

# GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND  
ENVIRONMENTAL CONSULTANTS



*A Practicing Geoprofessional Business Association Member Firm*

April 15, 2025

MidAtlantic Engineering Partners  
1971 Highway 34, Suite 201  
Wall Township, New Jersey 07719

Attn: Jason Fogler

Re: Stormwater Management Testing  
**Beachway Avenue**  
Borough of Keansburg, Monmouth County, New Jersey

Dear Jay:

Geo-Technology Associates, Inc. (GTA) was requested by MidAtlantic Engineering Partners (MidAtlantic; Client) to perform test pits and in-situ infiltration testing for the planning and design of stormwater management (SWM) facilities related to the proposed development in the Borough of Keansburg, Monmouth County, New Jersey. The site is located north of Beachway Avenue between its intersections with Charles Avenue and Oakwood Place and is identified as Lot 1 in Block 184 on the Borough of Keansburg tax map.

A plan prepared by MidAtlantic titled "Preliminary/Final Major Site Plan" dated March 2025 was provided to GTA to assist in the preparation of this proposal. The plan indicates the site boundaries, layout and dimensions of the proposed site improvements, and the existing and proposed topography. We understand the proposed development will include (3) 4-story condominium buildings with footprint areas ranging from about 8,120 to 9,740 square feet that will not contain any below-grade areas. Porous pavement areas will be incorporated into the parking and drive aisles surrounding the buildings. The plan was marked up to show the requested locations of 8 test pit explorations within proposed porous pavement areas.

## Test Pit Exploration

On March 20 and 21, 2025, GTA observed and logged the excavation of 8 test pits and performed in-situ infiltration testing at the requested locations. The test pits were excavated by KMF Companies using a Bobcat E32 excavator and extended to depths ranging from approximately 9 to 10 feet below the existing ground surface. In-situ infiltration testing was performed adjacent to each of the test pits

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◆ Abingdon, MD ◆ Baltimore, MD ◆ Laurel, MD ◆ Frederick, MD ◆ Waldorf, MD ◆ New Castle, DE ◆ Georgetown, DE  
◆ Somerset, NJ ◆ NYC Metro ◆ Pittsburgh Metro ◆ Quakertown, PA ◆ Scranton/Wilkes-Barre, PA ◆ York, PA  
◆ Northeastern, OH ◆ Sterling, VA ◆ Nashville, TN ◆ Charlotte, NC ◆ Raleigh, NC ◆ Orlando, FL

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using a double-ring infiltrometer. The exploration locations were selected by the Client and located in the field by GTA using a hand-held GPS unit and existing site features as reference. The approximate locations of the explorations performed for this study are shown on the attached Test Pit Location Plan. Detailed descriptions of the subsurface conditions encountered in the test pits are indicated on the Logs of Test Pits, which are also attached. The ground surface elevations indicated on the logs were provided by the Client.

### Existing Conditions

At the time of GTA's exploration, the site was vacant and had asphalt paved areas throughout. Access to the site was provided from Beachway Avenue.

### Subsurface Conditions

Test Pits TP-1 and TP-2, TP-4 and TP-6 encountered about 6 inches of asphalt pavement at the surface and Test Pits TP-5, TP-7, and TP-8 encountered about 3 to 12 inches of topsoil at the surface. Existing fill was encountered at the surface in Test Pit TP-3, and beneath the surficial materials in all the remaining test pits to depths ranging from about 3 to 7½ feet below existing grades. The existing fill materials generally consisted of sandy loam to loamy sand soils and occasionally sandy clay and sandy clay loam soils. The existing fill materials occasionally contained deleterious materials such as buried lumber, shingles, and organics. Below the existing fill, the test pits encountered native loamy sand, sand, and sandy clay loam soils.

Groundwater was observed in the test pits performed for this study at depths ranging from about 7 to 9 feet below the existing grades. Long-term groundwater readings were not obtained because the test pits were backfilled upon completion for safety considerations. The test pits were performed during the "wet season" defined by the NJDEP as January through April. Therefore, we believe the depth to the groundwater observed represents the seasonal high water table (SHWT) at the explored locations. Note that due to the proximity to the ocean, tidal fluctuations in groundwater should be expected. While GTA strived to record readings at or near the expected high-tide for the day, this was not always possible due to time constraints.

### Infiltration Testing

Preliminary in-situ infiltration tests were performed at each of the test pits using a double-ring infiltrometer in general accordance with Chapter 12 of the NJDEP Stormwater Best Management Practices Manual (Chapter 12). The results of the infiltration tests are summarized in the following table.

**SUMMARY OF INFILTRATION TEST RESULTS**

Test Pit Location	Approx. Test Depth (ft.)	USDA Classification	Measured Infiltration Rate (in/hr)
TP-1	3	FILL: clay	0.0
TP-1	5	FILL: sandy loam	2.5
TP-2	3	FILL: sandy loam	3.3
TP-3	3½	FILL: sandy loam	0.0
TP-3	5½	Sand	30+
TP-4	3	FILL: sandy clay	0.0
TP-4	5½	Sand	30+
TP-5	4	FILL: sandy clay loam	0.0
TP-5	6	FILL: sandy clay loam	1.1
TP-6	3	Fill: clay	0.0
TP-6	7	Sand	30+
TP-7	3	Sand	26.8
TP-8	2	Sand	22.1

Note: A factor of safety of at least 2 should be applied to the measured infiltration rates for design purposes.

The primary conditions that affect the capacity of soil to infiltrate water are the soil gradation and density properties and the presence of hydraulically restrictive layers such as silt or clay (fines), or groundwater, each of which would restrict the flow of water into the underlying aquifer. The subsurface profile at the site generally consisted of sandy loam, loamy sand, clay, and sandy clay fill materials underlain by native sand soils.

**LIMITATIONS**

This letter, including all supporting test pit logs, field data, and other documents prepared by GTA in connection with this project have been prepared for the exclusive use of MidAtlantic Engineering Partners pursuant to the agreement between GTA and the Client. All terms and conditions set forth in the Agreement and the General Provisions attached thereto are incorporated herein by reference. No warranty, express or implied, is made herein. Use and reproduction of this letter by any other person without the expressed written permission of GTA and the Client is unauthorized and such use is at the sole risk of the user. Test pits indicate soil conditions only at specific locations and times and only at the depths penetrated. They do not necessarily reflect strata or variations that may exist between the exploration locations.

GTA is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or reuse of the subsurface data without the expressed written authorization of Geo-Technology Associates, Inc.

This letter and the attached logs are instruments of service. The subject matter of this report is limited to the facts and matters stated herein. Absence of a reference to any other conditions or subject matter shall not be construed by the reader to imply approval by the writer.

GTA appreciates the opportunity to have been of assistance to you on this project. Please contact our office at (732) 271-9301 if you have questions or require additional information. Please note that, unless you make other arrangements, GTA will discard all soil samples obtained from the explorations 60 days after the date of this report.

Sincerely,

**GEO-TECHNOLOGY ASSOCIATES, INC.**



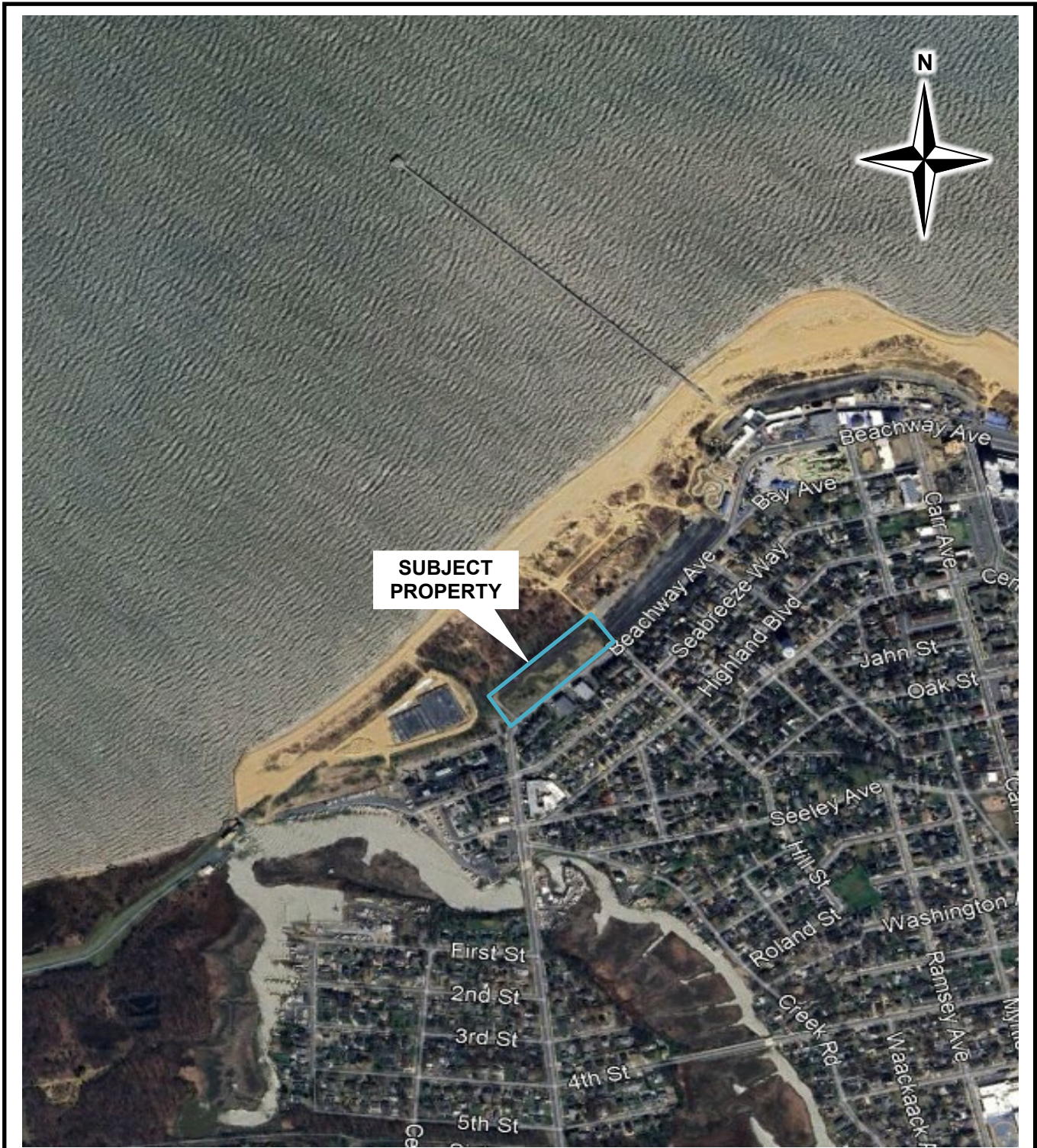
Kyle T. Plaza, P.E.  
Associate



Robert Dykstra, P.E.  
Vice President

Attachments:

*Site Location Map*  
*Test Pit Location Plan*  
*Logs of Test Pits (8 pages)*



Note: Site boundary is approximate.

**SITE LOCATION MAP**

**BEACHWAY AVENUE**

Borough of Keansburg,  
Monmouth County, New Jersey

Prepared For: MidAtlantic Engineering Partners



14 Worlds Fair Drive, Suite A  
Somerset, New Jersey 08873  
(732) 271-9301  
fax (732) 271-9306

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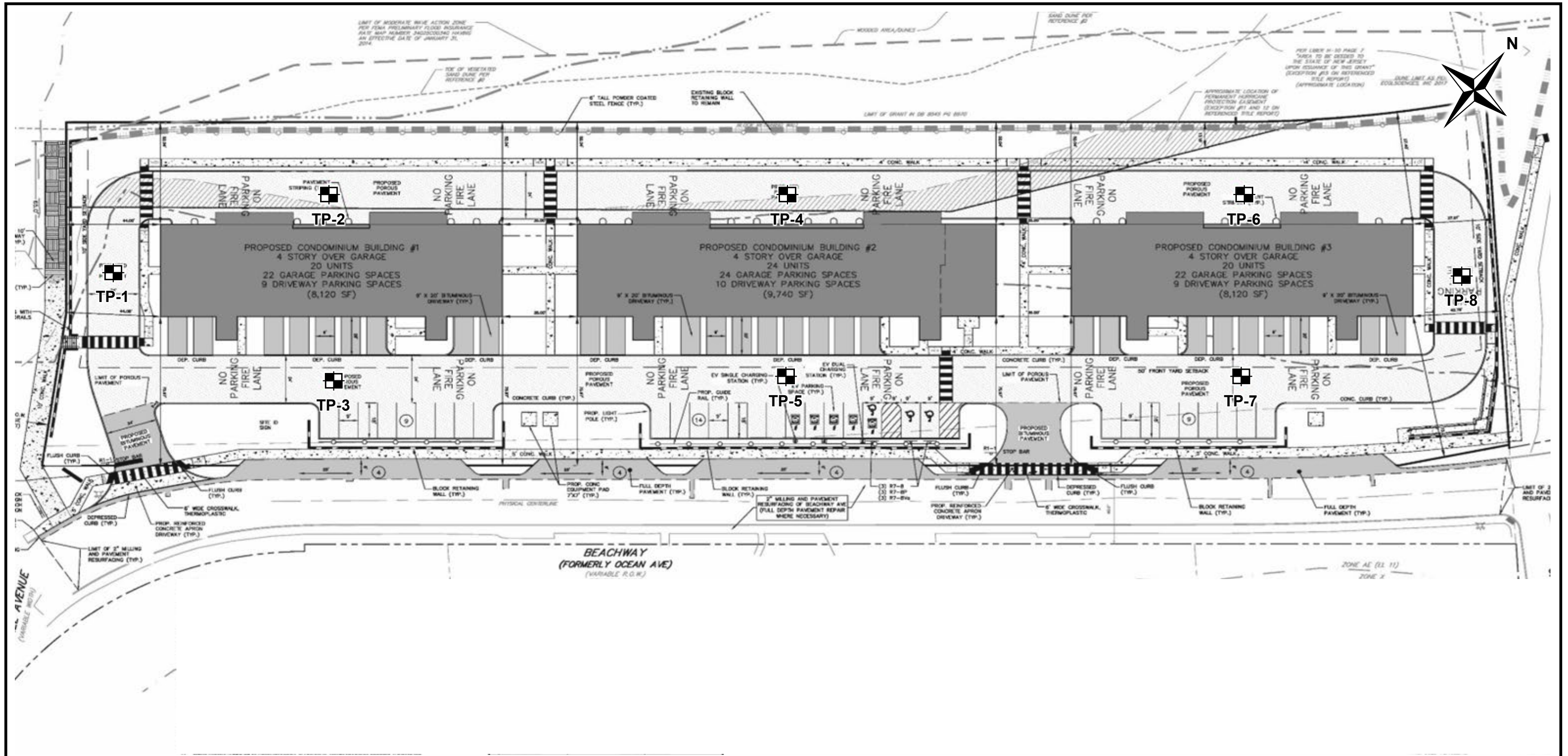
SOURCE: Google Maps

SCALE: NTS

DATE: APRIL 2025


PROJECT#: 31230924X1

Figure 1



\*Base plan prepared by MidAtlantic Engineering Partners titled "Layout Plan" dated March 2025.

**LEGEND:**

**TP-X**  Indicates the numbers and approximate locations of test pits performed by GTA for this study.

**TEST PIT LOCATION PLAN**



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**BEACHWAY AVENUE**

Borough of Keansburg,  
Monmouth County, New Jersey

Prepared For: MidAtlantic Engineering Partners

DESIGN BY: *	DRAWN BY: CT	REVIEWED BY: KTP
SCALE: NTS	DATE: APRIL 2025	PROJECT #: 31230924X1

Figure 2

# LOG OF TEST PIT NO. TP-1

PROJECT: **Beachway Avenue**  
 PROJECT LOCATION: **Borough of Keansburg, Monmouth County, New Jersey**  
 CLIENT: **MidAtlantic Engineering Partners**

PROJECT NO.: **31230924X1**

DATE STARTED: **3/20/2025**  
 DATE COMPLETED: **3/20/2025**  
 CONTRACTOR: **KMF Companies**  
 EQUIPMENT: **BobCat E32**

GROUNDWATER ENCOUNTERED: **7 Ft.**  
 GROUND SURFACE ELEVATION: **10.3 Ft.**  
 DATUM: **Provided**  
 LOGGED BY: **CT**  
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
9.8	0			6 In. of Asphalt	
	2			FILL - Dark brown (10YR 3/3), moist, 10% gravel, single grain, loose, loamy sand - Very dark gray (10YR 3/1) at 2 Ft.  - Black (10YR 2/1), moist, subangular blocky, firm, clay at 2 Ft.	- Buried lumber and hard digging at 6 In.  - Infiltration Rate = 0.0 in/hr at 3 Ft.
4.3	6	SP-SM		- Dark yellow-brown (10YR 5/4), moist, 10% gravel, single grain, loose, sandy loam at 5 Ft. - buried organics at 5-1/2 to 6 Ft. Yellow-brown (10YR 5/4), moist, 3% gravel, single grain, loose, Loamy Sand  - wet at 7 Ft.	- Infiltration Rate = 2.5 in/hr at 5 Ft.  
1.3	10			Test pit complete at 9 Ft. due to sidewall collapse. Seasonal high water table encountered at 7 Ft.	

NOTES: **Elevation and location are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-1**

# LOG OF TEST PIT NO. TP-2

PROJECT: **Beachway Avenue**  
 PROJECT LOCATION: **Borough of Keansburg, Monmouth County, New Jersey**  
 CLIENT: **MidAtlantic Engineering Partners**

PROJECT NO.: **31230924X1**

DATE STARTED: **3/20/2025**  
 DATE COMPLETED: **3/20/2025**  
 CONTRACTOR: **KMF Companies**  
 EQUIPMENT: **BobCat E32**

GROUNDWATER ENCOUNTERED: **9 Ft.**  
 GROUND SURFACE ELEVATION: **11.2 Ft.**  
 DATUM: **Provided**  
 LOGGED BY: **CT**  
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
10.7	0		[Solid Black]	6 in. of Asphalt	
	2		[Cross-hatch]	FILL - Brown (10YR 4/3), moist, 10% gravel, single grain, loose, sandy loam	- Infiltration Rate = 3.3 in/hr at 3 Ft.
6.2	6	SC	[Cross-hatch]	Dark yellow-brown (10YR 3/4), moist, single grain, loose, Sandy Clay Loam	
4.2	8	SP	[Dotted]	Yellow-brown (10YR 5/6), moist, single grain, loose, Sand	
1.2	10		[Dotted]	Test pit complete at 10 Ft. due to sidewall collapse. Seasonal high water table encountered at 9 Ft.	
	12				▼
	14				
	16				
	18				

NOTES: **Elevation and location are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-2**

# LOG OF TEST PIT NO. TP-3

PROJECT: **Beachway Avenue**  
 PROJECT LOCATION: **Borough of Keansburg, Monmouth County, New Jersey**  
 CLIENT: **MidAtlantic Engineering Partners**

PROJECT NO.: **31230924X1**

DATE STARTED: **3/20/2025**  
 DATE COMPLETED: **3/20/2025**  
 CONTRACTOR: **KMF Companies**  
 EQUIPMENT: **BobCat E32**

GROUNDWATER ENCOUNTERED: **8 Ft.**  
 GROUND SURFACE ELEVATION: **11.9 Ft.**  
 DATUM: **Provided**  
 LOGGED BY: **CT**  
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
6.9	0		[Cross-hatch symbol]	FILL - Dark yellow-brown (10YR 3/4), moist, 5% gravel, single grain, loose, sandy loam	
	2			- Yellow-brown (10YR 5/4), gravel grades out at 3 Ft.	- Hardening digging at 2 Ft.
	4				- Infiltration Rate = 0.0 in/hr at 3-1/2 Ft.
	6	SP	[Dotted symbol]	Yellow (10YR 7/6), moist, single grain, loose, Sand	- Infiltration Rate = 30+ in/hr at 5-1/2 Ft.
	8			- Very pale brown (10YR 7/3), wet at 8 Ft.	▼
1.9	10			Test pit complete at 10 Ft. due to sidewall collapse. Seasonal high water table encountered at 8 Ft.	
	12				
	14				
	16				
	18				

NOTES: **Elevation and location are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-3**

# LOG OF TEST PIT NO. TP-4

PROJECT: **Beachway Avenue**  
 PROJECT LOCATION: **Borough of Keansburg, Monmouth County, New Jersey**  
 CLIENT: **MidAtlantic Engineering Partners**

PROJECT NO.: **31230924X1**

DATE STARTED: **3/21/2025**  
 DATE COMPLETED: **3/21/2025**  
 CONTRACTOR: **KMF Companies**  
 EQUIPMENT: **BobCat E32**

GROUNDWATER ENCOUNTERED: **8 Ft.**  
 GROUND SURFACE ELEVATION: **11.5 Ft.**  
 DATUM: **Provided**  
 LOGGED BY: **CT**  
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
11.0	0		[Solid Black]	6 In. of Asphalt	
	1		[Cross-hatch]	FILL - Dark yellow-brown (10YR 3/4), moist, 5% gravel, single grain, loose, sandy loam	
	2		[Cross-hatch]	- Black (10YR 2/1), moist, subangular blocky, soft, sandy clay at 3 Ft.	- Hard digging at 2 Ft.
	3		[Cross-hatch]	- buried organics at 4 Ft.	- Infiltration Rate = 0.0 in/hr at 3 Ft.
7.0	4	SP	[Dotted]	Yellow-brown (10YR 5/6), moist, single grain, loose, Sand	
	5		[Dotted]		- Infiltration Rate = 30+ in/hr at 5-1/2 Ft.
	6		[Dotted]		
	7		[Dotted]		
	8		[Dotted]	- wet at 8 Ft.	▼
2.5	9			Test pit complete at 9 Ft. due to sidewall collapse. Seasonal high water table encountered at 8 Ft.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Elevation and location are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-4**

# LOG OF TEST PIT NO. TP-5

PROJECT: **Beachway Avenue**  
 PROJECT LOCATION: **Borough of Keansburg, Monmouth County, New Jersey**  
 CLIENT: **MidAtlantic Engineering Partners**

PROJECT NO.: **31230924X1**

DATE STARTED: **3/21/2025**  
 DATE COMPLETED: **3/21/2025**  
 CONTRACTOR: **KMF Companies**  
 EQUIPMENT: **BobCat E32**

GROUNDWATER ENCOUNTERED: **8 Ft.**  
 GROUND SURFACE ELEVATION: **10.8 Ft.**  
 DATUM: **Provided**  
 LOGGED BY: **CT**  
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
10.6	0			3 In. of Topsoil	
			[Cross-hatch pattern]	FILL - Yellow-brown (10YR 5/4), moist, 5% gravel, single grain, loose, loamy sand	
	2			- Dark yellow-brown (10YR 3/4) at 2 Ft.	- Hard digging at 2 Ft.
	4			- Brown-yellow (10YR 6/6), moist, single grain to subangular blocky, loose to friable, sandy clay loam at 4 Ft.	- Infiltration Rate = 0.0 in/hr at 4 Ft.
	6				- Infiltration Rate = 1.1 in/hr at 6 Ft.
3.6	7			3 In. layer of roofing shingles at 7 Ft.	
	8	SP	[Dotted pattern]	Gray-brown (10YR 5/2), moist, single grain, loose, Sand	▼
				- wet at 8 Ft.	
0.8	10			Test pit complete at 10 Ft. due to sidewall collapse. Seasonal high water table encountered at 8 Ft.	
	12				
	14				
	16				
	18				

NOTES: **Elevation and location are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-5**

# LOG OF TEST PIT NO. TP-6

PROJECT: **Beachway Avenue**  
 PROJECT LOCATION: **Borough of Keansburg, Monmouth County, New Jersey**  
 CLIENT: **MidAtlantic Engineering Partners**

PROJECT NO.: **31230924X1**

DATE STARTED: **3/20/2025**  
 DATE COMPLETED: **3/21/2025**  
 CONTRACTOR: **KMF Companies**  
 EQUIPMENT: **BobCat E32**

GROUNDWATER ENCOUNTERED: **9 Ft.**  
 GROUND SURFACE ELEVATION: **11.5 Ft.**  
 DATUM: **Provided**  
 LOGGED BY: **CT**  
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
11.0	0		[Solid Black]	6 in. of Asphalt	
	2		[Cross-hatch]	FILL - Dark brown (10YR 3/3), 5% gravel, single grain, loose, loamy sand  - Very dark gray-brown (10YR 3/2) at 2 Ft.  - Very dark gray (10YR 3/1), subangular blocky, firm, clay - buried organics at 3-1/2 Ft.	- Hard digging at 2 Ft.  - Infiltration Rate = 0.0 in/hr at 3 Ft.
7.5	4	SP	[Dotted]	Dark yellow-brown (10YR 3/6), moist, single grain, loose, Sand	
	6				- Infiltration Rate = 30+ in/hr at 7 Ft.
	8				
	9			- wet at 9 Ft.	▼
1.5	10			Test pit complete at 9 Ft. due to sidewall collapse. Seasonal high water table encountered at 9 Ft.	
	12				
	14				
	16				
	18				

NOTES: **Elevation and location are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-6**

# LOG OF TEST PIT NO. TP-7

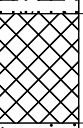

Sheet 1 of 1

PROJECT: **Beachway Avenue**  
 PROJECT LOCATION: **Borough of Keansburg, Monmouth County, New Jersey**  
 CLIENT: **MidAtlantic Engineering Partners**

PROJECT NO.: **31230924X1**

DATE STARTED: **3/21/2025**  
 DATE COMPLETED: **3/21/2025**  
 CONTRACTOR: **KMF Companies**  
 EQUIPMENT: **BobCat E32**

GROUNDWATER ENCOUNTERED: **9 Ft.**  
 GROUND SURFACE ELEVATION: **11.4 Ft.**  
 DATUM: **Provided**  
 LOGGED BY: **CT**  
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
11.2	0			3 In. of Topsoil	
				FILL- Dark brown (10YR 3/3), moist, 5% gravel, single grain, loose, sandy loam	
9.4	2	SP		Gray-brown (10YR 5/2), moist, single grain, loose, Sand	
	4				
	6				
	8				
				- Yellow-brown (10YR 5/4), wet at 9 Ft.	▼
1.4	10			Test pit complete at 10 Ft. due to sidewall collapse. Seasonal high water table encountered at 9 Ft.	
	12				
	14				
	16				
	18				

NOTES: **Elevation and location are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-7**

Sheet 1 of 1



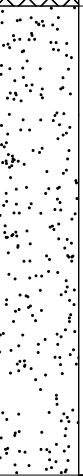

# LOG OF TEST PIT NO. TP-8

PROJECT: **Beachway Avenue**  
 PROJECT LOCATION: **Borough of Keansburg, Monmouth County, New Jersey**  
 CLIENT: **MidAtlantic Engineering Partners**

PROJECT NO.: **31230924X1**

DATE STARTED: **3/21/2025**  
 DATE COMPLETED: **3/21/2025**  
 CONTRACTOR: **KMF Companies**  
 EQUIPMENT: **BobCat E32**

GROUNDWATER ENCOUNTERED: **9 Ft.**  
 GROUND SURFACE ELEVATION: **10.5 Ft.**  
 DATUM: **Provided**  
 LOGGED BY: **CT**  
 CHECKED BY: **KTP**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. Topsoil	
9.5				FILL - Dark brown (10YR 3/3), moist, 5% gravel, single grain, loose, loamy sand	
8.5	2	SP		Gray-brown (10YR 5/2), moist, single grain, loose, Sand	- Infiltration Rate = 22.1 in/hr at 2 Ft.
	4				
	6			- Yellow-brown (10YR 5/6) at 6 Ft.	
	8				
1.0				- wet at 9 Ft.	
	10			Test pit complete at 9-1/2 Ft. due to sidewall collapse. Seasonal high water table encountered at 9 Ft.	
	12				
	14				
	16				
	18				

NOTES: **Elevation and location are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-8**