

ISS TREATABILITY STUDY REPORT

**Former Excelsior Bag Site
NYSDEC BCP Site No. C360190
Yonkers, NY**

Submitted By:
Geo-Solutions, Inc.
1250 Fifth Avenue
New Kensington, PA

March 4, 2024



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Project Background & Objectives

- Site Location – Former Excelsior Bag Site in Yonkers, NY
- The goal is to gather the test results, accurately convey them, and determine the most efficient grout mixture for this job site.
- Select commercially available reagents (e.g., Portland cement, blast furnace slag) that are suitable for use in the ISS project and available at the project site in the quantities required for the full-scale work.
- Improve physical properties of the soils in situ to achieve a targeted unconfined compressive strength (UCS) of greater than 50 pounds per square inch (psi) with a factor of safety of at least 2.
- Reduce hydraulic conductivity of the treated soils below 1×10^{-6} centimeters per second (cm/sec) with a factor of safety of approximately $\frac{1}{2}$ order of magnitude.
- The above safety factors are intended to account for heterogeneities in the field, as well as an abnormally high number of subsurface obstructions and debris, which could adversely affect achieving the UCS and hydraulic conductivity criteria during field implementation.
- All laboratory testing was conducted by Geotechnics.

Materials

The materials used in the ISS bench scale treatability study are summarized on Table 1.

Table 1. Phase I Material Type and Source

Material	ID	Source	Depth
Soil	Comp 1 (TS-1)	WC-02 – between cell G16 & H16	40.0 feet
Soil	Comp 2 (TS-2)	WC-05 – between cell A12 & B12	31.5 feet
Soil	Comp 3 (TS-3)	WC-09 – inside cell H4	30.0 feet
Water	Municipal Water	New Kensington Municipal Water	N/A
Slag	Slag	Holcim	N/A
Cement Type 1L	Type 1L PC	Titan/Holcim	N/A

Soil Sampling

A drilling program was completed on site to collect soil samples for use in the mix design study. In total, 3 boreholes were drilled with samples being collected from each location. Each boring location was sampled from the top of the ISS treatment elevation to the bottom. Each location had a composite of soils collected from each 5-foot run. The soils were shipped to Geo-Solutions' office located in New Kensington, PA for the mix design study to be completed. A total of 6, five-gallon buckets of soil were sent to GSI (2 from each location).

Soil Index Testing

After the samples were received each soil source was homogenized and a grab sample of each was sent to Geotechnics located in East Pittsburgh, PA for soil index testing. The results of the soil index testing are

summarized on Table 2. Laboratory data reports to support the information presented on Table 2 are attached to this letter.

Table 2. Soil Index Test Results

Borehole	Depth	Fines	Moisture Content	Organic Content	pH
TS-1	0-40'	14.7%	39.1%	4.5%	7.97
TS-2	0-31.5'	14.2%	18.8%	1.6%	8.56
TS-3	0-30'	23.0%	44.1%	7.8%	8.81

Soil-Grout Mixtures

Using the results of the soil index testing and experience, GSI selected and created mixtures of the site composite and reagents. The soil-grout mixtures were created using methods that mimic an ISS field mixing process. The general procedure is described below:

1. Run soil composite through a 12.7mm (0.5 inch) sieve to remove large pieces of gravel or clods of soil that would have an unrepresentatively large impact on the behavior of the relatively small, 51 mm (2 inch) and 76 mm (3 inch), diameter laboratory samples.
2. Weigh appropriate amount of soil composite, generally between 1,000 and 5,000 g.
3. Mix grout consisting of predetermined amounts of water and reagents.
4. Add grout to soil composite until workable condition is achieved.
5. Mix until visually homogeneous.
6. Place mix into 2x4" and 3x6" testing cylinders in a manner that limits air entrapment.
7. Store samples in a temperature-controlled environment and allow samples to cure for at least 3 days before transporting to the laboratory,

After samples had taken their initial set, specimens of each mixture were taken to a geotechnical laboratory for hydraulic conductivity and UCS testing. The results of this testing are summarized on Tables 3 and 4. Laboratory data sheets to support Tables 3 and 4 are included in an attachment to this letter.

Table 3. Grout & Soil Mixtures

Mix ID	Water/ Cement ratio	Weights		Reagents in % to Weight of Soil			
	W:C	Water (g)	Soil (g)	PC (%)	PC (g)	SLAG (%)	SLAG (g)
Comp 1: 8%	1	280	3500	4%	140.0	4%	140.0
Comp 2: 8%	1	280	3500	4%	140.0	4%	140.0
Comp 3: 8%	1	280	3500	4%	140.0	4%	140.0
Comp 1: 12%	1	420	3500	6%	210.0	6%	210.0
Comp 2: 12%	1	420	3500	6%	210.0	6%	210.0
Comp 3: 12%	1	420	3500	6%	210.0	6%	210.0
Comp 1: 15%	1	525	3500	7.5%	262.50	7.5%	262.5
Comp 2: 15%	1	525	3500	7.5%	262.50	7.5%	262.5
Comp 3: 15%	1	525	3500	7.5%	262.50	7.5%	262.5

Table 4. Soil-Grout Mixes and Results

Sample ID	Cast date	7-day UCS (psi)	14-day UCS (psi)	28-day UCS (psi)	14-day Perm (cm/s)	28-day Perm (cm/s)
Comp 1: 8%	1/3/2024	23.9	44.5	81.0	2.4x10 ⁻⁶	1.3x10 ⁻⁶
Comp 1: 12%	1/3/2024	57.0	95.2	123.5	1.1x10 ⁻⁶	5.0x10 ⁻⁷
Comp 1: 15%	1/3/2024	64.8	93.4	102.9	6.3x10 ⁻⁹	1.9x10 ⁻⁷
Comp 2: 8%	1/3/2024	169.3	181.2	328.7	1.2x10 ⁻⁷	2.4x10 ⁻⁸
Comp 2: 12%	1/3/2024	234.4	316.1	419.4	6.4x10 ⁻⁸	3.4x10 ⁻⁸
Comp 2: 15%	1/3/2024	245.0	287.6	502.8	8.6x10 ⁻⁹	7.9x10 ⁻⁸
Comp 3: 8%	1/3/2024	27.1	39.7	82.6	1.2x10 ⁻⁶	1.5x10 ⁻⁶
Comp 3: 12%	1/3/2024	44.6	69.8	74.5	3.1x10 ⁻⁷	3.0x10 ⁻⁷
Comp 3: 15%	1/3/2024	60.0	110.5	193.1	1.5x10 ⁻⁸	8.5x10 ⁻⁸

Reagent percentages based on reagent weight to soil weight (wet)

Summary Conclusions

The following conclusions were made from this completed bench scale study:

- All mixtures in the treatability study achieved the target UCS criteria of 50 psi at 28 days.
 - Soil Composites 1 (TS-1) & 3 (TS-3) at the 8% reagent addition did not achieve the preferred factor of safety of 2 at 28 days.
- Soil Composites 1 (TS-1) & 3 (TS-3) at the 8% reagent addition rate did not achieve the target hydraulic conductivity at 28 days. Therefore, the 8% mix is eliminated from further discussion.
- Samples containing soils from composite 2 (TS-2) greatly outperformed the other soils in both UCS and hydraulic conductivity. It is likely that the contaminant levels in soil composite 2 (TS-2) were lower than the other two composites. Therefore, sample results from soil composites 1 (TS-1) & 3 (TS-3) should govern.
- GSI recommends using the highest addition rate of 15% for full scale mixing.
 - On average (see below table) the 15% mix outperformed the 12% on UCS and Permeability.
 - The 15% mix achieves the minimum of 2x UCS and ½ order of magnitude lower permeability target. The 12% mix failed the UCS criteria when accounting for a 2x factor of safety.
 - Due to the contaminant variability and varying soil composition (bricks, cobbles, boulders, debris, etc.) across the project site, GSI recommends the 15% mix design for this work.
 - The use of the higher addition rate mix will help mitigate the need for rework and allow for early (less cure time) sampling/testing of material. This includes early coring for post-installation visual observation.
 - The additional drilling fluid required for the 15% mix will allow for additional grout distribution throughout the soil mixed columns and for additional fluid for drilling through debris/obstructions.
 - The 15% mix is optimized from the 20% mix that was used during the ISS work at the adjacent properties.
- GSI recommends testing the 15% mix during the demonstration (pilot) study to further evaluate its efficacy in the field.

TS-1 & TS-3 Average Results					
Add. Rate	UCS (psi)			Permeability (cm/sec)	
	7 Day	14 Day	28 Day	14 Day	28 Day
8%	25.50	42.07	81.83	1.8E-06	1.4E-06
12%	50.77	82.48	99.00	7.1E-07	4.0E-07
15%	62.44	101.98	148.04	1.1E-08	1.4E-07



January 25, 2024

Project No. 2024-039-001

Josh Bonetto
Geo-Solutions, Inc.
1250 Fifth Ave.
New Kensington, PA 15068

Transmittal
Laboratory Test Results
Yonkers, NY 23-075

Please find attached the laboratory test results for the above referenced project. The tests were outlined on the Project Verification Form that was transmitted to your firm prior to the testing. The testing was performed in general accordance with the methods listed on the enclosed data sheets. The test results are believed to be representative of the samples that were submitted for testing and are indicative only of the specimens that were evaluated. We have no direct knowledge of the origin of the samples and imply no position with regard to the nature of the test results, i.e. pass/fail and no claims as to the suitability of the material for its intended use.

The test data and all associated project information provided shall be held in strict confidence and disclosed to other parties only with authorization by our Client. The test data submitted herein is considered integral with this report and is not to be reproduced except in whole and only with the authorization of the Client and Geotechnics. The remaining sample materials for this project will be retained for a minimum of 90 days as directed by the Geotechnics' Quality Program.

We are pleased to provide these testing services. Should you have any questions or if we may be of further assistance, please contact our office.

Respectfully submitted,
Geotechnics, Inc.

Nathan Melaro
Director of Operations

***We understand that you have a choice in your laboratory services
and we thank you for choosing Geotechnics.***

**MOISTURE-DENSITY RELATIONSHIP
ONE POINT TEST**

ASTM D558 Soil/Cement

Client: Geo-Solutions, Inc.
 Client Reference: Yonkers, NY 23-075
 Project No.: 2024-039-001
 Lab ID: 2024-039-001-001

Boring No.: Yonkers, NY
 Depth (ft): Soil
 Sample No.: Comp 1
 Test Type: STANDARD

Visual Description: Black Clay with Rocks

MOLD

Mold ID No.: G1924
 Weight of Mold (g): 4210
 Volume of Mold (cm³): 942

SPECIMEN

Weight of Mold & Wet Sample (g): 5847
 Weight of Mold (g): 4210
 Weight of Wet Sample (g): 1637
 Mold Volume (cm³): 942

MOISTURE/DENSITY

Tare Number: 883
 Weight of Tare & Wet Sample (g): 507.16
 Weight of Tare & Dry Sample (g): 407.04
 Weight of Tare (g): 109.80
 Weight of Water (g): 100.12
 Weight of Dry Sample (g): 297.24

Wet Density (g/cm³): 1.74
 Wet Density (pcf): 108.5

Moisture Content (%): 33.7
Dry Density (pcf): 81.2

Tested By *MLF* *Date* *1/16/24* *Input Check* *JLK* *Date* *1/17/24*

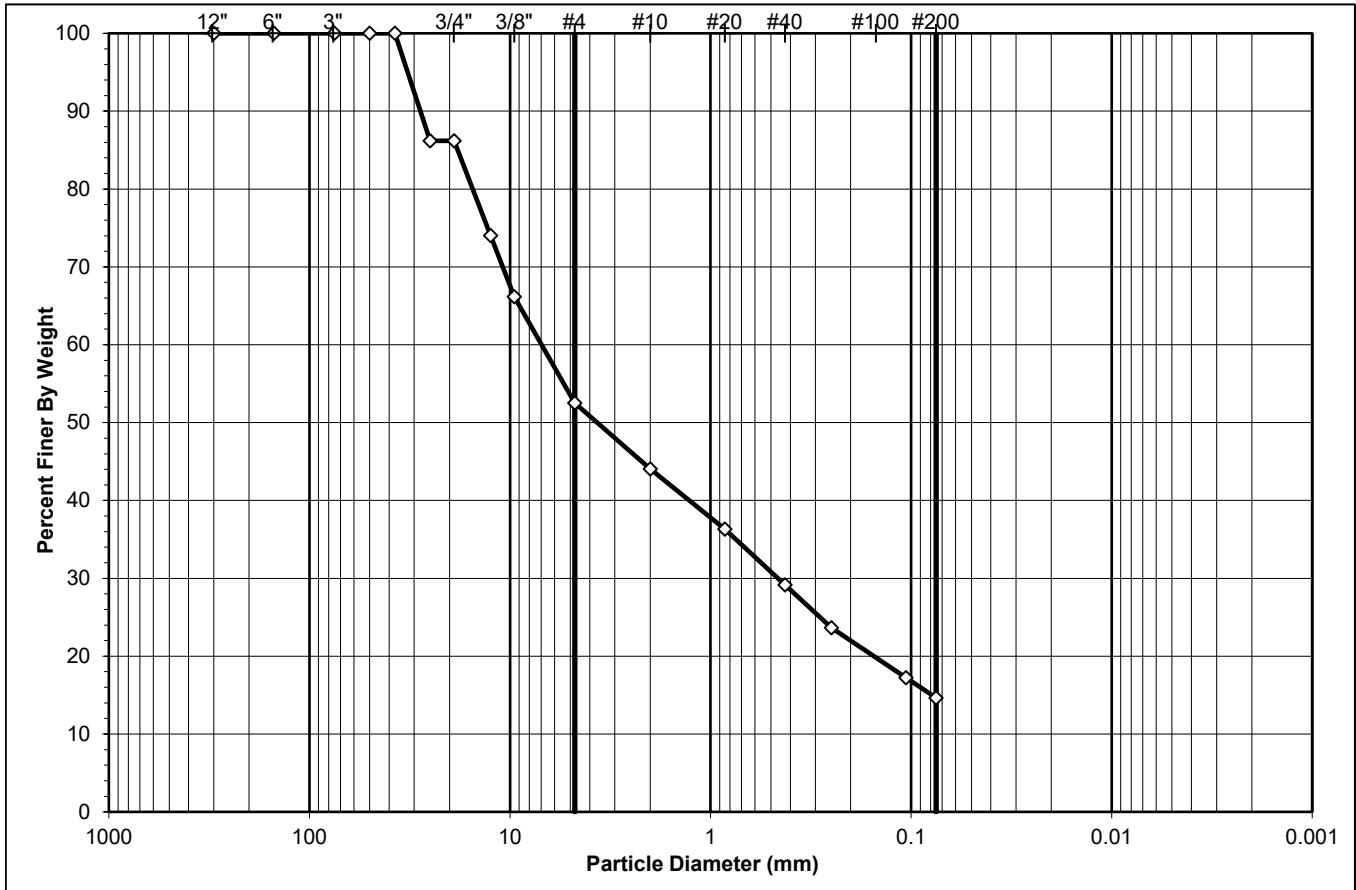
SIEVE ANALYSIS
ASTM D 422-63 (2007)



Client: Geo-Solutions, Inc.
 Client Reference: Yonkers, NY 23-075
 Project No.: 2024-039-001
 Lab ID: 2024-039-001-001

Boring No.: Yonkers, NY
 Depth (ft): Soil
 Sample No.: Comp 1
 Soil Color: Black

USCS USDA	SIEVE ANALYSIS			HYDROMETER	
	cobbles	gravel	sand	silt and clay fraction	
	cobbles	gravel	sand	silt	clay



USCS Summary		
Sieve Size (mm)		Percentage (%)
Greater Than #4	Gravel	47.48
#4 to #200	Sand	37.87
Finer Than #200	Silt & Clay	14.65

USCS Symbol:
gm, ASSUMED

USCS Classification:
SILTY GRAVEL WITH SAND

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client: Geo-Solutions, Inc.
 Client Reference: Yonkers, NY 23-075
 Project No.: 2024-039-001
 Lab ID: 2024-039-001-001

Boring No.: Yonkers, NY
 Depth (ft): Soil
 Sample No.: Comp 1
 Soil Color: Black

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	2002	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	619.24	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	497.01	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	145.64	Weight of Tare (g):	NA
Weight of Water (g):	122.23	Weight of Water (g):	NA
Weight of Dry Soil (g):	351.37	Weight of Dry Soil (g):	NA
Moisture Content (%):	34.8	Moisture Content (%):	0.0

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	351.37
Dry Weight of - 3/4" Sample (g):	302.89	Weight of Minus #200 Material (g):	51.48
Wet Weight of +3/4" Sample (g):	48.48	Weight of Plus #200 Material (g):	299.89
Dry Weight of + 3/4" Sample (g):	48.48		
Total Dry Weight of Sample (g):	351.37		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	100.00
6"	150	0.00	0.00	0.00	100.00	100.00
3"	75	0.00	0.00	0.00	100.00	100.00
2"	50	0.00	(*)	0.00	100.00	100.00
1 1/2"	37.5	0.00		0.00	100.00	100.00
1"	25.0	48.48	13.80	13.80	86.20	86.20
3/4"	19.0	0.00	0.00	13.80	86.20	86.20
1/2"	12.5	42.85	12.20	25.99	74.01	74.01
3/8"	9.50	27.50	7.83	33.82	66.18	66.18
#4	4.75	48.00	13.66	47.48	52.52	52.52
#10	2.00	29.84	8.49	55.97	44.03	44.03
#20	0.85	27.07	(**)	63.68	36.32	36.32
#40	0.425	25.20	7.17	70.85	29.15	29.15
#60	0.250	19.33	5.50	76.35	23.65	23.65
#140	0.106	22.52	6.41	82.76	17.24	17.24
#200	0.075	9.10	2.59	85.35	14.65	14.65
Pan	-	51.48	14.65	100.00	-	-

Notes : (*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample
 (***) The - 3/4" sieve analysis is based on the Weight of the Dry Sample

Tested By DF Date 1/18/24 Checked By JLK Date 1/18/24

Moisture, Ash, and Organic Matter (Loss on Ignition)

ASTM D 2974-20e1

Client: Geo-Solutions, Inc.
Client Reference: Yonkers, NY 23-075
Project No.: 2024-039-001

Method B (To 0.1%)

Moisture Content

ASTM D2216

Lab ID: 001
Boring No.: Yonkers, NY
Depth (ft): Soil
Sample No.: Comp 1

Tare Number HH
Weight of Tare & Wet Sample (g) 414.19
Weight of Tare & Dry Sample (g) 335.67
Weight of Tare (g) 134.82
Weight of Water (g) 78.52
Weight of Dry Sample (g) 200.85

Moisture Content 39.1%

Method A **Ash Content, Organic Matter**

Furnace Temperature (°C) 440

Weight of Tare & Ash (g) 326.55
Weight of Volatiles (g) 9.12
Weight of Ash (g) 191.73

Ash Content (%) 95.5%

Organic Matter (%) 4.5%

Tested By JW Date 1/17/24 Checked By JLK Date 4/11/23

pH OF SOILS
AASHTO T 289-91 (2013)

Client: Geo-Solutions, Inc.
Client Reference: Yonkers, NY 23-075
Project No.: 2024-039-001

Lab ID: 001
Boring No.: Yonkers, NY
Depth (ft): Soil
Sample No.: Comp 1

Drying Tare No.: 3031
Testing Tare No.: C

Temperature (°C): 21.4

pH of Sample: 7.97

Meter Calibration (as used each day)		
Buffer pH	Meter Reading	Meter Model
4.00	4.01	ORION 720A
7.00	7.03	
10.00	10.03	

Tested By JAM Date 1/24/24 Checked By BRB Date 1/25/24

**MOISTURE-DENSITY RELATIONSHIP
ONE POINT TEST**

ASTM D558 Soil/Cement

Client: Geo-Solutions, Inc.
 Client Reference: Yonkers, NY 23-075
 Project No.: 2024-039-001
 Lab ID: 2024-039-001-002

Boring No.: Yonkers, NY
 Depth (ft): Soil
 Sample No.: Comp 2
 Test Type: STANDARD

Visual Description: Black Clay with Rocks

MOLD

Mold ID No.: G1924
 Weight of Mold (g): 4210
 Volume of Mold (cm³): 942

SPECIMEN

Weight of Mold & Wet Sample (g): 6295
 Weight of Mold (g): 4210
 Weight of Wet Sample (g): 2085
 Mold Volume (cm³): 942

MOISTURE/DENSITY

Tare Number: 882
 Weight of Tare & Wet Sample (g): 557.38
 Weight of Tare & Dry Sample (g): 499.37
 Weight of Tare (g): 109.88
 Weight of Water (g): 58.01
 Weight of Dry Sample (g): 389.49

Wet Density (g/cm³): 2.21
 Wet Density (pcf): 138.2

Moisture Content (%): 14.9
Dry Density (pcf): 120.3

Tested By *MLF* *Date* *1/16/24* *Input Check* *JLK* *Date* *1/17/24*

SIEVE ANALYSIS

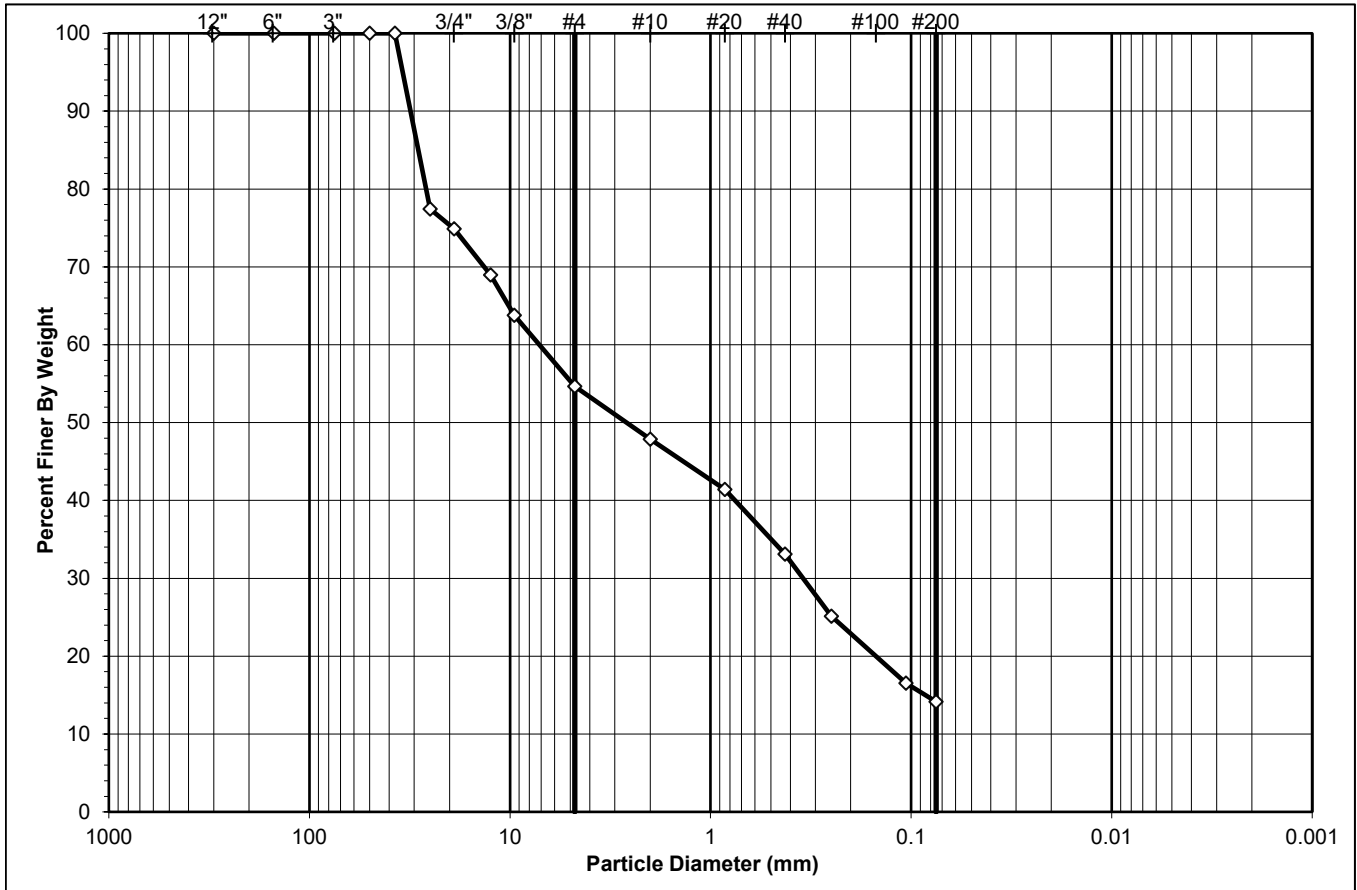
ASTM D 422-63 (2007)



Client: Geo-Solutions, Inc.
 Client Reference: Yonkers, NY 23-075
 Project No.: 2024-039-001
 Lab ID: 2024-039-001-002

Boring No.: Yonkers, NY
 Depth (ft): Soil
 Sample No.: Comp 2
 Soil Color: Brown

USCS USDA	SIEVE ANALYSIS			HYDROMETER	
	cobbles	gravel	sand	silt and clay fraction	
	cobbles	gravel	sand	silt	clay



USCS Summary		
Sieve Size (mm)		Percentage (%)
Greater Than #4	Gravel	45.35
#4 to #200	Sand	40.50
Finer Than #200	Silt & Clay	14.15

USCS Symbol:
gm, ASSUMED

USCS Classification:
SILTY GRAVEL WITH SAND

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client: Geo-Solutions, Inc.
 Client Reference: Yonkers, NY 23-075
 Project No.: 2024-039-001
 Lab ID: 2024-039-001-002

Boring No.: Yonkers, NY
 Depth (ft): Soil
 Sample No.: Comp 2
 Soil Color: Brown

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	1495	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	875.09	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	778.62	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	146.51	Weight of Tare (g):	NA
Weight of Water (g):	96.47	Weight of Water (g):	NA
Weight of Dry Soil (g):	632.11	Weight of Dry Soil (g):	NA
Moisture Content (%):	15.3	Moisture Content (%):	0.0

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	632.11
Dry Weight of - 3/4" Sample (g):	473.35	Weight of Minus #200 Material (g):	89.44
Wet Weight of +3/4" Sample (g):	158.76	Weight of Plus #200 Material (g):	542.67
Dry Weight of + 3/4" Sample (g):	158.76		
Total Dry Weight of Sample (g):	632.11		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	100.00
6"	150	0.00	0.00	0.00	100.00	100.00
3"	75	0.00	0.00	0.00	100.00	100.00
2"	50	0.00	(*)	0.00	100.00	100.00
1 1/2"	37.5	0.00		0.00	100.00	100.00
1"	25.0	142.70	22.58	22.58	77.42	77.42
3/4"	19.0	16.06	2.54	25.12	74.88	74.88
1/2"	12.5	37.49	5.93	31.05	68.95	68.95
3/8"	9.50	32.73	5.18	36.22	63.78	63.78
#4	4.75	57.70	9.13	45.35	54.65	54.65
#10	2.00	42.95	6.79	52.15	47.85	47.85
#20	0.85	40.58	(**)	58.57	41.43	41.43
#40	0.425	52.58	8.32	66.89	33.11	33.11
#60	0.250	50.48	7.99	74.87	25.13	25.13
#140	0.106	54.35	8.60	83.47	16.53	16.53
#200	0.075	15.05	2.38	85.85	14.15	14.15
Pan	-	89.44	14.15	100.00	-	-

Notes : (*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample

(**) The - 3/4" sieve analysis is based on the Weight of the Dry Sample

Tested By DF Date 1/18/24 Checked By JLK Date 1/18/24

Moisture, Ash, and Organic Matter (Loss on Ignition)

ASTM D 2974-20e1

Client: Geo-Solutions, Inc.
Client Reference: Yonkers, NY 23-075
Project No.: 2024-039-001

Method B (To 0.1%)

Moisture Content

ASTM D2216

Lab ID: 002
Boring No.: Yonkers, NY
Depth (ft): Soil
Sample No.: Comp 2

Tare Number EE
Weight of Tare & Wet Sample (g) 454.95
Weight of Tare & Dry Sample (g) 403.01
Weight of Tare (g) 126.93
Weight of Water (g) 51.94
Weight of Dry Sample (g) 276.08

Moisture Content 18.8%

Method A **Ash Content, Organic Matter**

Furnace Temperature (°C) 440

Weight of Tare & Ash (g) 398.48
Weight of Volatiles (g) 4.53
Weight of Ash (g) 271.55

Ash Content (%) 98.4%

Organic Matter (%) 1.6%

Tested By JW Date 1/17/24 Checked By JLK Date 4/11/23

pH OF SOILS
AASHTO T 289-91 (2013)

Client: Geo-Solutions, Inc.
 Client Reference: Yonkers, NY 23-075
 Project No.: 2024-039-001

Lab ID: 002
 Boring No.: Yonkers, NY
 Depth (ft): Soil
 Sample No.: Comp 2

Drying Tare No.: 3250
 Testing Tare No.: P

Temperature (°C): 21.4

pH of Sample: 8.56

Meter Calibration (as used each day)		
Buffer pH	Meter Reading	Meter Model
4.00	4.01	ORION 720A
7.00	7.03	
10.00	10.03	

Tested By JAM Date 1/24/24 Checked By BRB Date 1/25/24

**MOISTURE-DENSITY RELATIONSHIP
ONE POINT TEST**

ASTM D558 Soil/Cement

Client: Geo-Solutions, Inc.
 Client Reference: Yonkers, NY 23-075
 Project No.: 2024-039-001
 Lab ID: 2024-039-001-003

Boring No.: Yonkers, NY
 Depth (ft): Soil
 Sample No.: Comp 3
 Test Type: STANDARD

Visual Description: Black Clay with Rocks

MOLD

Mold ID No.: G1924
 Weight of Mold (g): 4210
 Volume of Mold (cm³): 942

SPECIMEN

Weight of Mold & Wet Sample (g): 5947
 Weight of Mold (g): 4210
 Weight of Wet Sample (g): 1737
 Mold Volume (cm³): 942

MOISTURE/DENSITY

Tare Number: 886
 Weight of Tare & Wet Sample (g): 508.42
 Weight of Tare & Dry Sample (g): 415.20
 Weight of Tare (g): 109.32
 Weight of Water (g): 93.22
 Weight of Dry Sample (g): 305.88

Wet Density (g/cm³): 1.84
 Wet Density (pcf): 115.1

Moisture Content (%): 30.5
Dry Density (pcf): 88.2

Tested By *MLF* *Date* *1/16/24* *Input Check* *JLK* *Date* *1/17/24*

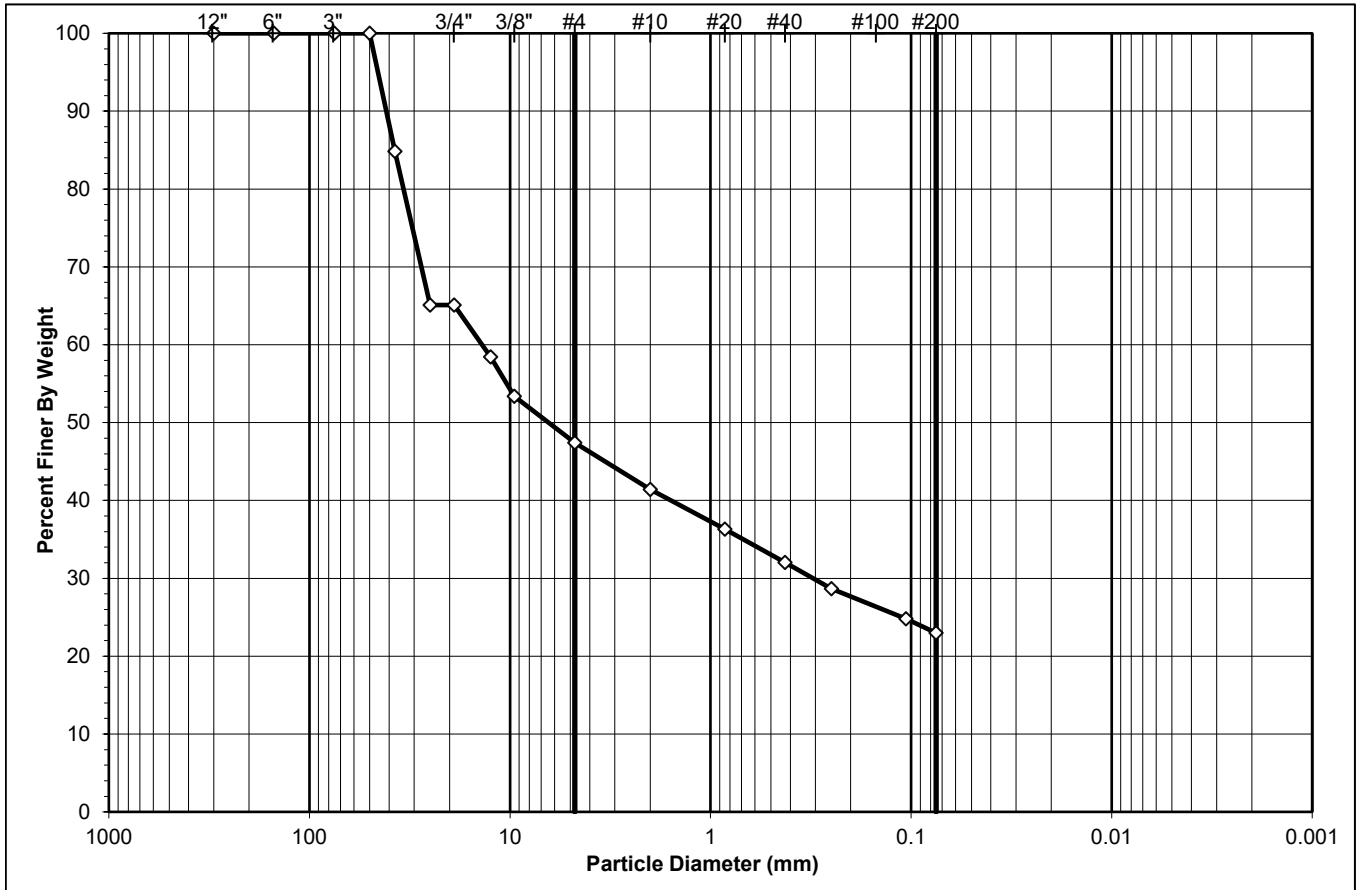
SIEVE ANALYSIS
ASTM D 422-63 (2007)



Client: Geo-Solutions, Inc.
Client Reference: Yonkers, NY 23-075
Project No.: 2024-039-001
Lab ID: 2024-039-001-003

Boring No.: Yonkers, NY
Depth (ft): Soil
Sample No.: Comp 3
Soil Color: Black

USCS USDA	SIEVE ANALYSIS			HYDROMETER	
	cobbles	gravel	sand	silt and clay fraction	
	cobbles	gravel	sand	silt	clay



USCS Summary		
Sieve Size (mm)		Percentage (%)
Greater Than #4	Gravel	52.57
#4 to #200	Sand	24.45
Finer Than #200	Silt & Clay	22.98

USCS Symbol:
gm, ASSUMED

USCS Classification:
SILTY GRAVEL WITH SAND

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client: Geo-Solutions, Inc.
 Client Reference: Yonkers, NY 23-075
 Project No.: 2024-039-001
 Lab ID: 2024-039-001-003

Boring No.: Yonkers, NY
 Depth (ft): Soil
 Sample No.: Comp 3
 Soil Color: Black

Moisture Content of Passing 3/4" Material		Moisture Content of Retained 3/4" Material	
Tare No.:	1525	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	966.90	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	796.01	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	146.36	Weight of Tare (g):	NA
Weight of Water (g):	170.89	Weight of Water (g):	NA
Weight of Dry Soil (g):	649.65	Weight of Dry Soil (g):	NA
Moisture Content (%):	26.3	Moisture Content (%):	0.0

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	649.65
Dry Weight of - 3/4" Sample (g):	422.90	Weight of Minus #200 Material (g):	149.31
Wet Weight of +3/4" Sample (g):	226.75	Weight of Plus #200 Material (g):	500.34
Dry Weight of + 3/4" Sample (g):	226.75		
Total Dry Weight of Sample (g):	649.65		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	100.00
6"	150	0.00	0.00	0.00	100.00	100.00
3"	75	0.00	0.00	0.00	100.00	100.00
2"	50	0.00	(*)	0.00	100.00	100.00
1 1/2"	37.5	98.47	15.16	15.16	84.84	84.84
1"	25.0	128.28	19.75	34.90	65.10	65.10
3/4"	19.0	0.00	0.00	34.90	65.10	65.10
1/2"	12.5	43.13	6.64	41.54	58.46	58.46
3/8"	9.50	33.00	5.08	46.62	53.38	53.38
#4	4.75	38.65	5.95	52.57	47.43	47.43
#10	2.00	39.10	6.02	58.59	41.41	41.41
#20	0.85	33.13	(**)	63.69	36.31	36.31
#40	0.425	27.64	4.25	67.94	32.06	32.06
#60	0.250	21.89	3.37	71.31	28.69	28.69
#140	0.106	25.24	3.89	75.20	24.80	24.80
#200	0.075	11.81	1.82	77.02	22.98	22.98
Pan	-	149.31	22.98	100.00	-	-

Notes : (*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample

(**) The - 3/4" sieve analysis is based on the Weight of the Dry Sample

Tested By DF Date 1/18/24 Checked By JLK Date 1/18/24

Moisture, Ash, and Organic Matter (Loss on Ignition)

ASTM D 2974-20e1

Client: Geo-Solutions, Inc.
Client Reference: Yonkers, NY 23-075
Project No.: 2024-039-001

Method B (To 0.1%)

Moisture Content

ASTM D2216

Lab ID: 003
Boring No.: Yonkers, NY
Depth (ft): Soil
Sample No.: Comp 3

Tare Number CC
Weight of Tare & Wet Sample (g) 418.80
Weight of Tare & Dry Sample (g) 330.63
Weight of Tare (g) 130.52
Weight of Water (g) 88.17
Weight of Dry Sample (g) 200.11

Moisture Content 44.1%

Method A **Ash Content, Organic Matter**

Furnace Temperature (°C) 440

Weight of Tare & Ash (g) 315.07
Weight of Volatiles (g) 15.56
Weight of Ash (g) 184.55

Ash Content (%) 92.2%

Organic Matter (%) 7.8%

Tested By JW Date 1/17/24 Checked By JLK Date 4/11/23

pH OF SOILS
AASHTO T 289-91 (2013)

Client: Geo-Solutions, Inc.
 Client Reference: Yonkers, NY 23-075
 Project No.: 2024-039-001

Lab ID: 003
 Boring No.: Yonkers, NY
 Depth (ft): Soil
 Sample No.: Comp 3

Drying Tare No.: 3154
 Testing Tare No.: W

Temperature (°C): 21.4

pH of Sample: 8.81

Meter Calibration (as used each day)		
Buffer pH	Meter Reading	Meter Model
4.00	4.01	ORION 720A
7.00	7.03	
10.00	10.03	

Tested By JAM Date 1/24/24 Checked By BRB Date 1/25/24



February 8, 2024

Project No. 2024-039-002

Josh Bonetto
Geo-Solutions, Inc.
1250 Fifth Ave.
New Kensington, PA 15068

Transmittal
Laboratory Test Results
Yonkers, NY 23-075

Please find attached the laboratory test results for the above referenced project. The tests were outlined on the Project Verification Form that was transmitted to your firm prior to the testing. The testing was performed in general accordance with the methods listed on the enclosed data sheets. The test results are believed to be representative of the samples that were submitted for testing and are indicative only of the specimens that were evaluated. We have no direct knowledge of the origin of the samples and imply no position with regard to the nature of the test results, i.e. pass/fail and no claims as to the suitability of the material for its intended use.

The test data and all associated project information provided shall be held in strict confidence and disclosed to other parties only with authorization by our Client. The test data submitted herein is considered integral with this report and is not to be reproduced except in whole and only with the authorization of the Client and Geotechnics. The remaining sample materials for this project will be retained for a minimum of 90 days as directed by the Geotechnics' Quality Program.

We are pleased to provide these testing services. Should you have any questions or if we may be of further assistance, please contact our office.

Respectfully submitted,
Geotechnics, Inc.

Nathan Melaro
Director of Operations

***We understand that you have a choice in your laboratory services
and we thank you for choosing Geotechnics.***

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 1: 8%
Project No.:	2024-039-002	Sample No.:	7 Day
Lab ID:	2024-039-002-001	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.030	Top Dia. (in):	2.003
Length 2 (in):	4.029	Mid. Dia. (in):	2.000
Length 3 (in):	4.029	Bot. Dia. (in):	1.998
Avg. Length (in):	4.029	Area (in ²):	3.143

WATER CONTENT (AFTER TEST)	
Tare No.:	3375
Weight of Tare & Wet Sample (g):	343.13
Weight of Tare & Dry Sample (g):	230.28
Weight of Tare (g):	8.13
% Moisture:	50.80

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	335.9	Sample Volume (cm ³):	207.5
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.62
Weight of Wet Sample (g):	335.86	Unit Wet Weight (pcf):	101.00
Avg. Diameter (in):	2.00	Moisture Content (%):	50.80
Avg. Length (in):	4.03	Unit Dry Weight (pcf):	66.98
Avg. Length (cm):	10.23		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

75

23.87

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 1: 8%
Project No.:	2024-039-002	Sample No.:	14 Day
Lab ID:	2024-039-002-002	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.025	Top Dia. (in):	2.007
Length 2 (in):	4.022	Mid. Dia. (in):	2.005
Length 3 (in):	4.022	Bot. Dia. (in):	1.995
Avg. Length (in):	4.023	Area (in ²):	3.149

WATER CONTENT (AFTER TEST)	
Tare No.:	2800
Weight of Tare & Wet Sample (g):	341.44
Weight of Tare & Dry Sample (g):	228.45
Weight of Tare (g):	8.17
% Moisture:	51.29

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	334.5	Sample Volume (cm ³):	207.6
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.61
Weight of Wet Sample (g):	334.51	Unit Wet Weight (pcf):	100.55
Avg. Diameter (in):	2.00	Moisture Content (%):	51.29
Avg. Length (in):	4.02	Unit Dry Weight (pcf):	66.46
Avg. Length (cm):	10.22		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

140

44.46

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 1: 8%
Project No.:	2024-039-002	Sample No.:	28 Day
Lab ID:	2024-039-002-003	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.027	Top Dia. (in):	2.003
Length 2 (in):	4.026	Mid. Dia. (in):	2.002
Length 3 (in):	4.025	Bot. Dia. (in):	2.000
Avg. Length (in):	4.026	Area (in ²):	3.147

WATER CONTENT (AFTER TEST)	
Tare No.:	3225
Weight of Tare & Wet Sample (g):	337.81
Weight of Tare & Dry Sample (g):	226.76
Weight of Tare (g):	8.19
% Moisture:	50.81

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	330.8	Sample Volume (cm ³):	207.6
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.59
Weight of Wet Sample (g):	330.83	Unit Wet Weight (pcf):	99.44
Avg. Diameter (in):	2.00	Moisture Content (%):	50.81
Avg. Length (in):	4.03	Unit Dry Weight (pcf):	65.94
Avg. Length (cm):	10.23		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

255

81.03

PERMEABILITY TEST

ASTM D 5084-16a Method C

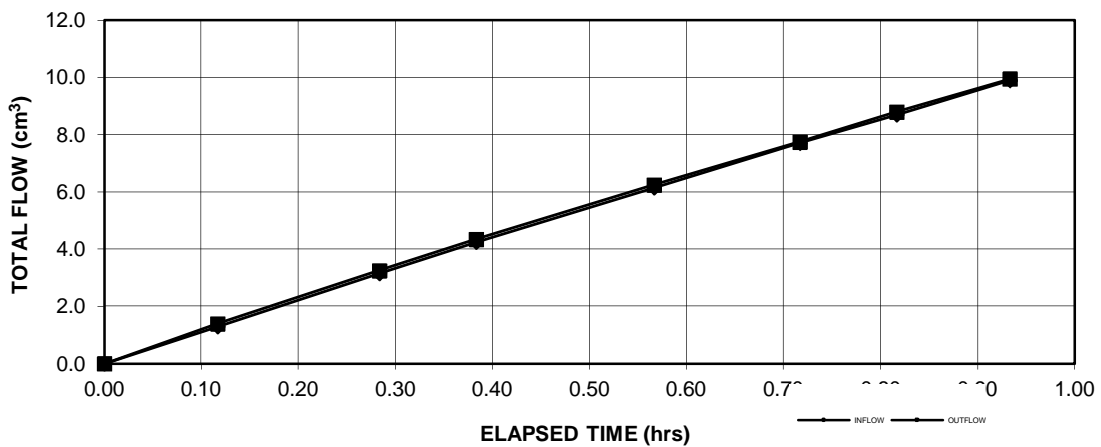


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 1: 8%
Project No.: 2024-039-002 Sample No.: 14 Day
Lab ID No.: 2024-039-002-004 Avg. Effective Consol. Pressure (psi): 6.25

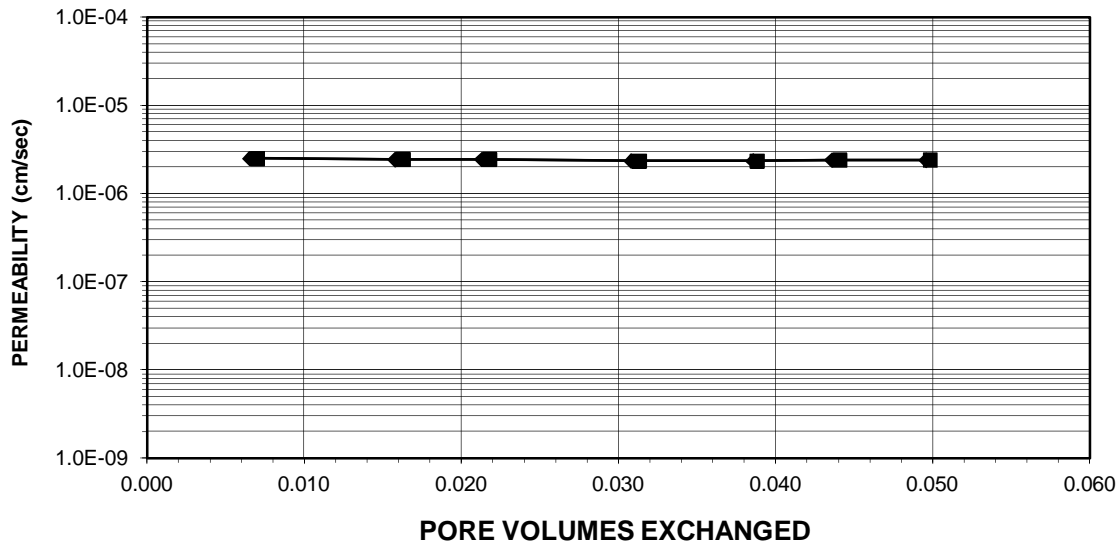
AVERAGE PERMEABILITY = 2.4E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 2.4E-08 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/19/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-004

Boring No.: 1/3/24
Depth (ft): Comp 1: 8%
Sample No.: 14 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Black Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:

BEFORE TEST

AFTER TEST

Tare Number	878	1696
Weight of Tare & Wet Sample (g)	275.98	523.38
Weight of Tare & Dry Sample (g)	214.30	371.15
Weight of Tare (g)	109.84	82.73
Weight of Water (g)	61.68	152.23
Weight of Dry Sample (g)	104.46	288.42
Moisture Content (%)	59.0	52.8

SPECIMEN:

BEFORE TEST

AFTER TEST

Weight of Tube & Wet Sample (g)	515.81	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	515.81	495.49
Length 1 (in)	2.745	2.712
Length 2 (in)	2.715	2.724
Length 3 (in)	2.725	2.745
Top Diameter (in)	3.022	3.022
Middle Diameter (in)	3.021	3.022
Bottom Diameter (in)	3.016	3.012
Average Length (in)	2.73	2.73
Average Area (in ²)	7.16	7.16
Sample Volume (cm ³)	320.19	319.82
Unit Wet Weight (g/cm ³)	1.61	1.55
Unit Wet Weight (pcf)	100.6	96.7
Unit Dry Weight (pcf)	63.2	63.3
Unit Dry Weight (g/cm ³)	1.01	1.01
Void Ratio, e	1.67	1.66
Porosity, n	0.62	0.62
Pore Volume (cm ³)	200.1	199.7
Total Weight of Sample After Test (g)		518.86

Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/19/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-004

Boring No.: 1/3/24
 Depth (ft): Comp 1: 8%
 Sample No.: 14 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	67.5
Bottom Cap (psi)	70.0
Cell (psi)	75.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	25.37

Final Sample Dimensions

Sample Length (cm), L	6.93
Sample Diameter (cm)	7.67
Sample Area (cm ²), A	46.17
Inflow Burette Area (cm ²), a-in	0.936
Outflow Burette Area (cm ²), a-out	0.972
B Parameter (%)	95

AVERAGE PERMEABILITY = 2.4E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 2.4E-08 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
1/18/24	11	1	0.000	0.0	0.0	200.9	0	18.6	NA
1/18/24	11	8	0.117	1.3	1.4	198.0	0	18.5	2.5E-06
1/18/24	11	18	0.283	3.2	3.3	194.2	0	18.6	2.4E-06
1/18/24	11	24	0.383	4.3	4.4	191.9	0	18.6	2.4E-06
1/18/24	11	35	0.567	6.2	6.3	187.9	0	18.6	2.3E-06
1/18/24	11	44	0.717	7.7	7.8	184.7	0	18.6	2.3E-06
1/18/24	11	50	0.817	8.7	8.8	182.6	0	18.6	2.4E-06
1/18/24	11	57	0.933	9.9	10.0	180.1	1	18.5	2.4E-06

Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/19/24

PERMEABILITY TEST

ASTM D 5084-16a Method C

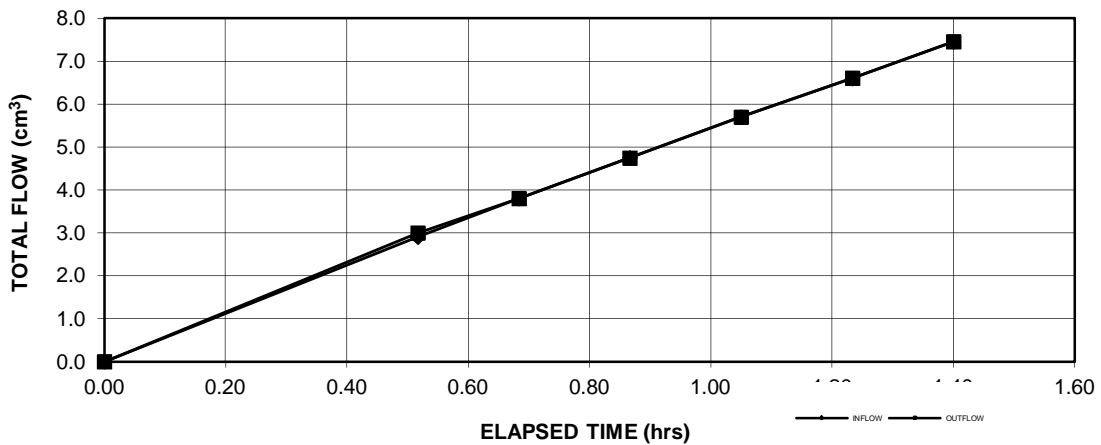


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 1: 8%
Project No.: 2024-039-002 Sample No.: 28 Day
Lab ID No.: 2024-039-002-005 Avg. Effective Consol. Pressure (psi): 6.25

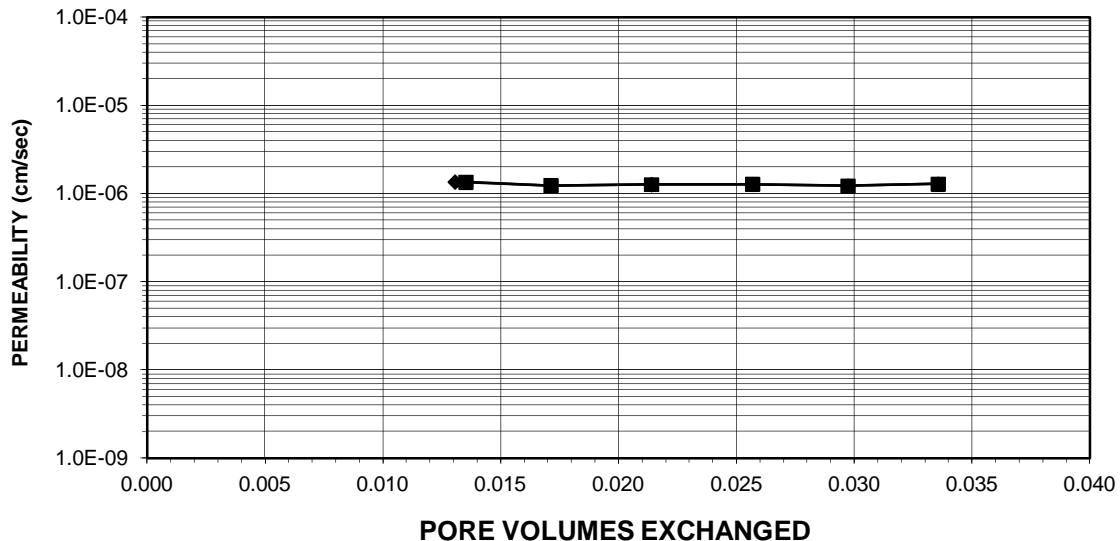
AVERAGE PERMEABILITY = 1.3E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.3E-08 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/5/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-005

Boring No.: 1/3/24
Depth (ft): Comp 1: 8%
Sample No.: 28 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Black Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Tare Number	1706	1126
Weight of Tare & Wet Sample (g)	237.88	566.60
Weight of Tare & Dry Sample (g)	179.73	395.41
Weight of Tare (g)	82.38	84.52
Weight of Water (g)	58.15	171.19
Weight of Dry Sample (g)	97.35	310.89
Moisture Content (%)	59.7	55.1

SPECIMEN:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Weight of Tube & Wet Sample (g)	561.34	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	561.34	544.93
Length 1 (in)	3.016	2.991
Length 2 (in)	2.994	3.007
Length 3 (in)	2.997	3.009
Top Diameter (in)	3.025	3.020
Middle Diameter (in)	3.024	3.023
Bottom Diameter (in)	3.014	3.014
Average Length (in)	3.00	3.00
Average Area (in ²)	7.17	7.16
Sample Volume (cm ³)	352.66	352.19
Unit Wet Weight (g/cm ³)	1.59	1.55
Unit Wet Weight (pcf)	99.4	96.6
Unit Dry Weight (pcf)	62.2	62.3
Unit Dry Weight (g/cm ³)	1.00	1.00
Void Ratio, e	1.71	1.71
Porosity, n	0.63	0.63
Pore Volume (cm ³)	222.5	222.0
Total Weight of Sample After Test (g)		565.66

Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/5/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-005

Boring No.: 1/3/24
 Depth (ft): Comp 1: 8%
 Sample No.: 28 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	67.5
Bottom Cap (psi)	70.0
Cell (psi)	75.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	23.05

Final Sample Dimensions

Sample Length (cm), L	7.63
Sample Diameter (cm)	7.67
Sample Area (cm ²), A	46.18
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962
B Parameter (%)	95

AVERAGE PERMEABILITY = 1.3E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.3E-08 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
2/1/24	12	28	0.000	0.0	0.0	196.8	0	19.7	NA
2/1/24	12	59	0.517	2.9	3.0	190.7	0	19.7	1.4E-06
2/1/24	13	9	0.683	3.8	3.8	188.9	0	19.7	1.2E-06
2/1/24	13	20	0.867	4.8	4.8	186.9	0	19.7	1.3E-06
2/1/24	13	31	1.050	5.7	5.7	185.0	0	19.8	1.3E-06
2/1/24	13	42	1.233	6.6	6.6	183.1	0	19.8	1.2E-06
2/1/24	13	52	1.400	7.5	7.5	181.4	1	19.8	1.3E-06

Tested By: WT

Date: 1/31/24

Checked By: JLK

Date: 2/5/24

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 2: 8%
Project No.:	2024-039-002	Sample No.:	7 Day
Lab ID:	2024-039-002-006	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.996	Top Dia. (in):	2.009
Length 2 (in):	3.995	Mid. Dia. (in):	2.005
Length 3 (in):	3.995	Bot. Dia. (in):	2.004
Avg. Length (in):	3.995	Area (in ²):	3.160

WATER CONTENT (AFTER TEST)	
Tare No.:	3147
Weight of Tare & Wet Sample (g):	406.89
Weight of Tare & Dry Sample (g):	327.45
Weight of Tare (g):	8.05
% Moisture:	24.87

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	399.7	Sample Volume (cm ³):	206.9
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.93
Weight of Wet Sample (g):	399.67	Unit Wet Weight (pcf):	120.53
Avg. Diameter (in):	2.01	Moisture Content (%):	24.87
Avg. Length (in):	4.00	Unit Dry Weight (pcf):	96.52
Avg. Length (cm):	10.15		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

535

169.28

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 2: 8%
Project No.:	2024-039-002	Sample No.:	14 Day
Lab ID:	2024-039-002-007	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.992	Top Dia. (in):	2.011
Length 2 (in):	3.991	Mid. Dia. (in):	2.011
Length 3 (in):	3.991	Bot. Dia. (in):	2.008
Avg. Length (in):	3.991	Area (in ²):	3.173

WATER CONTENT (AFTER TEST)	
Tare No.:	4029
Weight of Tare & Wet Sample (g):	403.73
Weight of Tare & Dry Sample (g):	325.75
Weight of Tare (g):	8.14
% Moisture:	24.55

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	397.2	Sample Volume (cm ³):	207.5
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.91
Weight of Wet Sample (g):	397.19	Unit Wet Weight (pcf):	119.42
Avg. Diameter (in):	2.01	Moisture Content (%):	24.55
Avg. Length (in):	3.99	Unit Dry Weight (pcf):	95.88
Avg. Length (cm):	10.14		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

575

181.21

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 2: 8%
Project No.:	2024-039-002	Sample No.:	28 Day
Lab ID:	2024-039-002-008	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.854	Top Dia. (in):	2.009
Length 2 (in):	3.851	Mid. Dia. (in):	2.007
Length 3 (in):	3.850	Bot. Dia. (in):	2.005
Avg. Length (in):	3.852	Area (in ²):	3.164

WATER CONTENT (AFTER TEST)	
Tare No.:	3375
Weight of Tare & Wet Sample (g):	392.85
Weight of Tare & Dry Sample (g):	316.30
Weight of Tare (g):	8.21
% Moisture:	24.85

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	385.8	Sample Volume (cm ³):	199.7
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.93
Weight of Wet Sample (g):	385.8	Unit Wet Weight (pcf):	120.56
Avg. Diameter (in):	2.01	Moisture Content (%):	24.85
Avg. Length (in):	3.85	Unit Dry Weight (pcf):	96.57
Avg. Length (cm):	9.78		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

1040

328.74

PERMEABILITY TEST

ASTM D 5084-16a Method C

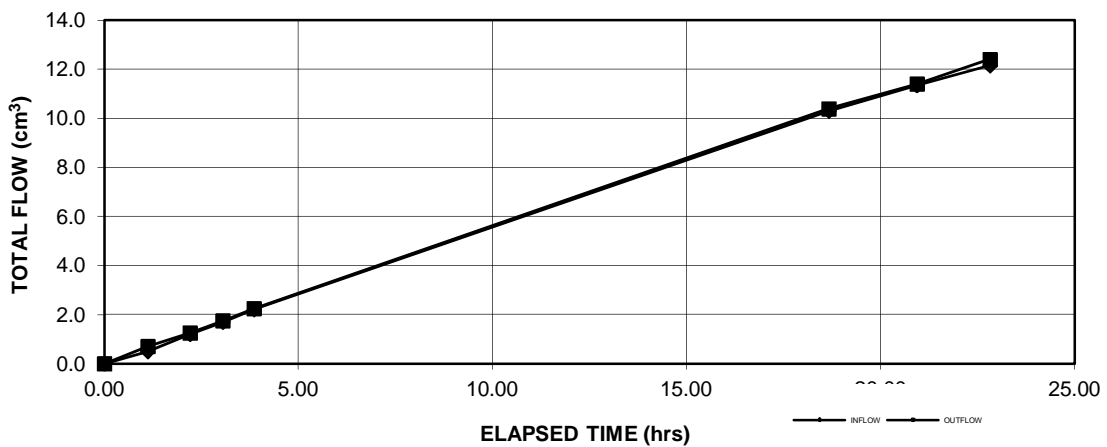


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 2: 8%
Project No.: 2024-039-002 Sample No.: 14 Day
Lab ID No.: 2024-039-002-009 Avg. Effective Consol. Pressure (psi): 6.25

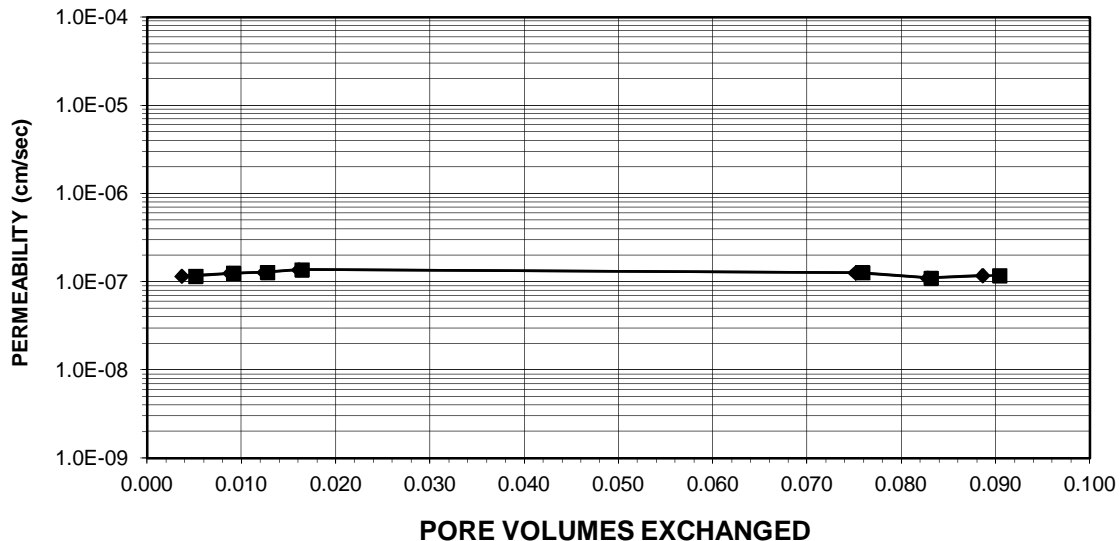
AVERAGE PERMEABILITY = 1.2E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.2E-09 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/22/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-009

Boring No.: 1/3/24
Depth (ft): Comp 2: 8%
Sample No.: 14 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Dark Gray Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:

BEFORE TEST

AFTER TEST

Tare Number	1743	673
Weight of Tare & Wet Sample (g)	273.78	734.76
Weight of Tare & Dry Sample (g)	235.76	601.24
Weight of Tare (g)	83.31	72.33
Weight of Water (g)	38.02	133.52
Weight of Dry Sample (g)	152.45	528.91
Moisture Content (%)	24.9	25.2

SPECIMEN:

BEFORE TEST

AFTER TEST

Weight of Tube & Wet Sample (g)	654.10	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	654.10	655.70
Length 1 (in)	2.791	2.838
Length 2 (in)	2.810	2.829
Length 3 (in)	2.847	2.795
Top Diameter (in)	3.020	3.024
Middle Diameter (in)	3.023	3.023
Bottom Diameter (in)	3.012	3.012
Average Length (in)	2.82	2.82
Average Area (in ²)	7.16	7.16
Sample Volume (cm ³)	330.19	331.03
Unit Wet Weight (g/cm ³)	1.98	1.98
Unit Wet Weight (pcf)	123.7	123.6
Unit Dry Weight (pcf)	99.0	98.7
Unit Dry Weight (g/cm ³)	1.59	1.58
Void Ratio, e	0.70	0.71
Porosity, n	0.41	0.41
Pore Volume (cm ³)	136.3	137.1
Total Weight of Sample After Test (g)		665.70

Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/22/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-009

Boring No.: 1/3/24
 Depth (ft): Comp 2: 8%
 Sample No.: 14 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	24.53

Final Sample Dimensions

Sample Length (cm), L	7.16
Sample Diameter (cm)	7.67
Sample Area (cm ²), A	46.20
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962

AVERAGE PERMEABILITY = 1.2E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.2E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
1/18/24	12	34	0.000	0.0	0.0	196.8	0	20.5	NA
1/18/24	13	41	1.117	0.5	0.7	195.5	0	20.6	1.2E-07
1/18/24	14	46	2.200	1.2	1.3	194.2	0	20.7	1.2E-07
1/18/24	15	37	3.050	1.7	1.8	193.2	0	20.7	1.3E-07
1/18/24	16	25	3.850	2.2	2.3	192.2	0	20.6	1.4E-07
1/19/24	7	14	18.667	10.3	10.4	175.4	0	20.5	1.3E-07
1/19/24	9	30	20.933	11.4	11.4	173.2	0	20.5	1.1E-07
1/19/24	11	23	22.817	12.2	12.4	171.4	1	20.5	1.2E-07

Tested By: WT

Date: 1/17/24

Checked By: JLK

Date: 1/22/24

PERMEABILITY TEST

ASTM D 5084-16a Method C

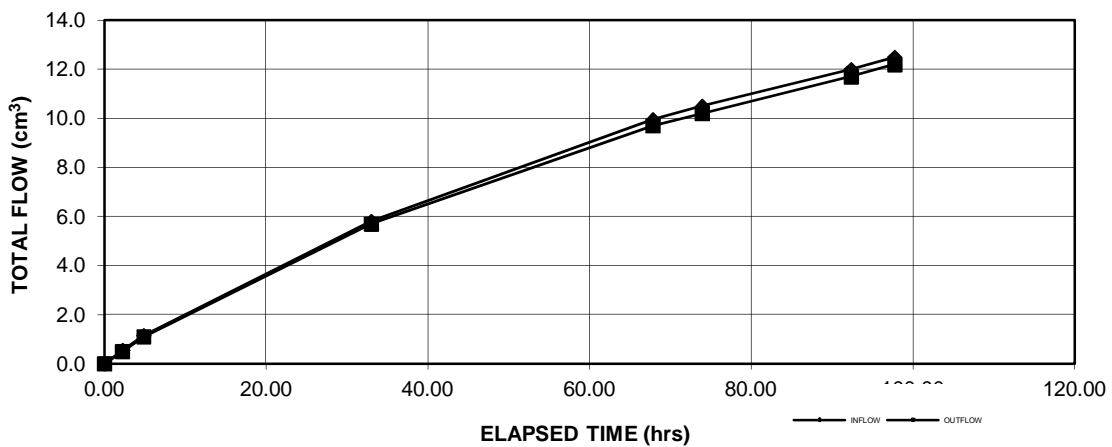


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 2: 8%
Project No.: 2024-039-002 Sample No.: 28 Day
Lab ID No.: 2024-039-002-010 Avg. Effective Consol. Pressure (psi): 6.25

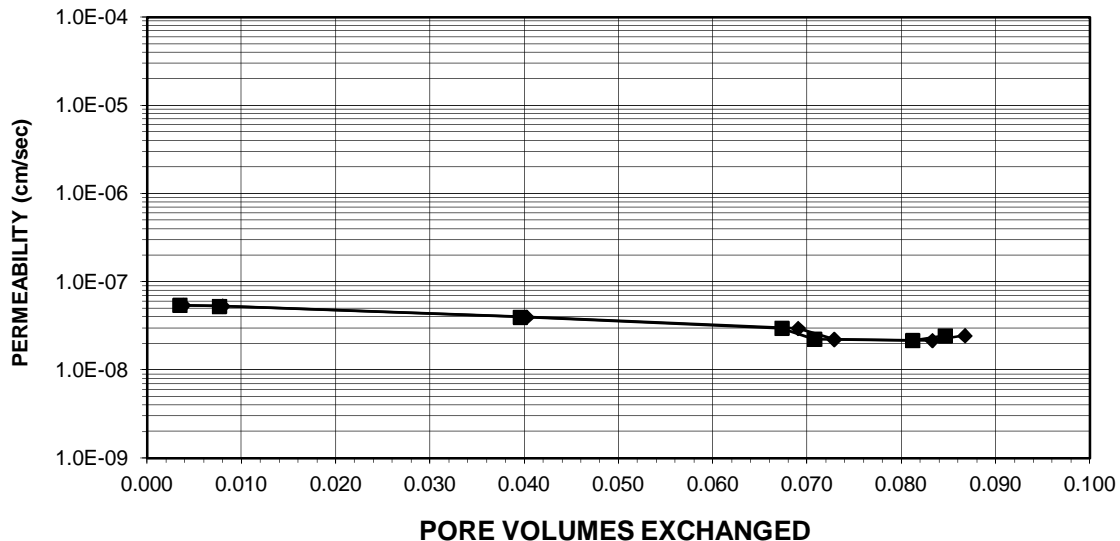
AVERAGE PERMEABILITY = 2.4E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 2.4E-10 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/7/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-010

Boring No.: 1/3/24
Depth (ft): Comp 2: 8%
Sample No.: 28 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Dark Gray Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:

BEFORE TEST

AFTER TEST

Tare Number	1458.5	1706
Weight of Tare & Wet Sample (g)	287.15	776.25
Weight of Tare & Dry Sample (g)	246.77	634.11
Weight of Tare (g)	82.34	82.55
Weight of Water (g)	40.38	142.14
Weight of Dry Sample (g)	164.43	551.56
Moisture Content (%)	24.6	25.8

SPECIMEN:

BEFORE TEST

AFTER TEST

Weight of Tube & Wet Sample (g)	686.80	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	686.80	693.49
Length 1 (in)	2.945	2.944
Length 2 (in)	2.991	2.981
Length 3 (in)	2.970	2.974
Top Diameter (in)	3.025	3.015
Middle Diameter (in)	3.022	3.024
Bottom Diameter (in)	3.013	3.023
Average Length (in)	2.97	2.97
Average Area (in ²)	7.16	7.17
Sample Volume (cm ³)	348.47	348.35
Unit Wet Weight (g/cm ³)	1.97	1.99
Unit Wet Weight (pcf)	123.0	124.3
Unit Dry Weight (pcf)	98.8	98.8
Unit Dry Weight (g/cm ³)	1.58	1.58
Void Ratio, e	0.71	0.71
Porosity, n	0.41	0.41
Pore Volume (cm ³)	144.3	144.1
Total Weight of Sample After Test (g)		699.69

Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/7/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-010

Boring No.: 1/3/24
 Depth (ft): Comp 2: 8%
 Sample No.: 28 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi) 87.5
 Bottom Cap (psi) 90.0
 Cell (psi) 95.0
 Total Pressure Head (cm) 175.8
 Hydraulic Gradient 23.33

Final Sample Dimensions

Sample Length (cm), L 7.53
 Sample Diameter (cm) 7.67
 Sample Area (cm²), A 46.23
 Inflow Burette Area (cm²), a-in 0.962
 Outflow Burette Area (cm²), a-out 0.962
 B Parameter (%) 95

AVERAGE PERMEABILITY = 2.4E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 2.4E-10 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
2/2/24	10	54	0.000	0.0	0.0	196.8	0	19.6	NA
2/2/24	13	8	2.233	0.6	0.5	195.7	0	19.8	5.4E-08
2/2/24	15	45	4.850	1.2	1.1	194.4	0	20.0	5.3E-08
2/3/24	19	54	33.000	5.8	5.7	184.9	0	19.3	4.0E-08
2/5/24	6	44	67.833	10.0	9.7	176.5	0	19.2	3.0E-08
2/5/24	12	50	73.933	10.5	10.2	175.4	0	19.6	2.2E-08
2/6/24	7	14	92.333	12.0	11.7	172.3	0	19.1	2.2E-08
2/6/24	12	38	97.733	12.5	12.2	171.2	1	19.6	2.4E-08

Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/7/24

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 3: 8%
Project No.:	2024-039-002	Sample No.:	7 Day
Lab ID:	2024-039-002-011	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.982	Top Dia. (in):	2.003
Length 2 (in):	3.981	Mid. Dia. (in):	1.997
Length 3 (in):	3.981	Bot. Dia. (in):	1.993
Avg. Length (in):	3.981	Area (in ²):	3.134

WATER CONTENT (AFTER TEST)	
Tare No.:	3027
Weight of Tare & Wet Sample (g):	351.93
Weight of Tare & Dry Sample (g):	245.27
Weight of Tare (g):	8.06
% Moisture:	44.96

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	344.8	Sample Volume (cm ³):	204.5
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.69
Weight of Wet Sample (g):	344.81	Unit Wet Weight (pcf):	105.22
Avg. Diameter (in):	2.00	Moisture Content (%):	44.96
Avg. Length (in):	3.98	Unit Dry Weight (pcf):	72.58
Avg. Length (cm):	10.11		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

85

27.12

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 3: 8%
Project No.:	2024-039-002	Sample No.:	14 Day
Lab ID:	2024-039-002-012	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.013	Top Dia. (in):	2.008
Length 2 (in):	4.012	Mid. Dia. (in):	2.005
Length 3 (in):	4.012	Bot. Dia. (in):	1.995
Avg. Length (in):	4.012	Area (in ²):	3.150

WATER CONTENT (AFTER TEST)	
Tare No.:	3369
Weight of Tare & Wet Sample (g):	353.78
Weight of Tare & Dry Sample (g):	247.08
Weight of Tare (g):	8.19
% Moisture:	44.66

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	347.3	Sample Volume (cm ³):	207.1
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.68
Weight of Wet Sample (g):	347.26	Unit Wet Weight (pcf):	104.62
Avg. Diameter (in):	2.00	Moisture Content (%):	44.66
Avg. Length (in):	4.01	Unit Dry Weight (pcf):	72.32
Avg. Length (cm):	10.19		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

125

39.68

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 3: 8%
Project No.:	2024-039-002	Sample No.:	28 Day
Lab ID:	2024-039-002-013	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.978	Top Dia. (in):	2.003
Length 2 (in):	3.977	Mid. Dia. (in):	2.002
Length 3 (in):	3.975	Bot. Dia. (in):	2.000
Avg. Length (in):	3.977	Area (in ²):	3.147

WATER CONTENT (AFTER TEST)	
Tare No.:	2802
Weight of Tare & Wet Sample (g):	351.34
Weight of Tare & Dry Sample (g):	245.72
Weight of Tare (g):	8.12
% Moisture:	44.45

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	344.2	Sample Volume (cm ³):	205.1
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.68
Weight of Wet Sample (g):	344.22	Unit Wet Weight (pcf):	104.74
Avg. Diameter (in):	2.00	Moisture Content (%):	44.45
Avg. Length (in):	3.98	Unit Dry Weight (pcf):	72.51
Avg. Length (cm):	10.10		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

260

82.62

PERMEABILITY TEST

ASTM D 5084-16a Method C

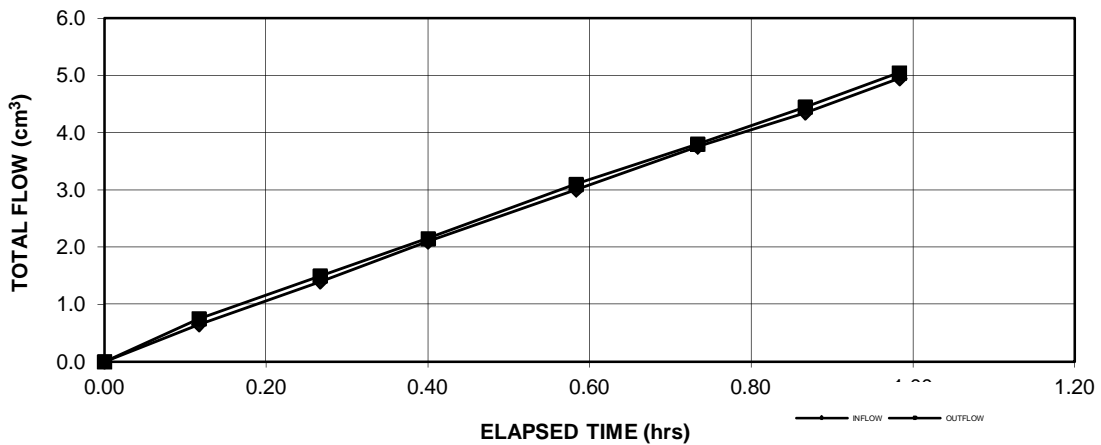


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 3: 8%
Project No.: 2024-039-002 Sample No.: 14 Day
Lab ID No.: 2024-039-002-014 Avg. Effective Consol. Pressure (psi): 6.25

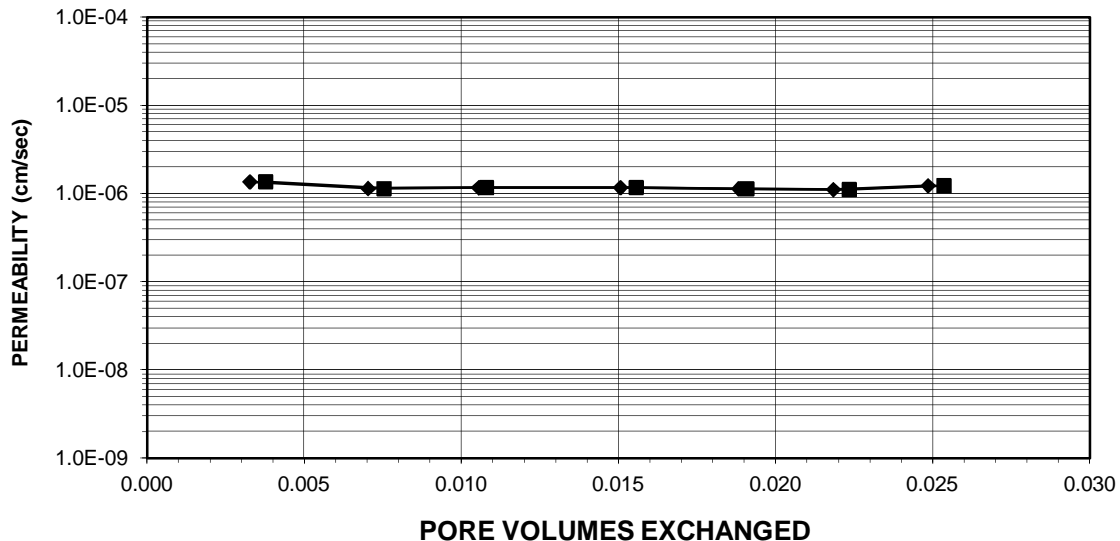
AVERAGE PERMEABILITY = 1.2E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.2E-08 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/19/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-014

Boring No.: 1/3/24
Depth (ft): Comp 3: 8%
Sample No.: 14 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Black Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Tare Number	1701	875
Weight of Tare & Wet Sample (g)	255.35	686.44
Weight of Tare & Dry Sample (g)	198.15	505.00
Weight of Tare (g)	80.72	110.05
Weight of Water (g)	57.20	181.44
Weight of Dry Sample (g)	117.43	394.95
Moisture Content (%)	48.7	45.9

SPECIMEN:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Weight of Tube & Wet Sample (g)	574.62	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	574.62	563.92
Length 1 (in)	2.946	2.894
Length 2 (in)	2.897	2.941
Length 3 (in)	2.913	2.921
Top Diameter (in)	3.025	3.025
Middle Diameter (in)	3.021	3.018
Bottom Diameter (in)	3.010	3.014
Average Length (in)	2.92	2.92
Average Area (in ²)	7.16	7.16
Sample Volume (cm ³)	342.30	342.37
Unit Wet Weight (g/cm ³)	1.68	1.65
Unit Wet Weight (pcf)	104.8	102.8
Unit Dry Weight (pcf)	70.5	70.4
Unit Dry Weight (g/cm ³)	1.13	1.13
Void Ratio, e	1.39	1.39
Porosity, n	0.58	0.58
Pore Volume (cm ³)	199.2	199.3
Total Weight of Sample After Test (g)		577.42

Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/19/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-014

Boring No.: 1/3/24
 Depth (ft): Comp 3: 8%
 Sample No.: 14 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	67.5
Bottom Cap (psi)	70.0
Cell (psi)	75.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	23.71

Final Sample Dimensions

Sample Length (cm), L	7.41
Sample Diameter (cm)	7.67
Sample Area (cm ²), A	46.18
Inflow Burette Area (cm ²), a-in	0.852
Outflow Burette Area (cm ²), a-out	0.862
B Parameter (%)	95

AVERAGE PERMEABILITY = 1.2E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.2E-08 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
1/18/24	11	1	0.000	0.0	0.0	203.7	0	18.6	NA
1/18/24	11	8	0.117	0.7	0.8	202.1	0	18.5	1.4E-06
1/18/24	11	17	0.267	1.4	1.5	200.3	0	18.6	1.1E-06
1/18/24	11	25	0.400	2.1	2.2	198.8	0	18.6	1.2E-06
1/18/24	11	36	0.583	3.0	3.1	196.6	0	18.6	1.2E-06
1/18/24	11	45	0.733	3.8	3.8	194.9	0	18.6	1.1E-06
1/18/24	11	53	0.867	4.4	4.5	193.5	0	18.6	1.1E-06
1/18/24	12	0	0.983	5.0	5.1	192.1	1	18.5	1.2E-06

Tested By: WT

Date: 1/17/24

Checked By: JLK

Date: 1/19/24

PERMEABILITY TEST

ASTM D 5084-16a Method C

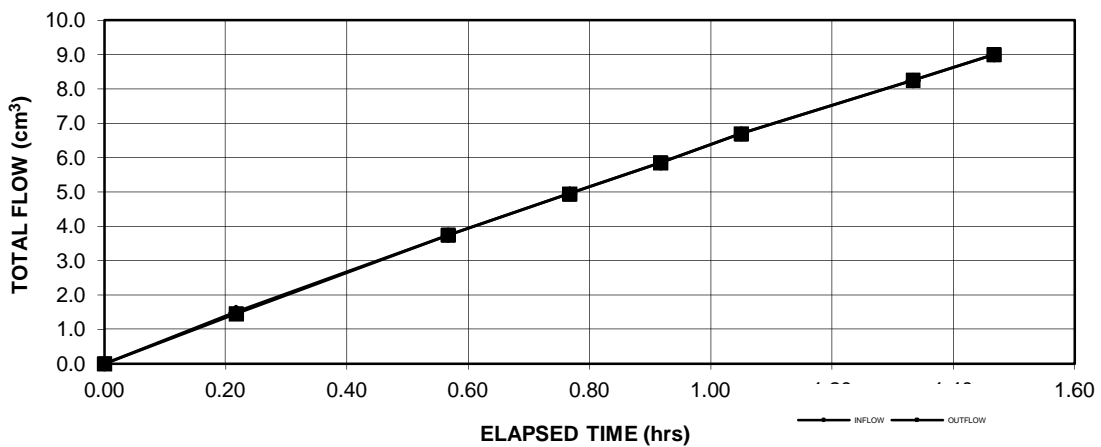


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 3: 8%
Project No.: 2024-039-002 Sample No.: 28 Day
Lab ID No.: 2024-039-002-015 Avg. Effective Consol. Pressure (psi): 6.25

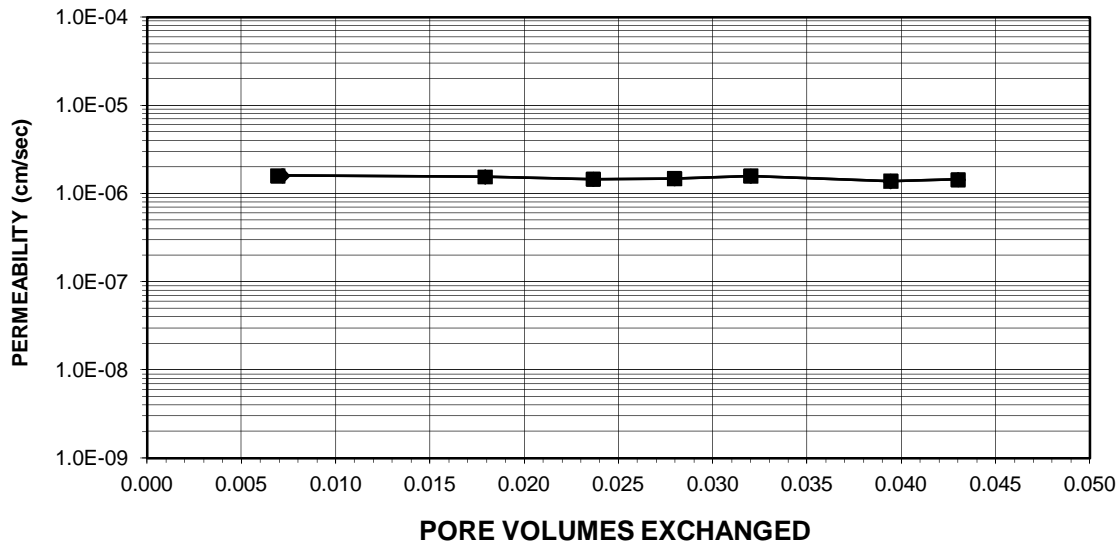
AVERAGE PERMEABILITY = 1.5E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.5E-08 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/5/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-015

Boring No.: 1/3/24
Depth (ft): Comp 3: 8%
Sample No.: 28 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Dark Gray Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Tare Number	1596	911
Weight of Tare & Wet Sample (g)	235.62	711.51
Weight of Tare & Dry Sample (g)	189.99	520.43
Weight of Tare (g)	96.18	109.76
Weight of Water (g)	45.63	191.08
Weight of Dry Sample (g)	93.81	410.67
Moisture Content (%)	48.6	46.5

SPECIMEN:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Weight of Tube & Wet Sample (g)	602.00	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	602.00	593.45
Length 1 (in)	3.068	3.071
Length 2 (in)	3.077	3.047
Length 3 (in)	3.042	3.065
Top Diameter (in)	3.024	3.023
Middle Diameter (in)	3.025	3.024
Bottom Diameter (in)	3.011	3.013
Average Length (in)	3.06	3.06
Average Area (in ²)	7.16	7.16
Sample Volume (cm ³)	359.47	359.31
Unit Wet Weight (g/cm ³)	1.67	1.65
Unit Wet Weight (pcf)	104.5	103.1
Unit Dry Weight (pcf)	70.3	70.4
Unit Dry Weight (g/cm ³)	1.13	1.13
Void Ratio, e	1.40	1.40
Porosity, n	0.58	0.58
Pore Volume (cm ³)	209.5	209.3
Total Weight of Sample After Test (g)		604.96

Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/5/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-015

Boring No.: 1/3/24
 Depth (ft): Comp 3: 8%
 Sample No.: 28 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	22.61

Final Sample Dimensions

Sample Length (cm), L	7.77
Sample Diameter (cm)	7.67
Sample Area (cm ²), A	46.21
Inflow Burette Area (cm ²), a-in	0.866
Outflow Burette Area (cm ²), a-out	0.962
B Parameter (%)	95

AVERAGE PERMEABILITY = 1.5E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.5E-08 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
2/1/24	12	58	0.000	0.0	0.0	202.9	0	19.7	NA
2/1/24	13	11	0.217	1.5	1.5	199.6	0	19.7	1.6E-06
2/1/24	13	32	0.567	3.8	3.8	194.6	0	19.8	1.5E-06
2/1/24	13	44	0.767	5.0	5.0	192.0	0	19.8	1.5E-06
2/1/24	13	53	0.917	5.9	5.9	190.0	0	19.8	1.5E-06
2/1/24	14	1	1.050	6.7	6.7	188.1	0	19.8	1.6E-06
2/1/24	14	18	1.333	8.3	8.3	184.7	0	19.8	1.4E-06
2/1/24	14	26	1.467	9.0	9.0	183.1	1	19.8	1.4E-06

Tested By: WT

Date: 1/31/24

Checked By: JLK

Date: 2/5/24

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 1: 12%
Project No.:	2024-039-002	Sample No.:	7 Day
Lab ID:	2024-039-002-016	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.993	Top Dia. (in):	2.008
Length 2 (in):	3.992	Mid. Dia. (in):	2.007
Length 3 (in):	3.991	Bot. Dia. (in):	2.002
Avg. Length (in):	3.992	Area (in ²):	3.159

WATER CONTENT (AFTER TEST)	
Tare No.:	3365
Weight of Tare & Wet Sample (g):	330.95
Weight of Tare & Dry Sample (g):	215.53
Weight of Tare (g):	8.20
% Moisture:	55.67

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	323.7	Sample Volume (cm ³):	206.7
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.57
Weight of Wet Sample (g):	323.73	Unit Wet Weight (pcf):	97.74
Avg. Diameter (in):	2.01	Moisture Content (%):	55.67
Avg. Length (in):	3.99	Unit Dry Weight (pcf):	62.79
Avg. Length (cm):	10.14		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

180

56.97

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 1: 12%
Project No.:	2024-039-002	Sample No.:	14 Day
Lab ID:	2024-039-002-017	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.006	Top Dia. (in):	2.005
Length 2 (in):	4.004	Mid. Dia. (in):	2.004
Length 3 (in):	4.003	Bot. Dia. (in):	2.001
Avg. Length (in):	4.004	Area (in ²):	3.152

WATER CONTENT (AFTER TEST)	
Tare No.:	2987
Weight of Tare & Wet Sample (g):	333.84
Weight of Tare & Dry Sample (g):	222.14
Weight of Tare (g):	8.15
% Moisture:	52.20

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	326.9	Sample Volume (cm ³):	206.8
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.58
Weight of Wet Sample (g):	326.87	Unit Wet Weight (pcf):	98.61
Avg. Diameter (in):	2.00	Moisture Content (%):	52.20
Avg. Length (in):	4.00	Unit Dry Weight (pcf):	64.79
Avg. Length (cm):	10.17		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

300

95.18

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 1: 12%
Project No.:	2024-039-002	Sample No.:	28 Day
Lab ID:	2024-039-002-018	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.011	Top Dia. (in):	2.008
Length 2 (in):	4.009	Mid. Dia. (in):	2.005
Length 3 (in):	4.008	Bot. Dia. (in):	2.002
Avg. Length (in):	4.009	Area (in ²):	3.157

WATER CONTENT (AFTER TEST)	
Tare No.:	3502
Weight of Tare & Wet Sample (g):	338.54
Weight of Tare & Dry Sample (g):	226.40
Weight of Tare (g):	8.11
% Moisture:	51.37

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	331.5	Sample Volume (cm ³):	207.4
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.60
Weight of Wet Sample (g):	331.49	Unit Wet Weight (pcf):	99.72
Avg. Diameter (in):	2.01	Moisture Content (%):	51.37
Avg. Length (in):	4.01	Unit Dry Weight (pcf):	65.87
Avg. Length (cm):	10.18		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

390

123.52

PERMEABILITY TEST

ASTM D 5084-16a Method C

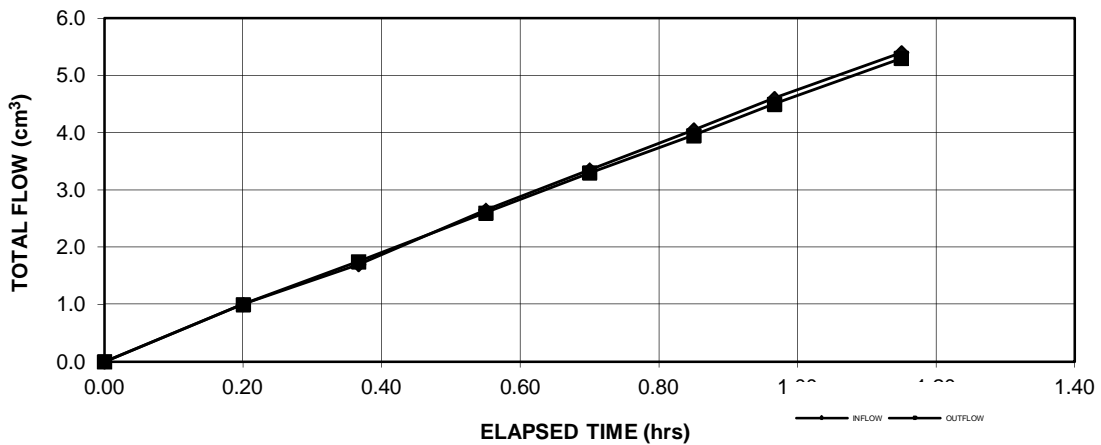


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 1: 12%
Project No.: 2024-039-002 Sample No.: 14 Day
Lab ID No.: 2024-039-002-019 Avg. Effective Consol. Pressure (psi): 6.25

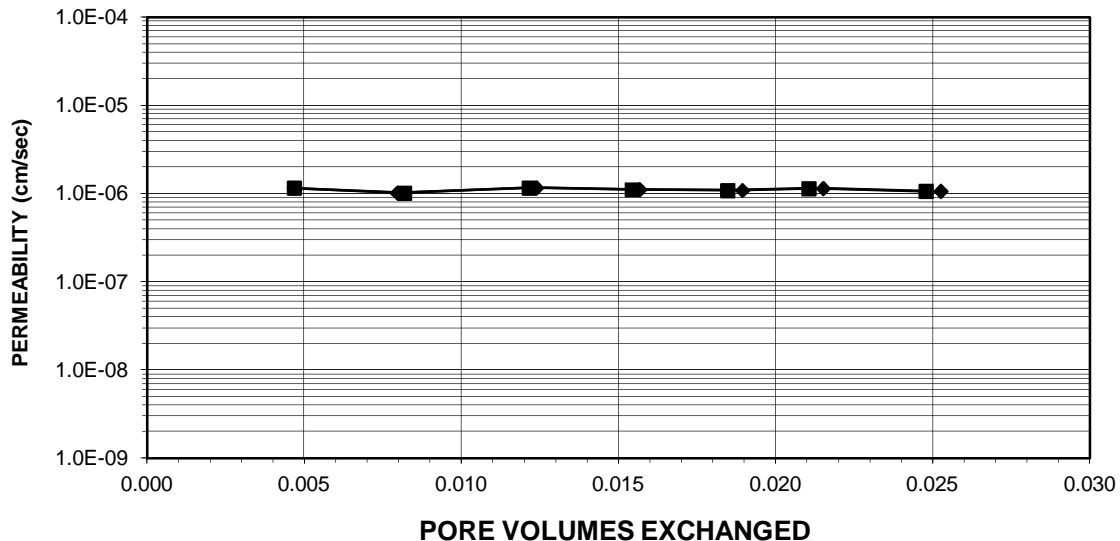
AVERAGE PERMEABILITY = 1.1E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.1E-08 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/19/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-019

Boring No.: 1/3/24
Depth (ft): Comp 1: 12%
Sample No.: 14 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Dark Gray Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:

BEFORE TEST

AFTER TEST

Tare Number	1723	1720
Weight of Tare & Wet Sample (g)	286.51	633.53
Weight of Tare & Dry Sample (g)	212.27	441.78
Weight of Tare (g)	82.69	81.40
Weight of Water (g)	74.24	191.75
Weight of Dry Sample (g)	129.58	360.38
Moisture Content (%)	57.3	53.2

SPECIMEN:

BEFORE TEST

AFTER TEST

Weight of Tube & Wet Sample (g)	549.86	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	549.86	535.58
Length 1 (in)	2.920	2.898
Length 2 (in)	2.884	2.926
Length 3 (in)	2.926	2.906
Top Diameter (in)	3.037	3.037
Middle Diameter (in)	3.028	3.029
Bottom Diameter (in)	3.016	3.017
Average Length (in)	2.91	2.91
Average Area (in ²)	7.20	7.20
Sample Volume (cm ³)	343.17	343.32
Unit Wet Weight (g/cm ³)	1.60	1.56
Unit Wet Weight (pcf)	100.0	97.4
Unit Dry Weight (pcf)	63.6	63.6
Unit Dry Weight (g/cm ³)	1.02	1.02
Void Ratio, e	1.65	1.65
Porosity, n	0.62	0.62
Pore Volume (cm ³)	213.7	213.8
Total Weight of Sample After Test (g)		554.08

Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/19/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-019

Boring No.: 1/3/24
 Depth (ft): Comp 1: 12%
 Sample No.: 14 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	67.5
Bottom Cap (psi)	70.0
Cell (psi)	75.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	23.78

Final Sample Dimensions

Sample Length (cm), L	7.39
Sample Diameter (cm)	7.69
Sample Area (cm ²), A	46.45
Inflow Burette Area (cm ²), a-in	0.861
Outflow Burette Area (cm ²), a-out	0.967
B Parameter (%)	95

AVERAGE PERMEABILITY = 1.1E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.1E-08 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
1/18/24	11	4	0.000	0.0	0.0	198.7	0	18.5	NA
1/18/24	11	16	0.200	1.0	1.0	196.5	0	18.6	1.2E-06
1/18/24	11	26	0.367	1.7	1.8	194.9	0	18.6	1.0E-06
1/18/24	11	37	0.550	2.7	2.6	192.9	0	18.6	1.2E-06
1/18/24	11	46	0.700	3.4	3.3	191.4	0	18.6	1.1E-06
1/18/24	11	55	0.850	4.1	4.0	189.9	0	18.5	1.1E-06
1/18/24	12	2	0.967	4.6	4.5	188.7	0	18.5	1.1E-06
1/18/24	12	13	1.150	5.4	5.3	186.9	1	18.5	1.1E-06

Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/19/24

PERMEABILITY TEST

ASTM D 5084-16a Method C

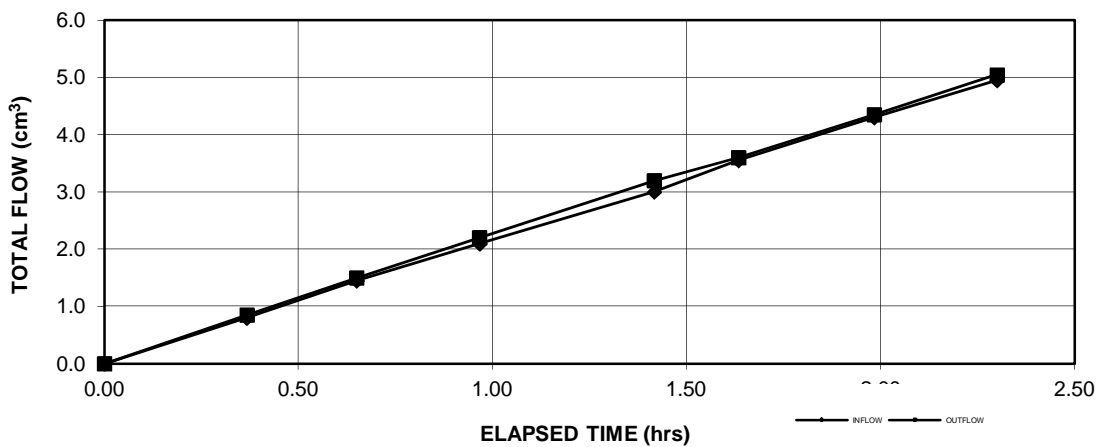


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 1: 12%
Project No.: 2024-039-002 Sample No.: 28 Day
Lab ID No.: 2024-039-002-020 Avg. Effective Consol. Pressure (psi): 6.25

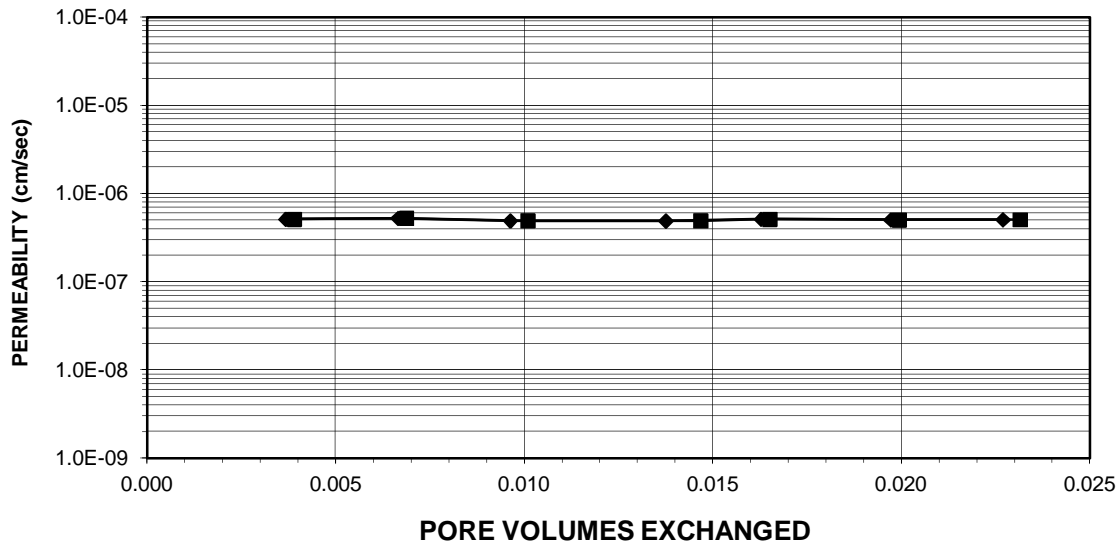
AVERAGE PERMEABILITY = 5.0E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 5.0E-09 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JAB Date: 1/31/24 Checked By: JLK Date: 2/6/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-020

Boring No.: 1/3/24
Depth (ft): Comp 1: 12%
Sample No.: 28 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Black Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Tare Number	899	1744
Weight of Tare & Wet Sample (g)	349.07	664.36
Weight of Tare & Dry Sample (g)	265.24	470.04
Weight of Tare (g)	109.53	82.93
Weight of Water (g)	83.83	194.32
Weight of Dry Sample (g)	155.71	387.11
Moisture Content (%)	53.8	50.2

SPECIMEN:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Weight of Tube & Wet Sample (g)	583.26	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	583.26	569.46
Length 1 (in)	3.028	3.044
Length 2 (in)	3.071	3.029
Length 3 (in)	3.031	3.031
Top Diameter (in)	3.034	3.035
Middle Diameter (in)	3.030	3.031
Bottom Diameter (in)	3.026	3.024
Average Length (in)	3.04	3.03
Average Area (in ²)	7.21	7.21
Sample Volume (cm ³)	359.61	358.58
Unit Wet Weight (g/cm ³)	1.62	1.59
Unit Wet Weight (pcf)	101.2	99.1
Unit Dry Weight (pcf)	65.8	66.0
Unit Dry Weight (g/cm ³)	1.05	1.06
Void Ratio, e	1.56	1.55
Porosity, n	0.61	0.61
Pore Volume (cm ³)	219.2	218.2
Total Weight of Sample After Test (g)		587.69

Tested By: JAB Date: 1/31/24 Checked By: JLK Date: 2/6/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-020

Boring No.: 1/3/24
 Depth (ft): Comp 1: 12%
 Sample No.: 28 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	22.80

Final Sample Dimensions

Sample Length (cm), L	7.71
Sample Diameter (cm)	7.70
Sample Area (cm ²), A	46.52
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962
B Parameter (%)	95

AVERAGE PERMEABILITY = 5.0E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 5.0E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
2/1/24	11	38	0.000	0.0	0.0	196.8	0	21.1	NA
2/1/24	12	0	0.367	0.8	0.9	195.1	0	21.1	5.1E-07
2/1/24	12	17	0.650	1.5	1.5	193.7	0	21.2	5.2E-07
2/1/24	12	36	0.967	2.1	2.2	192.3	0	21.2	4.9E-07
2/1/24	13	3	1.417	3.0	3.2	190.3	0	21.3	4.9E-07
2/1/24	13	16	1.633	3.6	3.6	189.4	0	21.3	5.1E-07
2/1/24	13	37	1.983	4.3	4.4	187.8	0	21.3	5.0E-07
2/1/24	13	56	2.300	5.0	5.1	186.4	1	21.3	5.1E-07

Tested By: JAB Date: 1/31/24 Checked By: JLK Date: 2/6/24



UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client: Geo-Solutions, Inc.
Client Reference: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID: 2024-039-002-021

Boring No.: 1/3/24
Depth (ft): Comp 2: 12%
Sample No.: 7 Day
Visual Description: Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.004	Top Dia. (in):	2.007
Length 2 (in):	4.003	Mid. Dia. (in):	2.005
Length 3 (in):	4.003	Bot. Dia. (in):	2.003
Avg. Length (in):	4.003	Area (in ²):	3.157

WATER CONTENT (AFTER TEST)	
Tare No.:	2987
Weight of Tare & Wet Sample (g):	408.84
Weight of Tare & Dry Sample (g):	324.41
Weight of Tare (g):	8.14
% Moisture:	26.70

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	401.4	Sample Volume (cm ³):	207.1
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.94
Weight of Wet Sample (g):	401.41	Unit Wet Weight (pcf):	120.93
Avg. Diameter (in):	2.01	Moisture Content (%):	26.70
Avg. Length (in):	4.00	Unit Dry Weight (pcf):	95.45
Avg. Length (cm):	10.17		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

740

234.38

Tested By JAC Date 1/10/24 Input Checked By JLK Date 2/8/24
page 1 of 1 DCN: CT-S30A DATE: 11/09/09 REVISION: 4

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 2: 12%
Project No.:	2024-039-002	Sample No.:	14 Day
Lab ID:	2024-039-002-022	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.001	Top Dia. (in):	2.011
Length 2 (in):	4.000	Mid. Dia. (in):	2.006
Length 3 (in):	4.000	Bot. Dia. (in):	2.004
Avg. Length (in):	4.000	Area (in ²):	3.164

WATER CONTENT (AFTER TEST)	
Tare No.:	3365
Weight of Tare & Wet Sample (g):	408.34
Weight of Tare & Dry Sample (g):	323.45
Weight of Tare (g):	8.16
% Moisture:	26.92

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	401.6	Sample Volume (cm ³):	207.4
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.94
Weight of Wet Sample (g):	401.61	Unit Wet Weight (pcf):	120.84
Avg. Diameter (in):	2.01	Moisture Content (%):	26.92
Avg. Length (in):	4.00	Unit Dry Weight (pcf):	95.21
Avg. Length (cm):	10.16		

ELECTRONIC DEVICE LOAD (lb)

STRESS (psi)

1000

316.09

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 2: 12%
Project No.:	2024-039-002	Sample No.:	28 Day
Lab ID:	2024-039-002-023	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.984	Top Dia. (in):	2.012
Length 2 (in):	3.983	Mid. Dia. (in):	2.009
Length 3 (in):	3.983	Bot. Dia. (in):	2.007
Avg. Length (in):	3.983	Area (in ²):	3.171

WATER CONTENT (AFTER TEST)	
Tare No.:	3316
Weight of Tare & Wet Sample (g):	407.93
Weight of Tare & Dry Sample (g):	321.12
Weight of Tare (g):	8.10
% Moisture:	27.73

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	401.1	Sample Volume (cm ³):	207.0
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.94
Weight of Wet Sample (g):	401.08	Unit Wet Weight (pcf):	120.91
Avg. Diameter (in):	2.01	Moisture Content (%):	27.73
Avg. Length (in):	3.98	Unit Dry Weight (pcf):	94.66
Avg. Length (cm):	10.12		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

1330

419.43

PERMEABILITY TEST

ASTM D 5084-16a Method C

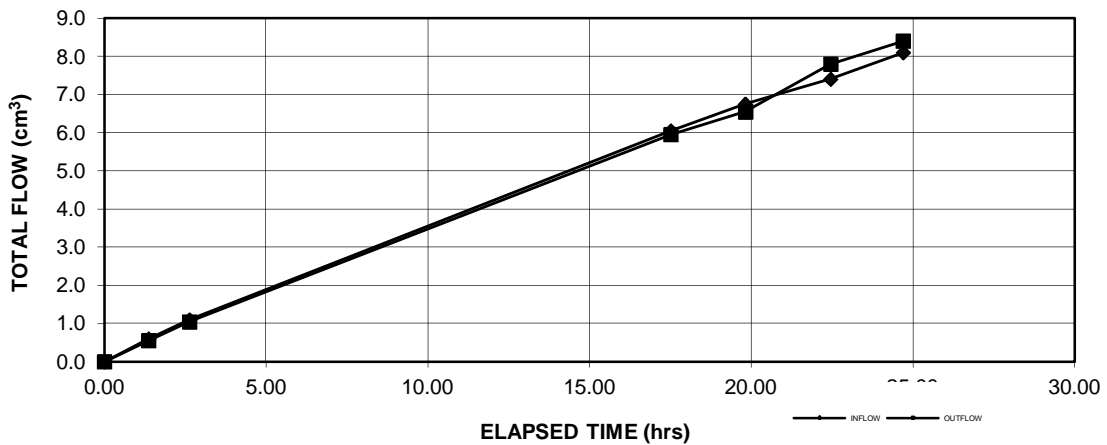


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 2: 12%
Project No.: 2024-039-002 Sample No.: 14 Day
Lab ID No.: 2024-039-002-024 Avg. Effective Consol. Pressure (psi): 6.25

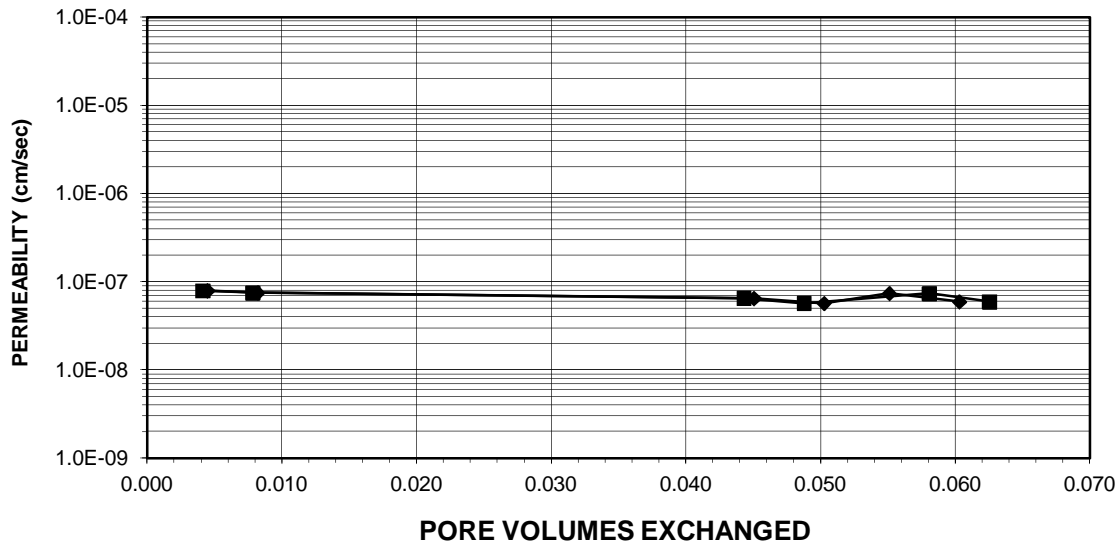
AVERAGE PERMEABILITY = 6.4E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 6.4E-10 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/23/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-024

Boring No.: 1/3/24
Depth (ft): Comp 2: 12%
Sample No.: 14 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Gray Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Tare Number	1126	1723
Weight of Tare & Wet Sample (g)	188.48	640.68
Weight of Tare & Dry Sample (g)	163.42	514.91
Weight of Tare (g)	84.54	82.70
Weight of Water (g)	25.06	125.77
Weight of Dry Sample (g)	78.88	432.21
Moisture Content (%)	31.8	29.1

SPECIMEN:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Weight of Tube & Wet Sample (g)	565.60	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	565.60	554.14
Length 1 (in)	2.513	2.516
Length 2 (in)	2.495	2.447
Length 3 (in)	2.455	2.490
Top Diameter (in)	3.036	3.037
Middle Diameter (in)	3.028	3.030
Bottom Diameter (in)	3.019	3.019
Average Length (in)	2.49	2.48
Average Area (in ²)	7.20	7.20
Sample Volume (cm ³)	293.49	293.29
Unit Wet Weight (g/cm ³)	1.93	1.89
Unit Wet Weight (pcf)	120.3	117.9
Unit Dry Weight (pcf)	91.3	91.4
Unit Dry Weight (g/cm ³)	1.46	1.46
Void Ratio, e	0.85	0.84
Porosity, n	0.46	0.46
Pore Volume (cm ³)	134.5	134.3
Total Weight of Sample After Test (g)		572.40

Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/23/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-024

Boring No.: 1/3/24
 Depth (ft): Comp 2: 12%
 Sample No.: 14 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	27.85

Final Sample Dimensions

Sample Length (cm), L	6.31
Sample Diameter (cm)	7.69
Sample Area (cm ²), A	46.48
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962

AVERAGE PERMEABILITY = 6.4E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 6.4E-10 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
1/18/24	13	43	0.000	0.0	0.0	196.8	0	20.6	NA
1/18/24	15	5	1.367	0.6	0.6	195.6	0	20.7	7.9E-08
1/18/24	16	21	2.633	1.1	1.1	194.5	0	20.6	7.5E-08
1/19/24	7	14	17.517	6.1	6.0	184.4	0	20.5	6.5E-08
1/19/24	9	32	19.817	6.8	6.6	183.0	0	20.5	5.7E-08
1/19/24	12	10	22.450	7.4	7.8	181.0	0	20.5	7.3E-08
1/19/24	14	25	24.700	8.1	8.4	179.7	1	20.5	5.9E-08

Tested By: WT Date: 1/17/24 Checked By: JLK Date: 1/23/24

PERMEABILITY TEST

ASTM D 5084-16a Method C

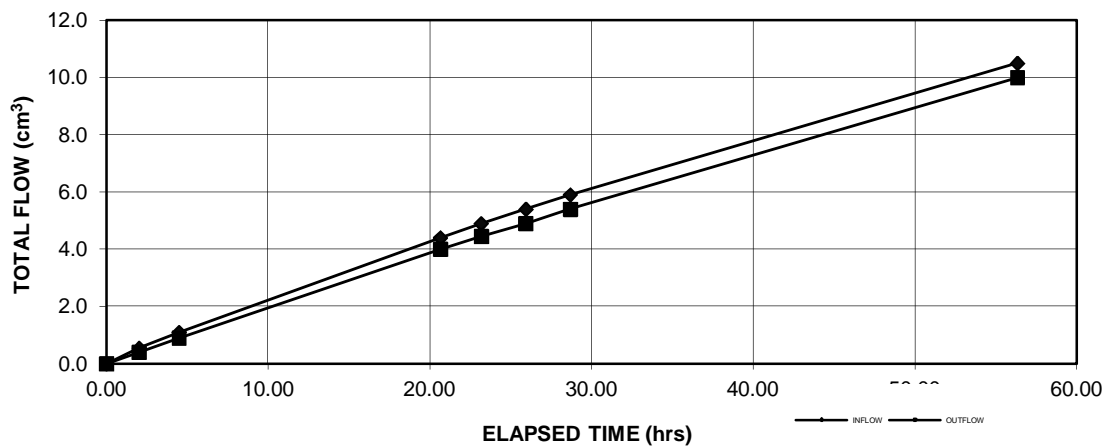


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 2: 12%
Project No.: 2024-039-002 Sample No.: 28 Day
Lab ID No.: 2024-039-002-025 Avg. Effective Consol. Pressure (psi): 6.25

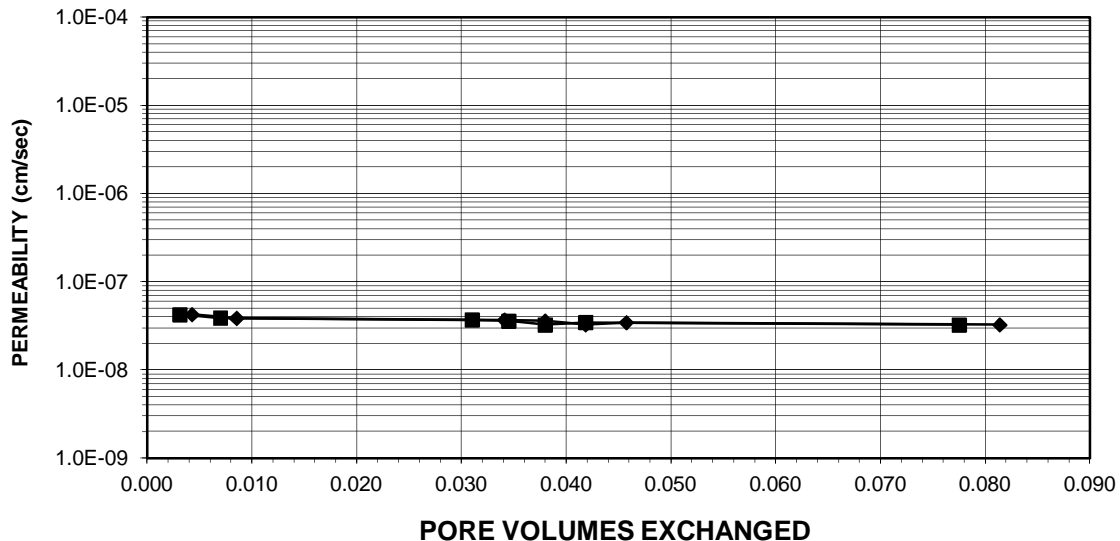
AVERAGE PERMEABILITY = 3.4E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 3.4E-10 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JAB Date: 1/31/24 Checked By: JLK Date: 2/7/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-025

Boring No.: 1/3/24
Depth (ft): Comp 2: 12%
Sample No.: 28 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Dark Brown Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Tare Number	552	1724
Weight of Tare & Wet Sample (g)	207.29	621.40
Weight of Tare & Dry Sample (g)	176.88	505.63
Weight of Tare (g)	80.85	82.39
Weight of Water (g)	30.41	115.77
Weight of Dry Sample (g)	96.03	423.24
Moisture Content (%)	31.7	27.4

SPECIMEN:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Weight of Tube & Wet Sample (g)	554.61	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	554.61	536.44
Length 1 (in)	2.369	2.412
Length 2 (in)	2.435	2.445
Length 3 (in)	2.409	2.383
Top Diameter (in)	3.022	3.032
Middle Diameter (in)	3.032	3.028
Bottom Diameter (in)	3.027	3.028
Average Length (in)	2.40	2.41
Average Area (in ²)	7.20	7.21
Sample Volume (cm ³)	283.54	285.04
Unit Wet Weight (g/cm ³)	1.96	1.88
Unit Wet Weight (pcf)	122.1	117.5
Unit Dry Weight (pcf)	92.7	92.2
Unit Dry Weight (g/cm ³)	1.49	1.48
Void Ratio, e	0.82	0.83
Porosity, n	0.45	0.45
Pore Volume (cm ³)	127.5	129.0
Total Weight of Sample After Test (g)		560.83

Tested By: JAB Date: 1/31/24 Checked By: JLK Date: 2/7/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-025

Boring No.: 1/3/24
 Depth (ft): Comp 2: 12%
 Sample No.: 28 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	28.67

Final Sample Dimensions

Sample Length (cm), L	6.13
Sample Diameter (cm)	7.69
Sample Area (cm ²), A	46.50
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962
B Parameter (%)	95

AVERAGE PERMEABILITY = 3.4E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 3.4E-10 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
2/1/24	11	35	0.000	0.0	0.0	196.8	0	21.1	NA
2/1/24	13	36	2.017	0.6	0.4	195.8	0	21.3	4.2E-08
2/1/24	16	4	4.483	1.1	0.9	194.7	0	21.2	3.9E-08
2/2/24	8	14	20.650	4.4	4.0	188.1	0	20.8	3.7E-08
2/2/24	10	45	23.167	4.9	4.5	187.1	0	20.9	3.6E-08
2/2/24	13	31	25.933	5.4	4.9	186.1	0	21.3	3.2E-08
2/2/24	16	16	28.683	5.9	5.4	185.1	0	21.4	3.4E-08
2/3/24	19	55	56.333	10.5	10.0	175.6	1	21.5	3.2E-08

Tested By: JAB

Date: 1/31/24

Checked By: JLK

Date: 2/7/24

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.: 1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft): Comp 3: 12%
Project No.:	2024-039-002	Sample No.: 7 Day
Lab ID:	2024-039-002-026	Visual Description: Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.008	Top Dia. (in):	2.004
Length 2 (in):	4.007	Mid. Dia. (in):	2.001
Length 3 (in):	4.006	Bot. Dia. (in):	1.995
Avg. Length (in):	4.007	Area (in ²):	3.142

WATER CONTENT (AFTER TEST)	
Tare No.:	3369
Weight of Tare & Wet Sample (g):	353.64
Weight of Tare & Dry Sample (g):	243.15
Weight of Tare (g):	8.17
% Moisture:	47.02

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	346.2	Sample Volume (cm ³):	206.3
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.68
Weight of Wet Sample (g):	346.23	Unit Wet Weight (pcf):	104.73
Avg. Diameter (in):	2.00	Moisture Content (%):	47.02
Avg. Length (in):	4.01	Unit Dry Weight (pcf):	71.24
Avg. Length (cm):	10.18		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

140

44.56



UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 3: 12%
Project No.:	2024-039-002	Sample No.:	14 Day
Lab ID:	2024-039-002-027	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS

Length 1 (in):	4.010	Top Dia. (in):	2.006
Length 2 (in):	4.009	Mid. Dia. (in):	2.003
Length 3 (in):	4.008	Bot. Dia. (in):	2.002
Avg. Length (in):	4.009	Area (in ²):	3.153

WATER CONTENT (AFTER TEST)

Tare No.:	3027
Weight of Tare & Wet Sample (g):	352.69
Weight of Tare & Dry Sample (g):	243.30
Weight of Tare (g):	8.08
% Moisture:	46.51

UNIT WEIGHT

Weight of Tube & Wet Sample (g):	346.1	Sample Volume (cm ³):	207.1
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.67
Weight of Wet Sample (g):	346.1	Unit Wet Weight (pcf):	104.26
Avg. Diameter (in):	2.00	Moisture Content (%):	46.51
Avg. Length (in):	4.01	Unit Dry Weight (pcf):	71.16
Avg. Length (cm):	10.18		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

220

69.77

Tested By JAC Date 1/17/24 Input Checked By JLK Date 2/8/24

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.: 1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft): Comp 3: 12%
Project No.:	2024-039-002	Sample No.: 28 Day
Lab ID:	2024-039-002-028	Visual Description: Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.014	Top Dia. (in):	2.009
Length 2 (in):	4.013	Mid. Dia. (in):	2.004
Length 3 (in):	4.011	Bot. Dia. (in):	2.000
Avg. Length (in):	4.013	Area (in ²):	3.155

WATER CONTENT (AFTER TEST)	
Tare No.:	4017
Weight of Tare & Wet Sample (g):	351.65
Weight of Tare & Dry Sample (g):	243.00
Weight of Tare (g):	8.16
% Moisture:	46.27

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	344.4	Sample Volume (cm ³):	207.5
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.66
Weight of Wet Sample (g):	344.39	Unit Wet Weight (pcf):	103.58
Avg. Diameter (in):	2.00	Moisture Content (%):	46.27
Avg. Length (in):	4.01	Unit Dry Weight (pcf):	70.82
Avg. Length (cm):	10.19		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

235

74.48

PERMEABILITY TEST

ASTM D 5084-16a Method C

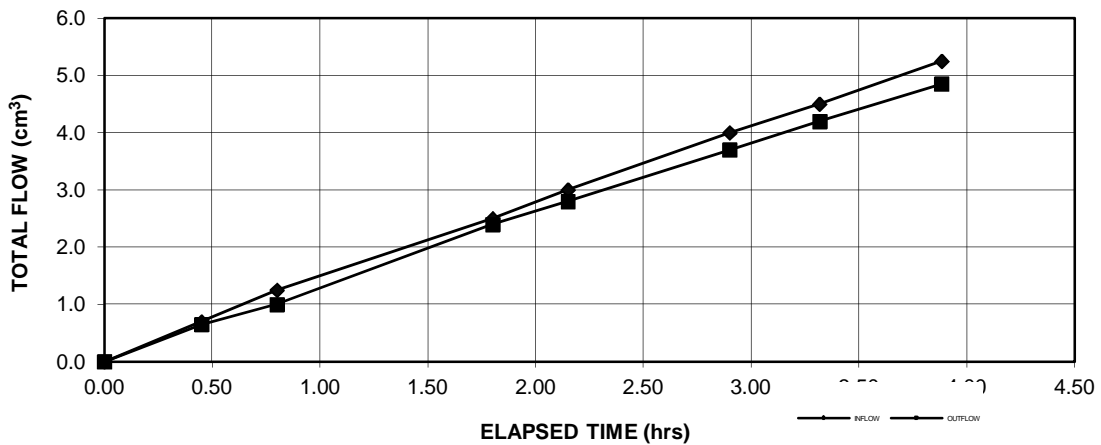


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 3: 12%
Project No.: 2024-039-002 Sample No.: 14 Day
Lab ID No.: 2024-039-002-029 Avg. Effective Consol. Pressure (psi): 6.25

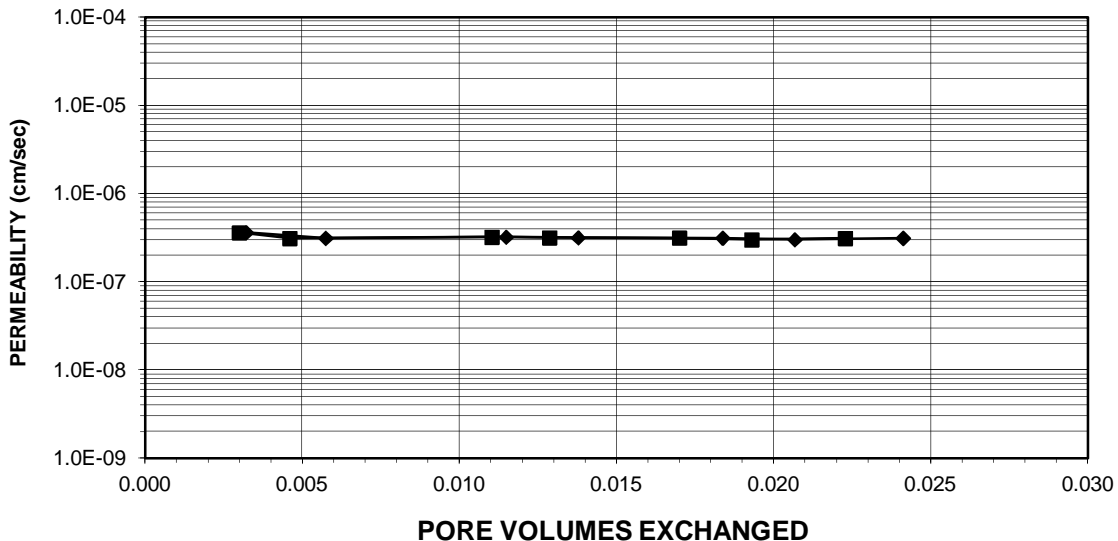
AVERAGE PERMEABILITY = 3.1E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 3.1E-09 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JAB Date: 1/17/24 Checked By: JLK Date: 1/22/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Soluitons, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-029

Boring No.: 1/3/24
Depth (ft): Comp 3: 12%
Sample No.: 14 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Black Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:

BEFORE TEST

AFTER TEST

Tare Number	1719	609
Weight of Tare & Wet Sample (g)	358.96	674.53
Weight of Tare & Dry Sample (g)	263.31	482.39
Weight of Tare (g)	83.89	80.80
Weight of Water (g)	95.65	192.14
Weight of Dry Sample (g)	179.42	401.59
Moisture Content (%)	53.3	47.8

SPECIMEN:

BEFORE TEST

AFTER TEST

Weight of Tube & Wet Sample (g)	606.94	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	606.94	585.30
Length 1 (in)	3.095	3.084
Length 2 (in)	3.090	3.105
Length 3 (in)	3.096	3.110
Top Diameter (in)	3.015	3.018
Middle Diameter (in)	3.028	3.025
Bottom Diameter (in)	3.024	3.023
Average Length (in)	3.09	3.10
Average Area (in ²)	7.17	7.17
Sample Volume (cm ³)	363.70	364.33
Unit Wet Weight (g/cm ³)	1.67	1.61
Unit Wet Weight (pcf)	104.2	100.3
Unit Dry Weight (pcf)	67.9	67.8
Unit Dry Weight (g/cm ³)	1.09	1.09
Void Ratio, e	1.48	1.48
Porosity, n	0.60	0.60
Pore Volume (cm ³)	217.1	217.7
Total Weight of Sample After Test (g)		610.65

Tested By: JAB Date: 1/17/24 Checked By: JLK Date: 1/22/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-029

Boring No.: 1/3/24
 Depth (ft): Comp 3: 12%
 Sample No.: 14 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	22.32

Final Sample Dimensions

Sample Length (cm), L	7.87
Sample Diameter (cm)	7.68
Sample Area (cm ²), A	46.27
Inflow Burette Area (cm ²), a-in	0.911
Outflow Burette Area (cm ²), a-out	0.968
B Parameter (%)	98

AVERAGE PERMEABILITY = 3.1E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 3.1E-09 m/sec @ 20°C

DATE (mm/dd/yy)	TIME		ELAPSED TIME t (hr)	TOTAL INFLOW (cm ³)	TOTAL OUTFLOW (cm ³)	TOTAL HEAD h (cm)	FLOW (0 flow) (1 stop)	TEMP. (°C)	INCREMENTAL PERMEABILITY @ 20°C (cm/sec)
	(hr)	(min)							
1/19/24	9	12	0.000	0.0	0.0	202.6	0	18.7	NA
1/19/24	9	39	0.450	0.7	0.6	201.1	0	18.7	3.6E-07
1/19/24	10	0	0.800	1.3	1.0	200.2	0	18.7	3.1E-07
1/19/24	11	0	1.800	2.5	2.4	197.4	0	18.8	3.2E-07
1/19/24	11	21	2.150	3.0	2.8	196.4	0	18.8	3.2E-07
1/19/24	12	6	2.900	4.0	3.7	194.4	0	18.7	3.1E-07
1/19/24	12	31	3.317	4.5	4.2	193.4	0	18.6	3.0E-07
1/19/24	13	5	3.883	5.3	4.9	191.9	1	18.6	3.1E-07

Tested By: JAB

Date: 1/17/24

Checked By: JLK

Date: 1/22/24

PERMEABILITY TEST

ASTM D 5084-16a Method C

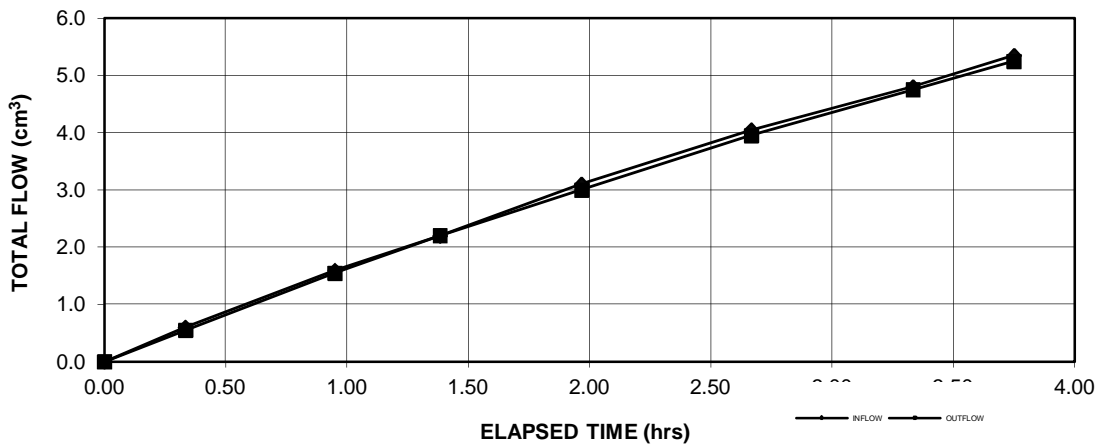


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 3: 12%
Project No.: 2024-039-002 Sample No.: 28 Day
Lab ID No.: 2024-039-002-030 Avg. Effective Consol. Pressure (psi): 6.25

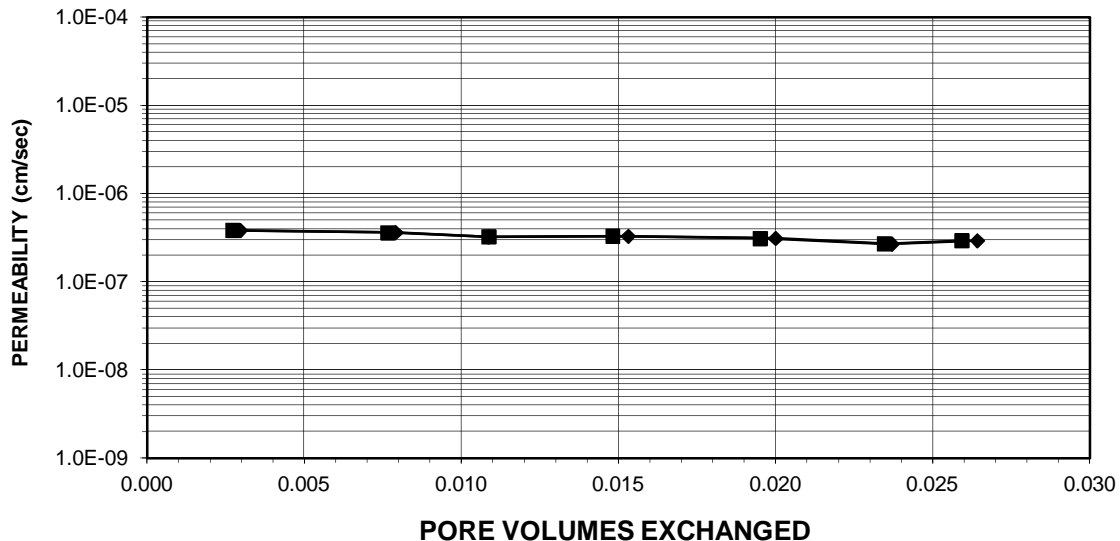
AVERAGE PERMEABILITY = 3.0E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 3.0E-09 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/6/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-030

Boring No.: 1/3/24
Depth (ft): Comp 3: 12%
Sample No.: 28 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Black Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Tare Number	1693	582
Weight of Tare & Wet Sample (g)	339.86	652.17
Weight of Tare & Dry Sample (g)	254.88	471.66
Weight of Tare (g)	82.56	83.77
Weight of Water (g)	84.98	180.51
Weight of Dry Sample (g)	172.32	387.89
Moisture Content (%)	49.3	46.5

SPECIMEN:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Weight of Tube & Wet Sample (g)	576.80	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	576.80	566.07
Length 1 (in)	2.950	2.963
Length 2 (in)	2.931	2.949
Length 3 (in)	2.911	2.914
Top Diameter (in)	3.024	3.017
Middle Diameter (in)	3.023	3.022
Bottom Diameter (in)	3.013	3.025
Average Length (in)	2.93	2.94
Average Area (in ²)	7.16	7.17
Sample Volume (cm ³)	344.01	345.65
Unit Wet Weight (g/cm ³)	1.68	1.64
Unit Wet Weight (pcf)	104.7	102.2
Unit Dry Weight (pcf)	70.1	69.8
Unit Dry Weight (g/cm ³)	1.12	1.12
Void Ratio, e	1.40	1.42
Porosity, n	0.58	0.59
Pore Volume (cm ³)	200.9	202.6
Total Weight of Sample After Test (g)		580.88

Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/6/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-030

Boring No.: 1/3/24
 Depth (ft): Comp 3: 12%
 Sample No.: 28 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	23.52

Final Sample Dimensions

Sample Length (cm), L	7.47
Sample Diameter (cm)	7.67
Sample Area (cm ²), A	46.25
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962
B Parameter (%)	95

AVERAGE PERMEABILITY = 3.0E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 3.0E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
2/1/24	11	41	0.000	0.0	0.0	196.8	0	21.1	NA
2/1/24	12	1	0.333	0.6	0.6	195.6	0	21.1	3.8E-07
2/1/24	12	38	0.950	1.6	1.6	193.5	0	21.2	3.6E-07
2/1/24	13	4	1.383	2.2	2.2	192.2	0	21.3	3.2E-07
2/1/24	13	39	1.967	3.1	3.0	190.5	0	21.3	3.3E-07
2/1/24	14	21	2.667	4.1	4.0	188.5	0	21.3	3.1E-07
2/1/24	15	1	3.333	4.8	4.8	186.9	0	21.3	2.7E-07
2/1/24	15	26	3.750	5.4	5.3	185.8	1	21.2	2.9E-07

Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/6/24

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.: 1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft): Comp 1: 15%
Project No.:	2024-039-002	Sample No.: 7 Day
Lab ID:	2024-039-002-031	Visual Description: Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.023	Top Dia. (in):	2.010
Length 2 (in):	4.022	Mid. Dia. (in):	2.007
Length 3 (in):	4.020	Bot. Dia. (in):	2.002
Avg. Length (in):	4.022	Area (in ²):	3.162

WATER CONTENT (AFTER TEST)	
Tare No.:	3181
Weight of Tare & Wet Sample (g):	337.29
Weight of Tare & Dry Sample (g):	222.65
Weight of Tare (g):	8.00
% Moisture:	53.41

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	330.2	Sample Volume (cm ³):	208.4
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.58
Weight of Wet Sample (g):	330.15	Unit Wet Weight (pcf):	98.88
Avg. Diameter (in):	2.01	Moisture Content (%):	53.41
Avg. Length (in):	4.02	Unit Dry Weight (pcf):	64.45
Avg. Length (cm):	10.22		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

205

64.84



UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 1: 15%
Project No.:	2024-039-002	Sample No.:	14 Day
Lab ID:	2024-039-002-032	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.028	Top Dia. (in):	2.007
Length 2 (in):	4.027	Mid. Dia. (in):	2.005
Length 3 (in):	4.027	Bot. Dia. (in):	2.003
Avg. Length (in):	4.027	Area (in ²):	3.157

WATER CONTENT (AFTER TEST)	
Tare No.:	3147
Weight of Tare & Wet Sample (g):	336.72
Weight of Tare & Dry Sample (g):	222.75
Weight of Tare (g):	8.05
% Moisture:	53.08

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	330.2	Sample Volume (cm ³):	208.4
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.58
Weight of Wet Sample (g):	330.2	Unit Wet Weight (pcf):	98.88
Avg. Diameter (in):	2.01	Moisture Content (%):	53.08
Avg. Length (in):	4.03	Unit Dry Weight (pcf):	64.59
Avg. Length (cm):	10.23		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

295

93.43

Tested By	JAC	Date	1/17/24	Input Checked By	JLK	Date	2/8/24
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UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 1: 15%
Project No.:	2024-039-002	Sample No.:	28 Day
Lab ID:	2024-039-002-033	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.994	Top Dia. (in):	2.007
Length 2 (in):	3.992	Mid. Dia. (in):	2.005
Length 3 (in):	3.990	Bot. Dia. (in):	2.003
Avg. Length (in):	3.992	Area (in ²):	3.157

WATER CONTENT (AFTER TEST)	
Tare No.:	3533
Weight of Tare & Wet Sample (g):	334.17
Weight of Tare & Dry Sample (g):	220.97
Weight of Tare (g):	8.06
% Moisture:	53.17

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	327.4	Sample Volume (cm ³):	206.5
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.58
Weight of Wet Sample (g):	327.37	Unit Wet Weight (pcf):	98.90
Avg. Diameter (in):	2.01	Moisture Content (%):	53.17
Avg. Length (in):	3.99	Unit Dry Weight (pcf):	64.57
Avg. Length (cm):	10.14		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

325

102.94

Tested By	JAC	Date	1/31/24	Input Checked By	JLK	Date	2/8/24
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PERMEABILITY TEST

ASTM D 5084-16a Method C

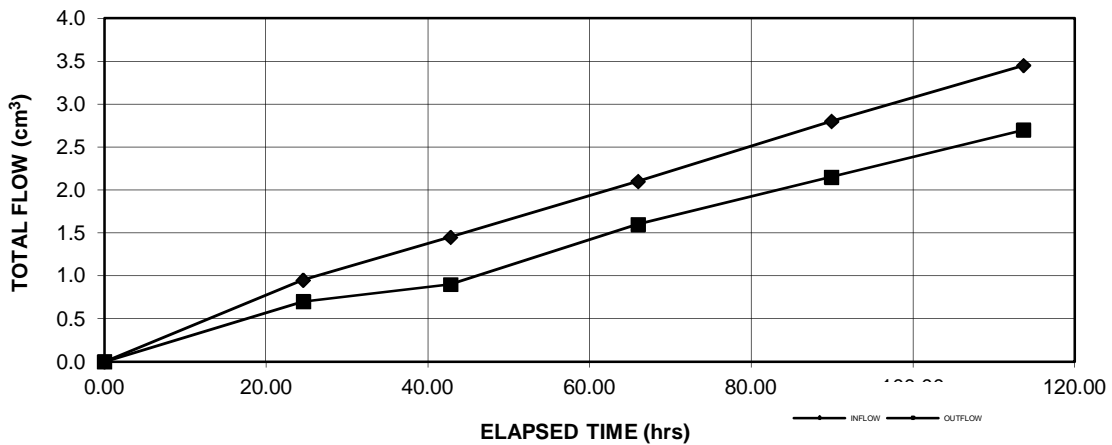


Client: Geo-Soluitons, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 1: 15%
Project No.: 2024-039-002 Sample No.: 14 Day
Lab ID No.: 2024-039-002-034 Avg. Effective Consol. Pressure (psi): 6.25

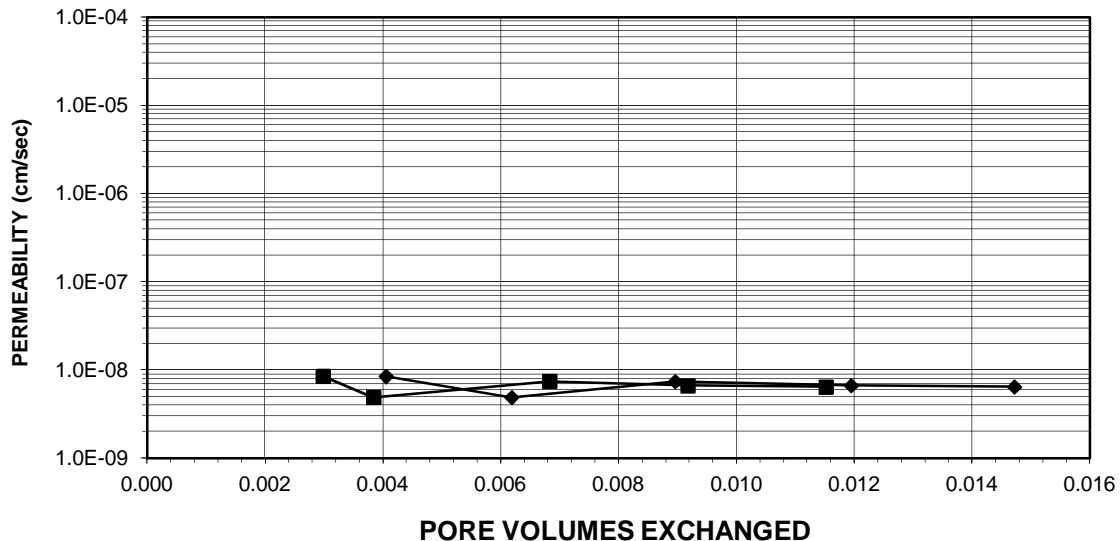
AVERAGE PERMEABILITY = 6.3E-09 cm/sec @ 20°C

AVERAGE PERMEABILITY = 6.3E-11 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JAB Date: 1/17/24 Checked By: JLK Date: 1/26/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-034

Boring No.: 1/3/24
Depth (ft): Comp 1: 15%
Sample No.: 14 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Black Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:

BEFORE TEST

AFTER TEST

Tare Number	1744	785
Weight of Tare & Wet Sample (g)	460.89	644.15
Weight of Tare & Dry Sample (g)	316.33	450.48
Weight of Tare (g)	82.98	84.88
Weight of Water (g)	144.56	193.67
Weight of Dry Sample (g)	233.35	365.60
Moisture Content (%)	61.9	53.0

SPECIMEN:

BEFORE TEST

AFTER TEST

Weight of Tube & Wet Sample (g)	585.70	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	585.70	553.24
Length 1 (in)	3.130	3.130
Length 2 (in)	3.126	3.135
Length 3 (in)	3.160	3.145
Top Diameter (in)	3.017	3.013
Middle Diameter (in)	3.024	3.025
Bottom Diameter (in)	3.025	3.024
Average Length (in)	3.14	3.14
Average Area (in ²)	7.17	7.17
Sample Volume (cm ³)	368.91	368.35
Unit Wet Weight (g/cm ³)	1.59	1.50
Unit Wet Weight (pcf)	99.1	93.8
Unit Dry Weight (pcf)	61.2	61.3
Unit Dry Weight (g/cm ³)	0.98	0.98
Void Ratio, e	1.75	1.75
Porosity, n	0.64	0.64
Pore Volume (cm ³)	235.0	234.4
Total Weight of Sample After Test (g)		590.79

Tested By: JAB Date: 1/17/24 Checked By: JLK Date: 1/26/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-034

Boring No.: 1/3/24
 Depth (ft): Comp 1: 15%
 Sample No.: 14 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	87.5
Bottom Cap (psi)	90.0
Cell (psi)	95.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	22.06

Final Sample Dimensions

Sample Length (cm), L	7.97
Sample Diameter (cm)	7.67
Sample Area (cm ²), A	46.23
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962

AVERAGE PERMEABILITY = 6.3E-09 cm/sec @ 20°C

AVERAGE PERMEABILITY = 6.3E-11 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
1/20/24	13	39	0.000	0.0	0.0	196.8	0	18.6	NA
1/21/24	14	13	24.567	1.0	0.7	195.1	0	18.6	8.4E-09
1/22/24	8	27	42.800	1.5	0.9	194.3	0	18.5	4.9E-09
1/23/24	7	38	65.983	2.1	1.6	192.9	0	18.5	7.4E-09
1/24/24	7	35	89.933	2.8	2.2	191.6	0	18.9	6.6E-09
1/25/24	7	19	113.667	3.5	2.7	190.4	1	19.3	6.4E-09

Tested By: JAB

Date: 1/17/24

Checked By: JLK

Date: 1/26/24

PERMEABILITY TEST

ASTM D 5084-16a Method C

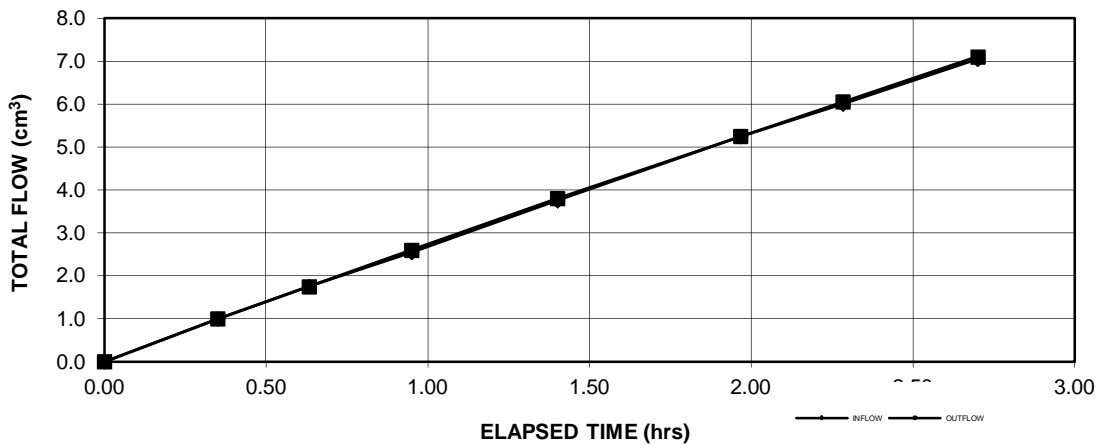


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 1: 15%
Project No.: 2024-039-002 Sample No.: 28 Day
Lab ID No.: 2024-039-002-035 Avg. Effective Consol. Pressure (psi): 6.25

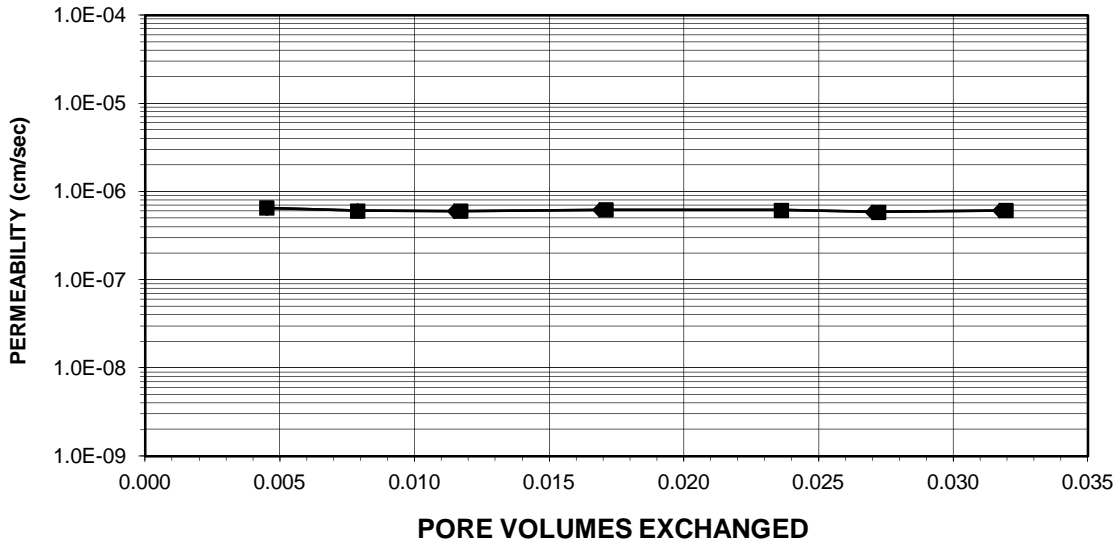
AVERAGE PERMEABILITY = 6.1E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 6.1E-09 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/6/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-035

Boring No.: 1/3/24
Depth (ft): Comp 1: 15%
Sample No.: 28 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Black Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Tare Number	599	590
Weight of Tare & Wet Sample (g)	366.53	644.51
Weight of Tare & Dry Sample (g)	263.03	448.55
Weight of Tare (g)	83.32	81.58
Weight of Water (g)	103.50	195.96
Weight of Dry Sample (g)	179.71	366.97
Moisture Content (%)	57.6	53.4

SPECIMEN:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Weight of Tube & Wet Sample (g)	566.41	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	566.41	551.34
Length 1 (in)	3.031	3.035
Length 2 (in)	3.003	3.006
Length 3 (in)	3.011	3.018
Top Diameter (in)	3.026	3.027
Middle Diameter (in)	3.025	3.026
Bottom Diameter (in)	3.016	3.019
Average Length (in)	3.02	3.02
Average Area (in ²)	7.17	7.18
Sample Volume (cm ³)	354.46	355.40
Unit Wet Weight (g/cm ³)	1.60	1.55
Unit Wet Weight (pcf)	99.7	96.8
Unit Dry Weight (pcf)	63.3	63.1
Unit Dry Weight (g/cm ³)	1.01	1.01
Void Ratio, e	1.66	1.67
Porosity, n	0.62	0.63
Pore Volume (cm ³)	221.3	222.3
Total Weight of Sample After Test (g)		570.64

Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/6/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-035

Boring No.: 1/3/24
Depth (ft): Comp 1: 15%
Sample No.: 28 Day
Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	22.91

Final Sample Dimensions

Sample Length (cm), L	7.67
Sample Diameter (cm)	7.68
Sample Area (cm ²), A	46.34
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962
B Parameter (%)	95

AVERAGE PERMEABILITY = 6.1E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 6.1E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
2/1/24	11	40	0.000	0.0	0.0	196.8	0	21.1	NA
2/1/24	12	1	0.350	1.0	1.0	194.7	0	21.1	6.5E-07
2/1/24	12	18	0.633	1.8	1.8	193.1	0	21.2	6.1E-07
2/1/24	12	37	0.950	2.6	2.6	191.4	0	21.2	6.0E-07
2/1/24	13	4	1.400	3.8	3.8	189.0	0	21.3	6.2E-07
2/1/24	13	38	1.967	5.3	5.3	185.9	0	21.3	6.2E-07
2/1/24	13	57	2.283	6.0	6.1	184.3	0	21.3	5.9E-07
2/1/24	14	22	2.700	7.1	7.1	182.1	1	21.3	6.1E-07

Tested By: WT

Date: 1/31/24

Checked By: JLK

Date: 2/6/24

PERMEABILITY TEST

ASTM D 5084-16a Method C

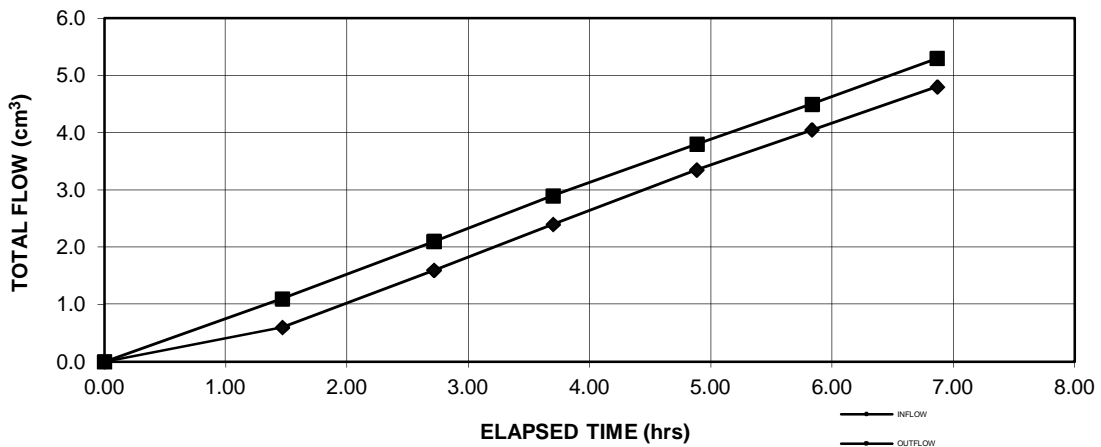


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 1: 15%
Project No.: 2024-039-004 Sample No.: 37 Day
Lab ID No.: 2024-039-004-001 Avg. Effective Consol. Pressure (psi): 6.25

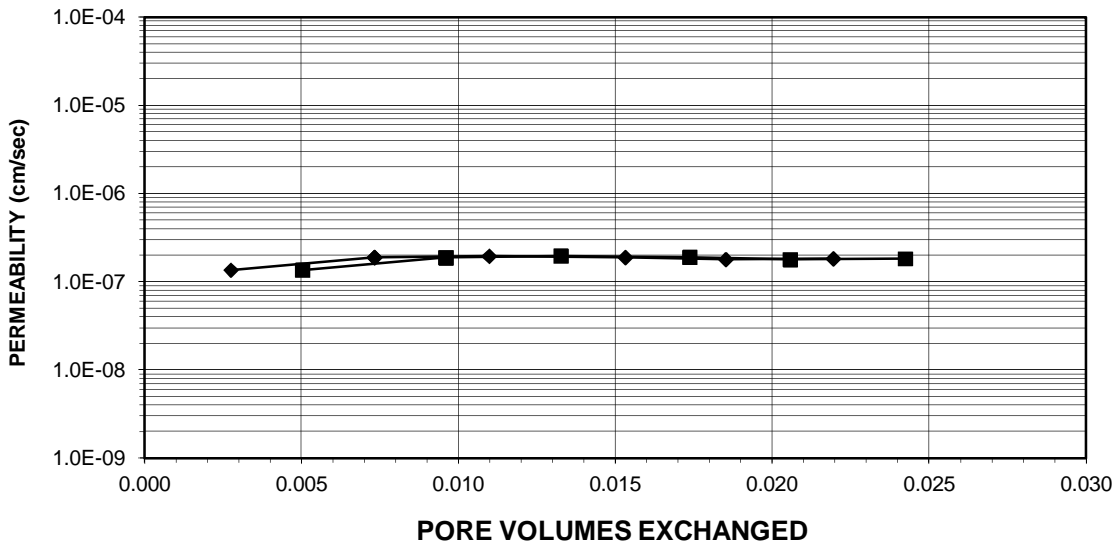
AVERAGE PERMEABILITY = 1.9E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.9E-09 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 2/9/24 Checked By: JLK Date: 2/14/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-004
Lab ID No.: 2024-039-004-001

Boring No.: 1/3/24
Depth (ft): Comp 1: 15%
Sample No.: 37 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Black Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Tare Number	566	203
Weight of Tare & Wet Sample (g)	419.26	652.17
Weight of Tare & Dry Sample (g)	297.54	464.36
Weight of Tare (g)	84.43	98.53
Weight of Water (g)	121.72	187.81
Weight of Dry Sample (g)	213.11	365.83
Moisture Content (%)	57.1	51.3

SPECIMEN:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Weight of Tube & Wet Sample (g)	555.40	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	555.40	534.97
Length 1 (in)	2.960	2.975
Length 2 (in)	2.970	2.967
Length 3 (in)	2.981	2.983
Top Diameter (in)	3.023	3.016
Middle Diameter (in)	3.026	3.026
Bottom Diameter (in)	3.012	3.024
Average Length (in)	2.97	2.98
Average Area (in ²)	7.16	7.17
Sample Volume (cm ³)	348.74	349.68
Unit Wet Weight (g/cm ³)	1.59	1.53
Unit Wet Weight (pcf)	99.4	95.5
Unit Dry Weight (pcf)	63.3	63.1
Unit Dry Weight (g/cm ³)	1.01	1.01
Void Ratio, e	1.66	1.67
Porosity, n	0.62	0.63
Pore Volume (cm ³)	217.8	218.8
Total Weight of Sample After Test (g)		562.02

Tested By: WT Date: 2/9/24 Checked By: JLK Date: 2/14/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-004
 Lab ID No.: 2024-039-004-001

Boring No.: 1/3/24
 Depth (ft): Comp 1: 15%
 Sample No.: 37 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	23.26

Final Sample Dimensions

Sample Length (cm), L	7.56
Sample Diameter (cm)	7.68
Sample Area (cm ²), A	46.27
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962
B Parameter (%)	95

AVERAGE PERMEABILITY = 1.9E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.9E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
2/12/24	13	27	0.000	0.0	0.0	196.8	0	19.2	NA
2/12/24	14	55	1.467	0.6	1.1	195.0	0	19.4	1.4E-07
2/12/24	16	10	2.717	1.6	2.1	192.9	1	19.5	1.9E-07
2/13/24	7	12	2.717	1.6	2.1	196.8	0	18.2	NA
2/13/24	8	11	3.700	2.4	2.9	195.1	0	18.3	2.0E-07
2/13/24	9	22	4.883	3.4	3.8	193.2	0	18.4	1.9E-07
2/13/24	10	19	5.833	4.1	4.5	191.7	0	18.6	1.8E-07
2/13/24	11	21	6.867	4.8	5.3	190.1	1	18.8	1.8E-07

Tested By: WT Date: 2/9/24 Checked By: JLK Date: 2/14/24

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 2: 15%
Project No.:	2024-039-002	Sample No.:	7 Day
Lab ID:	2024-039-002-036	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.003	Top Dia. (in):	2.010
Length 2 (in):	4.003	Mid. Dia. (in):	2.006
Length 3 (in):	4.002	Bot. Dia. (in):	2.005
Avg. Length (in):	4.003	Area (in ²):	3.164

WATER CONTENT (AFTER TEST)	
Tare No.:	3030
Weight of Tare & Wet Sample (g):	407.50
Weight of Tare & Dry Sample (g):	321.73
Weight of Tare (g):	8.17
% Moisture:	27.35

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	400.5	Sample Volume (cm ³):	207.5
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.93
Weight of Wet Sample (g):	400.53	Unit Wet Weight (pcf):	120.44
Avg. Diameter (in):	2.01	Moisture Content (%):	27.35
Avg. Length (in):	4.00	Unit Dry Weight (pcf):	94.57
Avg. Length (cm):	10.17		

ELECTRONIC DEVICE LOAD (lb)

STRESS (psi)

775

244.97

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 2: 15%
Project No.:	2024-039-002	Sample No.:	14 Day
Lab ID:	2024-039-002-037	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.996	Top Dia. (in):	2.011
Length 2 (in):	3.996	Mid. Dia. (in):	2.007
Length 3 (in):	3.995	Bot. Dia. (in):	2.004
Avg. Length (in):	3.996	Area (in ²):	3.165

WATER CONTENT (AFTER TEST)	
Tare No.:	3375
Weight of Tare & Wet Sample (g):	400.01
Weight of Tare & Dry Sample (g):	313.76
Weight of Tare (g):	8.14
% Moisture:	28.22

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	395.4	Sample Volume (cm ³):	207.2
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.91
Weight of Wet Sample (g):	395.42	Unit Wet Weight (pcf):	119.08
Avg. Diameter (in):	2.01	Moisture Content (%):	28.22
Avg. Length (in):	4.00	Unit Dry Weight (pcf):	92.87
Avg. Length (cm):	10.15		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

910

287.55

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 2: 15%
Project No.:	2024-039-002	Sample No.:	28 Day
Lab ID:	2024-039-002-038	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.995	Top Dia. (in):	2.010
Length 2 (in):	3.995	Mid. Dia. (in):	2.007
Length 3 (in):	3.994	Bot. Dia. (in):	2.003
Avg. Length (in):	3.995	Area (in ²):	3.163

WATER CONTENT (AFTER TEST)	
Tare No.:	3024
Weight of Tare & Wet Sample (g):	407.77
Weight of Tare & Dry Sample (g):	323.54
Weight of Tare (g):	8.07
% Moisture:	26.70

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	402.5	Sample Volume (cm ³):	207.0
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.94
Weight of Wet Sample (g):	402.48	Unit Wet Weight (pcf):	121.31
Avg. Diameter (in):	2.01	Moisture Content (%):	26.70
Avg. Length (in):	3.99	Unit Dry Weight (pcf):	95.75
Avg. Length (cm):	10.15		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

1590

502.76

PERMEABILITY TEST

ASTM D 5084-16a Method C

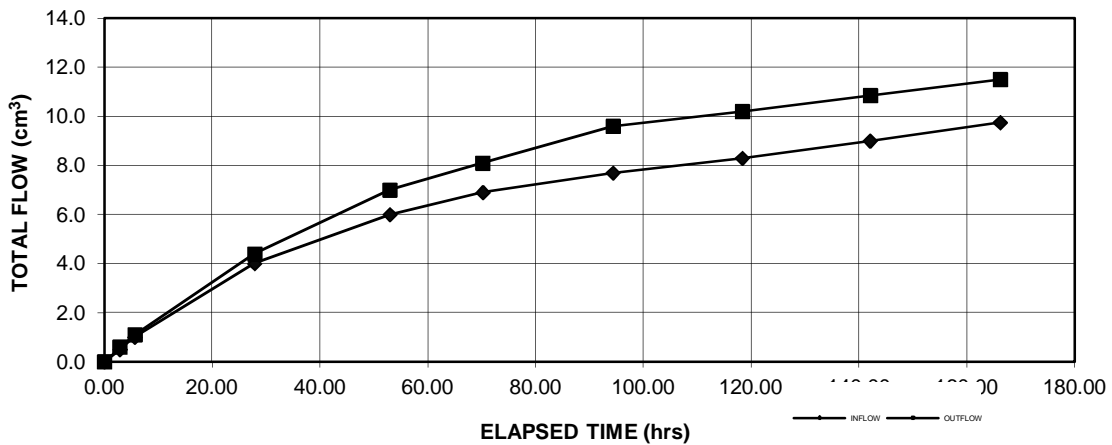


Client: Geo-Soluitons, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 2: 15%
Project No.: 2024-039-002 Sample No.: 14 Day
Lab ID No.: 2024-039-002-039 Avg. Effective Consol. Pressure (psi): 6.25

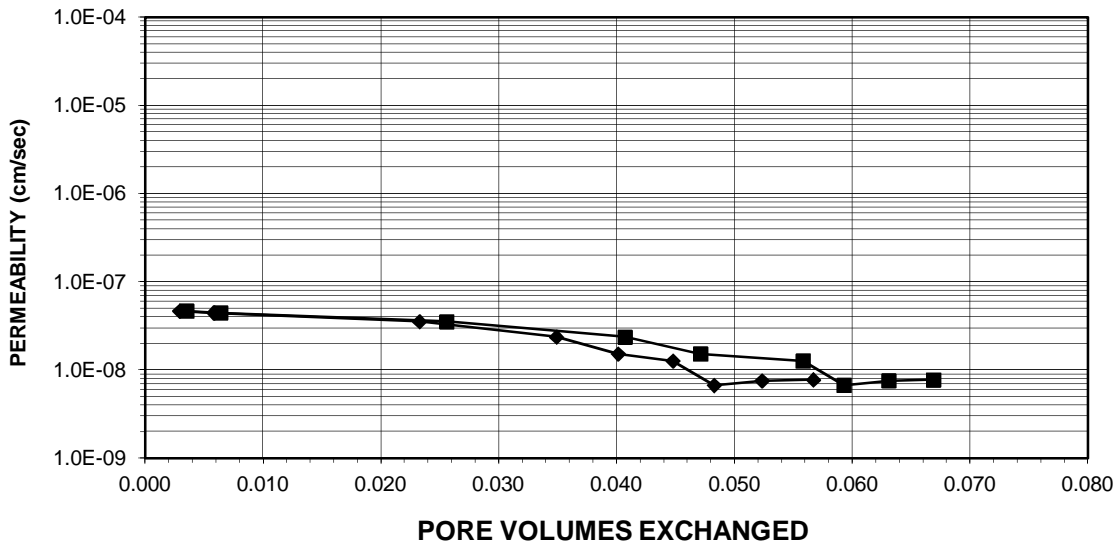
AVERAGE PERMEABILITY = 8.6E-09 cm/sec @ 20°C

AVERAGE PERMEABILITY = 8.6E-11 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JAB Date: 1/17/24 Checked By: JLK Date: 1/29/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Soluitons, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-039

Boring No.: 1/3/24
Depth (ft): Comp 2: 15%
Sample No.: 14 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Dark Brown Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:

BEFORE TEST

AFTER TEST

Tare Number	1696	912
Weight of Tare & Wet Sample (g)	262.84	804.26
Weight of Tare & Dry Sample (g)	214.14	649.45
Weight of Tare (g)	82.73	110.06
Weight of Water (g)	48.70	154.81
Weight of Dry Sample (g)	131.41	539.39
Moisture Content (%)	37.1	28.7

SPECIMEN:

BEFORE TEST

AFTER TEST

Weight of Tube & Wet Sample (g)	696.41	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	696.41	653.94
Length 1 (in)	3.052	3.051
Length 2 (in)	3.042	3.071
Length 3 (in)	3.048	3.034
Top Diameter (in)	3.019	3.039
Middle Diameter (in)	3.030	3.029
Bottom Diameter (in)	3.032	3.016
Average Length (in)	3.05	3.05
Average Area (in ²)	7.20	7.20
Sample Volume (cm ³)	359.37	360.15
Unit Wet Weight (g/cm ³)	1.94	1.82
Unit Wet Weight (pcf)	121.0	113.3
Unit Dry Weight (pcf)	88.3	88.1
Unit Dry Weight (g/cm ³)	1.41	1.41
Void Ratio, e	0.91	0.91
Porosity, n	0.48	0.48
Pore Volume (cm ³)	171.2	172.0
Total Weight of Sample After Test (g)		703.38

Tested By: JAB Date: 1/17/24 Checked By: JLK Date: 1/29/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-039

Boring No.: 1/3/24
 Depth (ft): Comp 2: 15%
 Sample No.: 14 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	22.67

Final Sample Dimensions

Sample Length (cm), L	7.75
Sample Diameter (cm)	7.69
Sample Area (cm ²), A	46.46
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962
B Parameter (%)	95

AVERAGE PERMEABILITY = 8.6E-09 cm/sec @ 20°C

AVERAGE PERMEABILITY = 8.6E-11 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
1/19/24	9	15	0.000	0.0	0.0	196.8	0	18.7	NA
1/19/24	12	7	2.867	0.5	0.6	195.6	0	18.7	4.6E-08
1/19/24	14	52	5.617	1.0	1.1	194.6	0	18.6	4.4E-08
1/20/24	13	7	27.867	4.0	4.4	188.1	0	18.7	3.5E-08
1/21/24	14	11	52.933	6.0	7.0	183.3	0	18.6	2.4E-08
1/22/24	7	27	70.200	6.9	8.1	181.3	0	18.5	1.5E-08
1/23/24	7	36	94.350	7.7	9.6	178.9	0	18.5	1.3E-08
1/24/24	7	34	118.317	8.3	10.2	177.6	0	18.7	6.7E-09
1/25/24	7	18	142.050	9.0	10.9	176.2	0	19.3	7.5E-09
1/26/24	7	25	166.167	9.8	11.5	174.8	1	19.4	7.7E-09

Tested By: JAB

Date: 1/17/24

Checked By: JLK

Date: 1/29/24

PERMEABILITY TEST

ASTM D 5084-16a Method C

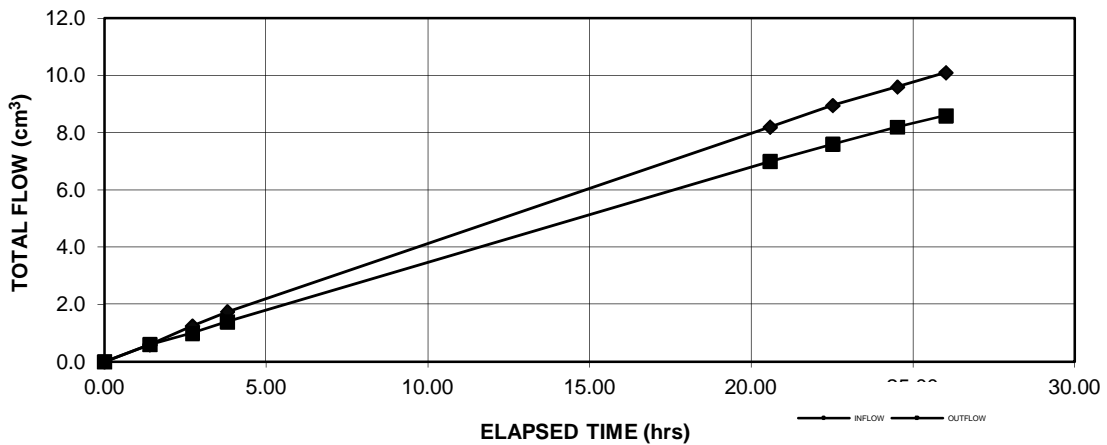


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 2: 15%
Project No.: 2024-039-002 Sample No.: 28 Day
Lab ID No.: 2024-039-002-040 Avg. Effective Consol. Pressure (psi): 6.25

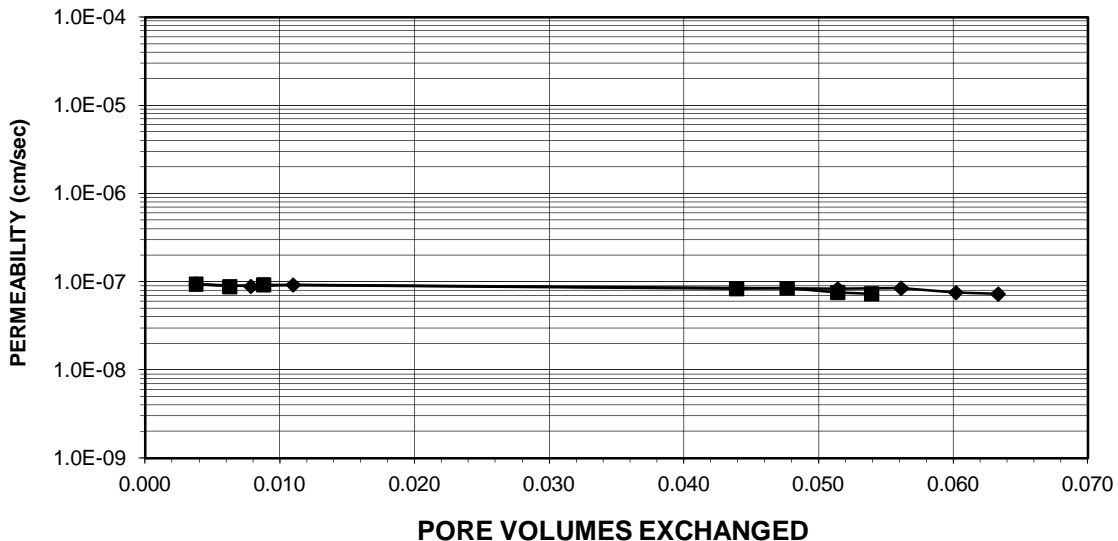
AVERAGE PERMEABILITY = 7.9E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 7.9E-10 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/7/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-040

Boring No.: 1/3/24
Depth (ft): Comp 2: 15%
Sample No.: 28 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Gray Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Tare Number	562	901
Weight of Tare & Wet Sample (g)	333.33	775.85
Weight of Tare & Dry Sample (g)	274.35	627.57
Weight of Tare (g)	84.02	110.23
Weight of Water (g)	58.98	148.28
Weight of Dry Sample (g)	190.33	517.34
Moisture Content (%)	31.0	28.7

SPECIMEN:	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
Weight of Tube & Wet Sample (g)	670.34	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	670.34	658.44
Length 1 (in)	2.924	2.932
Length 2 (in)	2.945	2.934
Length 3 (in)	2.948	2.992
Top Diameter (in)	3.036	3.035
Middle Diameter (in)	3.030	3.032
Bottom Diameter (in)	3.020	3.025
Average Length (in)	2.94	2.95
Average Area (in ²)	7.20	7.21
Sample Volume (cm ³)	346.97	349.05
Unit Wet Weight (g/cm ³)	1.93	1.89
Unit Wet Weight (pcf)	120.6	117.8
Unit Dry Weight (pcf)	92.1	91.5
Unit Dry Weight (g/cm ³)	1.47	1.47
Void Ratio, e	0.83	0.84
Porosity, n	0.45	0.46
Pore Volume (cm ³)	157.4	159.5
Total Weight of Sample After Test (g)		676.61

Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/7/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-040

Boring No.: 1/3/24
 Depth (ft): Comp 2: 15%
 Sample No.: 28 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	23.43

Final Sample Dimensions

Sample Length (cm), L	7.50
Sample Diameter (cm)	7.70
Sample Area (cm ²), A	46.54
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962
B Parameter (%)	95

AVERAGE PERMEABILITY = 7.9E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 7.9E-10 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
2/1/24	11	39	0.000	0.0	0.0	196.8	0	21.1	NA
2/1/24	13	3	1.400	0.6	0.6	195.5	0	21.3	9.4E-08
2/1/24	14	22	2.717	1.3	1.0	194.4	0	21.3	8.8E-08
2/1/24	15	27	3.800	1.8	1.4	193.5	0	21.2	9.3E-08
2/2/24	8	14	20.583	8.2	7.0	181.0	0	20.8	8.4E-08
2/2/24	10	10	22.517	9.0	7.6	179.7	0	20.8	8.4E-08
2/2/24	12	10	24.517	9.6	8.2	178.4	0	21.1	7.6E-08
2/2/24	13	40	26.017	10.1	8.6	177.4	1	21.3	7.3E-08

Tested By: WT

Date: 1/31/24

Checked By: JLK

Date: 2/7/24

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 3: 15%
Project No.:	2024-039-002	Sample No.:	7 Day
Lab ID:	2024-039-002-041	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.995	Top Dia. (in):	2.010
Length 2 (in):	3.995	Mid. Dia. (in):	2.008
Length 3 (in):	3.994	Bot. Dia. (in):	2.004
Avg. Length (in):	3.995	Area (in ²):	3.165

WATER CONTENT (AFTER TEST)	
Tare No.:	4032
Weight of Tare & Wet Sample (g):	349.04
Weight of Tare & Dry Sample (g):	239.08
Weight of Tare (g):	8.04
% Moisture:	47.59

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	342.2	Sample Volume (cm ³):	207.2
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.65
Weight of Wet Sample (g):	342.2	Unit Wet Weight (pcf):	103.08
Avg. Diameter (in):	2.01	Moisture Content (%):	47.59
Avg. Length (in):	3.99	Unit Dry Weight (pcf):	69.84
Avg. Length (cm):	10.15		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

190

60.04

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 3: 15%
Project No.:	2024-039-002	Sample No.:	14 Day
Lab ID:	2024-039-002-042	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	4.009	Top Dia. (in):	2.011
Length 2 (in):	4.008	Mid. Dia. (in):	2.008
Length 3 (in):	4.007	Bot. Dia. (in):	2.005
Avg. Length (in):	4.008	Area (in ²):	3.167

WATER CONTENT (AFTER TEST)	
Tare No.:	3502
Weight of Tare & Wet Sample (g):	347.76
Weight of Tare & Dry Sample (g):	238.84
Weight of Tare (g):	8.09
% Moisture:	47.20

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	342.9	Sample Volume (cm ³):	208.0
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.65
Weight of Wet Sample (g):	342.85	Unit Wet Weight (pcf):	102.86
Avg. Diameter (in):	2.01	Moisture Content (%):	47.20
Avg. Length (in):	4.01	Unit Dry Weight (pcf):	69.88
Avg. Length (cm):	10.18		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

350

110.52

UNCONFINED COMPRESSIVE STRENGTH

ASTM D2166-16 / AASHTO T208-10 (Modified-Peak Load Only) (SOP S-30)

Client:	Geo-Solutions, Inc.	Boring No.:	1/3/24
Client Reference:	Yonkers, NY 23-075	Depth (ft):	Comp 3: 15%
Project No.:	2024-039-002	Sample No.:	28 Day
Lab ID:	2024-039-002-043	Visual Description:	Gray Stabilized Material

INITIAL SAMPLE DIMENSIONS			
Length 1 (in):	3.963	Top Dia. (in):	2.008
Length 2 (in):	3.962	Mid. Dia. (in):	2.006
Length 3 (in):	3.961	Bot. Dia. (in):	2.002
Avg. Length (in):	3.962	Area (in ²):	3.158

WATER CONTENT (AFTER TEST)	
Tare No.:	3149
Weight of Tare & Wet Sample (g):	348.29
Weight of Tare & Dry Sample (g):	238.72
Weight of Tare (g):	8.10
% Moisture:	47.51

UNIT WEIGHT			
Weight of Tube & Wet Sample (g):	341.1	Sample Volume (cm ³):	205.1
Weight of Tube (g):	0.00	Unit Wet Weight (g/cm ³):	1.66
Weight of Wet Sample (g):	341.11	Unit Wet Weight (pcf):	103.80
Avg. Diameter (in):	2.01	Moisture Content (%):	47.51
Avg. Length (in):	3.96	Unit Dry Weight (pcf):	70.37
Avg. Length (cm):	10.06		

**ELECTRONIC DEVICE
LOAD (lb)**

STRESS (psi)

610

193.14

PERMEABILITY TEST

ASTM D 5084-16a Method C

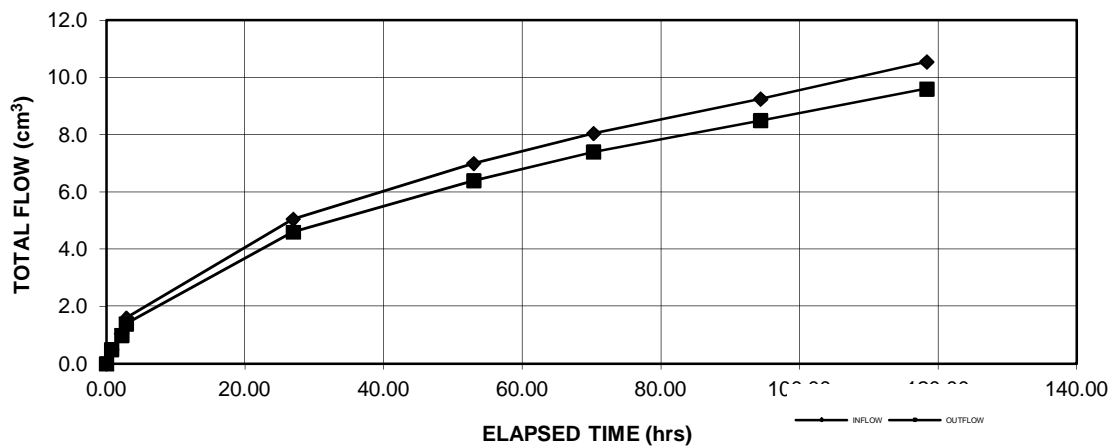


Client: Geo-Soluitons, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 3: 15%
Project No.: 2024-039-002 Sample No.: 14 Day
Lab ID No.: 2024-039-002-044 Avg. Effective Consol. Pressure (psi): 6.25

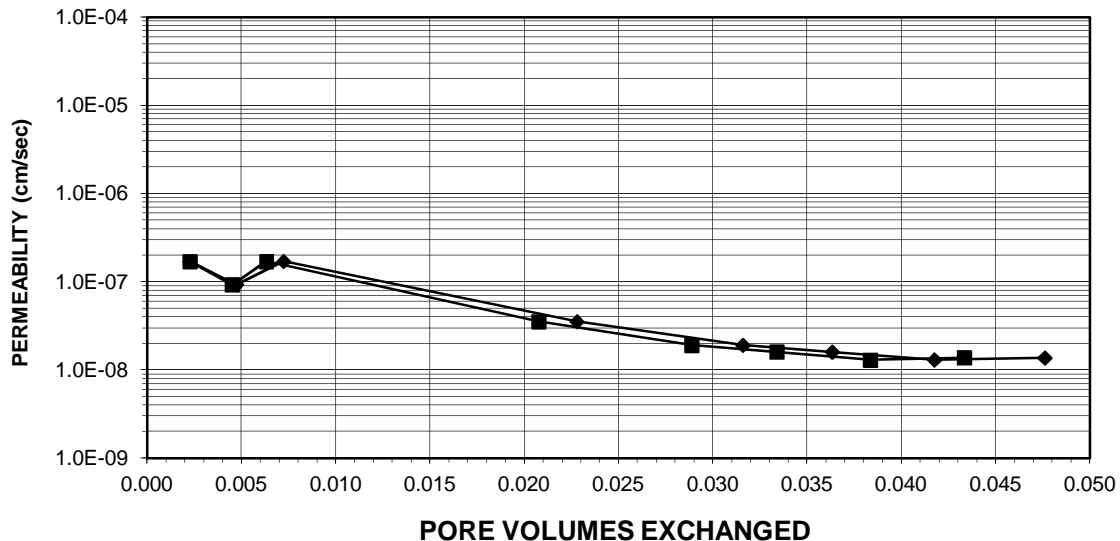
AVERAGE PERMEABILITY = 1.5E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.5E-10 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JAB Date: 1/17/24 Checked By: JLK Date: 1/25/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-044

Boring No.: 1/3/24
Depth (ft): Comp 3: 15%
Sample No.: 14 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Black Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:

BEFORE TEST

AFTER TEST

Tare Number	1720	610
Weight of Tare & Wet Sample (g)	332.35	701.80
Weight of Tare & Dry Sample (g)	244.47	503.19
Weight of Tare (g)	81.45	82.79
Weight of Water (g)	87.88	198.61
Weight of Dry Sample (g)	163.02	420.40
Moisture Content (%)	53.9	47.2

SPECIMEN:

BEFORE TEST

AFTER TEST

Weight of Tube & Wet Sample (g)	619.56	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	619.56	592.73
Length 1 (in)	3.146	3.151
Length 2 (in)	3.160	3.172
Length 3 (in)	3.177	3.157
Top Diameter (in)	3.018	3.022
Middle Diameter (in)	3.029	3.025
Bottom Diameter (in)	3.026	3.010
Average Length (in)	3.16	3.16
Average Area (in ²)	7.18	7.16
Sample Volume (cm ³)	372.11	370.68
Unit Wet Weight (g/cm ³)	1.66	1.60
Unit Wet Weight (pcf)	103.9	99.8
Unit Dry Weight (pcf)	67.5	67.8
Unit Dry Weight (g/cm ³)	1.08	1.09
Void Ratio, e	1.50	1.49
Porosity, n	0.60	0.60
Pore Volume (cm ³)	223.0	221.6
Total Weight of Sample After Test (g)		623.57

Tested By: JAB Date: 1/17/24 Checked By: JLK Date: 1/25/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-044

Boring No.: 1/3/24
 Depth (ft): Comp 3: 15%
 Sample No.: 14 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	21.90

Final Sample Dimensions

Sample Length (cm), L	8.03
Sample Diameter (cm)	7.67
Sample Area (cm ²), A	46.18
Inflow Burette Area (cm ²), a-in	0.960
Outflow Burette Area (cm ²), a-out	0.922

AVERAGE PERMEABILITY = 1.5E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.5E-10 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
1/19/24	9	12	0.000	0.0	0.0	200.4	0	18.7	NA
1/19/24	9	56	0.733	0.5	0.5	199.3	0	18.7	1.7E-07
1/19/24	11	21	2.150	1.1	1.0	198.2	0	18.8	9.2E-08
1/19/24	12	3	2.850	1.6	1.4	197.2	0	18.6	1.7E-07
1/20/24	12	8	26.933	5.1	4.6	190.2	0	18.7	3.5E-08
1/21/24	14	11	52.983	7.0	6.4	186.2	0	18.6	1.9E-08
1/22/24	7	28	70.267	8.1	7.4	184.0	0	18.5	1.6E-08
1/23/24	7	35	94.383	9.3	8.5	181.6	0	18.5	1.3E-08
1/24/24	7	33	118.350	10.6	9.6	179.0	1	18.9	1.4E-08

Tested By: JAB

Date: 1/17/24

Checked By: JLK

Date: 1/25/24

PERMEABILITY TEST

ASTM D 5084-16a Method C

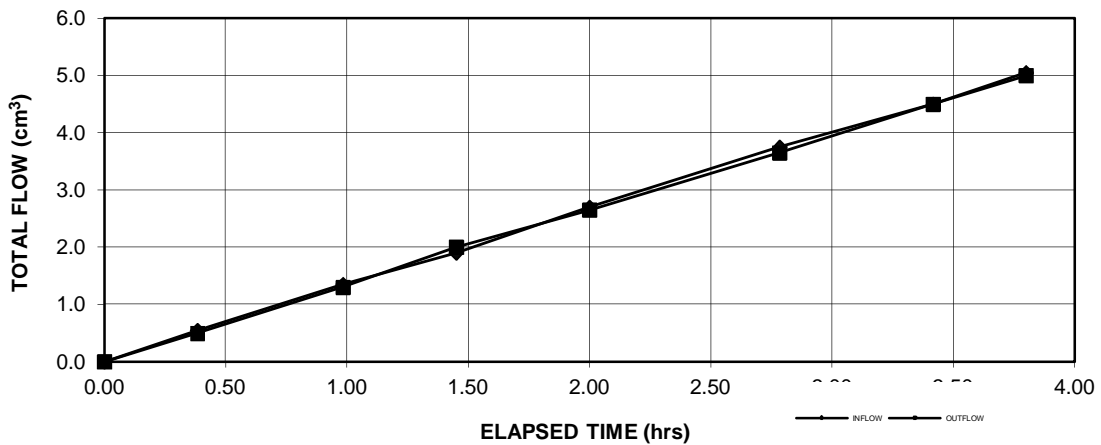


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 3: 15%
Project No.: 2024-039-002 Sample No.: 28 Day
Lab ID No.: 2024-039-002-045 Avg. Effective Consol. Pressure (psi): 6.25

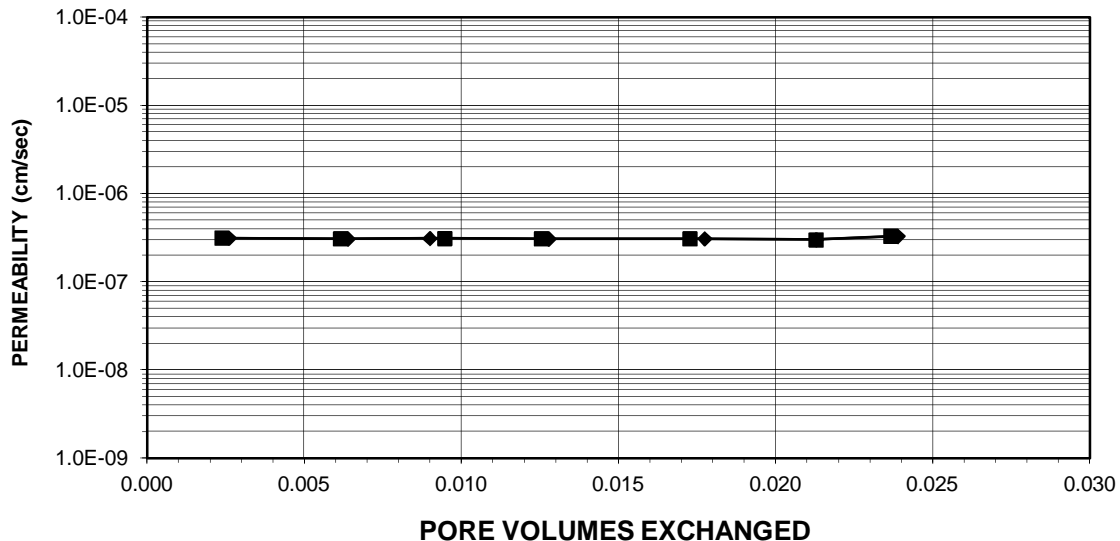
AVERAGE PERMEABILITY = 3.1E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 3.1E-09 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/6/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-002
Lab ID No.: 2024-039-002-045

Boring No.: 1/3/24
Depth (ft): Comp 3: 15%
Sample No.: 28 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Dark Gray Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:

BEFORE TEST

AFTER TEST

Tare Number	623	566
Weight of Tare & Wet Sample (g)	383.66	665.87
Weight of Tare & Dry Sample (g)	282.46	478.99
Weight of Tare (g)	82.94	84.36
Weight of Water (g)	101.20	186.88
Weight of Dry Sample (g)	199.52	394.63
Moisture Content (%)	50.7	47.4

SPECIMEN:

BEFORE TEST

AFTER TEST

Weight of Tube & Wet Sample (g)	594.86	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	594.86	581.58
Length 1 (in)	3.031	3.024
Length 2 (in)	3.051	3.048
Length 3 (in)	3.043	3.049
Top Diameter (in)	3.022	3.025
Middle Diameter (in)	3.025	3.026
Bottom Diameter (in)	3.013	3.018
Average Length (in)	3.04	3.04
Average Area (in ²)	7.16	7.18
Sample Volume (cm ³)	357.04	357.59
Unit Wet Weight (g/cm ³)	1.67	1.63
Unit Wet Weight (pcf)	104.0	101.5
Unit Dry Weight (pcf)	69.0	68.9
Unit Dry Weight (g/cm ³)	1.11	1.10
Void Ratio, e	1.44	1.45
Porosity, n	0.59	0.59
Pore Volume (cm ³)	210.9	211.4
Total Weight of Sample After Test (g)		598.92

Tested By: WT Date: 1/31/24 Checked By: JLK Date: 2/6/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-002
 Lab ID No.: 2024-039-002-045

Boring No.: 1/3/24
 Depth (ft): Comp 3: 15%
 Sample No.: 28 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	22.76

Final Sample Dimensions

Sample Length (cm), L	7.72
Sample Diameter (cm)	7.68
Sample Area (cm ²), A	46.31
Inflow Burette Area (cm ²), a-in	0.962
Outflow Burette Area (cm ²), a-out	0.962
B Parameter (%)	97

AVERAGE PERMEABILITY = 3.1E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 3.1E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
2/1/24	11	36	0.000	0.0	0.0	196.8	0	21.1	NA
2/1/24	11	59	0.383	0.6	0.5	195.7	0	21.1	3.1E-07
2/1/24	12	35	0.983	1.4	1.3	194.0	0	21.2	3.1E-07
2/1/24	13	3	1.450	1.9	2.0	192.7	0	21.3	3.1E-07
2/1/24	13	36	2.000	2.7	2.7	191.2	0	21.3	3.1E-07
2/1/24	14	23	2.783	3.8	3.7	189.1	0	21.3	3.1E-07
2/1/24	15	1	3.417	4.5	4.5	187.5	0	21.3	3.0E-07
2/1/24	15	24	3.800	5.1	5.0	186.4	1	21.2	3.3E-07

Tested By: WT

Date: 1/31/24

Checked By: JLK

Date: 2/6/24

PERMEABILITY TEST

ASTM D 5084-16a Method C

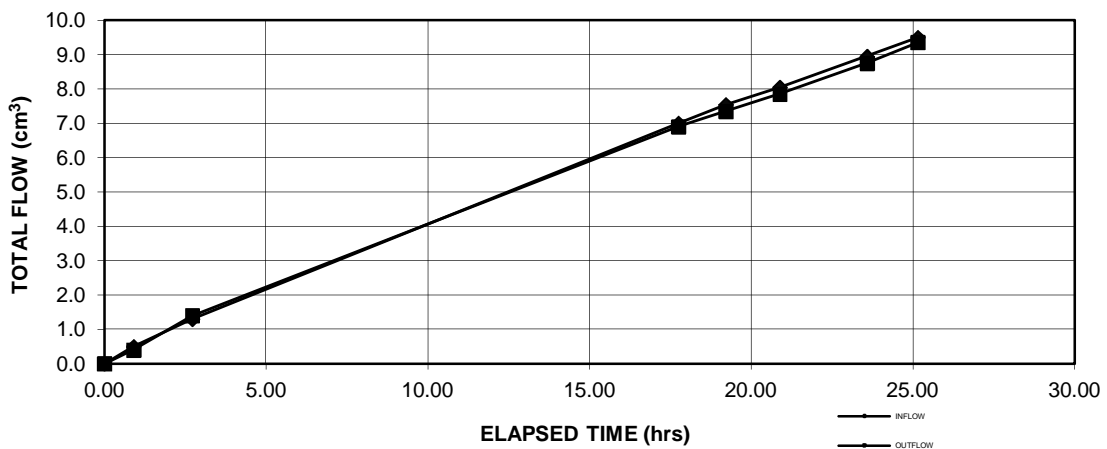


Client: Geo-Solutions, Inc. Boring No.: 1/3/24
Client Project: Yonkers, NY 23-075 Depth (ft): Comp 3: 15%
Project No.: 2024-039-004 Sample No.: 37 Day
Lab ID No.: 2024-039-004-002 Avg. Effective Consol. Pressure (psi): 6.25

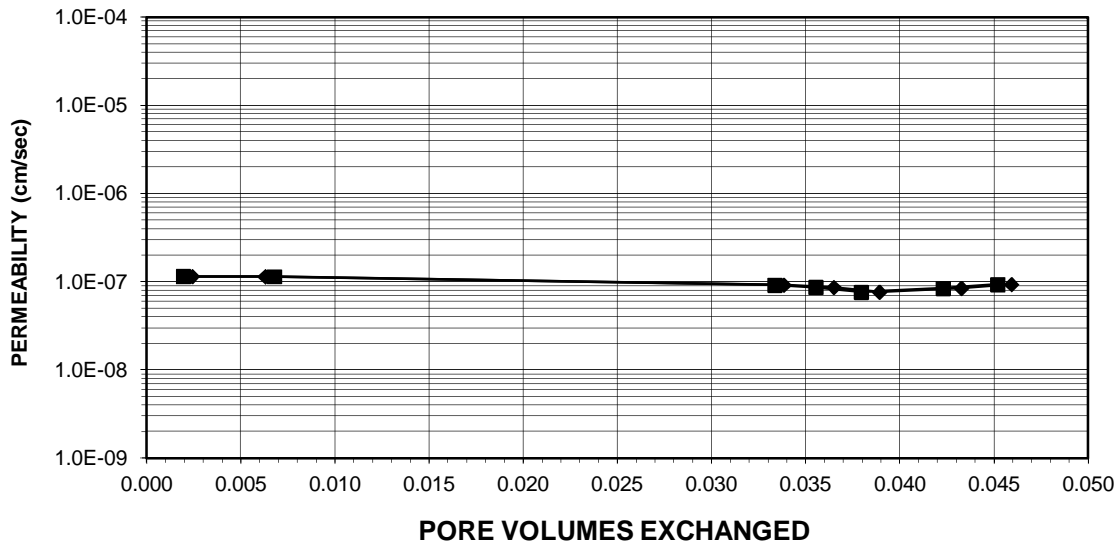
AVERAGE PERMEABILITY = 8.5E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 8.5E-10 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: WT Date: 2/9/24 Checked By: JLK Date: 2/15/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
Client Project: Yonkers, NY 23-075
Project No.: 2024-039-004
Lab ID No.: 2024-039-004-002

Boring No.: 1/3/24
Depth (ft): Comp 3: 15%
Sample No.: 37 Day
Avg. Effective Consol. Pressure (psi): 6.25

Specific Gravity: 2.70 Assumed
Sample Condition: Previously Remolded

Visual Description: Black Stabilized Material

Permeant Type: Deaired Water

MOISTURE CONTENT:

BEFORE TEST

AFTER TEST

Tare Number	611	Z
Weight of Tare & Wet Sample (g)	422.33	651.99
Weight of Tare & Dry Sample (g)	306.71	466.22
Weight of Tare (g)	82.13	73.70
Weight of Water (g)	115.62	185.77
Weight of Dry Sample (g)	224.58	392.52
Moisture Content (%)	51.5	47.3

SPECIMEN:

BEFORE TEST

AFTER TEST

Weight of Tube & Wet Sample (g)	576.78	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	576.78	560.96
Length 1 (in)	2.950	2.970
Length 2 (in)	2.961	2.972
Length 3 (in)	2.971	2.955
Top Diameter (in)	3.023	3.022
Middle Diameter (in)	3.022	3.023
Bottom Diameter (in)	3.013	3.012
Average Length (in)	2.96	2.97
Average Area (in ²)	7.16	7.16
Sample Volume (cm ³)	347.38	347.89
Unit Wet Weight (g/cm ³)	1.66	1.61
Unit Wet Weight (pcf)	103.6	100.7
Unit Dry Weight (pcf)	68.4	68.3
Unit Dry Weight (g/cm ³)	1.10	1.09
Void Ratio, e	1.46	1.47
Porosity, n	0.59	0.59
Pore Volume (cm ³)	206.4	206.9
Total Weight of Sample After Test (g)		583.03

Tested By: WT Date: 2/9/24 Checked By: JLK Date: 2/15/24

PERMEABILITY TEST

ASTM D 5084-16a Method C



Client: Geo-Solutions, Inc.
 Client Project: Yonkers, NY 23-075
 Project No.: 2024-039-004
 Lab ID No.: 2024-039-004-002

Boring No.: 1/3/24
 Depth (ft): Comp 3: 15%
 Sample No.: 37 Day
 Avg. Effective Consol. Pressure (psi): 6.25

Pressure Heads (Constant)

Top Cap (psi)	77.5
Bottom Cap (psi)	80.0
Cell (psi)	85.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	23.33

Final Sample Dimensions

Sample Length (cm), L	7.53
Sample Diameter (cm)	7.67
Sample Area (cm ²), A	46.18
Inflow Burette Area (cm ²), a-in	0.960
Outflow Burette Area (cm ²), a-out	0.922
B Parameter (%)	95

AVERAGE PERMEABILITY = 8.5E-08 cm/sec @ 20°C

AVERAGE PERMEABILITY = 8.5E-10 m/sec @ 20°C

DATE	TIME		ELAPSED TIME	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD	FLOW	TEMP.	INCREMENTAL PERMEABILITY
(mm/dd/yy)	(hr)	(min)	t (hr)	(cm ³)	(cm ³)	h (cm)	(0 flow) (1 stop)	(°C)	@ 20°C (cm/sec)
2/12/24	13	27	0.000	0.0	0.0	200.4	0	19.2	NA
2/12/24	14	21	0.900	0.5	0.4	199.4	0	19.3	1.1E-07
2/12/24	16	10	2.717	1.3	1.4	197.5	0	19.5	1.1E-07
2/13/24	7	12	17.750	7.0	6.9	185.6	0	18.2	9.2E-08
2/13/24	8	40	19.217	7.6	7.4	184.6	0	18.3	8.6E-08
2/13/24	10	20	20.883	8.1	7.9	183.5	0	18.6	7.6E-08
2/13/24	13	2	23.583	9.0	8.8	181.6	0	19.1	8.4E-08
2/13/24	14	36	25.150	9.5	9.4	180.4	1	19.4	9.3E-08

Tested By: WT Date: 2/9/24 Checked By: JLK Date: 2/15/24