
1B			
1C			
1D			
1A			
1B			
1C			
1D			
1A			
1B			
1C			
1D			



JOHN D. HYNES & ASSOCIATES, INC.
 32185 Beaver Run Drive • Salisbury, Maryland 21804
 410-546-6462 / Fax: 410-548-5346

Boring Location Map
 Bridgeville Town Center
 Bridgeville, Delaware

Date: April 7, 2021
 Scale: 1 in. = 60 ft.
 Drawn: Hillcrest
 DWG. No. JDH-10/21/195-C



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LOG OF BORING B-1

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 6 feet

Depth in Feet	Surf. Elev. 41.5	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	41.5	Brownish yellow, wet, fine to medium SAND, with some silt, trace clay (10 YR 6/6, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 4 feet during augering operations.
1	40.5				2	
2	39.5	Brownish yellow, wet, fine to medium SAND, with some to little silt, trace clay (10 YR 6/6, Sandy loam)		SM	3	
3	38.5				4	
4	37.5				5	
5	36.5				6	
6	35.5	Boring terminated at 6 feet.				
7	34.5					
8	33.5					
9	32.5					
10						



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LOG OF BORING B-2

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center
Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 6 feet

Depth in Feet	Surf. Elev. 40.5	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	40.5	Brownish yellow, wet, fine to medium SAND, with some silt, trace clay (10 YR 6/6, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 6 feet during augering operations. At completion, water was at 6 feet.
1	39.5				2	
2	38.5				3	
3	37.5	Light yellowish brown, wet, fine to medium SAND, with some silt, trace clay (10 YR 7/6, Sandy loam)	SM	4		
4	36.5	Brownish yellow, wet, fine to medium SAND, with some silt, trace clay (10 YR 6/6, Sandy loam)		SM	5	
5	35.5				6	
6	34.5	Boring terminated at 6 feet.				
7	33.5					
8	32.5					
9	31.5					
10						



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LOG OF BORING B-3

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 7 feet

Depth in Feet	Surf. Elev. 40.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	40	Brownish yellow, wet, fine to medium SAND, with some silt, trace clay (10 YR 6/6, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 24 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 6.5 feet during augering operations.
1	39				2	
2	38				3	
3	37				4	
4	36	Light yellowish brown, wet, fine to medium SAND, with some to little silt (10 YR 6/8, Sandy loam)		SM	5	
5	35				6	
6	34	Light yellowish brown, saturated, fine to medium SAND, with some silt, trace clay (10 YR 6/8, Sandy loam, mottling)		SM	7	
7	33				Boring terminated at 7 feet.	
8	32					
9	31					
10						



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LOG OF BORING B-4

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 7 feet

Depth in Feet	Surf. Elev. 40.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 40		Brownish yellow, wet, fine to medium SAND, with some silt, trace clay (10 YR 6/6, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 6.5 feet during augering operations.
1 - 39	2					
2 - 38	3					
3 - 37	4					
4 - 36	5	SP				
5 - 35	6	SM				
6 - 34	7					
7 - 33		Boring terminated at 7 feet.				
8 - 32						
9 - 31						
10						



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LOG OF BORING B-5

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 5 feet

Depth in Feet	Surf. Elev. 39.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 39		Light yellowish brown, wet, fine to medium SAND, with little silt, trace clay (10 YR 6/6, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 3 feet during augering operations.
1 - 38	2					
2 - 37	3					
3 - 36		Pale brown, wet, fine to medium SAND, with some silt, trace clay (10 YR 6/3, Sandy loam)		SM	4	
4 - 35	5					
5 - 34		Boring terminated at 5 feet.				
6 - 33						
7 - 32						
8 - 31						
9 - 30						
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING B-6

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center
Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 7 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	38	Light brownish gray, wet, fine to medium SAND, with some silt, trace clay (10 YR 6/2, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 6.5 feet during augering operations.
1	37				2	
2	36				3	
3	35	Light gray wet, fine to medium SAND, with some silt, trace clay (10 YR 6/2, Sandy loam, mottling)	SM	4		
4	34	Light gray-brown, wet, fine to medium SAND, with some silt, little clay (10 YR 6/2, Sandy loam)		SM	5	
5	33				6	
6	32				7	
7	31	Boring terminated at 7 feet.				
8	30					
9	29					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING B-7

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 6 feet

Depth in Feet	Surf. Elev. 38.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 38		Light yellowish brown, wet, fine to medium SAND, with some silt, little to trace clay (10 YR 6/4, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 4 feet during augering operations.
1 - 37					2	
2 - 36		Light yellowish brown, wet, fine to medium SAND, with little silt, trace clay (10 YR 6/4, Loamy sand)		SM	3	
3 - 35					4	
4 - 34		Light yellowish brown, wet to saturated, fine to medium SAND, with little silt (10 YR 6/4, Sandy loam, mottled)		SM	5	
5 - 33					6	
6 - 32		Boring terminated at 6 feet.				
7 - 31						
8 - 30						
9 - 29						
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING B-8

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 6 feet

Depth in Feet	Surf. Elev. 39.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	39	Light yellowish brown, wet, fine to medium SAND, with some silt, little clay (10 YR 6/4, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 4 feet during augering operations.
1	38				2	
2	37				3	
3	36	Light yellowish brown, wet, fine to medium SAND, with little silt, trace clay (10 YR 6/4, Loamy sand)		SM	4	
4	35				5	
5	34	Light yellowish brown, saturated, fine to medium SAND, with little silt, trace clay (10 YR 6/4, Sandy loam, mottled)		SM	6	
6	33	Boring terminated at 6 feet.				
7	32					
8	31					
9	30					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING B-9

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 6 feet

Depth in Feet	Surf. Elev. 40.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 40		Pale brown, wet, fine to medium SAND, with some silt, little clay (10 YR 6/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 4 feet during augering operations.
1 - 39	2					
2 - 38		Yellowish brown, wet to saturated, fine to medium SAND, with some silt, trace clay (10 YR 6/6, Sandy loam)		SM	3	
3 - 37	4					
4 - 36	5					
5 - 35	6					
6 - 34		Boring terminated at 6 feet.				
7 - 33						
8 - 32						
9 - 31						
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING B-10

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 6 feet

Depth in Feet	Surf. Elev. 42.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	42	Light brown, wet, fine to medium SAND, with some silt, little clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 5 feet during augering operations.
1	41				2	
2	40	Light to dark brown, wet to saturated, fine to medium SAND, with little silt, trace clay (10 YR 6/6, Loamy sand)		SM	3	
3	39				4	
4	38				5	
5	37				6	
6	36	Boring terminated at 6 feet.				
7	35					
8	34					
9	33					
10						



**HYNES
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ASSOCIATES**

LOG OF BORING B-11

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center
Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 7 feet

Depth in Feet	Surf. Elev. 42.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	42	Yellowish brown, wet, fine to medium SAND, with some silt, trace to little clay (10 YR 6/6, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 5.5 feet during augering operations.
1	41				2	
2	40	Brown to light brown, wet to saturated, fine to medium SAND, with little silt, trace clay (10 YR 5/3, Loamy sand)		SM	3	
3	39				4	
4	38				5	
5	37				6	
6	36				7	
7	35	Boring terminated at 7 feet.				
8	34					
9	33					
10						



**HYNES
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ASSOCIATES**

LOG OF BORING B-12

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 7 feet

Depth in Feet	Surf. Elev. 44.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	44	Light brown to yellowish brown, wet, fine to medium SAND, with some silt, little clay (10 YR 6/6, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 5 feet during augering operations.
1	43				2	
2	42	Yellowish brown, wet to saturated, fine to medium SAND, with little silt, trace clay (10 YR 6/6, Loamy sand)		SM	3	
3	41				4	
4	40				5	
5	39				6	
6	38				7	
7	37	Boring terminated at 7 feet.				
8	36					
9	35					
10						



**HYNES
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ASSOCIATES**

LOG OF BORING B-13

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 7 feet

Depth in Feet	Surf. Elev. 43.5	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	43.5	Light brown to yellowish brown, wet, fine to medium SAND, with trace to little clay, trace to little silt (10 YR 6/6, Sandy clay loam)		SM	1	Scale 1" ~ 1.5 feet
1	42.5				2	Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 6.5 feet during augering operations.
2	41.5	Light brown-yellowish brown, wet, fine to medium SAND, with trace to little clay, trace to little silt (10 YR 6/6, Sandy loam, mottling at 3 to 4 feet)		SC-SM	3	Laboratory Test Results Sample No. 4 From 3 to 4 feet
3	40.5				4	Sieve Analysis Sieve Size Passing % 3/8" 100 No. 4 99.5 No. 10 96.2 No. 20 89.8 No. 40 65.3 No. 60 43.2 No. 100 27.2 No. 200 16.1
4	39.5				5	
5	38.5	Light yellowish brown, wet, fine to medium SAND, with trace to little silt (10 YR 6/6, Loamy sand)		SM	6	Natural Moisture = 18.8%
6	37.5				7	
7	36.5	Boring terminated at 7 feet.				
8	35.5					
9	34.5					
10						



**HYNES
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LOG OF BORING B-14

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center
Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 7 feet

Depth in Feet	Surf. Elev. 41.5	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS													
0	41.5	Light brown to brown, wet, fine to medium SAND, with little clay, trace to little silt (10 YR 5/3, Sandy clay)		SC	1	Scale 1" ~ 1.5 feet													
1	40.5				2	Approximately 12 inches of organic bearing soil was encountered at the ground surface.													
2	39.5	Light brown, wet, fine to medium SAND, with little clay, trace to little silt (10 YR 7/4, Sandy clay)		SC	3	Groundwater was encountered at 6.5 feet during augering operations. Laboratory Test Results													
3	38.5	Brown-dark yellowish brown, wet, fine to medium SAND, with trace to little silt, trace to little clay (10 YR 5/6, Loamy sand)		SM-SC	4	Sieve Analysis													
4	37.5				5	<table border="1"> <thead> <tr> <th>Sieve Size</th> <th>Passing %</th> </tr> </thead> <tbody> <tr><td>No. 4</td><td>100</td></tr> <tr><td>No. 10</td><td>96.7</td></tr> <tr><td>No. 20</td><td>87.2</td></tr> <tr><td>No. 40</td><td>60.5</td></tr> <tr><td>No. 60</td><td>40.1</td></tr> <tr><td>No. 100</td><td>26.7</td></tr> <tr><td>No. 200</td><td>18.2</td></tr> </tbody> </table>	Sieve Size	Passing %	No. 4	100	No. 10	96.7	No. 20	87.2	No. 40	60.5	No. 60	40.1	No. 100
Sieve Size	Passing %																		
No. 4	100																		
No. 10	96.7																		
No. 20	87.2																		
No. 40	60.5																		
No. 60	40.1																		
No. 100	26.7																		
No. 200	18.2																		
5	36.5	Light yellowish brown, wet, fine to medium SAND, with trace to little silt, trace clay (10 YR 6/4, Loamy sand)		SM	6	Natural Moisture = 16.1%													
6	35.5				7														
7	34.5	Boring terminated at 7 feet.																	
8	33.5																		
9	32.5																		
10																			



**HYNES
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LOG OF BORING B-15

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 7 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS																		
0	42.5	Light brown to brown, wet, fine to medium SAND, with little clay, trace silt (10 YR 5/3, Sandy clay)		SC	1	Scale 1" ~ 1.5 feet																		
1	41.5				2	Approximately 12 inches of organic bearing soil was encountered at the ground surface.																		
2	40.5				3	Groundwater was encountered at 6.5 feet during augering operations.																		
3	39.5				4	Laboratory Test Results Sample No. 5 From 4 to 5 feet Sieve Analysis																		
4	38.5	Brownish yellow, wet, fine to medium SAND, with trace silt, trace gravel (10 YR 6/6, Sand)		SP	5	<table border="1"> <thead> <tr> <th>Sieve Size</th> <th>Passing %</th> </tr> </thead> <tbody> <tr> <td>3/8"</td> <td>100</td> </tr> <tr> <td>No. 4</td> <td>96.1</td> </tr> <tr> <td>No. 10</td> <td>88.7</td> </tr> <tr> <td>No. 20</td> <td>79.9</td> </tr> <tr> <td>No. 40</td> <td>50.9</td> </tr> <tr> <td>No. 60</td> <td>24.5</td> </tr> <tr> <td>No. 100</td> <td>12.3</td> </tr> <tr> <td>No. 200</td> <td>4.6</td> </tr> </tbody> </table>	Sieve Size	Passing %	3/8"	100	No. 4	96.1	No. 10	88.7	No. 20	79.9	No. 40	50.9	No. 60	24.5	No. 100	12.3	No. 200	4.6
Sieve Size	Passing %																							
3/8"	100																							
No. 4	96.1																							
No. 10	88.7																							
No. 20	79.9																							
No. 40	50.9																							
No. 60	24.5																							
No. 100	12.3																							
No. 200	4.6																							
5	37.5	Yellowish brown, wet, fine to medium SAND, with some silt, trace clay (10 YR 6/4, Sandy loam)		SM	6	Natural Moisture = 19.9%																		
6	36.5				7																			
7	35.5	Boring terminated at 7 feet.																						
8	34.5																							
9	33.5																							
10																								



**HYNES
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ASSOCIATES**

LOG OF BORING B-16

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 7 feet

Depth in Feet	Surf. Elev. 42.5	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	42.5	Light brown, wet, fine to medium SAND, with little silt, trace clay, trace gravel (10 YR 5/3, Loamy sand)		SM	1	Scale 1" ~ 1.5 feet
1	41.5				2	Approximately 12 inches of organic bearing soil was encountered at the ground surface.
2	40.5				3	Groundwater was encountered at 6.5 feet during augering operations.
						Laboratory Test Results
						Sample No. 3 From 2 to 3 feet
						Sieve Analysis
						Sieve Passing Size %
					4	3/8" 100
						No. 4 93.3
						No. 10 74.1
						No. 20 57.8
						No. 40 43.2
						No. 60 29.0
						No. 100 19.7
						No. 200 12.1
						Natural Moisture = 14.8%
						Sample No. 4 From 3 to 4 feet
						Sieve Analysis
						Sieve Passing Size %
						1/2" 100
						3/8" 97.8
						No. 4 89.5
						No. 10 85.5
						No. 20 82.7
						No. 40 78.2
						No. 60 71.5
						No. 100 65.8
						No. 200 60.4
						Natural Moisture = 22.8%
3	39.5	Light brown, wet, silty CLAY and fine to medium SAND (10 YR 5/3, Clay loam)		CL	4	
4	38.5				5	
5	37.5	Light brown, wet, fine to medium SAND, with little to some silt, trace clay (10 YR 5/3, Sandy loam)		SM	6	
6	36.5				7	
7	35.5	Boring terminated at 7 feet.				
8	34.5					
9	33.5					
10						



**HYNES
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ASSOCIATES**

LOG OF BORING B-17

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : April 8, 2021
 Logged By: : E. Cross
 Drilled By: : D. Csanda
 Drilling Method: : Hand Auger
 Total Depth: : 7 feet

Depth in Feet	Surf. Elev. 39.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 39		Light brown, wet, fine to medium SAND, with some silt, little clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 6.5 feet during augering operations.
1 - 38	2					
2 - 37	3					
3 - 36		Yellowish brown, wet, silty CLAY, trace fine to medium sand (10 YR 6/6, Silty clay)		CL	4	
4 - 35		Light brown, wet, fine to medium SAND, with some silt, trace clay (10 YR 5/3, Sandy loam)		SM	5	
5 - 34	6					
6 - 33	7					
7 - 32		Boring terminated at 7 feet.				
8 - 31						
9 - 30						
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-1A

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 13, 2021
 Logged By: : E. Cross
 Drilled By: : E. Cross
 Drilling Method: : Hand Auger
 Total Depth: : 2 feet

Depth in Feet	Surf. Elev. 41.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 41		Brown, wet, clayey SILT, with trace to little fine to medium sand (10 YR 5/5, Silt loam)		ML	1	Scale 1" ~ 1.5 feet
1 - 40		Brown, wet, silty CLAY, with trace to little fine to coarse sand, trace gravel (10 YR 5/3, Silty clay)		CL	2	Approximately 9 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
2 - 39		Boring terminated at 2 feet.				
3 - 38						
4 - 37						
5 - 36						
6 - 35						
7 - 34						
8 - 33						
9 - 32						
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-1B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 13, 2021
 Logged By: : E. Cross
 Drilled By: : E. Cross
 Drilling Method: : Hand Auger
 Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 42.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 42		Brown, wet, clayey SILT, with trace fine to coarse sand (10 YR 5/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 9 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1 - 41		Brown, wet, silty CLAY, with trace to little fine to medium sand (10 YR 5/3, Silty clay)		CL	2	
2 - 40					3	
3 - 39		Boring terminated at 3 feet.				
4 - 38						
5 - 37						
6 - 36						
7 - 35						
8 - 34						
9 - 33						
10						



**HYNES
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ASSOCIATES**

LOG OF BORING TP-1C

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 13, 2021
 Logged By: : E. Cross
 Drilled By: : E. Cross
 Drilling Method: : Hand Auger
 Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 42.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 42		Grey, wet, fine to medium SAND, with little to some silt (10 YR 5/2, Sand loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1 - 41		Grey, wet, fine to coarse SAND, with trace silt (10 YR 5/2, Sand)		SP	2	
2 - 40		Orange-brown, wet, silty CLAY, with some fine to medium sand (10 YR 6/83, Silty clay)		CL	3	
3 - 39		Boring terminated at 3 feet.				
4 - 38						
5 - 37						
6 - 36						
7 - 35						
8 - 34						
9 - 33						
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-2A

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 12, 2021
 Logged By: : E. Cross
 Drilled By: : E. Cross
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev. 42.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 42		Brown, wet, fine to medium SAND and clayey SILT, trace clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 9 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1 - 41	2					
2 - 40	3					
3 - 39		Light brown, wet, fine to medium SAND, with trace to little silt (10 YR 5/3, Sandy loam)		SP-SM	4	
4 - 38		Boring terminated at 4 feet.				
5 - 37						
6 - 36						
7 - 35						
8 - 34						
9 - 33						
10						



**HYNES
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ASSOCIATES**

LOG OF BORING TP-2B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 12, 2021
 Logged By: : E. Cross
 Drilled By: : E. Cross
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev. 41.5	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	41.5	Brown, wet, fine to medium SAND, with little to some silt, trace clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	40.5				2	
2	39.5	Orange-brown, wet, silty CLAY, with some fine to medium sand (10 YR 6/8, Clay loam)		CL	3	
3	38.5	Orange-brown, wet, silty CLAY, with trace fine to medium sand (10 YR 6/8, Silty clay)		CL	4	
4	37.5	Boring terminated at 4 feet.				
5	36.5					
6	35.5					
7	34.5					
8	33.5					
9	32.5					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-2C

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 12, 2021
 Logged By: : E. Cross
 Drilled By: : E. Cross
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	41.5	Brown, wet, fine to medium SAND, with some silt, trace clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	40.5				2	
2	39.5	Orange-brown, wet, silty CLAY, with some fine to medium sand, trace gravel (10 YR 5/3, Clay loam)		CL	3	
3	38.5	Orange-brown, wet, silty CLAY, with trace fine to medium sand (10 YR 6/8, Silty clay)		CL	4	
4	37.5	Orange-brown, wet, fine to coarse SAND, with some silt, little clay (10 YR 6/8, Sandy loam) Boring terminated at 4 feet.		SM		
5	36.5					
6	35.5					
7	34.5					
8	33.5					
9	32.5					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-2D

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 12, 2021
 Logged By: : E. Cross
 Drilled By: : E. Cross
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev. 42.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 42		Brown, wet, fine to medium SAND and SILT, with trace clay (10 YR 5/3, Loam)		SM-ML	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1 - 41					2	
2 - 40		Light brown, wet, silty CLAY, with little fine to medium sand (10 YR 6/4, Silty clay)		CL	3	
3 - 39		Orange-brown, wet, fine to medium SAND, with some silt, trace clay (10 YR 6/8, Loam)		SM	4	
4 - 38		Boring terminated at 4 feet.				
5 - 37						
6 - 36						
7 - 35						
8 - 34						
9 - 33						
10 -						



**HYNES
&
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LOG OF BORING TP-3A

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 8, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3.5 feet

Depth in Feet	Surf. Elev. 41.5	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	41.5	Brown, wet, fine to medium SAND and SILT, with trace clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 8 inches organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	40.5	Brown, wet, fine to medium SAND and SILT, with little clay (10 YR 5/3, Loam)		SM-ML	2	
2	39.5				3	
3	38.5	Brown, wet, fine to medium SAND, with some silt, trace clay (10 YR 5/3, Sandy loam)		SM	4	
Boring terminated at 3.5 feet.						
4	37.5					
5	36.5					
6	35.5					
7	34.5					
8	33.5					
9	32.5					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-3B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 8, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3.5 feet

Depth in Feet	Surf. Elev. 41.5	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	41.5	Brown, wet, clayey SILT, with little to trace fine to medium sand (10 YR 4/6, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	40.5	Brown, wet, silty CLAY, with trace fine to medium sand (10 YR 4/6, Silty clay)		CL	2	
2	39.5	Orange-brown, wet, fine to coarse SAND and SILT, with little clay (10 YR 6/8, Loam)		SM-ML	3	
3	38.5	Orange-brown, wet, CLAY and SILT, with trace fine to medium sand (10 YR 6/8, Silty clay loam)		CL-ML	4	
Boring terminated at 3.5 feet.						
4	37.5					
5	36.5					
6	35.5					
7	34.5					
8	33.5					
9	32.5					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-3C

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 8, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3.5 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	41.5	Brown, wet, fine to medium SAND, with some to little silt, trace clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	40.5	Orange-brown, wet, fine to medium SAND and SILT, with little clay (10 YR 6/8, Loam)		SM-ML	2	
2	39.5				3	
3	38.5	Orange-brown, wet, fine to medium SAND, with little silt, trace clay (10 YR 6/8, Loamy sand)		SM	4	
Boring terminated at 3.5 feet.						
4	37.5					
5	36.5					
6	35.5					
7	34.5					
8	33.5					
9	32.5					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-3D

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 8, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3.5 feet

Depth in Feet	Surf. Elev. 41.5	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	41.5	Brown, wet, clayey SILT, with trace to little fine to medium sand (10 YR 5/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 9 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	40.5	Orange-brown to brown, wet, silty CLAY, with trace to little fine to medium sand (10 YR 5/3, Silty clay)		CL	2	
2	39.5				3	
3	38.5				4	
Boring terminated at 3.5 feet.						
4	37.5					
5	36.5					
6	35.5					
7	34.5					
8	33.5					
9	32.5					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-4A

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 13, 2021
 Logged By: : E. Cross
 Drilled By: : R. Rhoads
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev. 43.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 43		Brown, wet, clayey SILT, with trace to little fine to medium sand (10 YR 5/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1 - 42	2					
2 - 41		Orange-brown, wet, silty CLAY, with little to some fine to coarse sand (10 YR 6/8, Silt loam)		CL	3	
3 - 40		Orange-brown, wet, silty CLAY, with trace fine to medium sand (10 YR 6/8, Silty clay)		CL	4	
4 - 39		Boring terminated at 4 feet.				
5 - 38						
6 - 37						
7 - 36						
8 - 35						
9 - 34						
10						



**HYNES
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LOG OF BORING TP-4B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 13, 2021
 Logged By: : E. Cross
 Drilled By: : R. Rhoads
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev. 43.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	43	Brown, wet, fine to medium SAND, with little to some silt (10 YR 5/3, Silt loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 10 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	42	Brown, wet, fine to coarse SAND and SILT, with little clay (10 YR 5/3, Clay loam)		SM-ML	2	
2	41				3	
3	40	Orange-brown, wet, fine to coarse SAND and SILT, with little clay, trace gravel (10 YR 6/8, Loam)		SM-ML	4	
4	39	Boring terminated at 4 feet.				
5	38					
6	37					
7	36					
8	35					
9	34					
10						



**HYNES
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LOG OF BORING TP-5

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center
Project No.: JDH-10/21/195

Date Completed: : July 13, 2021
 Logged By: : E. Cross
 Drilled By: : R. Rhoads
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	42.5	Dark brown, wet, clayey SILT, with little to some fine to medium sand (10 YR 4/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 9 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	41.5	Brown, wet, silty CLAY, with little to some fine to medium sand (10 YR 5/3, Silty clay)		CL	2	
2	40.5	Orange-brown, wet, silty CLAY, with little to some fine to medium sand (10 YR 6/8, Silty clay)		CL	3	
3	39.5	Orange-brown, wet, fine to medium SAND, with little to some silt, trace to little clay, trace gravel (10 YR 6/8, Sandy loam)		SM	4	
4	38.5	Boring terminated at 4 feet.				
5	37.5					
6	36.5					
7	35.5					
8	34.5					
9	33.5					
10						



**HYNES
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LOG OF BORING TP-6A

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 8, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 2.5 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	43.5	Orange-brown, wet, clayey SILT, with trace fine to medium sand (10 YR 6/8, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface.
1	42.5	Orange-brown, wet, silty CLAY, with some fine to medium sand, trace gravel (10 YR 6/8, Silty clay)		CL	2	Groundwater was not encountered during augering operations.
2	41.5				3	
Boring terminated at 2.5 feet.						
3	40.5					
4	39.5					
5	38.5					
6	37.5					
7	36.5					
8	35.5					
9	34.5					
10						



**HYNES
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ASSOCIATES**

LOG OF BORING TP-6B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center
Project No.: JDH-10/21/195

Date Completed: : July 8, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 2.5 feet

Depth in Feet	Surf. Elev. 43.5	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	43.5	Brown, wet, fine to medium SAND and SILT, with trace clay (10 YR 5/3, Loam)		SM-ML	1	Scale 1" ~ 1.5 feet Approximately 9 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	42.5	Orange-brown, wet, silty CLAY, with little fine to medium sand (10 YR 6/8, Silty clay)		CL	2	
2	41.5				3	
Boring terminated at 2.5 feet.						
3	40.5					
4	39.5					
5	38.5					
6	37.5					
7	36.5					
8	35.5					
9	34.5					
10						



**HYNES
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LOG OF BORING TP-6C

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 13, 2021
 Logged By: : E. Cross
 Drilled By: : E. Cross
 Drilling Method: : Hand Auger
 Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 42.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS	
0	42	Brown, wet, clayey SILT, with trace fine to medium sand (10 YR 5/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet No organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.	
1	41	Brown, wet, CLAY and SILT, with trace to little fine to medium sand (10 YR 5/3, Silty clay loam)		CL-ML	2		
2	40	Orange-brown, wet, silty CLAY, with trace fine to medium sand (10 YR 6/8, Silty clay)		CL	3		
3	39	Boring terminated at 3 feet.					
4	38						
5	37						
6	36						
7	35						
8	34						
9	33						
10							



**HYNES
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LOG OF BORING TP-6D

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 13, 2021
 Logged By: : E. Cross
 Drilled By: : E. Cross
 Drilling Method: : Hand Auger
 Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 42.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 42		Brown, wet, clayey SILT, with trace fine to medium sand (10 YR 5/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1 - 41		Brown, wet, silty CLAY, with trace fine to medium sand (10 YR 5/3, Silty clay)		CL	2	
2 - 40		Orange-brown, wet, fine to medium SAND and SILT, with trace clay (10 YR 6/8, Loam)		SM-ML	3	
3 - 39		Boring terminated at 3 feet.				
4 - 38						
5 - 37						
6 - 36						
7 - 35						
8 - 34						
9 - 33						
10						



**HYNES
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LOG OF BORING TP-7A

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 7, 2021
 Logged By: : E. Cross
 Drilled By: : R. Rhoads
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev. 40.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	40	Brown, wet, clayey SILT, with some fine to medium sand (10 YR 5/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	39	Brown, wet, fine to coarse SAND, with little to some silt, trace clay (10 YR 5/2, Sandy loam)		SM	2	
2	38	Orange-brown, wet, fine to coarse SAND, with some silt, trace clay (10 YR 6/8, Sandy loam)		SM	3	
3	37				4	
4	36	Boring terminated at 4 feet.				
5	35					
6	34					
7	33					
8	32					
9	31					
10						



**HYNES
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LOG OF BORING TP-7B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 7, 2021
 Logged By: : E. Cross
 Drilled By: : R. Rhoads
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev. 40.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	40	Brown, wet, clayey SILT, with trace to little fine to medium sand (10 YR 5/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 10 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	39				2	
2	38	Orange-brown, wet, silty CLAY, with trace fine to medium sand (10 YR 6/8, Silty clay)		CL	3	
3	37	Orange-brown, wet, fine to medium SAND and SILT, with trace to little clay (10 YR 6/8, Loam)		SM-ML	4	
4	36	Boring terminated at 4 feet.				
5	35					
6	34					
7	33					
8	32					
9	31					
10						



**HYNES
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LOG OF BORING TP-7C

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 7, 2021
 Logged By: : E. Cross
 Drilled By: : R. Rhoads
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev. 40.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 40		Brown, wet, clayey SILT, with little to trace fine to medium sand (10 YR 5/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1 - 39					2	
2 - 38		Orange-brown, wet, silty CLAY, with some to little fine to coarse sand (10 YR 5/3, Silty clay)		CL	3	
3 - 37		Gray, wet, silty CLAY, with some fine to medium sand (10 YR 5/2, Silty clay)		CL	4	
4 - 36		Boring terminated at 4 feet.				
5 - 35						
6 - 34						
7 - 33						
8 - 32						
9 - 31						
10 -						



**HYNES
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ASSOCIATES**

LOG OF BORING TP-9A

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 8, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3.5 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	42.5	Brown, wet, fine to medium SAND, with little to some silt (10 YR, 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 10 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	41.5	Orange-brown, wet, fine to medium SAND and SILT, with trace clay (10 YR 6/6, Loam)		SM-ML	2	
2	40.5	Orange-brown, wet, fine to medium SAND, with trace to little silt (10 YR 5/3, Sand)		SP-SM	3	
3	39.5	Brown, wet, fine to medium SAND, with trace to little silt (10 YR 5/3, Sand)		SP-SM	4	
Boring terminated at 3.5 feet.						
4	38.5					
5	37.5					
6	36.5					
7	35.5					
8	34.5					
9	33.5					
10						



**HYNES
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ASSOCIATES**

LOG OF BORING TP-9B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 8, 2021
 Logged By: : E. Cross
 Drilled By: : R. Rhoads
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev. 43.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 43		Brown, wet, fine to medium SAND, with little to some silt, trace clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 10 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1 - 42	2					
2 - 41		Yellow-brown, wet, fine to medium SAND, with trace to little silt (10 YR 6/8, Sand)		SP-SM	3	
3 - 40		Yellow-brown, wet, fine to medium SAND, with little silt, trace clay (10 YR 6/8, Loamy sand)		SM	4	
4 - 39		Boring terminated at 4 feet.				
5 - 38						
6 - 37						
7 - 36						
8 - 35						
9 - 34						
10						



**HYNES
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LOG OF BORING TP-9C

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 8, 2021
 Logged By: : E. Cross
 Drilled By: : R. Rhoads
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev. 43.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	43	Brown, wet, fine to medium SAND, with little to some silt, trace clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 10 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	42	Brown, wet, fine to medium SAND, with little to some silt, trace clay (10 YR 6/8, Sandy loam)		SM	2	
2	41	Brown, wet, fine to medium SAND, with little to some silt, trace clay (10 YR 6/8, Sandy loam)		SM	3	
3	40				4	
4	39	Boring terminated at 4 feet.				
5	38					
6	37					
7	36					
8	35					
9	34					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-9D

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center
Project No.: JDH-10/21/195

Date Completed: : July 8, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3.5 feet

Depth in Feet	Surf. Elev. 42.5	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	42.5	Brown, wet, fine to medium SAND, with some silt, trace clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface.
1	41.5	Orange-brown, wet, SILT and CLAY, with little fine to sand, trace gravel (10 YR 6/8, Silty clay)		ML-CL	2	Groundwater was not encountered during augering operations.
2	40.5				3	
3	39.5				4	
Boring terminated at 3.5 feet.						
4	38.5					
5	37.5					
6	36.5					
7	35.5					
8	34.5					
9	33.5					
10						



**HYNES
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ASSOCIATES**

LOG OF BORING TP-9E

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 8, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3.5 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	42.5	Brown, wet, clayey SILT, with trace to little fine to medium sand (10 YR 5/8, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 14 inches of organic bearing soil was encountered at the ground surface.
1	41.5	Orange-brown, wet, silty CLAY, with little to some fine to coarse sand (10 YR 6/8, Silty clay)		CL	2	Groundwater was not encountered during augering operations.
2	40.5	Orange-brown, wet, fine to coarse SAND and SILT, with trace clay (10 YR 6/8, Loam)		SM-ML	3	
3	39.5	Orange-brown, wet, fine to coarse SAND, with little to some silt, trace clay (10 YR 6/8, Sandy loam)		SM	4	
		Boring terminated at 3.5 feet.				
4	38.5					
5	37.5					
6	36.5					
7	35.5					
8	34.5					
9	33.5					
10						



**HYNES
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ASSOCIATES**

LOG OF BORING TP-10A

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 7, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	39.5	Dark brown, wet, clayey SILT, with little to some fine to medium sand (10 YR 4/2, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 18 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	38.5	Brown, wet, fine to coarse SAND and SILT, with trace clay (10 YR 5/3, Loam)		SM-ML	2	
2	37.5	Orange-brown, wet, SILT, with some fine to medium sand, trace to little clay (10 YR 6/8, Loam)		ML	3	
3	36.5				4	
4	35.5	Boring terminated at 4 feet.				
5	34.5					
6	33.5					
7	32.5					
8	31.5					
9	30.5					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-10B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 7, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 4 feet

Depth in Feet	Surf. Elev. 39.3	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	39.3	Dark brown, wet, clayey SILT, with little to some fine to medium sand (10 YR 4/2, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	38.3	Orange-brown, wet, silty CLAY, with trace fine to medium sand (10 YR 6/8, Silty clay)		CL	2	
2	37.3			CL	3	
3	36.3	Orange-brown, wet, clayey SILT, with some fine to medium sand (10 YR 6/8, Clay loam)		ML	4	
4	35.3	Boring terminated at 4 feet.				
5	34.3					
6	33.3					
7	32.3					
8	31.3					
9	30.3					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-10C

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 7, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	38.5	Dark brown, wet, fine to medium SAND, with some silt, trace clay (10 YR 4/2, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 6 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	37.5	Brown, wet, fine to coarse SAND, with little to some silt, trace clay (10 YR 5/3, Sandy loam)		SM	2	
2	36.5	Brown, wet, fine to coarse SAND, with little silt, trace clay (10 YR 5/3, Sand)		SM	3	
3	35.5	Boring terminated at 3 feet.				
4	34.5					
5	33.5					
6	32.5					
7	31.5					
8	30.5					
9	29.5					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-11A

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 6, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 1 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	37.5	Gray, wet, clayey SILT, with trace fine to medium sand (10 YR 4/1, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface.
1	36.5	Boring terminated at 1 feet.				Groundwater was not encountered during augering operations.
2	35.5					
3	34.5					
4	33.5					
5	32.5					
6	31.5					
7	30.5					
8	29.5					
9	28.5					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-11B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 6, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 1 feet

Depth in Feet	Surf. Elev. 37.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 37		Gray, wet, clayey SILT, with trace to little fine to medium sand (10 YR 4/2, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 9 inches of organic bearing soil was encountered at the ground surface.
1 - 36		Boring terminated at 1 feet.				Groundwater was not encountered during augering operations.
2 - 35						
3 - 34						
4 - 33						
5 - 32						
6 - 31						
7 - 30						
8 - 29						
9 - 28						
10 -						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-12A

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Date Completed: : July 7, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3.5 feet

Bridgeville Town Center
Project No.: JDH-10/21/195

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	42.5	Orange-brown, wet, clayey SILT, with trace to little fine to coarse sand (10 YR 6/8, Silt loam)		ML	1	Scale 1" ~ 1.5 feet
1	41.5				2	Approximately 8 inches of organic bearing soil was encountered at the ground surface.
2	40.5				3	Groundwater was not encountered during augering operations.
3	39.5	4				
		Orange-brown, wet, fine to medium SAND, with little to some silt, trace clay (10 YR 6/8, Sandy loam)		SM		
		Boring terminated at 3.5 feet.				
4	38.5					
5	37.5					
6	36.5					
7	35.5					
8	34.5					
9	33.5					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-12B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center
Project No.: JDH-10/21/195

Date Completed: : July 7, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 42.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 42		Brown, wet, fine to medium SAND, with little to some silt, trace clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 10 inches of organic bearing soil was encountered at the ground surface.
1 - 41		Orange-brown, wet, clayey SILT, with trace to little fine to coarse sand (10 YR 6/8, Silt loam)		ML	2	Groundwater was not encountered during augering operations.
2 - 40		Orange-brown, wet, SILT and CLAY, with some fine to coarse sand (10 YR 6/8, Silty clay)		ML-CL	3	
3 - 39		Boring terminated at 3 feet.				
4 - 38						
5 - 37						
6 - 36						
7 - 35						
8 - 34						
9 - 33						
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-12C

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 7, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 41.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 41		Brown, wet, fine to medium SAND, with little to some silt (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet
1 - 40		Brown, wet, fine to coarse SAND, with some silt, trace clay (10 YR 5/3, Loam)		SM	2	Approximately 10 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
2 - 39		Boring terminated at 2 feet.				
3 - 38						
4 - 37						
5 - 36						
6 - 35						
7 - 34						
8 - 33						
9 - 32						
10 -						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-12D

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 7, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 40.9	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	40.9	Brown, wet, fine to coarse SAND, with little to some silt (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface.
1	39.9	Brown, wet, fine to medium SAND, with little to some silt, trace clay (10 YR 5/3, Sandy loam)		SM	2	Groundwater was not encountered during augering operations.
2	38.9	Boring terminated at 2 feet.				
3	37.9					
4	36.9					
5	35.9					
6	34.9					
7	33.9					
8	32.9					
9	31.9					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-13A

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 6, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3.5 feet

Depth in Feet	Surf. Elev.	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	40.5	Brown, wet, clayey SILT, with little to some fine to medium sand (10 YR 5/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1	39.5				2	
2	38.5	Orange-brown, wet, fine to medium SAND, with trace to little silt (10 YR 6/8, Sand)		SP-SM	3	
3	37.5	Brown, wet, fine to medium SAND, with trace to little silt (10 YR 5/3, Sandy loam)		SP-SM	4	
Boring terminated at 3.5 feet.						
4	36.5					
5	35.5					
6	34.5					
7	33.5					
8	32.5					
9	31.5					
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-13B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 6, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 40.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 40		Brown, wet, clayey SILT, with trace to little fine to medium sand (10 YR 5/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
1 - 39	2					
2 - 38		Brown, wet, fine to coarse SAND, with little silt, trace clay, trace gravel (10 YR 5/4, Loamy sand)		SM	3	
3 - 37		Boring terminated at 3 feet.				
4 - 36						
5 - 35						
6 - 34						
7 - 33						
8 - 32						
9 - 31						
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-13C

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 6, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 2 feet

Depth in Feet	Surf. Elev. 39.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 39		Brown, wet, clayey SILT, with little to some fine to medium sand (10 YR 5/3, Silt loam)		ML	1	Scale 1" ~ 1.5 feet Approximately 9 inches of organic bearing soil was encountered at the ground surface.
1 - 38		Brown, wet, SILT and CLAY, with some fine to medium sand (10 YR 5/3, Silty clay)		ML-CL	2	Groundwater was not encountered during augering operations.
2 - 37		Boring terminated at 2 feet.				
3 - 36						
4 - 35						
5 - 34						
6 - 33						
7 - 32						
8 - 31						
9 - 30						
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-14A

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Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center
Project No.: JDH-10/21/195

Date Completed: : July 6, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 2 feet

Depth in Feet	Surf. Elev. 39.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 39		Brown, wet, fine to medium SAND, with some silt, trace clay (10 YR 5/3, Sandy loam)		SM	1	Scale 1" ~ 1.5 feet
1 - 38	2				Approximately 8 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.	
2 - 37		Boring terminated at 2 feet.				
3 - 36						
4 - 35						
5 - 34						
6 - 33						
7 - 32						
8 - 31						
9 - 30						
10						



**HYNES
&
ASSOCIATES**

LOG OF BORING TP-14B

(Page 1 of 1)

Hillcrest Associates
1760 Flint Hill Road
Landenberg, Pennsylvania 19350

Bridgeville Town Center

Project No.: JDH-10/21/195

Date Completed: : July 6, 2021
 Logged By: : E. Cross
 Drilled By: : B. Walters
 Drilling Method: : Hand Auger
 Total Depth: : 2 feet

Depth in Feet	Surf. Elev. 39.0	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0 - 39		Brown, wet, fine to medium SAND and SILT, with little clay (10 YR 5/3, Loam)		SM-ML	1	Scale 1" ~ 1.5 feet Approximately 9 inches of organic bearing soil was encountered at the ground surface.
1 - 38		Brown, wet, clayey SILT, with trace to little fine to medium sand (10 YR 5/3, Silt loam)		ML	2	Groundwater was not encountered during augering operations.
2 - 37		Boring terminated at 2 feet.				
3 - 36						
4 - 35						
5 - 34						
6 - 33						
7 - 32						
8 - 31						
9 - 30						
10 -						

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/13/2021

Project No.: 10/21/198

Test Location: TP-1A

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 2.15

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	10:18	-	12.00	-	-
	11:18	60	6.96	5.04	N/A
Test 1	11:18	-	6.00	-	-
	11:28	10	5.28	0.72	4.32
	11:38	10	4.68	0.60	3.60
	11:48	10	4.20	0.48	2.88
	11:58	10	3.72	0.48	2.88
	12:08	10	3.24	0.48	2.88
	12:18	10	2.76	0.48	2.88
			Test 1	Avg. Inf. Rate (in./hr.):	3.24
Test 2	12:18	-	6.00	-	-
	12:28	10	5.40	0.60	3.60
	12:38	10	4.80	0.60	3.60
	12:48	10	4.32	0.48	2.88
	12:58	10	3.84	0.48	2.88
	13:08	10	3.36	0.48	2.88
	13:18	10	2.88	0.48	2.88
			Test 2	Avg. Inf. Rate (in./hr.):	3.1

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/13/2021

Project No.: 10/21/198

Test Location: TP-1B

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 2.95

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	10:21	-	12.00	-	-
	11:21	60	3.72	8.28	N/A
Test 1	11:21	-	6.00	-	-
	11:26	5	5.28	0.72	8.64
	11:31	5	4.56	0.72	8.64
	11:36	5	3.84	0.72	8.64
	11:41	5	3.12	0.72	8.64
	11:46	5	2.40	0.72	8.64
	11:51	5	1.68	0.72	8.64
	11:56	5	0.96	0.72	8.64
	12:01	5	0.24	0.72	8.64
Test 2	Test 1		Avg. Inf. Rate (in./hr.):	8.64	
	12:06	-	6.00	-	-
	12:11	5	5.16	0.84	10.08
	12:16	5	4.44	0.72	8.64
	12:21	5	3.72	0.72	8.64
	12:26	5	3.00	0.72	8.64
	12:31	5	2.28	0.72	8.64
	12:36	5	1.56	0.72	8.64
	12:41	5	0.84	0.72	8.64
	12:46	5	0.12	0.72	8.64
	Test 2		Avg. Inf. Rate (in./hr.):	8.8	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/13/2021

Project No.: 10/21/198

Test Location: TP-1C

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.08

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	10:24	-	12.00	-	-
	11:24	60	2.88	9.12	N/A
Test 1	13:25	-	6.00	-	-
	13:30	5	5.16	0.84	10.08
	13:35	5	4.32	0.84	10.08
	13:40	5	3.48	0.84	10.08
	13:45	5	2.76	0.72	8.64
	13:50	5	2.04	0.72	8.64
	13:55	5	1.32	0.72	8.64
	14:00	5	0.60	0.72	8.64
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		9.26
	14:05	-	6.00	-	-
	14:10	5	5.16	0.84	10.08
	14:15	5	4.32	0.84	10.08
	14:20	5	3.60	0.72	8.64
	14:25	5	2.88	0.72	8.64
	14:30	5	2.16	0.72	8.64
	14:35	5	1.44	0.72	8.64
	14:40	5	0.72	0.72	8.64
	14:45	5	0.00	0.72	8.64
	Test 2		Avg. Inf. Rate (in./hr.):		9.0

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/13/2021

Project No.: 10/21/198

Test Location: TP-1C

Weather: Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.08

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Test 3	14:45	-	6.00	-	-
	14:50	5	5.16	0.84	10.08
	14:55	5	4.32	0.84	10.08
	15:00	5	3.60	0.72	8.64
	15:05	5	2.88	0.72	8.64
	15:10	5	2.16	0.72	8.64
	15:15	5	1.44	0.72	8.64
	15:20	5	0.72	0.72	8.64
	15:25	5	0.00	0.72	8.64
	Test 1		Avg. Inf. Rate (in./hr.):		9.0

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/13/2021

Project No.: 10/21/198

Test Location: TP-2A

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.93

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	12:36	-	12.00	-	-
	13:36	60	3.96	8.04	N/A
Test 1	13:36	-	6.00	-	-
	13:46	10	4.80	1.20	7.20
	13:56	10	3.98	0.82	4.92
	14:06	10	3.02	0.96	5.76
	14:16	10	2.06	0.96	5.76
	14:26	10	1.10	0.96	5.76
	14:36	10	0.26	0.84	5.04
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		5.74
	14:36	-	6.00	-	-
	14:46	10	4.92	1.08	6.48
	14:56	10	3.96	0.96	5.76
	15:06	10	3.00	0.96	5.76
	15:16	10	2.04	0.96	5.76
	15:26	10	1.08	0.96	5.76
	15:36	10	0.36	0.72	4.32
	Test 2		Avg. Inf. Rate (in./hr.):		5.6

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/12/2021

Project No.: 10/21/198

Test Location: TP-2B

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.60

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	9:42	-	12.00	-	-
	10:42	60	10.44	1.56	N/A
Test 1	10:27	-	6.00	-	-
	10:37	10	5.84	0.16	0.96
	10:47	10	5.68	0.16	0.96
	10:57	10	5.52	0.16	0.96
	11:07	10	5.36	0.16	0.96
	11:17	10	5.20	0.16	0.96
	11:27	10	5.04	0.16	0.96
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		0.96
	11:27	-	6.00	-	-
	11:37	10	5.84	0.16	0.96
	11:47	10	5.68	0.16	0.96
	11:57	10	5.52	0.16	0.96
	12:07	10	5.36	0.16	0.96
	12:17	10	5.20	0.16	0.96
	12:27	10	5.12	0.08	0.48
	Test 2		Avg. Inf. Rate (in./hr.):		0.9

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/12/2021

Project No.: 10/21/198

Test Location: TP-2C

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.58

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	9:22	-	12.00	-	-
	10:22	60	9.00	3.00	N/A
Test 1	10:22	-	6.00	-	-
	10:32	10	5.52	0.48	2.88
	10:42	10	5.04	0.48	2.88
	10:52	10	4.56	0.48	2.88
	11:02	10	4.08	0.48	2.88
	11:12	10	3.60	0.48	2.88
	11:22	10	3.24	0.36	2.16
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		2.76
	11:22	-	6.00	-	-
	11:32	10	5.52	0.48	2.88
	11:42	10	5.04	0.48	2.88
	11:52	10	4.56	0.48	2.88
	12:02	10	4.08	0.48	2.88
	12:12	10	3.72	0.36	2.16
	12:22	10	3.36	0.36	2.16
	Test 2		Avg. Inf. Rate (in./hr.):		2.6

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/12/2021

Project No.: 10/21/198

Test Location: TP-2D

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 4.00

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	12:39	-	12.00	-	-
	13:39	60	8.00	4.00	N/A
Test 1	13:39	-	6.00	-	-
	13:49	10	5.28	0.72	4.32
	13:59	10	4.56	0.72	4.32
	14:09	10	3.96	0.60	3.60
	14:19	10	3.36	0.60	3.60
	14:29	10	2.76	0.60	3.60
	14:39	10	2.16	0.60	3.60
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		3.84
	14:39	-	6.00	-	-
	14:49	10	5.28	0.72	4.32
	14:59	10	4.68	0.60	3.60
	15:09	10	4.08	0.60	3.60
	15:19	10	3.48	0.60	3.60
	15:29	10	2.88	0.60	3.60
	15:39	10	2.28	0.60	3.60
	Test 2		Avg. Inf. Rate (in./hr.):		3.7

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-3A

Weather Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.50

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	12:44	-	12.00	-	-
	13:44	60	2.04	9.96	N/A
Test 1	13:47	-	6.00	-	-
	13:57	10	4.92	1.08	6.48
	14:07	10	3.96	0.96	5.76
	14:17	10	3.12	0.84	5.04
	14:27	10	2.28	0.84	5.04
	14:37	10	1.32	0.96	5.76
	14:47	10	0.48	0.84	5.04
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		5.5
	14:59	-	6.00	-	-
	15:00	10	5.04	0.96	5.76
	15:10	10	4.08	0.96	5.76
	15:20	10	3.12	0.96	5.76
	15:30	10	2.28	0.84	5.04
	15:40	10	1.44	0.84	5.04
	15:50	10	0.60	0.84	5.04
	Test 2		Avg. Inf. Rate (in./hr.):		5.4

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-3B

Weather Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.50

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	12:42	-	12.00	-	-
	13:42	60	11.88	0.12	N/A
Test 1	13:45	-	6.00	-	-
	13:55	10	6.00	0.00	0.00
	14:05	10	6.00	0.00	0.00
	14:15	10	6.00	0.00	0.00
	14:25	10	6.00	0.00	0.00
	14:35	10	6.00	0.00	0.00
	14:45	10	6.00	0.00	0.00
	Test 1		Avg. Inf. Rate (in./hr.):	0.0	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-3C

Weather Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.60

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	12:42	-	12.00	-	-
	13:27	45	0.00	12.00	N/A
Test 1	13:28	-	6.00	-	-
	13:33	5	4.80	1.20	14.40
	13:38	5	3.60	1.20	14.40
	13:43	5	2.76	0.84	10.08
	13:48	5	1.92	0.84	10.08
	13:53	5	1.08	0.84	10.08
	13:58	5	0.24	0.84	10.08
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		11.5
	14:03	-	6.00	-	-
	14:08	5	5.16	0.84	10.08
	14:13	5	4.32	0.84	10.08
	14:18	5	3.60	0.72	8.64
	14:23	5	2.88	0.72	8.64
	14:28	5	2.16	0.72	8.64
	14:33	5	1.44	0.72	8.64
	14:38	5	0.72	0.72	8.64
	14:43	5	0.00	0.72	8.64
	Test 2		Avg. Inf. Rate (in./hr.):		9.0

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-3C

Weather: Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.60

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Test 3	14:42	-	6.00	-	-
	14:47	5	5.16	0.84	10.08
	14:52	5	4.32	0.84	10.08
	14:57	5	3.48	0.84	10.08
	15:02	5	2.76	0.72	8.64
	15:07	5	2.04	0.72	8.64
	15:12	5	1.32	0.72	8.64
	15:17	5	0.60	0.72	8.64
	Test 1		Avg. Inf. Rate (in./hr.):	9.3	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-3D

Weather: Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.45

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	12:40	-	12.00	-	-
	13:40	60	9.84	2.16	N/A
Test 1	13:40	-	6.00	-	-
	13:50	10	5.64	0.36	2.16
	14:00	10	5.40	0.24	1.44
	14:10	10	5.16	0.24	1.44
	14:20	10	4.92	0.24	1.44
	14:30	10	4.68	0.24	1.44
	14:40	10	4.44	0.24	1.44
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		1.6
	14:40	-	6.00	-	-
	14:50	10	5.76	0.24	1.44
	15:00	10	5.52	0.24	1.44
	15:10	10	5.28	0.24	1.44
	15:20	10	5.04	0.24	1.44
	15:30	10	4.80	0.24	1.44
	15:40	10	4.56	0.24	1.44
	Test 2		Avg. Inf. Rate (in./hr.):		1.4

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/13/2021

Project No.: 10/21/198

Test Location: TP-4A

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 4.00

Tester/ Technician Performing Test: Evan

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	10:36	-	12.00	-	-
	11:36	60	6.96	5.04	N/A
Test 1	11:36	-	6.00	-	-
	11:46	10	5.75	0.25	1.50
	11:56	10	5.00	0.75	4.50
	12:06	10	4.25	0.75	4.50
	12:16	10	3.50	0.75	4.50
	12:26	10	2.75	0.75	4.50
	12:36	10	2.00	0.75	4.50
			Test 1	Avg. Inf. Rate (in./hr.):	4.0
Test 2	12:36	-	6.00	-	-
	12:46	10	5.75	0.25	1.50
	12:56	10	5.00	0.75	4.50
	13:06	10	4.25	0.75	4.50
	13:16	10	3.50	0.75	4.50
	13:26	10	2.75	0.75	4.50
	13:36	10	2.00	0.75	4.50
			Test 2	Avg. Inf. Rate (in./hr.):	4.0

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/13/2021

Project No.: 10/21/198

Test Location: TP-4B

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 4.00

Tester/ Technician Performing Test: Evan

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	10:42	-	12.00	-	-
	11:42	60	3.50	8.50	N/A
Test 1	11:42	-	6.00	-	-
	11:52	10	4.75	1.25	7.50
	12:02	10	3.50	1.25	7.50
	12:12	10	2.50	1.00	6.00
	12:22	10	1.50	1.00	6.00
	12:32	10	0.75	0.75	4.50
	12:42	10	0.12	0.63	3.78
		Test 1	Avg. Inf. Rate (in./hr.):	5.9	
Test 2	12:42	-	6.00	-	-
	12:52	10	5.25	0.75	4.50
	13:02	10	4.25	1.00	6.00
	13:12	10	3.50	0.75	4.50
	13:22	10	2.75	0.75	4.50
	13:32	10	2.00	0.75	4.50
	13:42	10	1.25	0.75	4.50
		Test 2	Avg. Inf. Rate (in./hr.):	4.8	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/13/2021

Project No.: 10/21/198

Test Location: TP-4B

Weather: Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 4.00

Tester/ Technician Performing Test: Evan

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Test 3	13:52	-	6.00	-	-
	14:02	10	5.00	1.00	6.00
	14:12	10	4.25	0.75	4.50
	14:22	10	3.50	0.75	4.50
	14:32	10	2.75	0.75	4.50
	14:42	10	2.00	0.75	4.50
	14:52	10	1.25	0.75	4.50
	Test 1		Avg. Inf. Rate (in./hr.):	4.8	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/13/2021

Project No.: 10/21/198

Test Location: TP-5

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.92

Tester/ Technician Performing Test: Evan

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	14:08	-	12.00	-	-
	14:48	60	0.00	12.00	N/A
Test 1	14:58	-	6.00	-	-
	15:08	10	5.38	0.63	3.75
	15:18	10	4.75	0.63	3.75
	15:28	10	3.75	1.00	6.00
	15:38	10	2.63	1.13	6.75
	15:48	10	1.75	0.88	5.25
	15:58	10	0.50	1.25	7.50
			Test 1	Avg. Inf. Rate (in./hr.):	5.5
Test 2	16:02	-	6.00	-	-
	16:12	10	5.00	1.00	6.00
	16:22	10	4.13	0.88	5.25
	16:32	10	3.25	0.88	5.25
	16:42	10	2.38	0.88	5.25
	16:52	10	1.50	0.88	5.25
	17:02	10	0.63	0.88	5.25
		Test 2	Avg. Inf. Rate (in./hr.):	5.4	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-6A

Weather: Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 2.50

Tester/ Technician Performing Test: Mike

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	13:00	-	12.00	-	-
	14:00	60	3.25	8.75	N/A
Test 1	14:00	-	6.00	-	-
	14:10	10	5.00	1.00	6.00
	14:20	10	3.75	1.25	7.50
	14:30	10	2.75	1.00	6.00
	14:40	10	1.75	1.00	6.00
	14:50	10	1.00	0.75	4.50
	15:00	10	0.25	0.75	4.50
		Test 1	Avg. Inf. Rate (in./hr.):	5.8	
Test 2	15:00	-	6.00	-	-
	15:10	10	5.00	1.00	6.00
	15:20	10	4.25	0.75	4.50
	15:30	10	3.75	0.50	3.00
	15:40	10	3.25	0.50	3.00
	15:50	10	2.50	0.75	4.50
	16:00	10	2.00	0.50	3.00
		Test 2	Avg. Inf. Rate (in./hr.):	4.0	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-6B

Weather Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 2.50

Tester/ Technician Performing Test: Mike

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	12:55	-	12.00	-	-
	13:55	60	7.50	4.50	N/A
Test 1	14:00	-	6.00	-	-
	14:10	10	5.75	0.25	1.50
	14:20	10	5.50	0.25	1.50
	14:30	10	5.25	0.25	1.50
	14:40	10	5.00	0.25	1.50
	14:50	10	4.75	0.25	1.50
	15:00	10	4.50	0.25	1.50
		Test 1	Avg. Inf. Rate (in./hr.):	1.5	
Test 2	15:00	-	6.00	-	-
	15:10	10	5.75	0.25	1.50
	15:20	10	5.50	0.25	1.50
	15:30	10	5.25	0.25	1.50
	15:40	10	5.00	0.25	1.50
	15:50	10	4.75	0.25	1.50
	16:00	10	4.50	0.25	1.50
		Test 2	Avg. Inf. Rate (in./hr.):	1.5	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/12/2021

Project No.: 10/21/198

Test Location: TP-6C

Weather: Sunny, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.00

Tester/ Technician Performing Test: Mike

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	11:10	-	12.00	-	-
	12:10	60	12.00	0.00	N/A
Test 1	12:20	-	6.00	-	-
	12:30	10	6.00	0.00	0.00
	12:40	10	6.00	0.00	0.00
	12:50	10	6.00	0.00	0.00
	13:00	10	6.00	0.00	0.00
	13:10	10	6.00	0.00	0.00
	13:20	10	6.00	0.00	0.00
	Test 1		Avg. Inf. Rate (in./hr.):	0.0	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/12/2021

Project No.: 10/21/198

Test Location: TP-6D

Weather Sunny, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 2.80

Tester/ Technician Performing Test: Mike

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	11:10	-	12.00	-	-
	12:10	60	7.90	4.10	N/A
Test 1	12:20	-	6.00	-	-
	12:30	10	5.76	0.24	1.44
	12:40	10	5.40	0.36	2.16
	12:50	10	4.92	0.48	2.88
	13:00	10	4.44	0.48	2.88
	13:10	10	4.08	0.36	2.16
	13:20	10	3.72	0.36	2.16
			Test 1	Avg. Inf. Rate (in./hr.):	2.3
Test 2	13:25	-	6.00	-	-
	13:35	10	5.64	0.36	2.16
	13:45	10	5.40	0.24	1.44
	13:55	10	5.04	0.36	2.16
	14:05	10	4.68	0.36	2.16
	14:15	10	4.32	0.36	2.16
	14:25	10	3.96	0.36	2.16
			Test 2	Avg. Inf. Rate (in./hr.):	2.0

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/7/2021

Project No.: 10/21/198

Test Location: TP-7A

Weather: Partly Sunny, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 4.06

Tester/ Technician Performing Test: Trey

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	13:32	-	12.00	-	-
	14:32	60	8.40	3.60	N/A
Test 1	14:32	-	6.00	-	-
	14:42	10	5.40	0.60	3.60
	14:52	10	4.80	0.60	3.60
	15:02	10	4.32	0.48	2.88
	15:12	10	3.84	0.48	2.88
	15:22	10	3.36	0.48	2.88
	15:32	10	2.88	0.48	2.88
		Test 1	Avg. Inf. Rate (in./hr.):	3.1	
Test 2	15:32	-	6.00	-	-
	15:42	10	5.40	0.60	3.60
	15:52	10	4.92	0.48	2.88
	16:02	10	4.44	0.48	2.88
	16:12	10	3.96	0.48	2.88
	16:22	10	3.48	0.48	2.88
	16:32	10	3.00	0.48	2.88
		Test 2	Avg. Inf. Rate (in./hr.):	3.0	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/7/2021

Project No.: 10/21/198

Test Location: TP-7B

Weather: Partly Sunny, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 4.00

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	13:25	-	12.00	-	-
	14:25	60	9.24	2.76	N/A
Test 1	14:30	-	6.00	-	-
	14:40	10	5.40	0.60	3.60
	14:50	10	4.92	0.48	2.88
	15:00	10	4.44	0.48	2.88
	15:10	10	3.96	0.48	2.88
	15:20	10	3.48	0.48	2.88
	15:30	10	3.00	0.48	2.88
	Test 1		Avg. Inf. Rate (in./hr.):	3.0	
Test 2	15:35	-	6.00	-	-
	15:45	10	5.52	0.48	2.88
	15:55	10	5.04	0.48	2.88
	16:05	10	4.68	0.36	2.16
	16:15	10	4.20	0.48	2.88
	16:25	10	3.72	0.48	2.88
	16:35	10	3.24	0.48	2.88
	Test 2		Avg. Inf. Rate (in./hr.):	2.8	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/7/2021

Project No.: 10/21/198

Test Location: TP-7C

Weather: Partly Sunny, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 4.05

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	13:30	-	12.00	-	-
	14:30	60	7.92	4.08	N/A
Test 1	14:30	-	6.00	-	-
	14:40	10	5.28	0.72	4.32
	14:50	10	4.56	0.72	4.32
	15:00	10	3.84	0.72	4.32
	15:10	10	3.12	0.72	4.32
	15:20	10	2.52	0.60	3.60
	15:30	10	1.92	0.60	3.60
		Test 1	Avg. Inf. Rate (in./hr.):	4.1	
Test 2	15:30	-	6.00	-	-
	15:40	10	5.28	0.72	4.32
	15:50	10	4.56	0.72	4.32
	16:00	10	3.84	0.72	4.32
	16:10	10	3.24	0.60	3.60
	16:20	10	2.64	0.60	3.60
	16:30	10	2.04	0.60	3.60
		Test 2	Avg. Inf. Rate (in./hr.):	4.0	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-9A

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.60

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	8:10	-	12.00	-	-
	8:55	45	0.00	12.00	N/A
Test 1	8:58	-	6.00	-	-
	9:03	5	5.04	0.96	11.52
	9:08	5	4.08	0.96	11.52
	9:13	5	3.12	0.96	11.52
	9:18	5	2.16	0.96	11.52
	9:23	5	1.56	0.60	7.20
	9:28	5	0.96	0.60	7.20
Test 2	9:33	5	0.36	0.60	7.20
		Test 1	Avg. Inf. Rate (in./hr.):	9.67	
	9:38	-	6.00	-	-
	9:43	5	5.16	0.84	10.08
	9:48	5	4.32	0.84	10.08
	9:53	5	3.60	0.72	8.64
	9:58	5	2.88	0.72	8.64
	10:03	5	2.16	0.72	8.64
	10:08	5	1.44	0.72	8.64
	10:13	5	0.72	0.72	8.64
	10:18	5	0.00	0.72	8.64
	Test 2	Avg. Inf. Rate (in./hr.):	9.0		

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-9A

Weather Sunny/Clear, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.60

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Test 3	10:18	-	6.00	-	-
	10:23	5	5.16	0.84	10.08
	10:28	5	4.32	0.84	10.08
	10:33	5	3.60	0.72	8.64
	10:38	5	2.88	0.72	8.64
	10:43	5	2.16	0.72	8.64
	10:48	5	1.44	0.72	8.64
	10:53	5	0.72	0.72	8.64
	10:58	5	0.00	0.72	8.64
	Test 1		Avg. Inf. Rate (in./hr.):	9.0	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-9B

Weather Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 4.05

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	8:12	-	12.00	-	-
	9:12	60	3.00	9.00	N/A
Test 1	9:12	-	6.00	-	-
	9:22	10	4.56	1.44	8.64
	9:32	10	3.48	1.08	6.48
	9:42	10	2.52	0.96	5.76
	9:52	10	1.68	0.84	5.04
	10:02	10	0.84	0.84	5.04
	10:12	10	0.00	0.84	5.04
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		6.00
	10:12	-	6.00	-	-
	10:22	10	4.92	1.08	6.48
	10:32	10	3.84	1.08	6.48
	10:42	10	2.88	0.96	5.76
	10:52	10	1.92	0.96	5.76
	11:02	10	0.96	0.96	5.76
	11:12	10	0.12	0.84	5.04
	Test 2		Avg. Inf. Rate (in./hr.):		5.9

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-9C

Weather Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 4.00

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	8:17	-	12.00	-	-
	9:17	60	1.08	10.92	N/A
Test 1	9:20	-	6.00	-	-
	9:30	10	4.68	1.32	7.92
	9:40	10	3.24	1.44	8.64
	9:50	10	2.04	1.20	7.20
	10:00	10	0.96	1.08	6.48
	10:10	10	0.00	0.96	5.76
		Test 1	Avg. Inf. Rate (in./hr.):	7.2	
Test 2	10:15	-	6.00	-	-
	10:25	10	4.68	1.32	7.92
	10:35	10	3.72	0.96	5.76
	10:45	10	2.76	0.96	5.76
	10:55	10	1.92	0.84	5.04
	11:05	10	0.96	0.96	5.76
		Test 2	Avg. Inf. Rate (in./hr.):	6.0	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-9C

Weather Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 4.00

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Test 3	11:15	-	6.00	-	-
	11:25	10	4.80	1.20	7.20
	11:35	10	3.84	0.96	5.76
	11:45	10	2.88	0.96	5.76
	11:55	10	1.92	0.96	5.76
	12:05	10	0.96	0.96	5.76
	12:15	10	0.12	0.84	5.04
	Test 1		Avg. Inf. Rate (in./hr.):	5.9	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-9D

Weather Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.50

Tester/ Technician Performing Test: Mike

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	8:25	-	12.00	-	-
	9:25	60	5.00	7.00	N/A
Test 1	9:25	-	6.00	-	-
	9:35	10	4.50	1.50	9.00
	9:45	10	3.25	1.25	7.50
	9:55	10	2.25	1.00	6.00
	10:05	10	1.75	0.50	3.00
	10:15	10	1.25	0.50	3.00
	10:25	10	0.75	0.50	3.00
		Test 1	Avg. Inf. Rate (in./hr.):	5.3	
Test 2	10:25	-	6.00	-	-
	10:35	10	5.25	0.75	4.50
	10:45	10	4.75	0.50	3.00
	10:55	10	4.00	0.75	4.50
	11:05	10	3.25	0.75	4.50
	11:15	10	2.50	0.75	4.50
	11:25	10	1.75	0.75	4.50
		Test 2	Avg. Inf. Rate (in./hr.):	4.3	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-9E

Weather Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.50

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	8:25	-	12.00	-	-
	9:25	60	2.75	9.25	N/A
Test 1	9:25	-	6.00	-	-
	9:35	10	4.00	2.00	12.00
	9:45	10	3.25	0.75	4.50
	9:55	10	3.00	0.25	1.50
	10:05	10	2.75	0.25	1.50
	10:15	10	2.50	0.25	1.50
	10:25	10	2.25	0.25	1.50
		Test 1	Avg. Inf. Rate (in./hr.):	3.8	
Test 2	10:25	-	6.00	-	-
	10:35	10	5.00	1.00	6.00
	10:45	10	4.25	0.75	4.50
	10:55	10	3.50	0.75	4.50
	11:05	10	3.00	0.50	3.00
	11:15	10	2.75	0.25	1.50
	11:25	10	2.50	0.25	1.50
		Test 2	Avg. Inf. Rate (in./hr.):	3.5	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/8/2021

Project No.: 10/21/198

Test Location: TP-9E

Weather: Sunny/Clear, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.50

Tester/ Technician Performing Test: Mike

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Test 3	11:25	-	6.00	-	-
	11:35	10	5.00	1.00	6.00
	11:45	10	4.25	0.75	4.50
	11:55	10	3.75	0.50	3.00
	12:05	10	3.25	0.50	3.00
	12:15	10	3.00	0.25	1.50
	12:25	10	2.75	0.25	1.50
	Test 1		Avg. Inf. Rate (in./hr.):	3.3	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/7/2021

Project No.: 10/21/198

Test Location: TP-10A

Weather: Partly Sunny, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 4.00

Tester/ Technician Performing Test: Mike

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	12:55	-	12.00	-	-
	13:55	60	10.80	1.20	N/A
Test 1	15:00	-	6.00	-	-
	15:10	10	5.50	0.50	3.00
	15:20	10	5.00	0.50	3.00
	15:30	10	4.75	0.25	1.50
	15:40	10	4.50	0.25	1.50
	15:50	10	4.25	0.25	1.50
	16:00	10	4.00	0.25	1.50
		Test 1	Avg. Inf. Rate (in./hr.):	2.0	
Test 2	16:00	-	6.00	-	-
	16:10	10	5.75	0.25	1.50
	16:20	10	5.25	0.50	3.00
	16:30	10	5.00	0.25	1.50
	16:40	10	4.75	0.25	1.50
	16:50	10	4.50	0.25	1.50
	17:00	10	4.25	0.25	1.50
		Test 2	Avg. Inf. Rate (in./hr.):	1.8	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/7/2021

Project No.: 10/21/198

Test Location: TP-10B

Weather: Partly Sunny, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 2.90

Tester/ Technician Performing Test: Mike

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	13:00	-	12.00	-	-
	14:00	60	9.00	3.00	N/A
Test 1	15:05	-	6.00	-	-
	15:15	10	5.50	0.50	3.00
	15:25	10	5.00	0.50	3.00
	15:35	10	4.75	0.25	1.50
	15:45	10	4.75	0.00	0.00
	15:55	10	4.75	0.00	0.00
	16:05	10	4.75	0.00	0.00
		Test 1	Avg. Inf. Rate (in./hr.):	1.3	
Test 2	16:05	-	6.00	-	-
	16:15	10	5.75	0.25	1.50
	16:25	10	5.50	0.25	1.50
	16:35	10	5.25	0.25	1.50
	16:45	10	5.00	0.25	1.50
	16:55	10	5.00	0.00	0.00
	17:05	10	5.00	0.00	0.00
		Test 2	Avg. Inf. Rate (in./hr.):	1.0	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/7/2021

Project No.: 10/21/198

Test Location: TP-10C

Weather: Partly Sunny, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.00

Tester/ Technician Performing Test: Mike

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	8:50	-	12.00	-	-
	9:40	50	0.00	12.00	N/A
Test 1	9:45	-	6.00	-	-
	9:55	10	3.96	2.04	12.24
	10:05	10	3.00	0.96	5.76
	10:15	10	2.16	0.84	5.04
	10:25	10	1.44	0.72	4.32
	10:35	10	0.84	0.60	3.60
	10:45	10	0.36	0.48	2.88
			Test 1	Avg. Inf. Rate (in./hr.):	
Test 2	11:10	-	6.00	-	-
	11:20	10	4.92	1.08	6.48
	11:30	10	3.84	1.08	6.48
	11:40	10	2.88	0.96	5.76
	11:50	10	1.92	0.96	5.76
	12:00	10	1.20	0.72	4.32
	12:10	10	0.48	0.72	4.32
			Test 2	Avg. Inf. Rate (in./hr.):	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/6/2021

Project No.: 10/21/198

Test Location: TP-11A

Weather: Partly Sunny, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 1.00

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	9:55	-	12.00	-	-
	10:55	60	9.72	2.28	N/A
Test 1	10:56	-	6.00	-	-
	11:11	15	5.52	0.48	1.92
	11:26	15	5.04	0.48	1.92
	11:31	15	4.56	0.48	1.92
	11:56	15	4.08	0.48	1.92
	Test 1		Avg. Inf. Rate (in./hr.):	1.9	
Test 2	11:57	-	6.00	-	-
	12:12	15	5.60	0.40	1.60
	12:27	15	5.12	0.48	1.92
	12:42	15	4.64	0.48	1.92
	12:57	15	4.16	0.48	1.92
	Test 2		Avg. Inf. Rate (in./hr.):	1.8	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/6/2021

Project No.: 10/21/198

Test Location: TP-11B

Weather: Partly Sunny, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 1.00

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	9:50	-	12.00	-	-
	10:50	60	11.52	0.48	N/A
Test 1	10:51	-	6.00	-	-
	11:06	15	5.88	0.12	0.48
	11:21	15	5.76	0.12	0.48
	11:36	15	5.64	0.12	0.48
	11:51	15	5.52	0.12	0.48
			Test 1	Avg. Inf. Rate (in./hr.):	0.5
Test 2	11:52	-	6.00	-	-
	12:07	15	5.88	0.12	0.48
	12:22	15	5.76	0.12	0.48
	12:37	15	5.76	0.00	0.00
	12:52	15	5.64	0.12	0.48
			Test 2	Avg. Inf. Rate (in./hr.):	0.4

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/7/2021

Project No.: 10/21/198

Test Location: TP-12A

Weather: Partly Sunny, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.50

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	9:10	-	12.00	-	-
	10:10	60	1.80	10.20	N/A
Test 1	10:20	-	6.00	-	-
	10:30	10	5.04	0.96	5.76
	10:40	10	4.08	0.96	5.76
	10:50	10	3.24	0.84	5.04
	11:00	10	2.40	0.84	5.04
	11:10	10	1.56	0.84	5.04
	11:20	10	0.84	0.72	4.32
		Test 1	Avg. Inf. Rate (in./hr.):	5.2	
Test 2	11:25	-	6.00	-	-
	11:35	10	5.04	0.96	5.76
	11:45	10	4.20	0.84	5.04
	11:55	10	3.36	0.84	5.04
	12:05	10	2.52	0.84	5.04
	12:15	10	1.68	0.84	5.04
	12:25	10	0.96	0.72	4.32
		Test 2	Avg. Inf. Rate (in./hr.):	5.0	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/7/2021

Project No.: 10/21/198

Test Location: TP-12B

Weather: Partly Sunny, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 3.00

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	9:08	-	12.00	-	-
	10:08	60	4.08	7.92	N/A
Test 1	10:15	-	6.00	-	-
	10:25	10	5.16	0.84	5.04
	10:35	10	4.32	0.84	5.04
	10:45	10	3.48	0.84	5.04
	10:55	10	2.76	0.72	4.32
	11:05	10	1.92	0.84	5.04
	11:10	10	1.20	0.72	4.32
		Test 1		Avg. Inf. Rate (in./hr.):	
Test 2	11:20	-	6.00	-	-
	11:30	10	5.16	0.84	5.04
	11:40	10	4.20	0.96	5.76
	11:50	10	3.36	0.84	5.04
	12:00	10	2.52	0.84	5.04
	12:10	10	1.80	0.72	4.32
	12:20	10	1.08	0.72	4.32
		Test 2		Avg. Inf. Rate (in./hr.):	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/7/2021

Project No.: 10/21/198

Test Location: TP-12C

Weather Partly Sunny, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 2.00

Tester/ Technician Performing Test: Trey

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	9:02	-	12.00	-	-
	9:47	45	0.00	12.00	N/A
Test 1	11:02	-	6.00	-	-
	11:12	10	5.40	0.60	3.60
	11:22	10	4.92	0.48	2.88
	11:32	10	4.44	0.48	2.88
	11:42	10	3.96	0.48	2.88
	11:52	10	3.48	0.48	2.88
	12:02	10	3.00	0.48	2.88
	Test 1		Avg. Inf. Rate (in./hr.):		3.0
Test 2	12:05	-	6.00	-	-
	12:15	10	5.40	0.60	3.60
	12:25	10	4.92	0.48	2.88
	12:35	10	4.44	0.48	2.88
	12:45	10	3.96	0.48	2.88
	12:55	10	3.48	0.48	2.88
	13:05	10	3.12	0.36	2.16
	Test 2		Avg. Inf. Rate (in./hr.):		2.9

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/7/2021

Project No.: 10/21/198

Test Location: TP-12D

Weather Partly Sunny, 92°

Depth of Ring Embedment: 2 in.

Test Depth: 1.80

Tester/ Technician Performing Test: Trey

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	9:00	-	12.00	-	-
	10:00	60	0.00	12.00	N/A
Test 1	10:00	-	6.00	-	-
	10:10	10	5.04	0.96	5.76
	10:20	10	4.32	0.72	4.32
	10:30	10	3.60	0.72	4.32
	10:40	10	2.88	0.72	4.32
	10:50	10	2.16	0.72	4.32
	11:00	10	1.44	0.72	4.32
		Test 1		Avg. Inf. Rate (in./hr.):	4.6
Test 2	11:00	-	6.00	-	-
	11:10	10	5.16	0.84	5.04
	11:20	10	4.44	0.72	4.32
	11:30	10	3.72	0.72	4.32
	11:40	10	3.00	0.72	4.32
	11:50	10	2.28	0.72	4.32
	12:00	10	1.56	0.72	4.32
		Test 2		Avg. Inf. Rate (in./hr.):	4.4

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/6/2021

Project No.:

10/21/198

Test Location: TP-13A

Weather Partly Sunny, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.55

Tester/ Technician Performing Test: Ben

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	13:32	-	12.00	-	-
	14:17	45	0.00	12.00	N/A
Test 1	14:22	-	6.00	-	-
	14:27	5	5.04	0.96	11.52
	14:32	5	4.08	0.96	11.52
	14:37	5	3.12	0.96	11.52
	14:42	5	2.28	0.84	10.08
	14:47	5	1.44	0.84	10.08
	14:52	5	0.60	0.84	10.08
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		10.8
	14:57	-	6.00	-	-
	15:02	5	5.04	0.96	11.52
	15:07	5	4.20	0.84	10.08
	15:12	5	3.36	0.84	10.08
	15:17	5	2.52	0.84	10.08
	15:22	5	1.68	0.84	10.08
	15:27	5	0.84	0.84	10.08
	15:32	5	0.00	0.84	10.08
	Test 2		Avg. Inf. Rate (in./hr.):		10.3

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/6/2021

Project No.: 10/21/198

Test Location: TP-13A

Weather: Partly Sunny, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.55

Tester/ Technician Performing Test: Ben

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Test 3	15:32	-	6.00	-	-
	15:37	5	5.04	0.96	11.52
	15:42	5	4.20	0.84	10.08
	15:47	5	3.36	0.84	10.08
	15:52	5	2.52	0.84	10.08
	15:57	5	1.68	0.84	10.08
	16:02	5	0.96	0.72	8.64
	16:07	5	0.24	0.72	8.64
	Test 1		Avg. Inf. Rate (in./hr.):	9.9	
Test 4	16:15	-	6.00	-	-
	16:20	5	5.04	0.96	11.52
	16:25	5	4.08	0.96	11.52
	16:30	5	3.24	0.84	10.08
	16:35	5	2.40	0.84	10.08
	16:40	5	1.68	0.72	8.64
	16:45	5	0.96	0.72	8.64
	16:50	5	0.24	0.72	8.64
	Test 2		Avg. Inf. Rate (in./hr.):	9.9	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/6/2021

Project No.:

10/21/198

Test Location: TP-13B

Weather Partly Sunny, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.10

Tester/ Technician Performing Test: Ben

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	13:30	-	12.00	-	-
	14:15	45	0.00	12.00	N/A
Test 1	14:20	-	6.00	-	-
	14:25	5	4.80	1.20	14.40
	14:30	5	3.60	1.20	14.40
	14:35	5	2.52	1.08	12.96
	14:40	5	1.44	1.08	12.96
	14:45	5	0.36	1.08	12.96
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		13.5
	14:50	-	6.00	-	-
	14:55	5	4.92	1.08	12.96
	15:00	5	3.96	0.96	11.52
	15:05	5	3.00	0.96	11.52
	15:10	5	2.16	0.84	10.08
	15:15	5	1.32	0.84	10.08
	15:20	5	0.48	0.84	10.08
	Test 2		Avg. Inf. Rate (in./hr.):		11.0

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/6/2021

Project No.:

10/21/198

Test Location: TP-13B

Weather Partly Sunny, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 3.10

Tester/ Technician Performing Test: Ben

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Test 3	15:25	-	6.00	-	-
	15:30	5	5.16	0.84	10.08
	15:35	5	4.32	0.84	10.08
	15:40	5	3.48	0.84	10.08
	15:45	5	2.76	0.72	8.64
	15:50	5	2.04	0.72	8.64
	15:55	5	1.32	0.72	8.64
	16:00	5	0.50	0.82	9.84
	Test 1		Avg. Inf. Rate (in./hr.):	9.4	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/6/2021

Project No.:

10/21/198

Test Location: TP-13C

Weather Partly Sunny, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 2.35

Tester/ Technician Performing Test: Rich

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	12:05	-	12.00	-	-
	13:05	60	4.80	7.20	N/A
Test 1	13:10	-	6.00	-	-
	13:20	10	5.04	0.96	5.76
	13:30	10	4.20	0.84	5.04
	13:40	10	3.24	0.96	5.76
	13:50	10	2.52	0.72	4.32
	14:00	10	1.80	0.72	4.32
	14:10	10	1.08	0.72	4.32
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		4.9
	14:11	-	6.00	-	-
	14:21	10	5.04	0.96	5.76
	14:31	10	4.20	0.84	5.04
	14:41	10	3.36	0.84	5.04
	14:51	10	2.64	0.72	4.32
	15:01	10	1.92	0.72	4.32
	15:11	10	1.20	0.72	4.32
	Test 2		Avg. Inf. Rate (in./hr.):		4.8

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/6/2021

Project No.:

10/21/198

Test Location: TP-14A

Weather Partly Sunny, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 2.01

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	10:26	-	12.00	-	-
	11:01	45	0.00	12.00	N/A
Test 1	11:16	-	6.00	-	-
	11:21	5	5.16	0.84	10.08
	11:26	5	4.08	1.08	12.96
	11:31	5	3.12	0.96	11.52
	11:36	5	2.16	0.96	11.52
	11:41	5	1.20	0.96	11.52
	11:46	5	0.24	0.96	11.52
Test 2	Test 1		Avg. Inf. Rate (in./hr.):		11.5
	11:51	-	6.00	-	-
	11:56	5	5.16	0.84	10.08
	12:01	5	4.32	0.84	10.08
	12:06	5	3.48	0.84	10.08
	12:11	5	2.64	0.84	10.08
	12:16	5	1.80	0.84	10.08
	12:21	5	0.96	0.84	10.08
	12:26	5	0.24	0.72	8.64
	Test 2		Avg. Inf. Rate (in./hr.):		9.9

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/6/2021

Project No.:

10/21/198

Test Location: TP-14A

Weather Partly Sunny, 90°

Depth of Ring Embedment: 2 in.

Test Depth: 2.01

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Test 3	12:31	-	6.00	-	-
	12:36	5	5.16	0.84	10.08
	12:41	5	4.44	0.72	8.64
	12:46	5	3.72	0.72	8.64
	12:51	5	3.00	0.72	8.64
	12:56	5	2.28	0.72	8.64
	13:01	5	1.56	0.72	8.64
	13:06	5	0.84	0.72	8.64
	13:11	5	0.12	0.72	8.64
	Test 1		Avg. Inf. Rate (in./hr.):	8.8	

**Falling Head
Single Ring Infiltration Test
4 inch Ring**

Project: Bridgeville Town Center

7/6/2021

Project No.: 10/21/198

Test Location: TP-14B

Weather: Partly Sunny, 90°

Depth of Ring Embedment: 2 in.

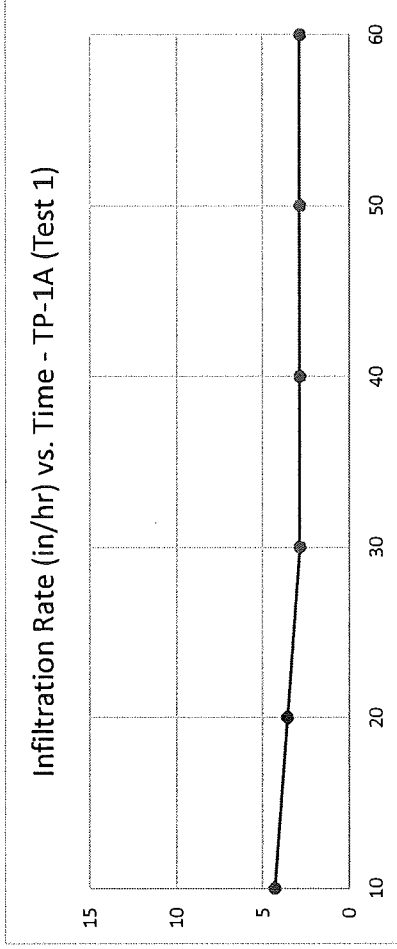
Test Depth: 1.93

Tester/ Technician Performing Test: Brian

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)	Incremental Inf. Rate (in/hr)
Presoak	10:22	-	12.00	-	-
	11:22	60	10.20	1.80	N/A
Test 1	11:25	-	6.00	-	-
	11:40	15	5.64	0.36	1.44
	11:55	15	5.28	0.36	1.44
	12:10	15	4.92	0.36	1.44
	12:25	15	4.68	0.24	0.96
	Test 1		Avg. Inf. Rate (in./hr.):	1.3	
Test 2	12:25	-	6.00	-	-
	12:40	15	5.64	0.36	1.44
	12:55	15	5.28	0.36	1.44
	13:10	15	5.04	0.24	0.96
	13:25	15	4.68	0.36	1.44
	Test 2		Avg. Inf. Rate (in./hr.):	1.3	

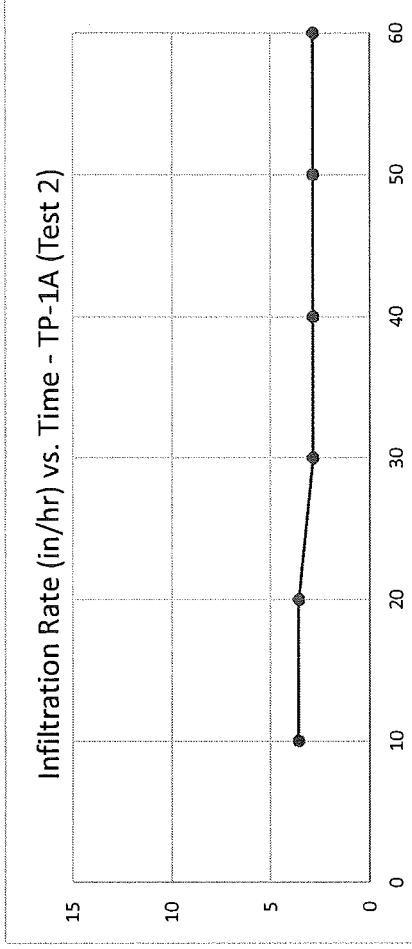
Bridgeville Town Center
TP-1A Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	4.32
2	10	20	3.6
3	10	30	2.88
4	10	40	2.88
5	10	50	2.88
6	10	60	2.88



Test 2

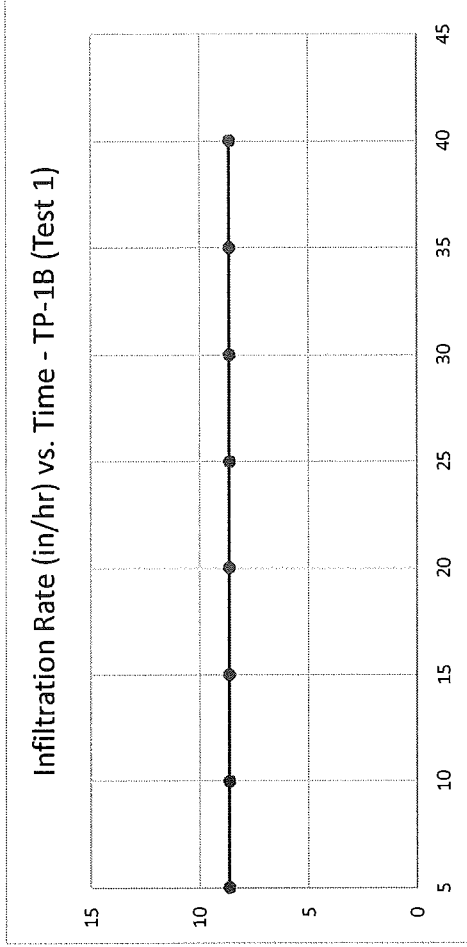
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3.6
2	10	20	3.6
3	10	30	2.88
4	10	40	2.88
5	10	50	2.88
6	10	60	2.88



Bridgeville Town Center
TP-1B

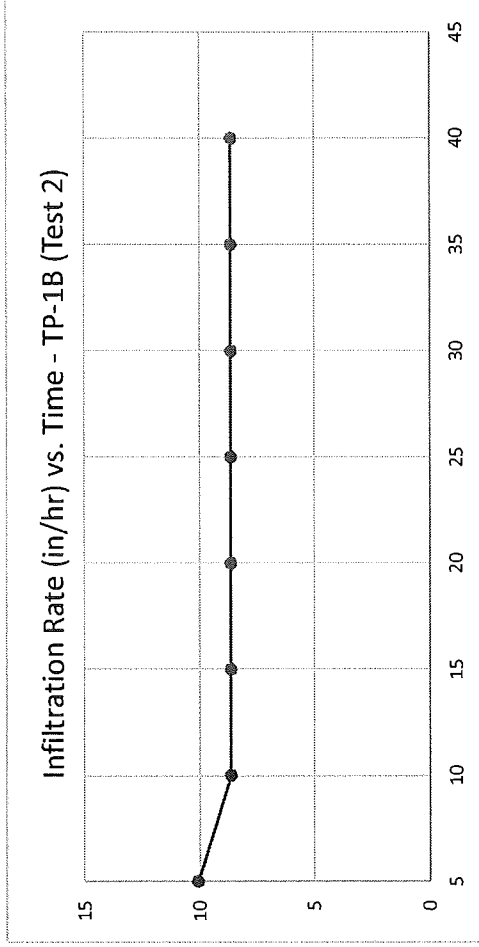
Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	8.64
2	5	10	8.64
3	5	15	8.64
4	5	20	8.64
5	5	25	8.64
6	5	30	8.64
7	5	35	8.64
8	5	40	8.64



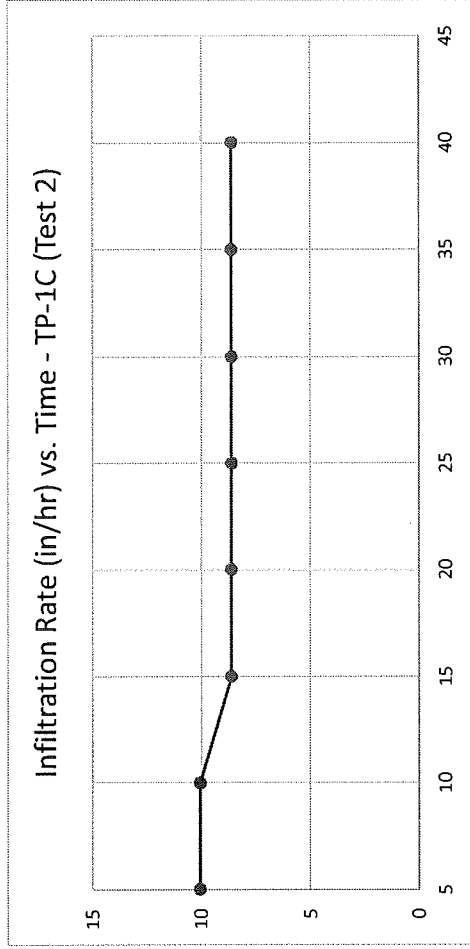
Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	10.08
2	5	10	8.64
3	5	15	8.64
4	5	20	8.64
5	5	25	8.64
6	5	30	8.64
7	5	35	8.64
8	5	40	8.64



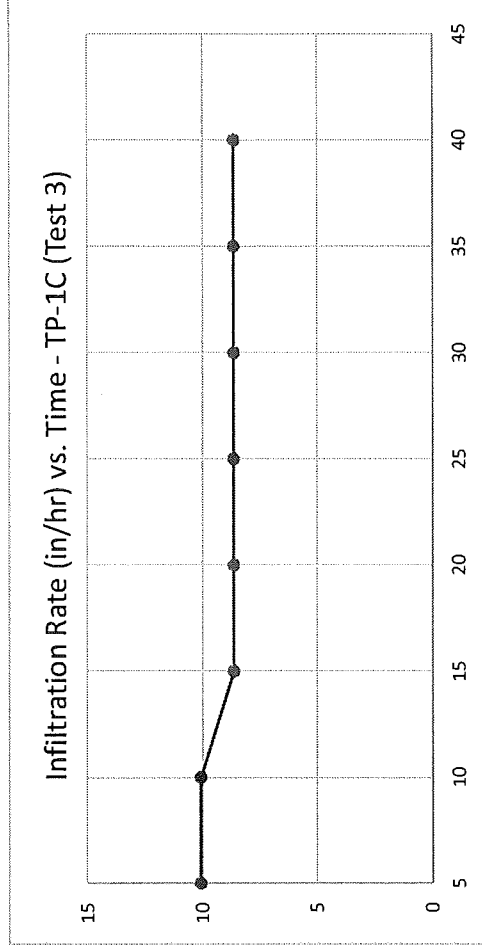
Bridgeville Town Center
TP-1C Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	10.08
2	5	10	10.08
3	5	15	8.64
4	5	20	8.64
5	5	25	8.64
6	5	30	8.64
7	5	35	8.64
8	5	40	8.64



Test 3

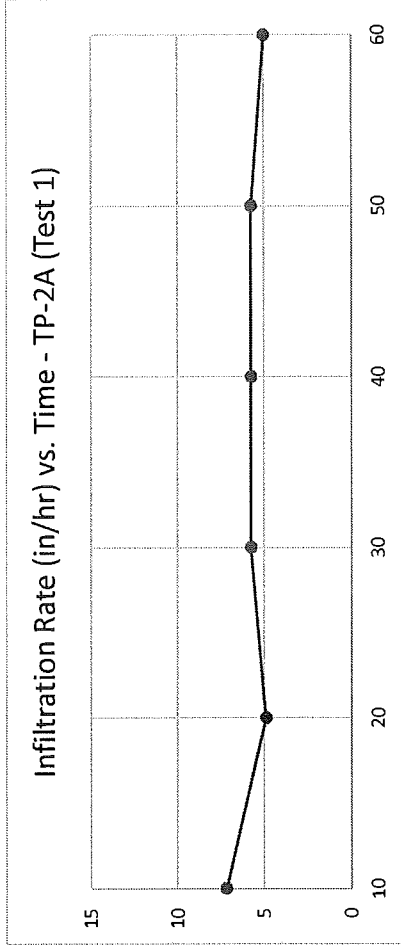
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	10.08
2	5	10	10.08
3	5	15	8.64
4	5	20	8.64
5	5	25	8.64
6	5	30	8.64
7	5	35	8.64
8	5	40	8.64



Bridgeville Town Center

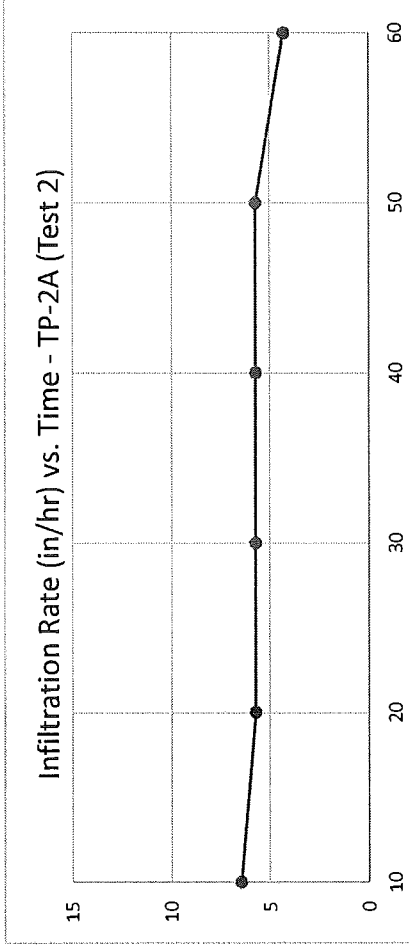
TP-2A Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	7.2
2	10	20	4.92
3	10	30	5.76
4	10	40	5.76
5	10	50	5.76
6	10	60	5.04



Test 2

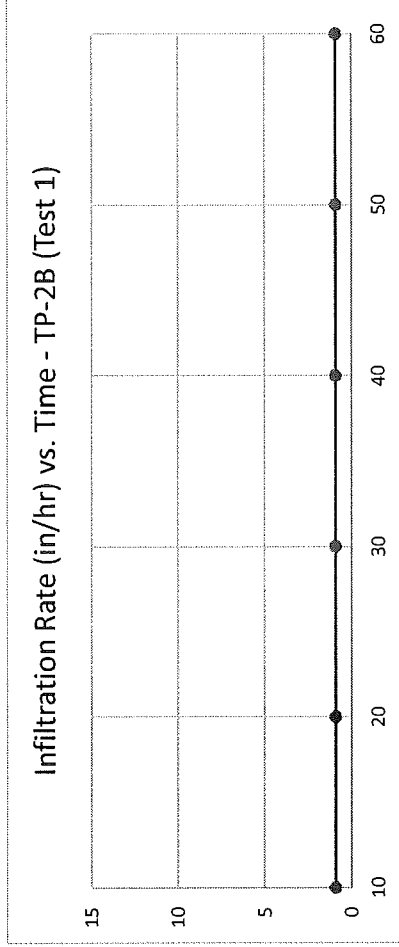
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	6.48
2	10	20	5.76
3	10	30	5.76
4	10	40	5.76
5	10	50	5.76
6	10	60	4.32



Bridgeville Town Center
TP-2B

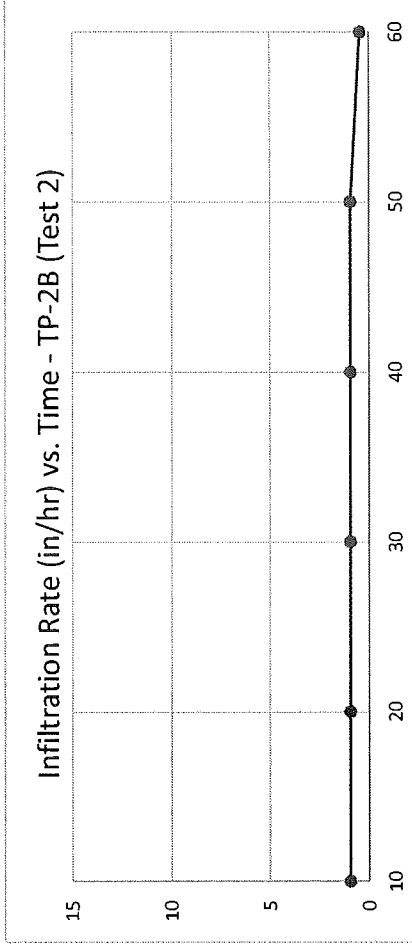
Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	0.96
2	10	20	0.96
3	10	30	0.96
4	10	40	0.96
5	10	50	0.96
6	10	60	0.96



Test 2

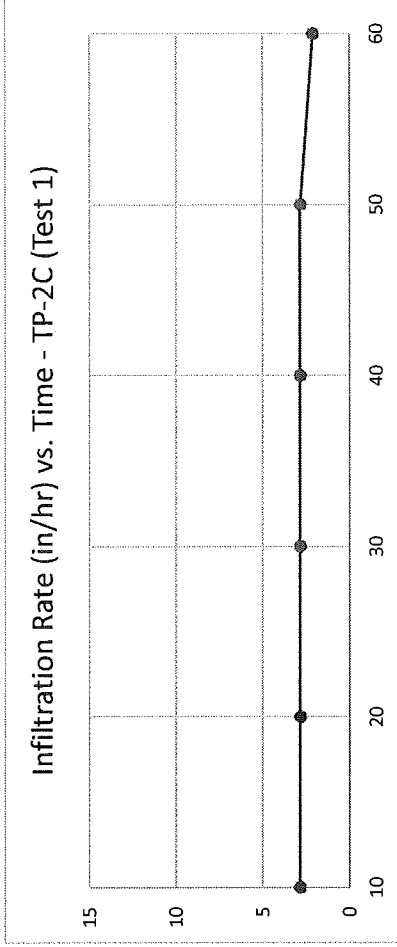
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	0.96
2	10	20	0.96
3	10	30	0.96
4	10	40	0.96
5	10	50	0.96
6	10	60	0.48



Bridgeville Town Center
TP-2C

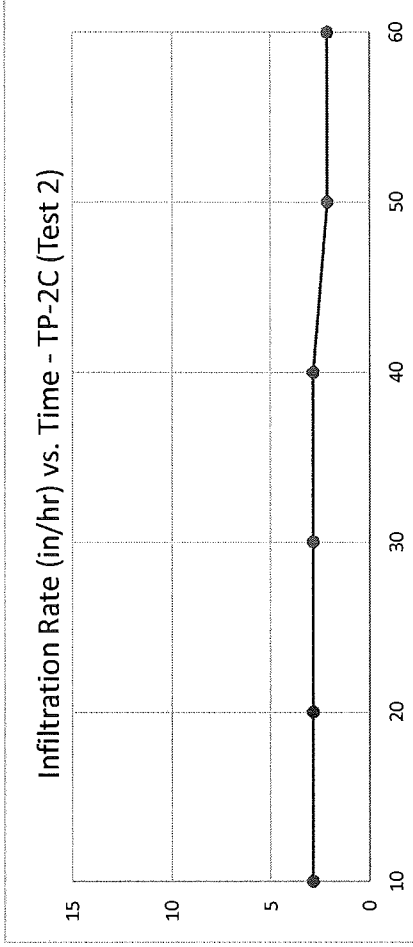
Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	2.88
2	10	20	2.88
3	10	30	2.88
4	10	40	2.88
5	10	50	2.88
6	10	60	2.16



Test 2

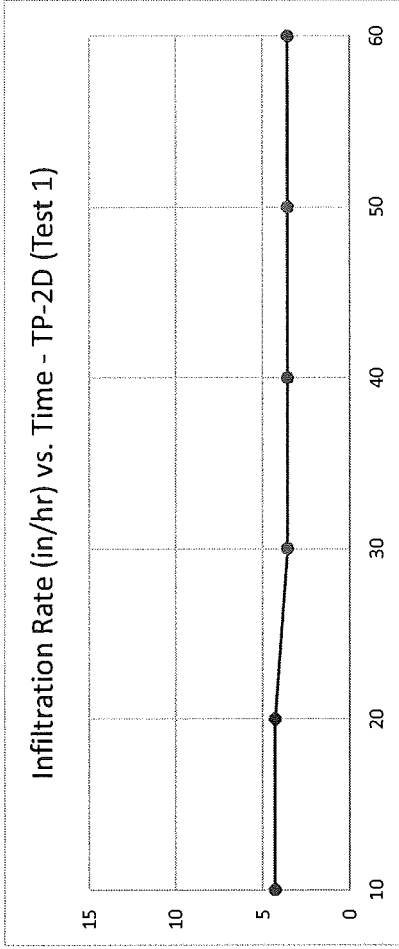
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	2.88
2	10	20	2.88
3	10	30	2.88
4	10	40	2.88
5	10	50	2.16
6	10	60	2.16



Bridgeville Town Center

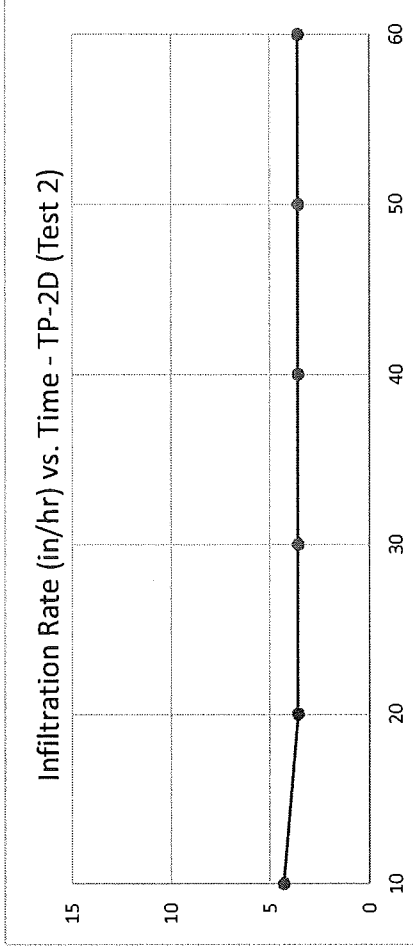
TP-2D Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	4.32
2	10	20	4.32
3	10	30	3.6
4	10	40	3.6
5	10	50	3.6
6	10	60	3.6



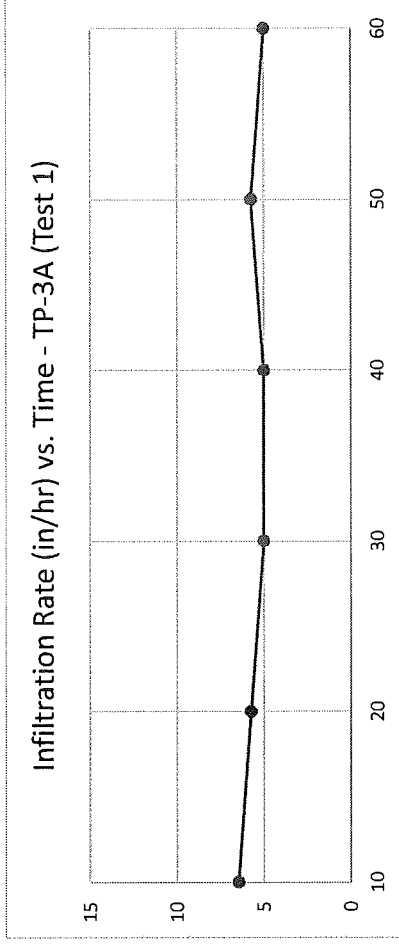
Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	4.32
2	10	20	3.6
3	10	30	3.6
4	10	40	3.6
5	10	50	3.6
6	10	60	3.6



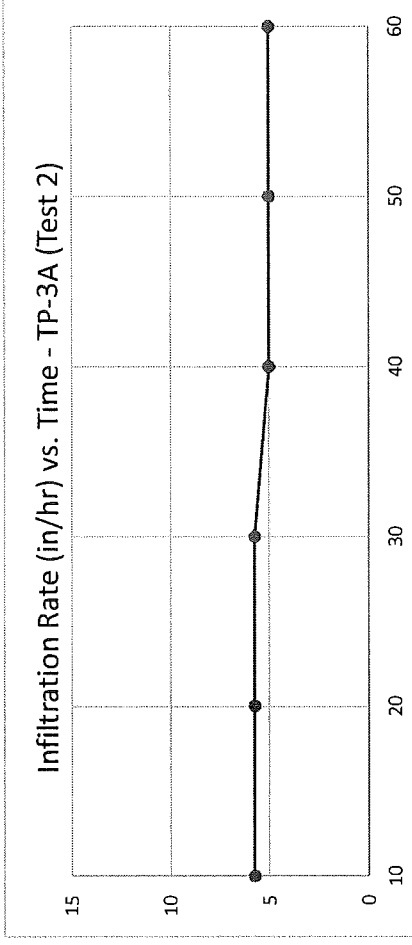
Bridgeville Town Center
TP-3A Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	6.48
2	10	20	5.76
3	10	30	5.04
4	10	40	5.04
5	10	50	5.76
6	10	60	5.04



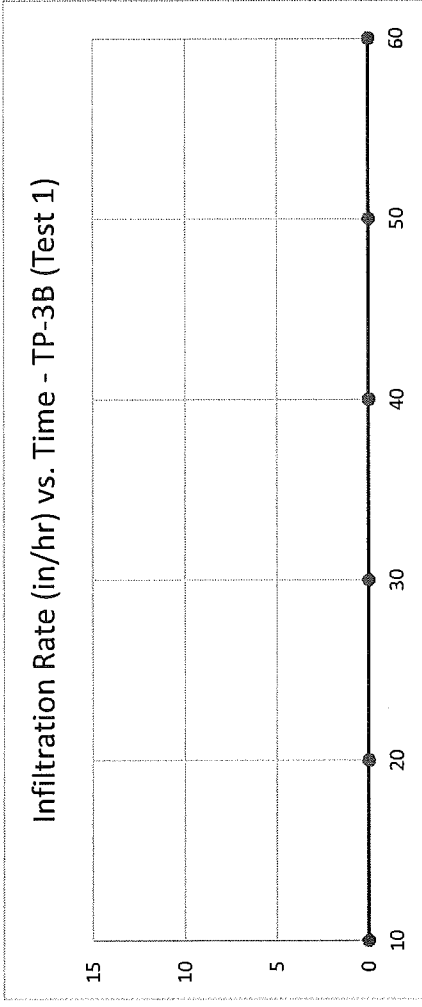
Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	5.76
2	10	20	5.76
3	10	30	5.76
4	10	40	5.04
5	10	50	5.04
6	10	60	5.04



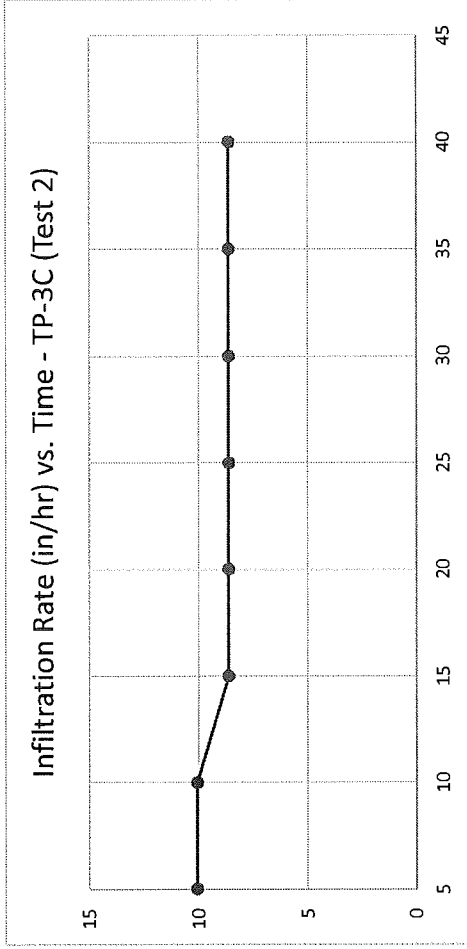
Bridgeville Town Center
TP-3B Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	0
2	10	20	0
3	10	30	0
4	10	40	0
5	10	50	0
6	10	60	0



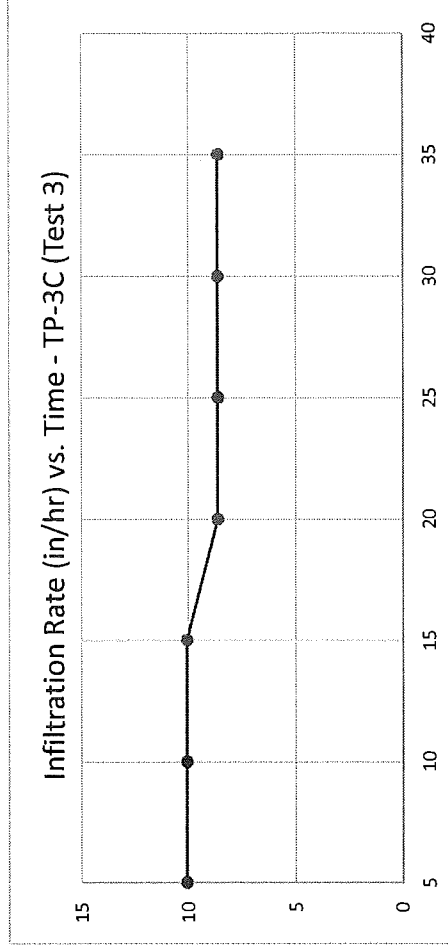
Bridgeville Town Center
TP-3C Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	10.08
2	5	10	10.08
3	5	15	8.64
4	5	20	8.64
5	5	25	8.64
6	5	30	8.64
7	5	35	8.64
8	5	40	8.64



Test 3

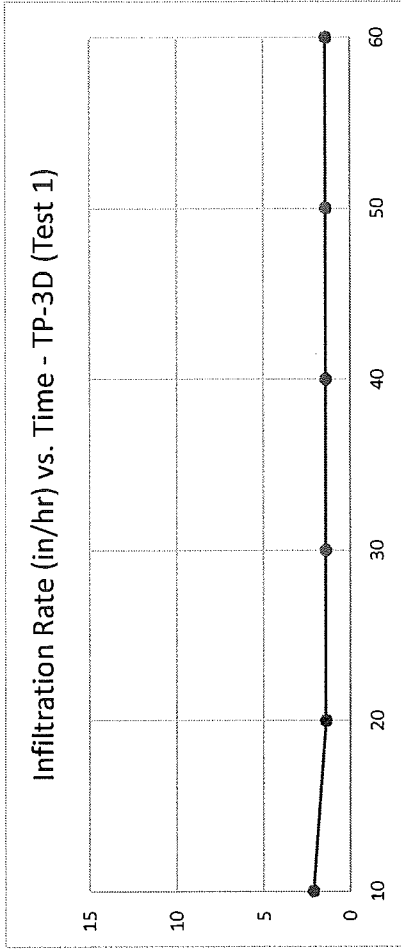
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	10.08
2	5	10	10.08
3	5	15	10.08
4	5	20	8.64
5	5	25	8.64
6	5	30	8.64
7	5	35	8.64



Bridgeville Town Center

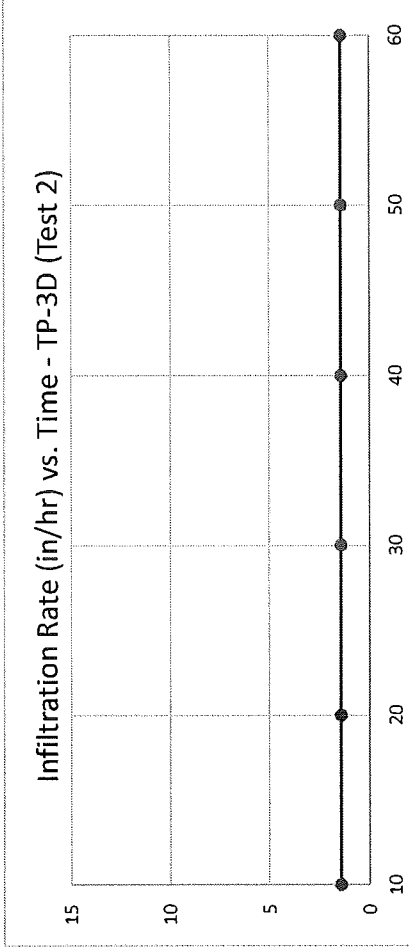
TP-3D Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	2.16
2	10	20	1.44
3	10	30	1.44
4	10	40	1.44
5	10	50	1.44
6	10	60	1.44



Test 2

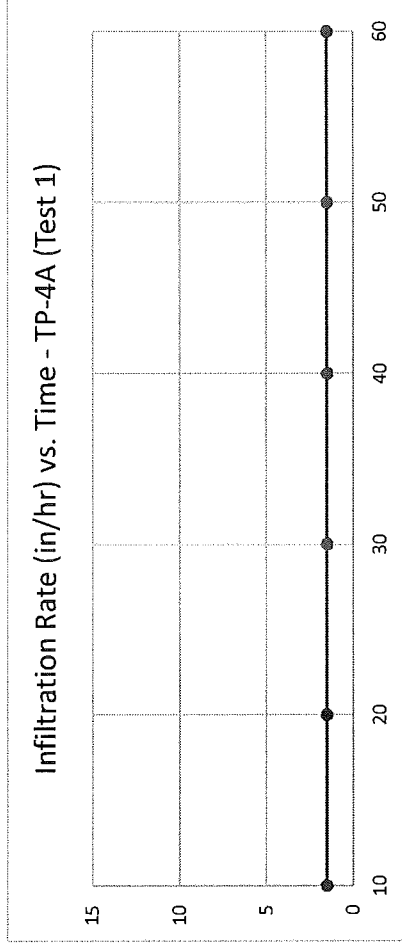
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	1.44
2	10	20	1.44
3	10	30	1.44
4	10	40	1.44
5	10	50	1.44
6	10	60	1.44



Bridgeville Town Center

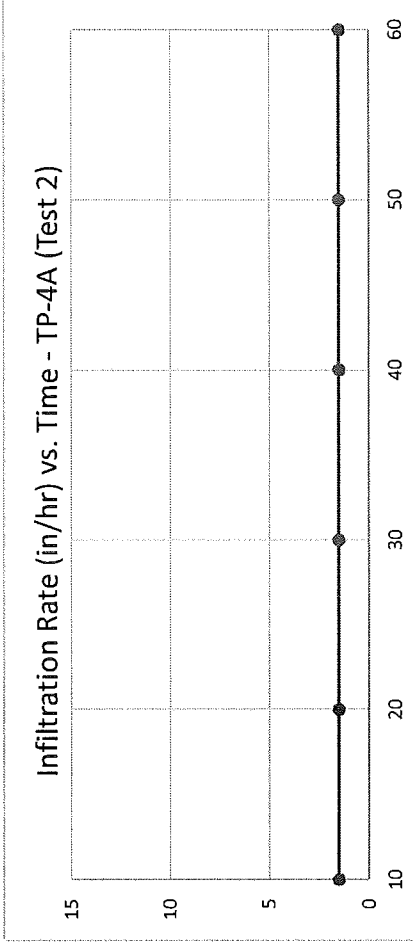
TP-4A Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	1.5
2	10	20	1.5
3	10	30	1.5
4	10	40	1.5
5	10	50	1.5
6	10	60	1.5



Test 2

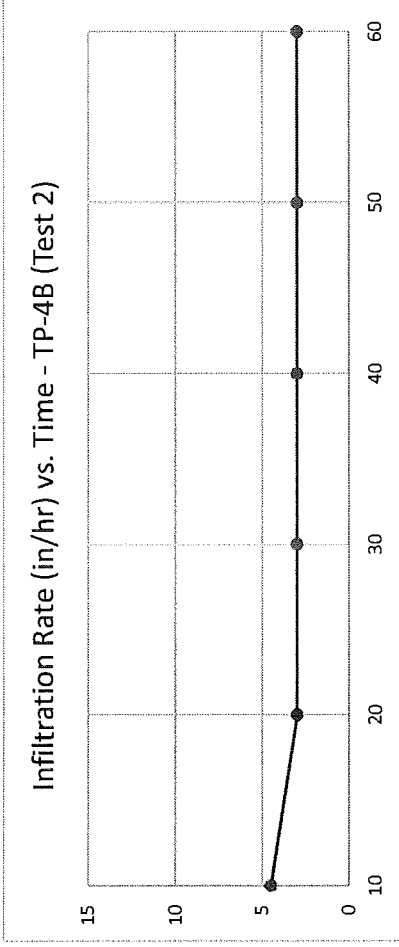
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	1.5
2	10	20	1.5
3	10	30	1.5
4	10	40	1.5
5	10	50	1.5
6	10	60	1.5



Bridgeville Town Center

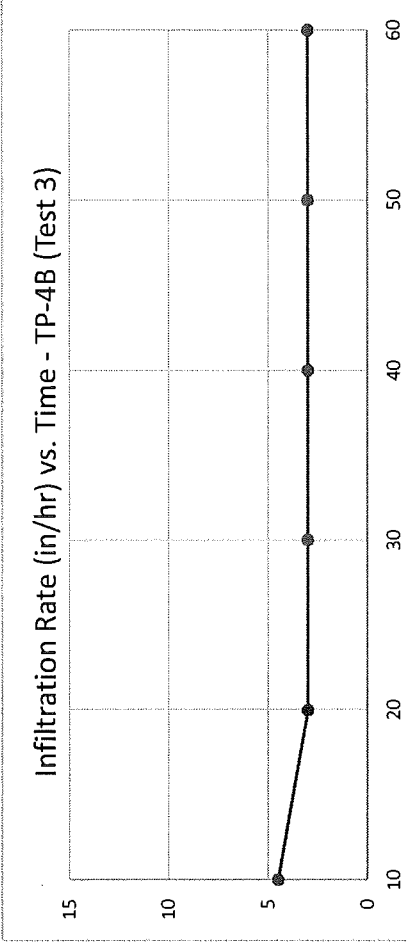
TP-4B Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	4.5
2	10	20	3
3	10	30	3
4	10	40	3
5	10	50	3
6	10	60	3



Test 3

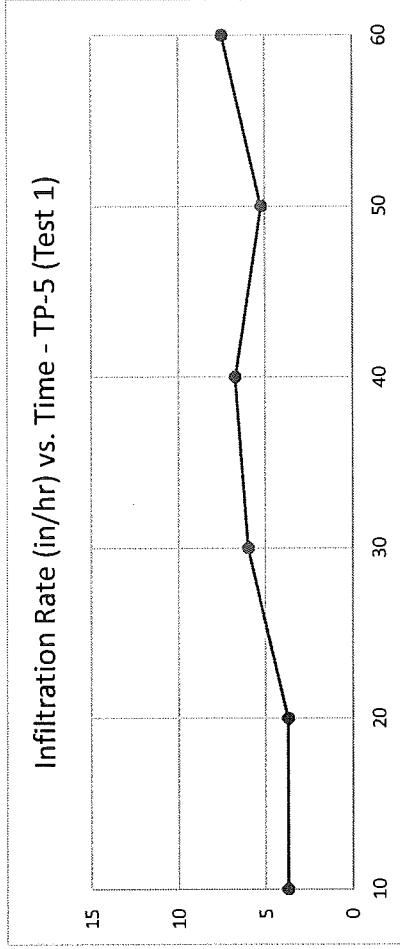
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	4.5
2	10	20	3
3	10	30	3
4	10	40	3
5	10	50	3
6	10	60	3



Bridgeville Town Center

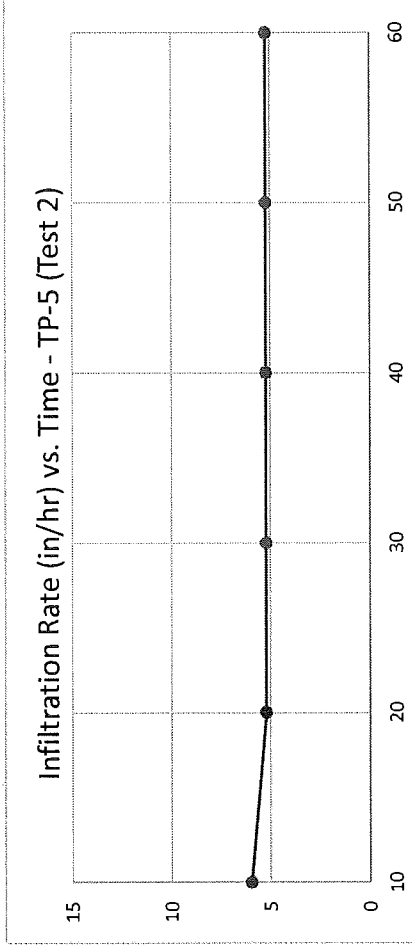
TP-5 Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3.75
2	10	20	3.75
3	10	30	6
4	10	40	6.75
5	10	50	5.25
6	10	60	7.5



Test 2

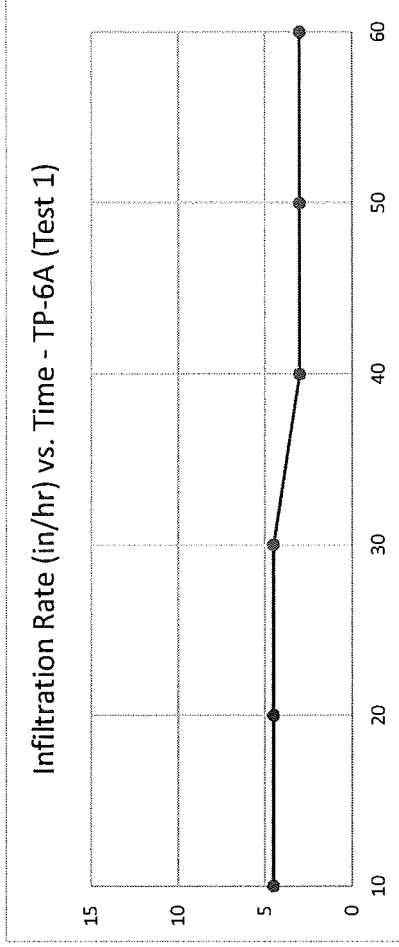
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	6
2	10	20	5.25
3	10	30	5.25
4	10	40	5.25
5	10	50	5.25
6	10	60	5.25



Bridgeville Town Center

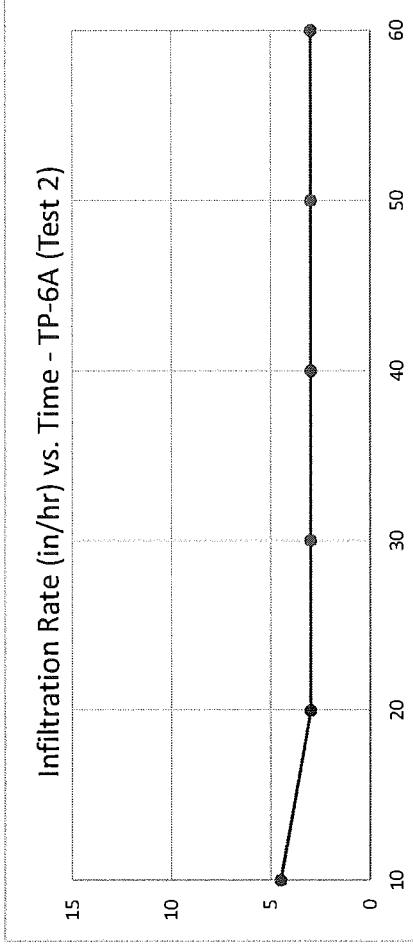
TP-6A Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	4.5
2	10	20	4.5
3	10	30	4.5
4	10	40	3
5	10	50	3
6	10	60	3



Test 2

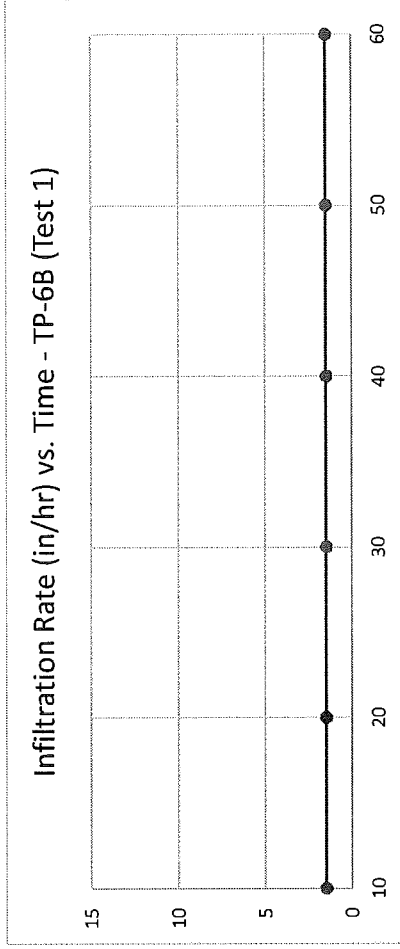
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	4.5
2	10	20	3
3	10	30	3
4	10	40	3
5	10	50	3
6	10	60	3



Bridgeville Town Center

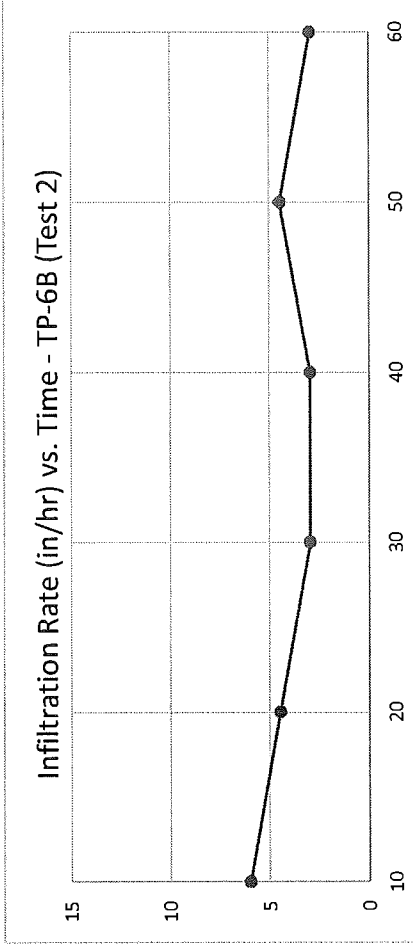
TP-6B Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	1.5
2	10	20	1.5
3	10	30	1.5
4	10	40	1.5
5	10	50	1.5
6	10	60	1.5



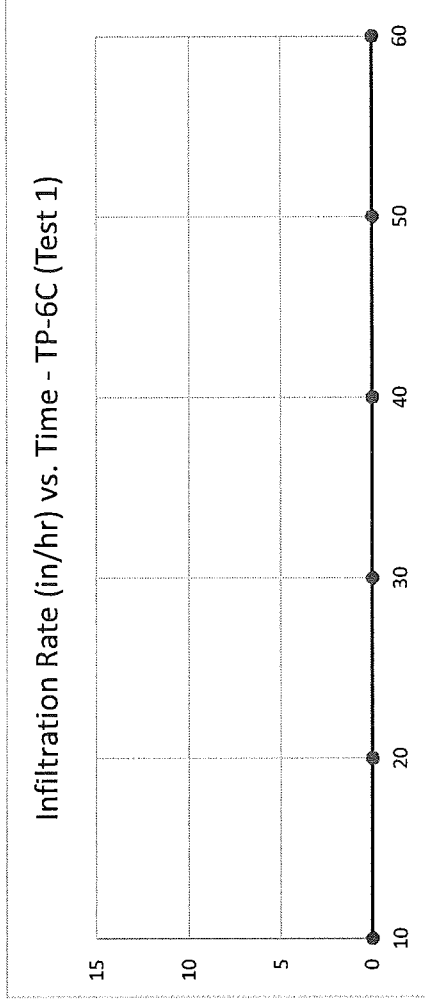
Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	6
2	10	20	4.5
3	10	30	3
4	10	40	3
5	10	50	4.5
6	10	60	3



Bridgeville Town Center
TP-6C Test 1

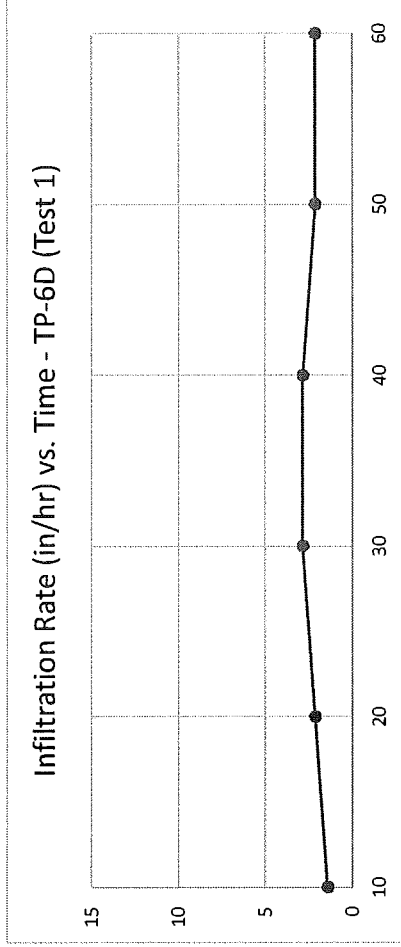
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	0
2	10	20	0
3	10	30	0
4	10	40	0
5	10	50	0
6	10	60	0



Bridgeville Town Center

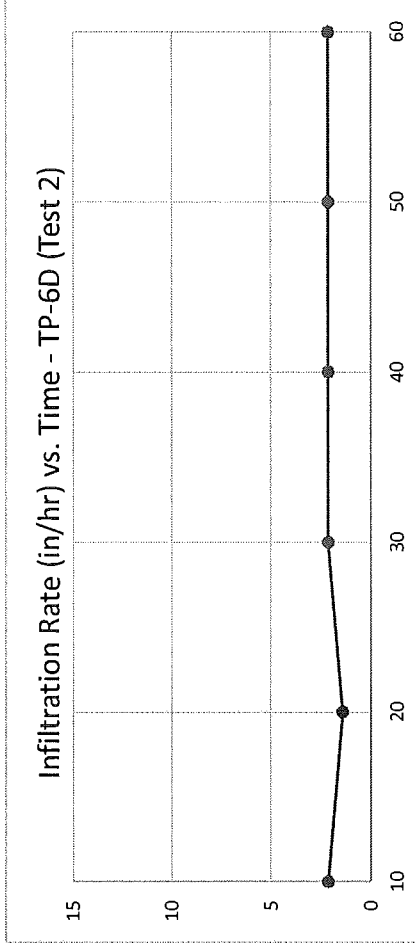
TP-6D Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	1.44
2	10	20	2.16
3	10	30	2.88
4	10	40	2.88
5	10	50	2.16
6	10	60	2.16



Test 2

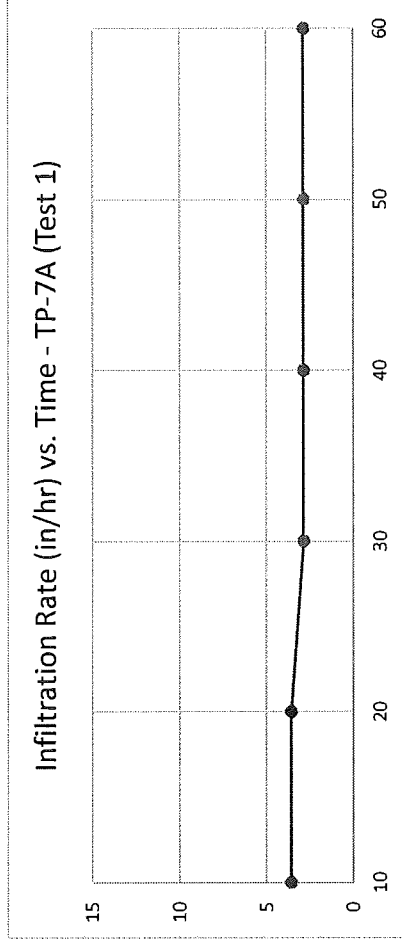
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	2.16
2	10	20	1.44
3	10	30	2.16
4	10	40	2.16
5	10	50	2.16
6	10	60	2.16



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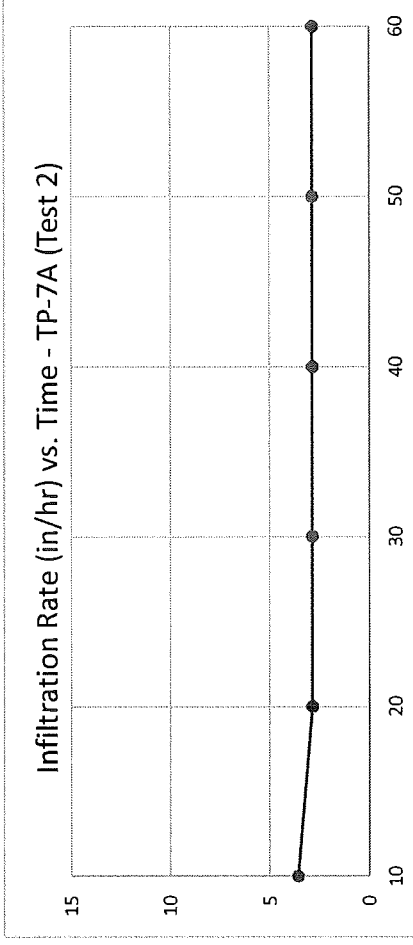
TP-7A Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3.6
2	10	20	3.6
3	10	30	2.88
4	10	40	2.88
5	10	50	2.88
6	10	60	2.88



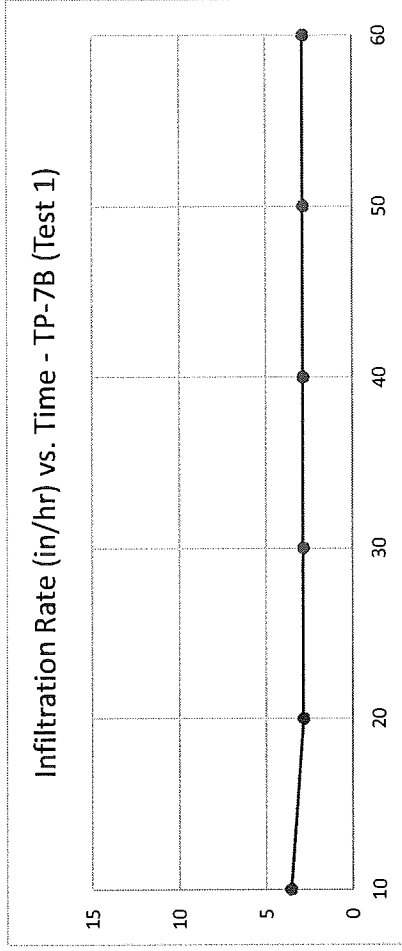
Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3.6
2	10	20	2.88
3	10	30	2.88
4	10	40	2.88
5	10	50	2.88
6	10	60	2.88



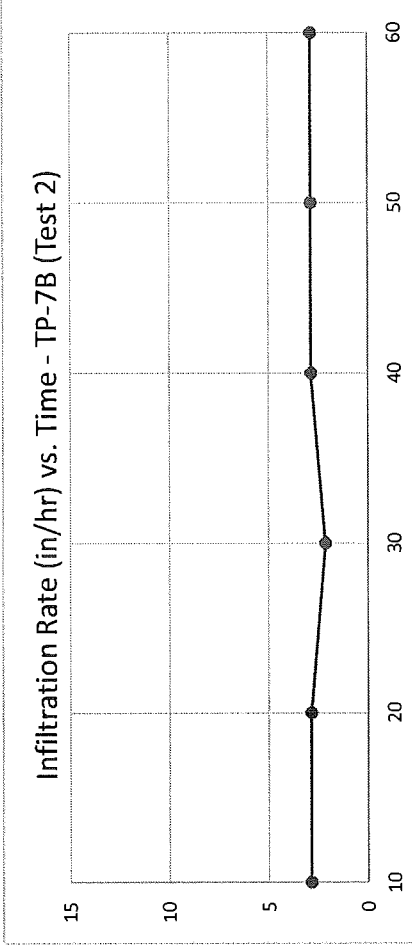
Bridgeville Town Center
TP-7B Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3.6
2	10	20	2.88
3	10	30	2.88
4	10	40	2.88
5	10	50	2.88
6	10	60	2.88



Test 2

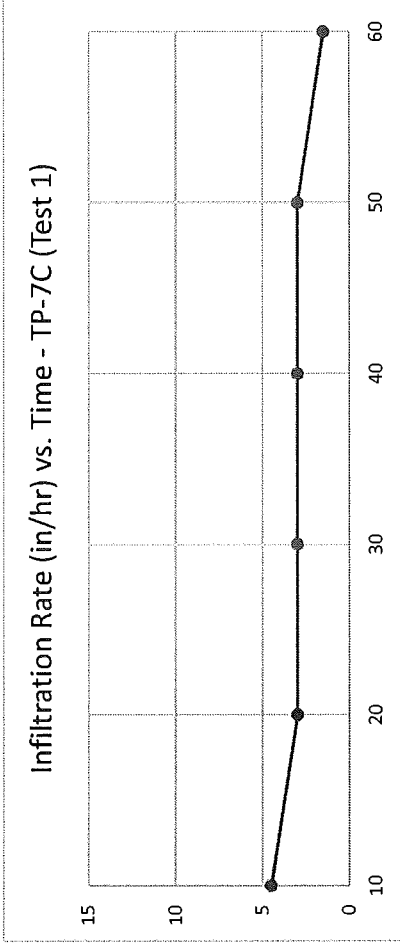
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	2.88
2	10	20	2.88
3	10	30	2.16
4	10	40	2.88
5	10	50	2.88
6	10	60	2.88



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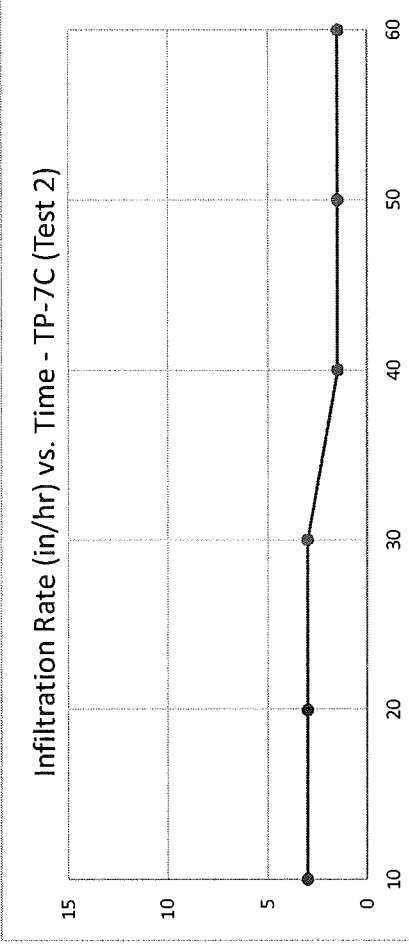
TP-7C Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	4.5
2	10	20	3
3	10	30	3
4	10	40	3
5	10	50	3
6	10	60	1.5



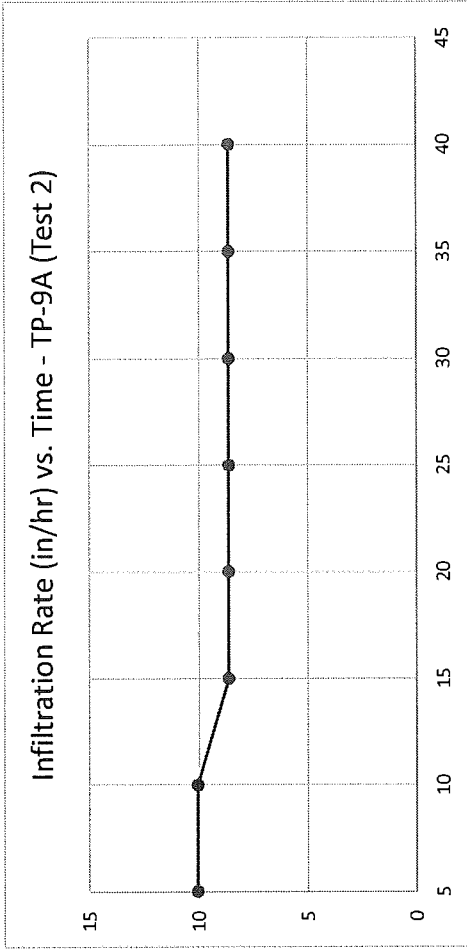
Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3
2	10	20	3
3	10	30	3
4	10	40	1.5
5	10	50	1.5
6	10	60	1.5



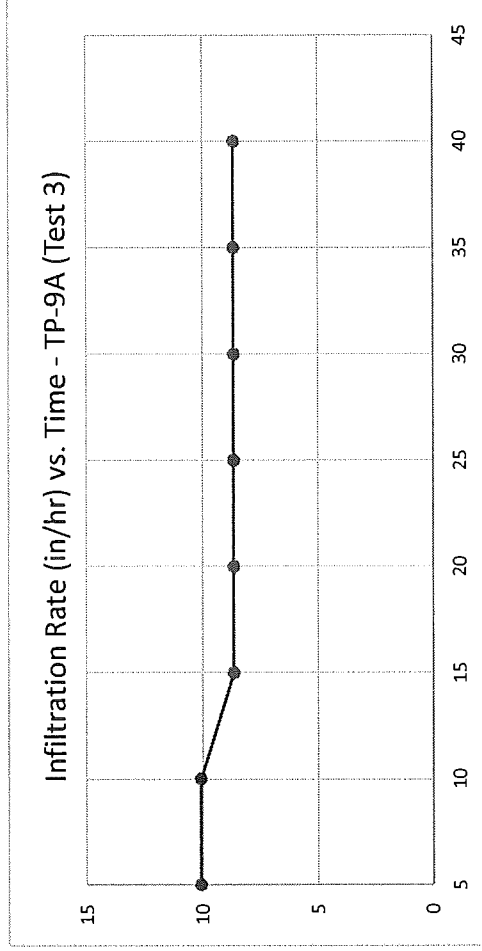
Bridgeville Town Center
TP-9A Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	10.08
2	5	10	10.08
3	5	15	8.64
4	5	20	8.64
5	5	25	8.64
6	5	30	8.64
7	5	35	8.64
8	5	40	8.64



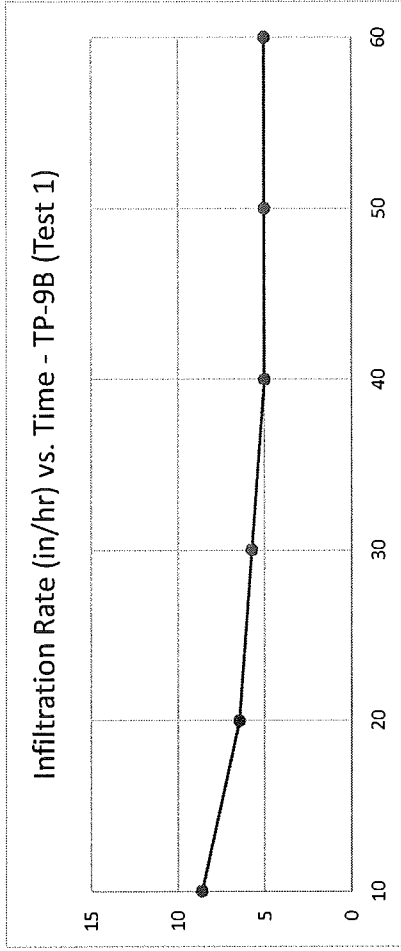
Test 3

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	10.08
2	5	10	10.08
3	5	15	8.64
4	5	20	8.64
5	5	25	8.64
6	5	30	8.64
7	5	35	8.64
8	5	40	8.64



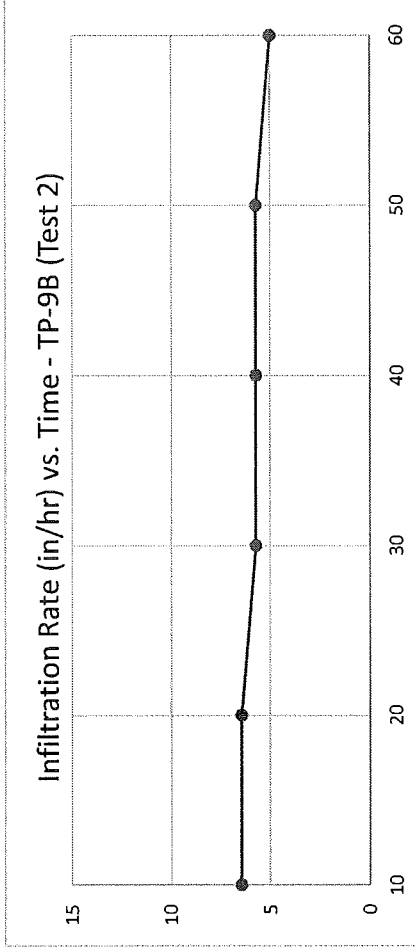
Bridgeville Town Center
TP-9B Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	8.64
2	10	20	6.48
3	10	30	5.76
4	10	40	5.04
5	10	50	5.04
6	10	60	5.04



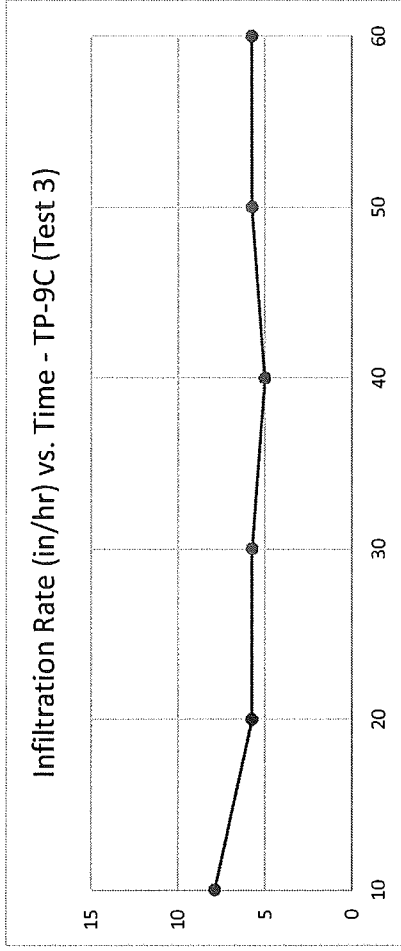
Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	6.48
2	10	20	6.48
3	10	30	5.76
4	10	40	5.76
5	10	50	5.76
6	10	60	5.04



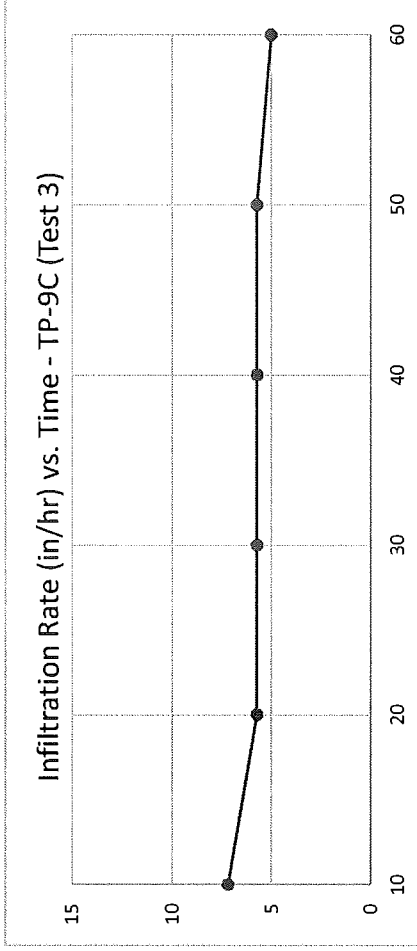
Bridgeville Town Center
TP-9C Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	7.92
2	10	20	5.76
3	10	30	5.76
4	10	40	5.04
5	10	50	5.76
6	10	60	5.76



Test 3

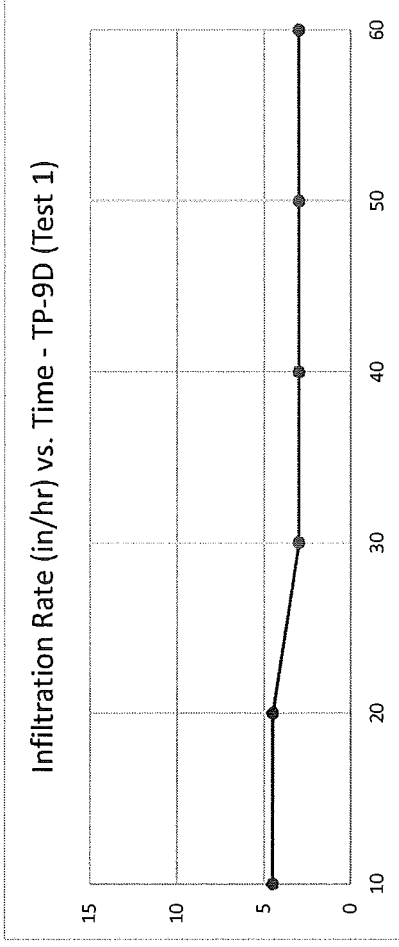
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	7.2
2	10	20	5.76
3	10	30	5.76
4	10	40	5.76
5	10	50	5.76
6	10	60	5.04



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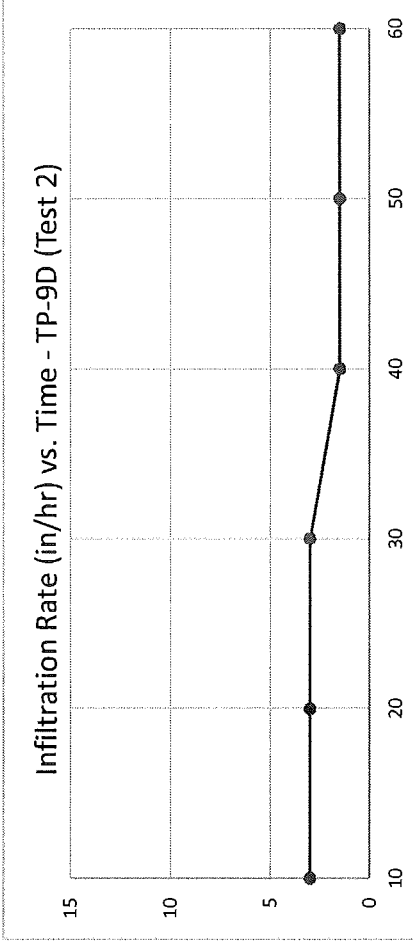
TP-9D Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	4.5
2	10	20	4.5
3	10	30	3
4	10	40	3
5	10	50	3
6	10	60	3



Test 2

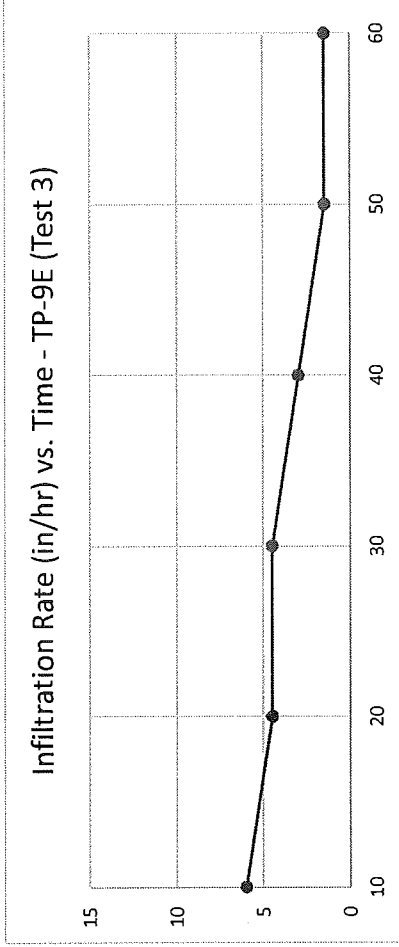
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3
2	10	20	3
3	10	30	3
4	10	40	1.5
5	10	50	1.5
6	10	60	1.5



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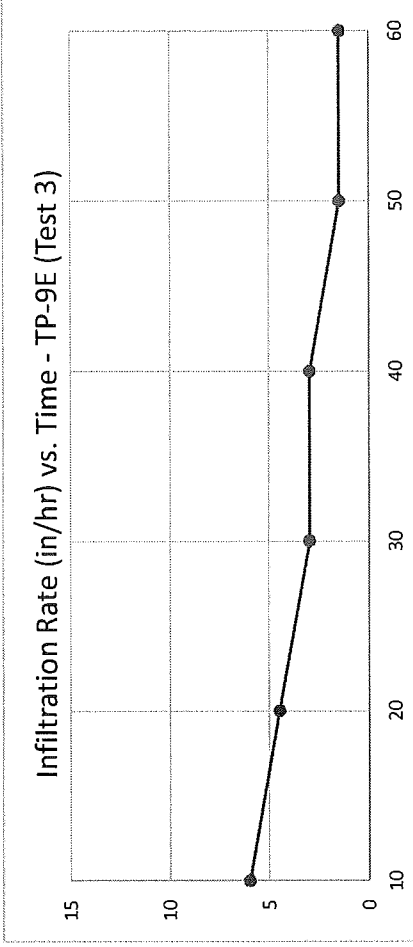
TP-9E Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	6
2	10	20	4.5
3	10	30	4.5
4	10	40	3
5	10	50	1.5
6	10	60	1.5



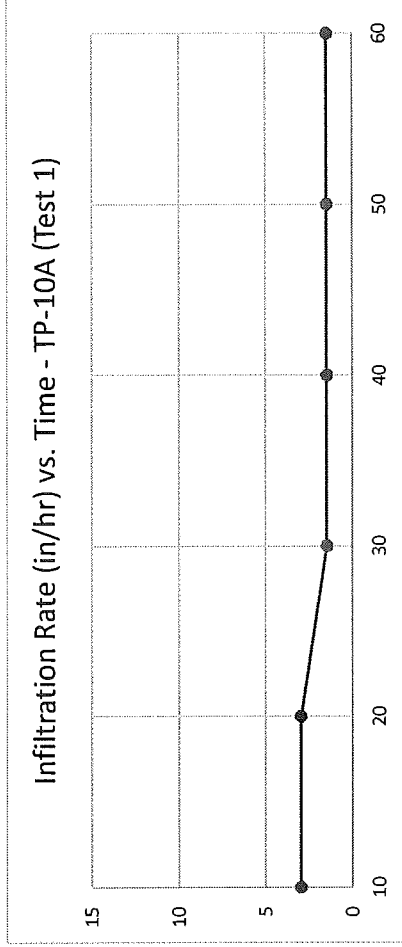
Test 3

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	6
2	10	20	4.5
3	10	30	3
4	10	40	3
5	10	50	1.5
6	10	60	1.5



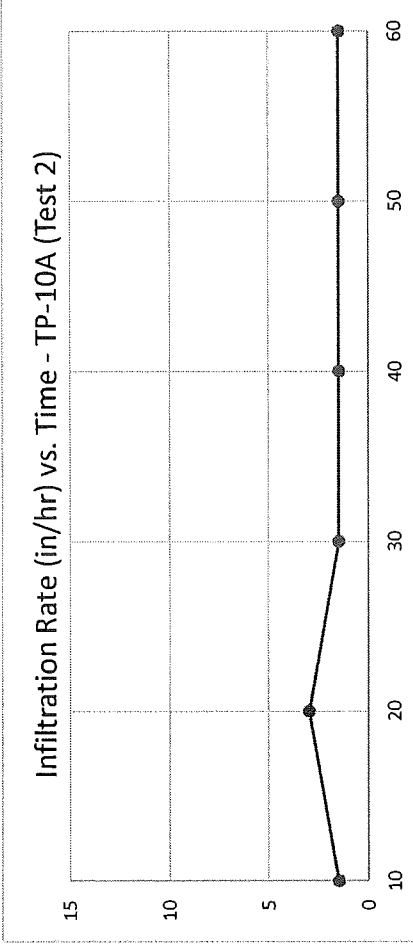
Bridgeville Town Center
TP-10A Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3
2	10	20	3
3	10	30	1.5
4	10	40	1.5
5	10	50	1.5
6	10	60	1.5



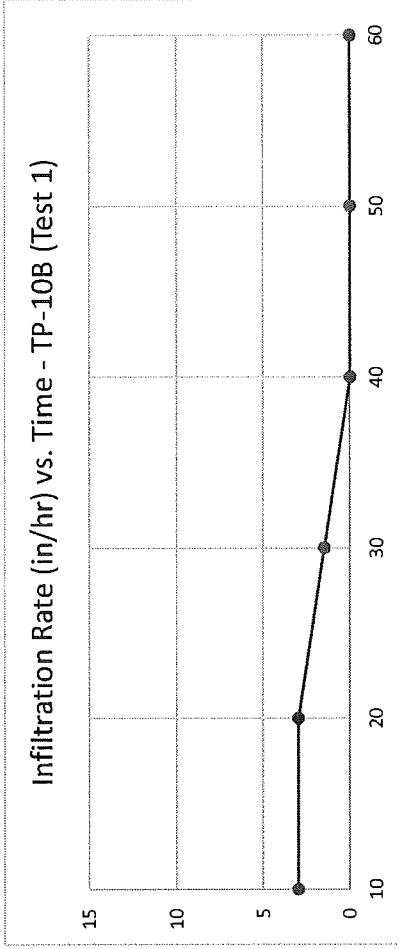
Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	1.5
2	10	20	3
3	10	30	1.5
4	10	40	1.5
5	10	50	1.5
6	10	60	1.5



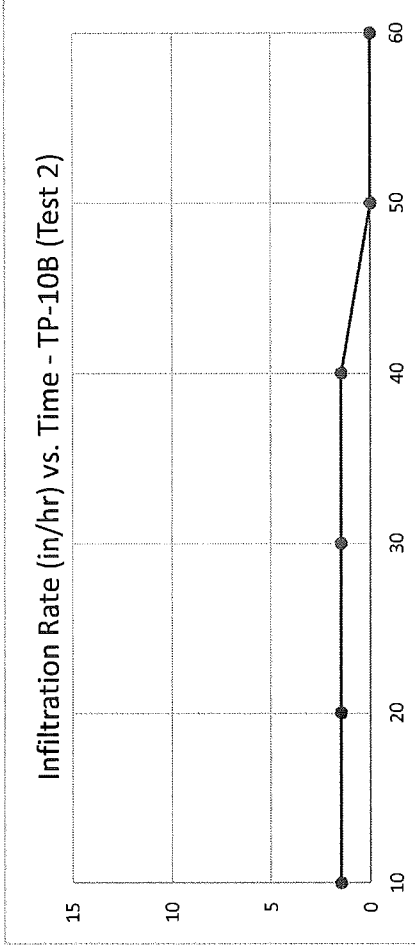
Bridgeville Town Center
TP-10B Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3
2	10	20	3
3	10	30	1.5
4	10	40	0
5	10	50	0
6	10	60	0



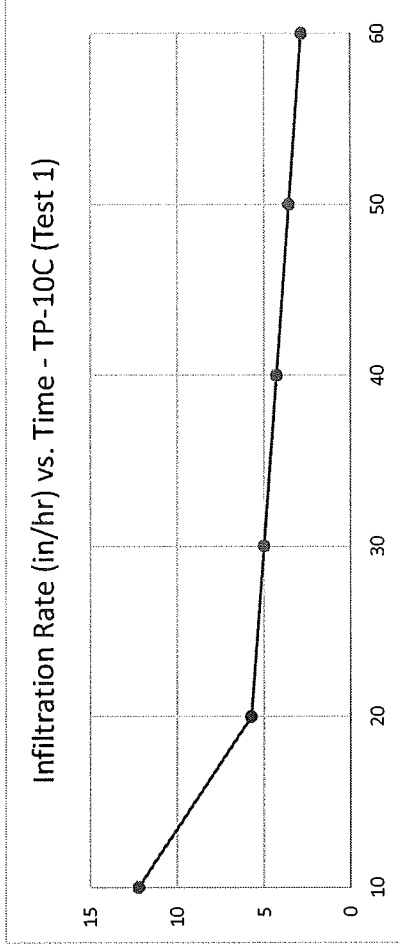
Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	1.5
2	10	20	1.5
3	10	30	1.5
4	10	40	1.5
5	10	50	0
6	10	60	0



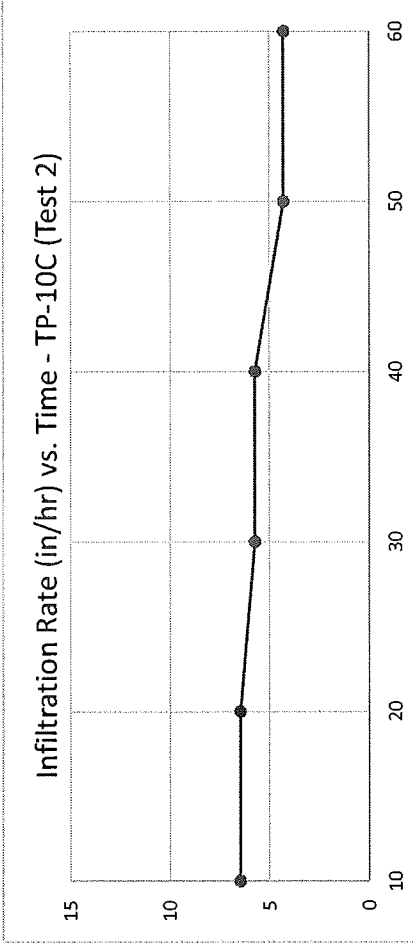
Bridgeville Town Center
TP-10C Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	12.24
2	10	20	5.76
3	10	30	5.04
4	10	40	4.32
5	10	50	3.6
6	10	60	2.88



Test 2

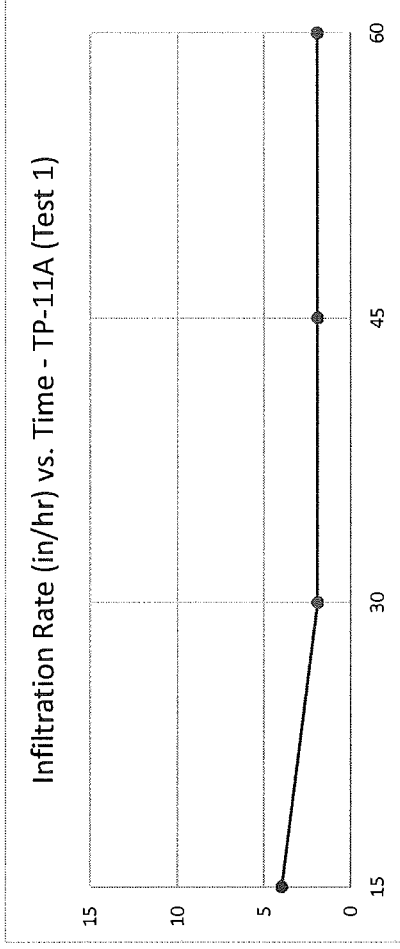
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	6.48
2	10	20	6.48
3	10	30	5.76
4	10	40	5.76
5	10	50	4.32
6	10	60	4.32



Bridgeville Town Center

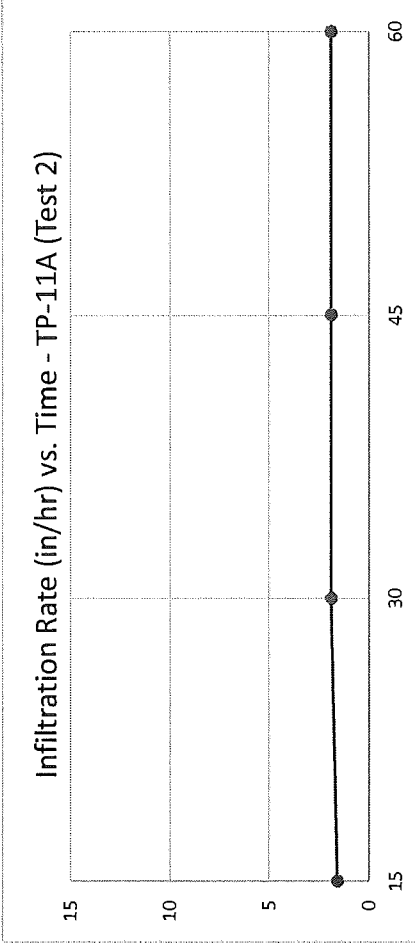
TP-11A Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	15	15	4
2	15	30	1.92
3	15	45	1.92
4	15	60	1.92



Test 2

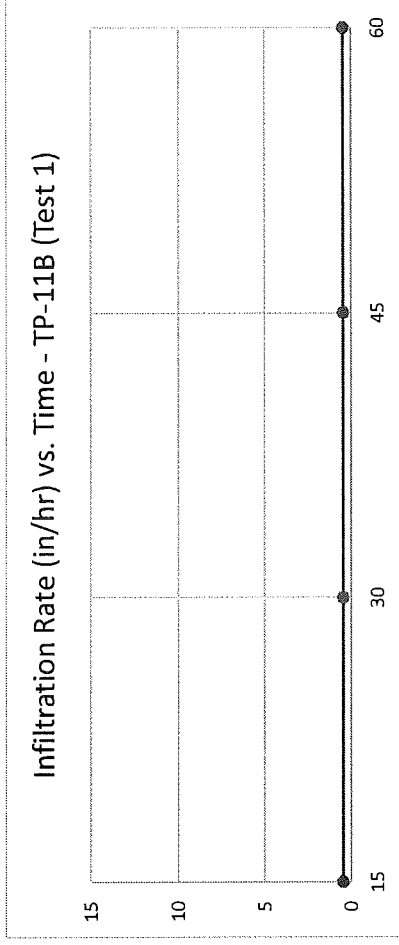
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	15	15	1.6
2	15	30	1.92
3	15	45	1.92
4	15	60	1.92



Bridgeville Town Center

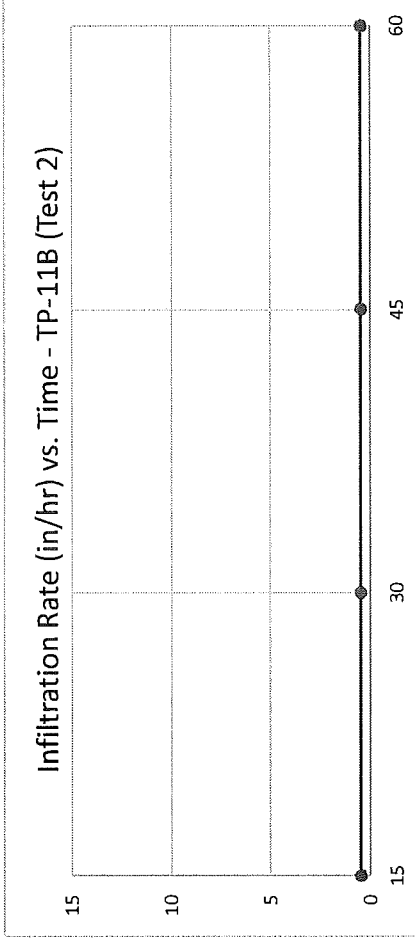
TP-11B Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	15	15	0.48
2	15	30	0.48
3	15	45	0.48
4	15	60	0.48



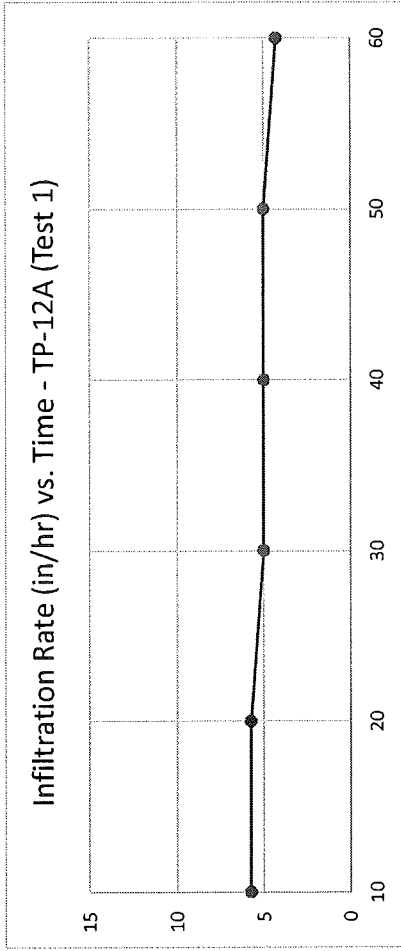
Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	15	15	0.48
2	15	30	0.48
3	15	45	0.48
4	15	60	0.48



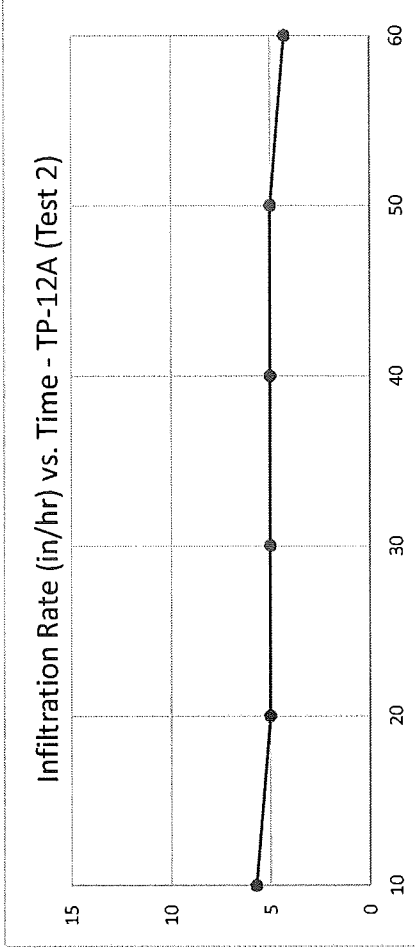
Bridgeville Town Center
TP-12A Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	5.76
2	10	20	5.76
3	10	30	5.04
4	10	40	5.04
5	10	50	5.04
6	10	60	4.32



Test 2

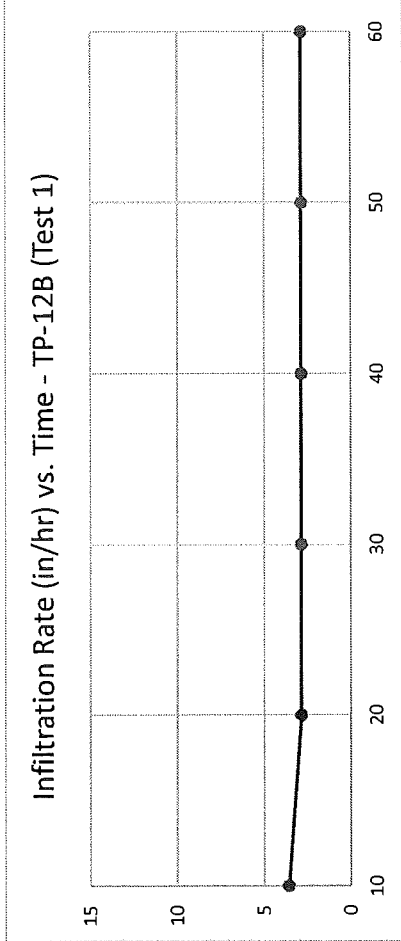
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	5.76
2	10	20	5.04
3	10	30	5.04
4	10	40	5.04
5	10	50	5.04
6	10	60	4.32



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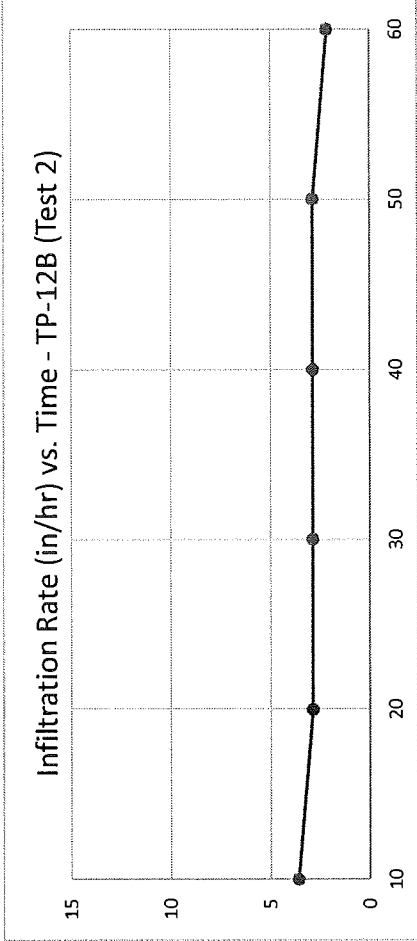
TP-12B Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3.6
2	10	20	2.88
3	10	30	2.88
4	10	40	2.88
5	10	50	2.88
6	10	60	2.88



Test 2

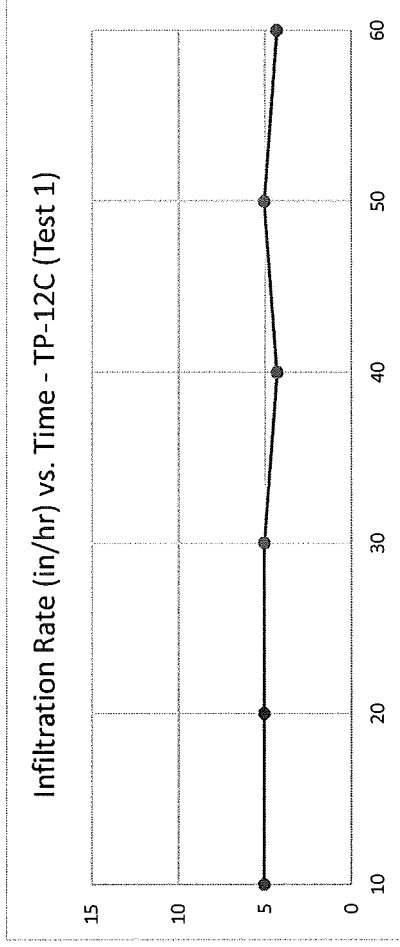
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3.6
2	10	20	2.88
3	10	30	2.88
4	10	40	2.88
5	10	50	2.88
6	10	60	2.16



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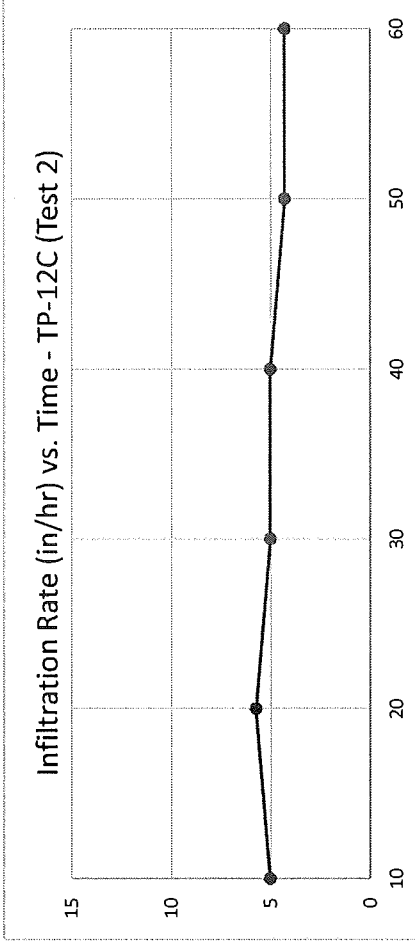
TP-12C Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	5.04
2	10	20	5.04
3	10	30	5.04
4	10	40	4.32
5	10	50	5.04
6	10	60	4.32



Test 2

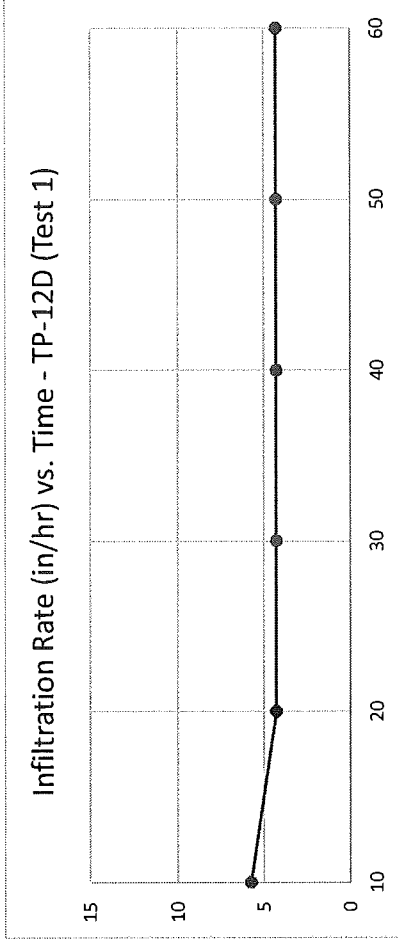
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	5.04
2	10	20	5.76
3	10	30	5.04
4	10	40	5.04
5	10	50	4.32
6	10	60	4.32



Bridgeville Town Center

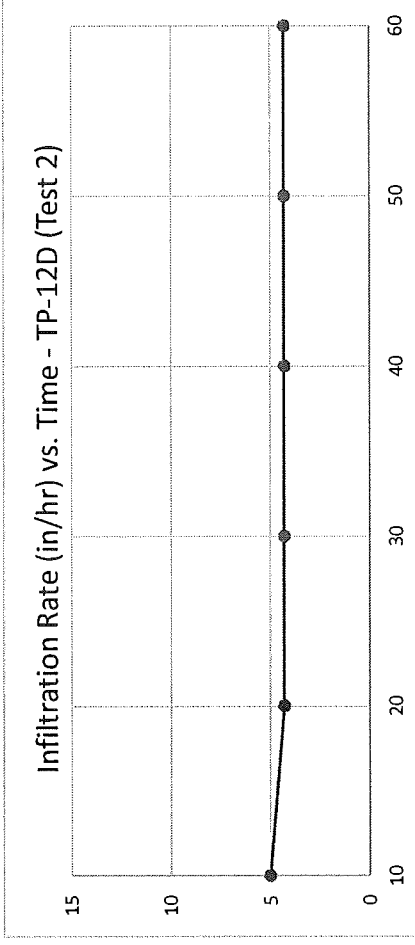
TP-12D Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	5.76
2	10	20	4.32
3	10	30	4.32
4	10	40	4.32
5	10	50	4.32
6	10	60	4.32



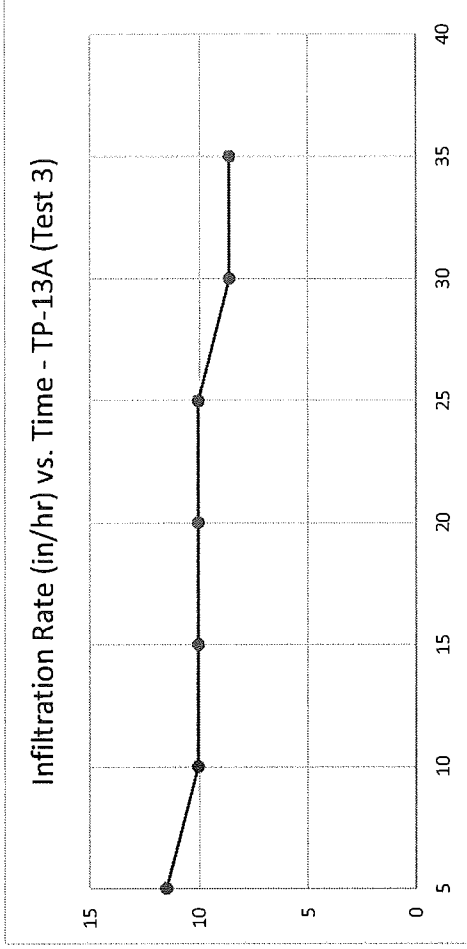
Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	5.04
2	10	20	4.32
3	10	30	4.32
4	10	40	4.32
5	10	50	4.32
6	10	60	4.32



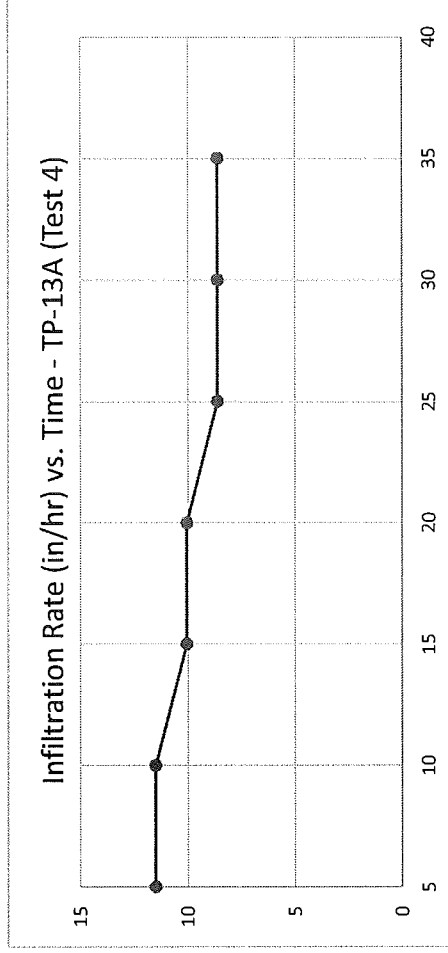
Bridgeville Town Center
TP-13A Test 3

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	11.52
2	5	10	10.08
3	5	15	10.08
4	5	20	10.08
5	5	25	10.08
6	5	30	8.64
7	5	35	8.64



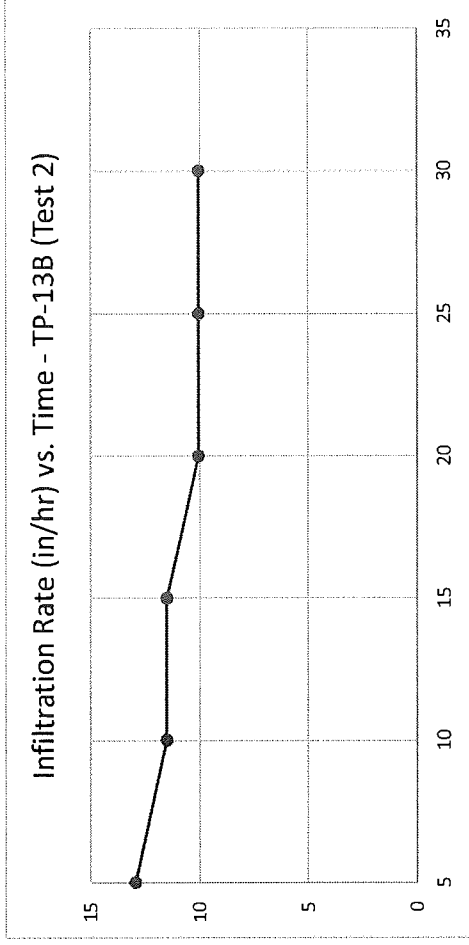
Test 4

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	11.52
2	5	10	11.52
3	5	15	10.08
4	5	20	10.08
5	5	25	8.64
6	5	30	8.64
7	5	35	8.64



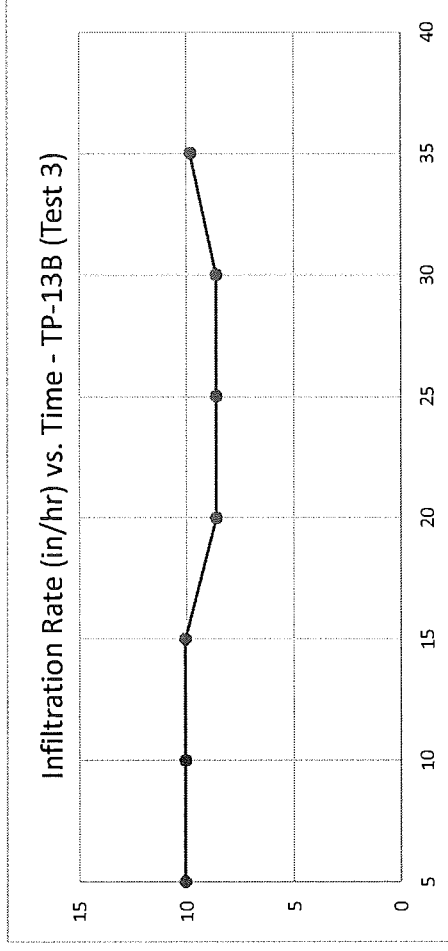
Bridgeville Town Center
TP-13B Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	12.96
2	5	10	11.52
3	5	15	11.52
4	5	20	10.08
5	5	25	10.08
6	5	30	10.08



Test 3

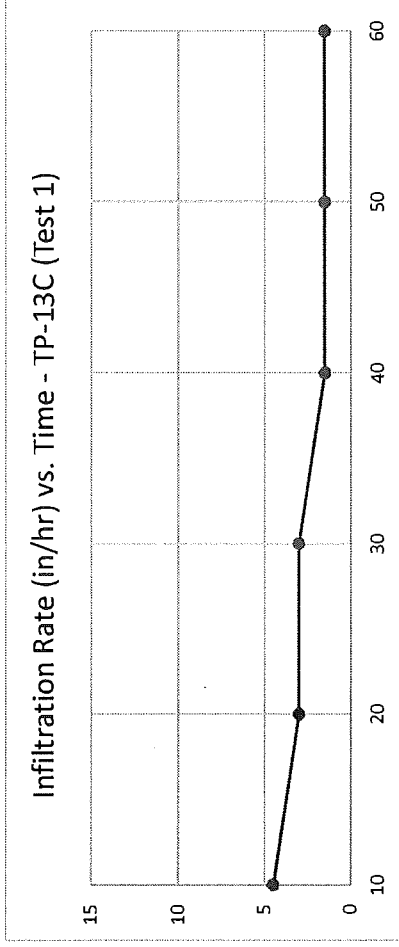
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	10.08
2	5	10	10.08
3	5	15	10.08
4	5	20	8.64
5	5	25	8.64
6	5	30	8.64
7	5	35	9.84



Bridgeville Town Center

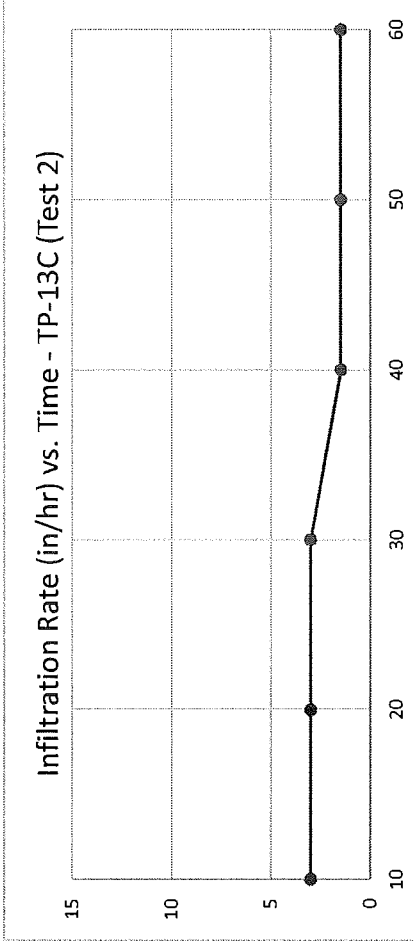
TP-13C Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	4.5
2	10	20	3
3	10	30	3
4	10	40	1.5
5	10	50	1.5
6	10	60	1.5



Test 2

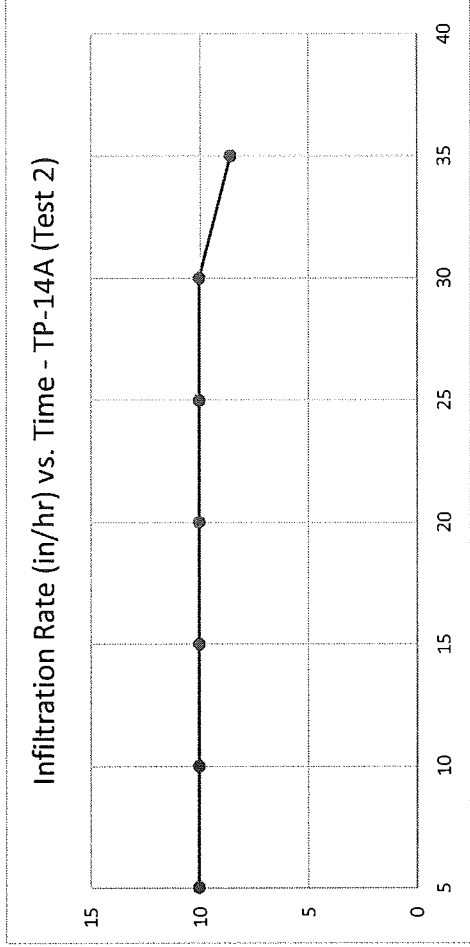
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	10	10	3
2	10	20	3
3	10	30	3
4	10	40	1.5
5	10	50	1.5
6	10	60	1.5



Bridgeville Town Center

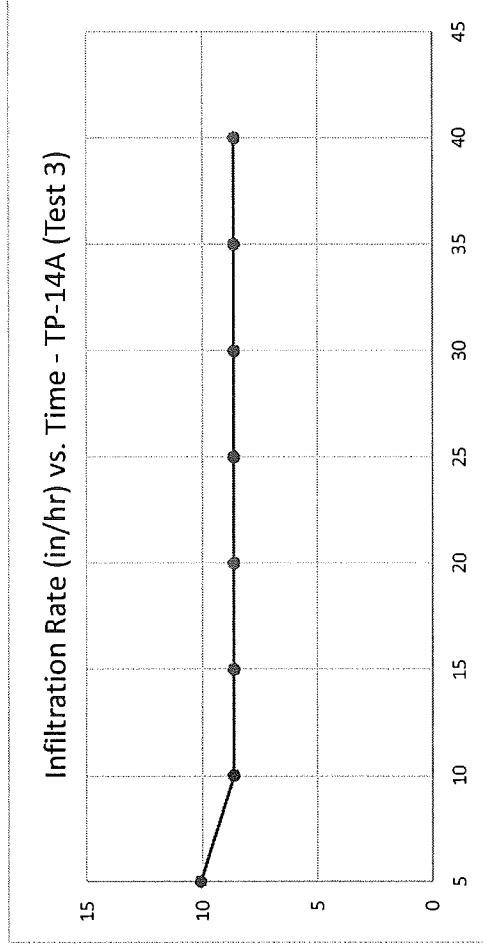
TP-14A Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	10.08
2	5	10	10.08
3	5	15	10.08
4	5	20	10.08
5	5	25	10.08
6	5	30	10.08
7	5	35	8.64



Test 3

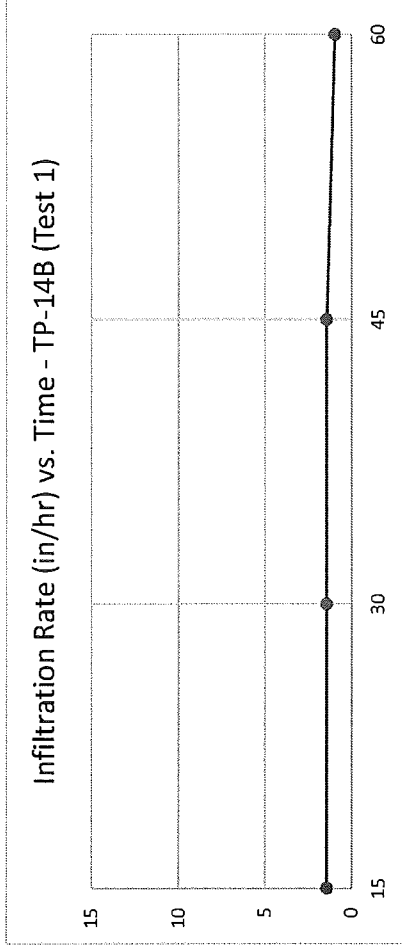
Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	5	5	10.08
2	5	10	8.64
3	5	15	8.64
4	5	20	8.64
5	5	25	8.64
6	5	30	8.64
7	5	35	8.64
8	5	40	8.64



Bridgeville Town Center

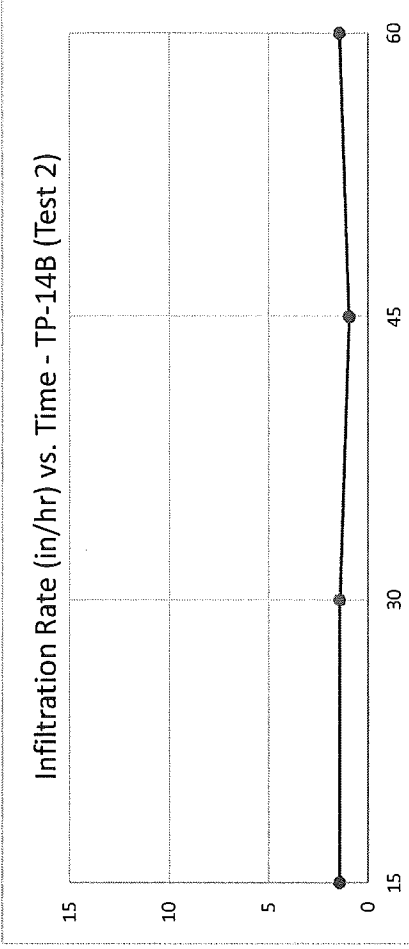
TP-14B Test 1

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	15	15	1.44
2	15	30	1.44
3	15	45	1.44
4	15	60	0.96

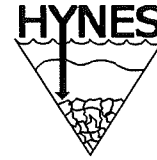


Test 2

Interval #	Interval(min)	Cumulative Time	Rate(in/hr)
1	15	15	1.44
2	15	30	1.44
3	15	45	0.96
4	15	60	1.44



**Falling Head
Single Ring Infiltration Test
(Delaware)
4 inch**



Tools and Supplies:

- | | |
|---|--|
| <input type="checkbox"/> 50 gallons of clean water per test | <input type="checkbox"/> Driving Block and Cap |
| <input type="checkbox"/> One 4 inch ring per test | <input type="checkbox"/> Purge Pump, tubing, and buckets |
| <input type="checkbox"/> Well Sand | <input type="checkbox"/> Battery |
| <input type="checkbox"/> Shovels Flat/Round | <input type="checkbox"/> Mini Excavator – Rental (pits deeper than 2 feet) |
| <input type="checkbox"/> Hand Rake | <input type="checkbox"/> Gator/ATV (as necessary) |
| <input type="checkbox"/> Sledge Hammer | <input type="checkbox"/> Hand Auger (with extensions) |
| | <input type="checkbox"/> 4 inch thin wall PVC (at least one foot longer than test depth) |

Note: 1 test period equals 1 hour max. or until water empties out of ring, or until infiltration rate equilibrates. Total cumulative time for all tests (after presoak) must be 2 hrs or more. Contact Project manager with questions about testing. **Be prepared to run 2 to 7 tests per location.**

Procedure (Steps A, B and C to be completed only if included on assignment sheet)

- A.** Advance one soil boring at each test location. The boring should extend to groundwater. Accurately measure depth to groundwater and depth of each soil change. Pay close attention to soils for mottling. Contact office for test depth if depth not provided.
- B.** Excavate test pit to specified test depth. Test pit should be sloped or benched in accordance with OSHA standards. (For safety two people will be onsite for tests deeper than 4 feet).
- C.** Use Flat point shovel or trowel to grade bottom of test pit. Bottom of excavation should be flat but not compacted. **Check boring log to ensure that soil at bottom of excavation is soil type to be tested.**
- D.** Set up ring (permeameter)/Pre-soak
1. Advance a 5-inch diameter soil boring to the specified test depth. Check boring log to ensure that soil at bottom of excavation is soil type to be tested.
 2. Cut thin wall PVC to length (approximately 1 to 2' longer than desired test depth).
 3. If necessary, use 3-inch auger to clean out bottom of test hole to remove any soils that caved in during PVC placement. Drive PVC casing an additional 2" to ensure that bottom of test hole does not extend beyond the bottom of the PVC pipe.
 4. Collect initial test information using water level indicator or tape measure.
 5. Determine the total depth to the bottom of the hole from top of pipe and record.
 6. Determine riser height above ground and record.
 7. Fill ring with approximately 12 inches of water. Be careful not to erode soil at bottom
 8. ****Contact project manager after pre-soak with infiltration data.****

**Falling Head
Single Ring Infiltration Test
(Delaware)
4 inch**



E. Run Test (2 to 7 test periods)

1. Readings should be no greater than 15 minutes apart. Reading interval to be based on pre-soak data. See attached data sheet.
2. For each test period, fill ring with 6 inches of water.
3. After pre-soak, run min. of 2 test periods, depending on test data. **Unless the ring runs dry in less than 10 minutes, we should collect 0.5 to 2 hours of data (after pre-soak).** That means you will be running 2 to 7 tests per location. Call project manager after 2nd test period to determine if additional test periods are necessary. **Contact Project Manager after 2 test periods.** Have infiltration data readily available.
4. Test period can be terminated after 1 hour if four successive readings (water level drops) during a test period vary by ¼ inch or less (between the highest and lowest level drops) for rates greater than 2 in/hr., or vary by 1/8 inch for rates less than 2 in/hr. Note that test periods can run longer than 1 hour. Contact Project Manager if the water level changes don't meet the listed criteria after 1 hour of testing.
5. If ring runs dry in less than 10 minutes, contact project manager.

Example Readings:

Time	Change in Time	Water Level	Level Change
1:00	N/A	6 in	N/A
1:15	15 min	4.75	1.25 (6-4.75)
1:30	15 min	3.625	1.125 (4.75-3.625)
1:45	15 min	2.625	1 (3.625-2.625)
2:00	15 min	1.625	1 (2.625-1.625)

The difference between the greatest Level Change (1.25) and the least Level Change (1.00) is 0.25 (1.25 - 1.00 = 0.25). These readings meet the test criteria since the infiltration rate was more than 2 inches per hour, so the test period can be stopped.

Time	Change in Time	Water Level	Level Change
1:00	N/A	6 in	N/A
1:15	15 min	5.625	0.375 (6-5.625)
1:30	15 min	5.375	0.25 (5.625-5.375)
1:45	15 min	5.25	0.125 (5.375-5.25)
2:00	15 min	5.125	0.125 (5.25-5.125)

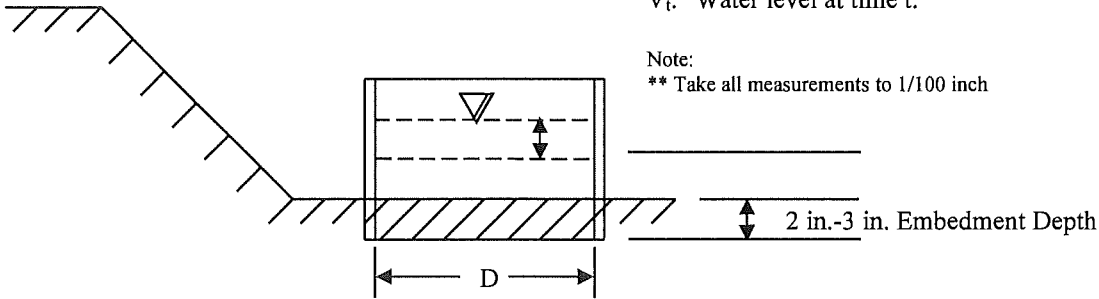
The difference between the greatest Level Change (0.375) and the least Level Change (0.125) is 0.25 (0.375 - 0.125 = 0.25). These readings **do not** meet the test criteria since the infiltration rate was less than 2 inches per hour, and the difference was more than 1/8 inch (0.125), so the test must continue.

**Falling Head
Single Ring Infiltration Test
(Delaware)
4 inch**



- D: Diameter of Ring.
- ∇ : Water level in infiltration Ring or Casing.
- ∇_i : Water level at time $t=0$.
- ∇_t : Water level at time t .

Note:
** Take all measurements to 1/100 inch



DGS Well ID Pe54-51

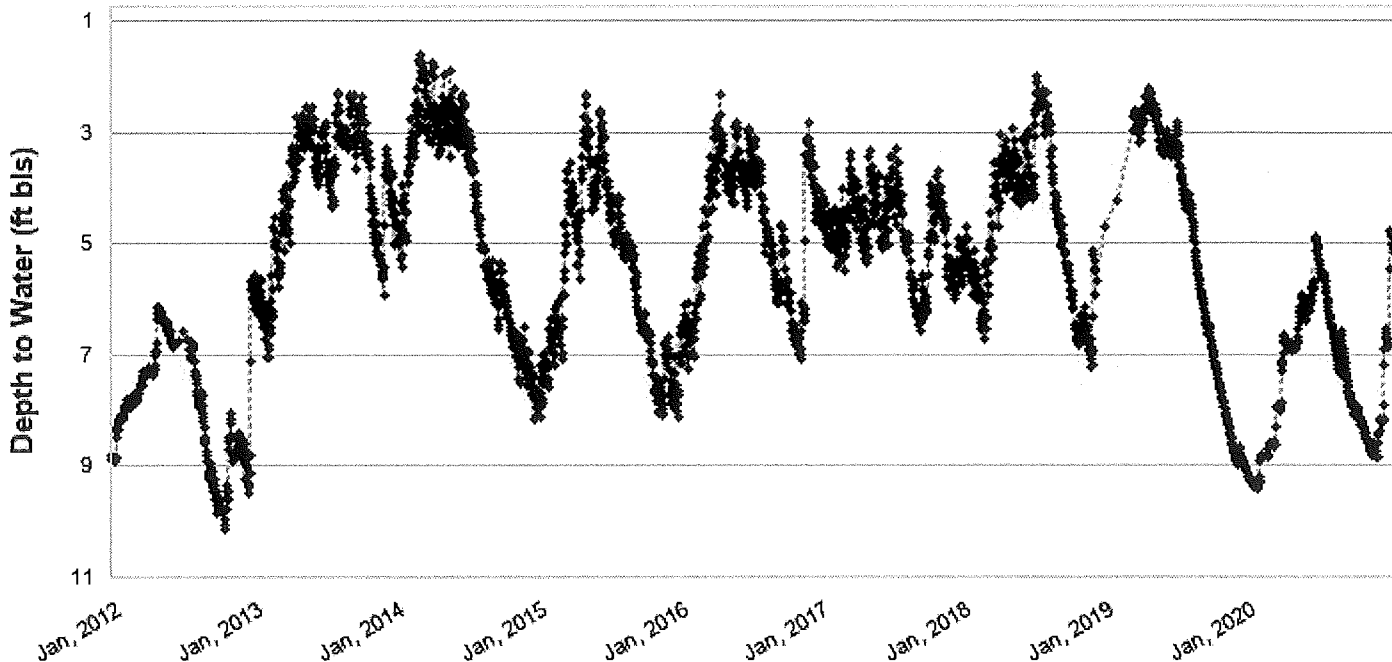
Print  Data Download 

Location: Sussex County
Easting/Northing: 461940, 4271890
Latitude/Longitude: 38.59468, -75.43705
Altitude: 51.89 ft

Drilled Date: 2011-11-03
Start Date: 2011-11-03
End Date: 2020-12-14
Number of Obs: 3184

Screen Top: 15 ft
Screen Bottom: 20 ft
Aquifer: Columbia

Delaware Geological Survey DGS Well ID Pe54-51



Created on: May 12, 2021, 11:58 am



JOHN D. HYNES & ASSOCIATES, INC.

Geotechnical and Environmental Consultants
 Monitoring Well Installation
 Construction Inspection and Materials Testing

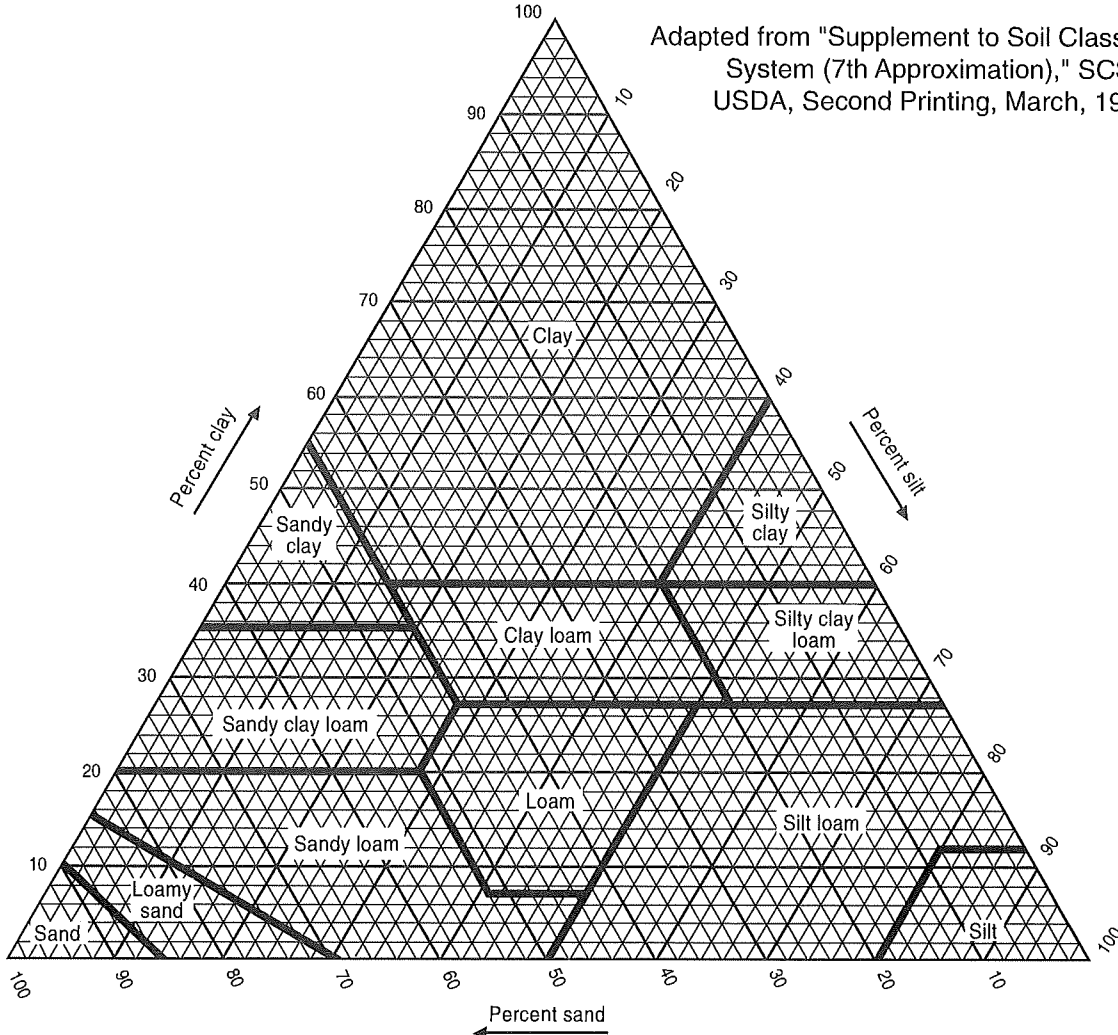
UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Group Symbols	Typical Names	Laboratory Classification Criteria			
Coarse-grained soils (More than half of material is larger than No 200 sieve size)	Gravels (More than half of coarse fraction is larger than No 4 sieve size)	Clean gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No 200 sieve size), coarse grained soils are classified as follows: Less than 5 percent More than 12 percent 5 to 12 percent GW, GP, SW, SP GM, GC, SM, SC Borderline cases requiring dual symbols ^o	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			GP	Poorly graded gravels, gravel sand mixtures, little or no fines		Not meeting all gradation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM ^a d u	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are <i>borderline</i> cases requiring use of dual symbols
	GC		Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7			
	Sands (More than half of coarse fraction is smaller than No 4 sieve size)	Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands,		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP	Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW	
		Sands with fines (Appreciable amount of fines)	SM ^a d u	Silty sands, sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are <i>borderline</i> cases requiring use of dual symbols.
			SC	Clayey sands, sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
	Fine-grained soils (More than half material is smaller than No 200 sieve)	Sils and clays (Liquid limit less than 50)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity		Plasticity Chart 	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
OL			Organic silts and organic silty clays of low plasticity				
Sils and clays (Liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts				
		CH	Inorganic clays of high plasticity, fat clays				
		OH	Organic clays of medium to high plasticity, organic silts				
Highly organic soils		Pt	Peat and other highly organic soils				

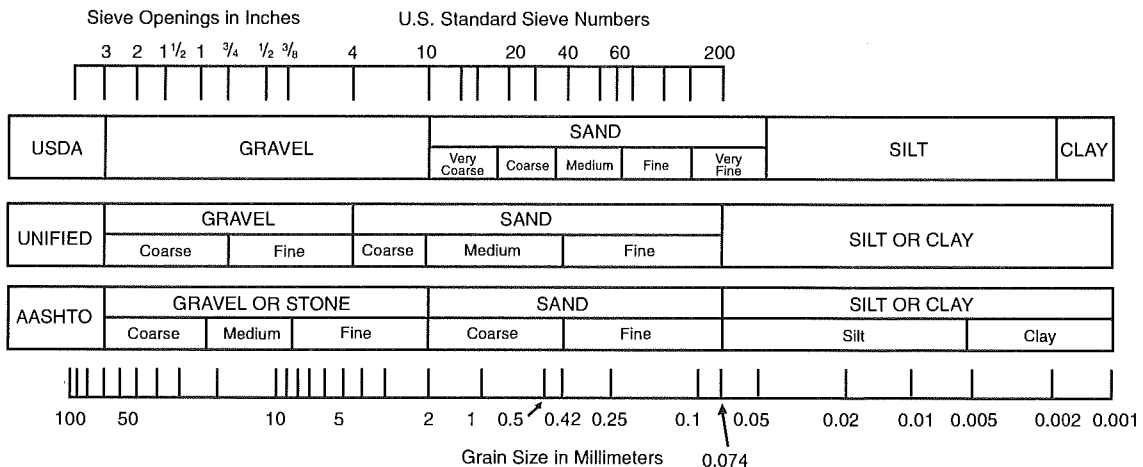


USDA SOIL CLASSIFICATION SYSTEM

Adapted from "Supplement to Soil Classification System (7th Approximation)," SCS, USDA, Second Printing, March, 1967



COMPARISON OF PARTICLE - SIZE SCALES



Soil triangle of the basic soil textural classes. (U.S. Soil Conservation Service.) 288-D-2782.



FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

NON-COHESIVE SOILS (Silt, Sand, Gravel and Combinations)

DENSITY

Very Loose	- 5 blows/ft. or less
Loose	- 6 to 10 blows/ft.
Medium Dense	- 11 to 30 blows/ft.
Dense	- 31 to 50 blows/ft.
Very Dense	- 51 blows/ft. or more

PARTICLE SIZE IDENTIFICATION

Boulders	- 8 inch diameter or more
Cobbles	- 3 to 8 inch diameter
Gravel	- Coarse - 1 to 3 inch - Medium - 1/2 to 1 inch - Fine - 4.75 mm to 1/2 inch
Sand	- Coarse - 2.0 mm to 4.75 mm - Medium - 0.425 mm to 2.0 mm - Fine - 0.075 mm to 0.425 mm
Silt	- 0.075 mm to 0.002 mm

RELATIVE PROPORTIONS

Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

COHESIVE SOILS (Clay, Silt and Combinations)

CONSISTENCY

Very Soft	- 3 blows/ft. or less
Soft	- 4 to 5 blows/ft.
Medium Stiff	- 6 to 10 blows/ft.
Stiff	- 11 to 15 blows/ft.
Very Stiff	- 16 to 30 blows/ft.
Hard	- 31 blows/ft. or more

PLASTICITY

Degree of Plasticity	Plasticity Index
None to Slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	over 22

Classification on logs are made by visual inspection of samples unless a sample has been subjected to laboratory classification testing.

Standard Penetration Test - Driving a 2.0" O.D., 1-3/8" I.D., splitspoon sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. It is customary to drive the spoon 6 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the test are recorded for each 6 inches of penetration on the drill log (Example - 6/8/9). The standard penetration test value (N - value) can be obtained by adding the last two figures (i.e. 8 + 9 = 17 blows/ft.). (ASTM D-1586)

Strata Changes - In the column "Soil Descriptions," on the drill log, the horizontal lines represent strata changes. A solid line (—) represents an actually observed change, a dashed line (----) represents an estimated change.

Groundwater - Observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc. may cause changes in the water levels indicated on the logs.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply this report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an

assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help

others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your GBC-Member geotechnical engineer for more information.



8811 Colesville Road/Suite G106, Silver Spring, MD 20910

Telephone: 301/565-2733 Facsimile: 301/589-2017

e-mail: info@geoprofessional.org www.geoprofessional.org

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