WHITESTONE
An Employee-Owned Company

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September 28, 2021

via email

BOHLER ENGINEERING NJ, LLC
10000 Midlantic Avenue
Suite 410W
Mount Laurel, New Jersey 08054

Attention: Greg DiBona, L.L.A.
Associate

Regarding: PRELIMINARY GEOTECHNICAL INVESTIGATION &
SWM AREA EVALUATION
L'OREAL DISTRIBUTION FACILITY - PROPOSED EXPANSION
100 COMMERCE DRIVE
FRANKLIN, SOMERSET COUNTY, NEW JERSEY
WHITESTONE PROJECT NO.: GJ2118293.000

Dear Mr. DiBona:

Whitestone Associates, Inc. (Whitestone) has completed a preliminary geotechnical investigation and stormwater management (SWM) area evaluation at the above referenced site. The results of the limited evaluation and preliminary recommendations presented below are based on the soil conditions disclosed from a limited number of subsurface tests conducted during Whitestone's field investigation. Recommendations for further investigation also are included herein.

The purpose of the preliminary subsurface soils investigation was to assess anticipated geologic features, shallow groundwater and/or rock, refusal depths, existing fill, and the potential feasibility of shallow foundations and/or expected earthwork requirements. While the scope of this preliminary investigation will not be sufficient to formulate detailed design recommendations and a more comprehensive geotechnical investigation ultimately will be required, this preliminary investigation may be used to assess potentially development impactive geotechnical issues to support preliminary studies regarding the feasibility of developing the property.

1.0 SUMMARY OF FINDINGS

In general, the subsurface conditions preliminarily indicate conditions suitable for shallow foundation design. The exploration indicated the presence of highly moisture-sensitive soils throughout the site that will impact the planned construction. Based on past experience with similar soils, earthwork activities will require stringent soil moisture control efforts. Depending on the time of year of construction, site work should anticipate overexcavation of moisture sensitive soils in structural areas, using mechanical and/or chemical subgrade stabilization techniques, and exercising detailed attention to construction methods while maintaining strict moisture control. In addition, weathered rock and rock were encountered at variable depths that will present excavation difficulties.

2.0 PROJECT DESCRIPTION

2.1 Site Location and Existing Conditions

The subject property located at 100 Commerce Drive in Franklin, Somerset County, New Jersey currently houses a L'Oreal distribution facility including multi-story buildings, wooded areas, pavements, landscaping, and utilities.

2.2 Site Geology

The site is located within the Piedmont Physiographic Providence of New Jersey. Specifically, the subject site is underlain by the Lower Jurassic-age and Upper Triassic-age Siltsone, Sandstone, and Shale members of the Passaic Formation, which is part of the Brunswick Group. These members generally consist of reddish-brown to brownish-purple and grayish-red siltstone, sandstone, and shale. The overburden materials at the site include weathered shale, mudstone, and sandstone.

2.3 Proposed Construction

Based on the February 8, 2013 *Horizontal Control Plan* prepared by Stires Associates, P.A. and information provided by Bohler Engineering NJ, LLC, the proposed redevelopment is anticipated to include constructing multiple building additions with a combined footprint of approximately 267,857 square feet, SWM facilities potentially including aboveground and belowground basins as well as porous pavements, new loading dock area, pavements, landscaping, and utilities. Details regarding the proposed SWM facilities have not been established at this time. The proposed building additions are not anticipated to include basements/cellars. No new retaining walls, with the exception of the below-grade walls for the loading dock area, are anticipated for redevelopment.

Detailed grading or structural loading information have not been finalized. Whitestone assumes the site will be redeveloped at or near existing site grades with maximum cut and fill on the order of one foot to three feet. Based on Whitestone's experience with similar structures, the maximum design loads are anticipated to be less than the following: column load - 150 kips, wall load - 3.0 kips/foot, and floor load - 250 pounds per square foot.

3.0 FIELD INVESTIGATION & LABORATORY TESTING

3.1 Field Exploration

Field exploration at the project site was completed by means of six soil borings (identified as B-1 through B-6) conducted with a track-mounted drill rig using hollow stem augers and split-spoon sampling techniques, four test pits (identified as TP-1 through TP-4) and eight soil profile pits (identified as SPP-1 through SPP-8) conducted with a track-mounted excavator. The borings and test pits were conducted within accessible portions of the proposed building footprint to depths ranging from approximately five feet below ground surface (fbgs) to 12.3 fbgs. The profile pits were conducted within the proposed SWM facilities to depths ranging from approximately five fbgs to eight fbgs. The subsurface tests were backfilled to the surface with excavated soils from the investigation. The locations of the subsurface tests are shown on the *Test Location Plan* included as Figure 1. *Records of Subsurface Exploration* are provided in Appendix A.

The subsurface tests were conducted in the presence of a Whitestone engineer who conducted field tests, recorded visual classifications, and collected samples of the various strata encountered. The tests were located in the field using normal taping procedures and estimated right angles. These locations are presumed to be accurate within a few feet.

Soil borings and Standard Penetration Tests (SPTs) were conducted in general accordance with ASTM International (ASTM) designation D 1586. The SPT resistance value (N) can be used as an indicator of the consistency of fine-grained soils and the relative density of coarse-grained soils. The N-value for various soil types can be correlated with the engineering behavior of earthworks and foundations.

Groundwater level observations, where encountered, were recorded during and immediately after the completion of field operations prior to backfilling the tests. Seasonal variations, temperature effects, man-made effects, and recent rainfall conditions may influence the levels of the groundwater, and the observed levels will depend on the permeability of the soils. Groundwater elevations derived from sources other than seasonally observed groundwater monitor wells may not be representative of true groundwater levels.

3.2 Laboratory Program

A representative sample of a selected stratum encountered was subjected to a laboratory program that included Atterberg limits determination (ASTM D-4318), moisture content determinations (ASTM D-2216) and washed gradation analyses (ASTM D-422) in order to conduct supplementary engineering soil classifications in general accordance with ASTM D-2487. The soil stratum tested was classified by the Unified Soil Classification System (USCS) and results of the laboratory testing are summarized in the following table. Quantitative test results are provided in Appendix B.

PHYSICAL/TEXTURAL ANALYSES SUMMARY							
Boring	**Sample**	**Depth (fbgs)**	**% Passing No. 200 Sieve**	**Moisture Content (%)**	**Liquid Limit (%)**	**Plastic Index (%)**	**USCS Classification**
B-1	S-2	2.0 - 4.0	48.1	21.9	32	13	SC

4.0 SUBSURFACE CONDITIONS

The subsurface soil conditions encountered within the subsurface tests consisted of the following generalized strata in order of increasing depth. *Records of Subsurface Exploration* are provided in Appendix A.

Residual Soils: The subsurface tests encountered natural residual soils at the surface generally consisting of lean clay (USCS: CL), clayey sand (USCS: SC), and/or silt (USCS: ML). Within the tests, the residual soils extended to depths ranging from approximately two fbgs to 11 fbgs. SPT N-values within coarse-grained portions of this stratum ranged between four blows per foot (bpf) and 27 bpf, generally indicating loose to medium dense relative density and averaging approximately 13 bpf. Pocket penetrometer tests conducted within fine-grained portions of this stratum resulted in unconfined compressive strengths ranging between approximately one ton per square foot (tsf) and greater than 4.5 tsf, generally indicating stiff to hard consistency.

Weathered Rock/Bedrock: Beneath the residual soils, the tests encountered weathered rock materials. The top of weathered rock was encountered at depths ranging from approximately two fbgs to 11 fbgs. Tests were terminated within the weathered rock materials or weathered rock/bedrock interface at depths ranging from approximately five fbgs to 12.3 fbgs. SPT N-values within this stratum generally were in the refusal range (refusal defined as greater than 50 blows per six inches of split-spoon sampler advancement).

Groundwater: Static groundwater was not encountered within the subsurface tests conducted. However, apparent perched/trapped groundwater was encountered within a portion of the tests at depths ranging from approximately four fbgs to 7.5 fbgs, generally on top of or within weathered rock. Seasonal variations, temperature effects, and recent rainfall conditions may influence the levels of the groundwater. Groundwater elevations derived from sources other than seasonally observed groundwater monitor wells may not be representative of true groundwater level.

5.0 CONCLUSIONS AND PRELIMINARY RECOMMENDATIONS

The following discussion is based on the subsurface conditions encountered during Whitestone's limited subsurface investigation for the proposed redevelopment and is intended to provide general characteristics of the subsurface conditions for preliminary planning purposes and should not be utilized for final design of structural foundations, floor slabs, or pavements. These preliminary considerations and site development options should be confirmed or revised upon development of the final project design concept and completion of a site-specific subsurface investigation and engineering analyses.

Foundations: Whitestone preliminarily anticipates that the structures may be supported on conventional spread and continuous wall footings designed to bear either within the underlying natural materials and/or controlled structural fill materials that are properly evaluated, placed, compacted, and prepared in order to control their moisture content. Foundations bearing within the above materials may be preliminarily designed to impart a maximum allowable net bearing pressure in the range of 2,000 pounds per square foot (psf) to 4,000 psf, depending on final design column and wall loading, column spacing, settlement tolerances, and the final geotechnical investigation.

Floor Slabs and Pavements: Whitestone preliminarily anticipates that the natural site subgrade soils and/or controlled structural imported fill will be suitable for support of the proposed floor slabs and pavements. Subgrade stabilization and protection may also be necessary during wet conditions to obtain a stable surface. Subgrade stabilization may be achieved through the use of separation geotextiles, geogrids, and/or the addition of lime-cement to the subgrade.

On-Site Soil Reusability: Whitestone preliminarily anticipates that the majority of the natural site soils situated will be suitable for selective reuse as structural fill and/or backfill where moisture contents are controlled within two percent of the optimum and the soils are placed during favorable weather conditions. Based on the conditions disclosed by the subsurface exploration and the results of the laboratory test results, the majority of the on-site natural soils contain an appreciable amount of fines and are not anticipated to be immediately suitable for reuse as structural fill and/or backfill due to high moisture content characteristics. Disturbance of these soils should be minimized. The on-site moisture sensitive soils, while stable and often hard when in a dry natural state, will degrade when wetted or disturbed. Whitestone anticipates that the sandy and/or less plastic site soils, if encountered, may be suitable for reuse as structural fill and/or backfill provided moisture contents are controlled within two percent of the optimum only during favorable weather conditions. Due to moisture sensitivity, use of portions of the on-site soils should expect mixing with a granular material, extensive moisture

conditioning, and/or drying to facilitate their reuse, workability, and compaction in fill areas. These materials will become increasingly difficult to reuse and compact where wetted beyond the optimum moisture content. Materials that become exceedingly wet likely will require discing and aerating and extended time to dry during favorable weather.

Cobble- and boulder-sized weathered rock/bedrock materials or similarly sized materials greater than three inches in diameter will need to be separated from on-site soils to be placed as structural fill or backfill. Cobble-sized materials between three inches to 12 inches may be crushed or individually placed in structural fill or backfill layers deeper than two feet below proposed foundation and pavement subgraded levels. Care must be taken to individually seat any large particles and to compact soil around large particles with hand operated equipment to minimize risk of void formation. Boulder-sized greater than 12 inches in diameter need to be crushed prior to replacement as structural fill materials. Materials greater than three inches in size should be placed a minimum of three feet from utilities.

Excavation Difficulties: Weathered rock and bedrock were encountered across the subject property at variable depths that can present difficult excavation. Removal of weathered rock and potentially bedrock may be required within portions of the proposed site foundations and utilities, depending on final grading. Heavy excavating equipment with ripping tools will typically be effective in removing dense/hard weathered soils, transition materials, and cobble/boulder-sized rock fragments during site mass grading. The speed and ease of excavation will depend on the type of grading equipment, the skill of the equipment operators, and the geologic structure of the material itself, such as the direction of planes of weakness and spacing between discontinuities. Planned excavation in confined excavations, such as for footing and utility trenches, may require ripping tools, pneumatic hammers, pre-spitting and/or expansive grout.

Groundwater Control: Construction phase dewatering of perched/trapped groundwater through the use of gravity fed sump pumps should be anticipated during excavation activities for this site.

Supplemental Borings: A supplemental subsurface investigation designed to address site-specific conditions for proposed construction should be conducted following the finalization of the design concept, grading, and general site layout. The final subsurface investigation and geotechnical evaluation should be conducted to obtain subsurface information across the site at more closely spaced intervals within the proposed building, pavements, and utility alignments, etc.

6.0 PRELIMINARY SWM AREA EVALUATION

General: Soil profile pits SPP-1 through SPP-8 were conducted within accessible areas of the SWM facility locations provided by Bohler. The soil profile pits within the SWM areas were terminated at depths ranging between approximately five fbgs to eight fbgs.

Estimated Seasonal High Groundwater Levels: The methods used in determining the seasonal high groundwater level include evaluating the soil morphology within a test excavation and identifying irregular spots or blotches of different colors or minerals unlike that of the surrounding soil (mottles). A summary of the estimated seasonal high groundwater observations, where encountered, as well as infiltration test results are included in the following table.

INFILTRATION TEST SUMMARY					
Profile Pit #	**Surface Elevation (feet*)**	**ESHGW (fbgs/feet*)**	**USDA Classification @ Test**	**Infiltration Test**	
				Depth (fbgs/feet*)	**Rate (in/hour)**
SPP-1	111.0	5.0/106.0	Clay	3.0/108.0	< 0.2
SPP-2	117.0	Not Encountered	Clay	4.0/114.0	< 0.2
SPP-3	117.0	6.0/111.0	Clay	3.0/114.0	< 0.2
SPP-4	116.0	Not Encountered	Clay	2.0/114.0	< 0.2
SPP-5	116.0	7.5/108.5	Clay	4.0/112.0	< 0.2
SPP-6	113.0	Not Encountered	Clay	2.0/111.0	< 0.2
SPP-7	114.0	Not Encountered	Clay	3.0/111.0	< 0.2
SPP-8	117.0	Not Encountered	Clay	2.0/115.0	< 0.2

* datum not specified

Soil Infiltration Rates: Representative samples within the soil profile pits were subjected to tube permeameter analysis as detailed in *New Jersey Stormwater Best Practices Manual.* Laboratory tube permeameter testing resulted in a permeability rate of less than 0.2 inches per hour. Individual tube permeameter test results are provided in Appendix B.

Conclusions and Recommendations: The results of the subsurface investigation and infiltration testing indicate that the tested site soils consist predominantly of clay materials underlain by weathered rock/bedrock that are relatively impermeable and not conducive for SWM infiltration. Based on the findings of this investigation, Whitestone recommends using BMPs that are not reliant upon subsurface infiltration.

7.0 CLOSING

Whitestone appreciates the opportunity to be of service to Bohler Engineering NJ, LLC. Please note that Whitestone has the capability to conduct the additional geotechnical engineering services recommended herein. Please contact us at (908) 668-7777 with any questions or comments regarding this report.

Sincerely,

WHITESTONE ASSOCIATES, INC.

Mudar Khantamr, P.E.
Associate

Laurence W. Keller, P.E.
Vice President

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Enclosures
Copy: Ahmad Tamous, P.E., Bohler Engineering NJ, LLC

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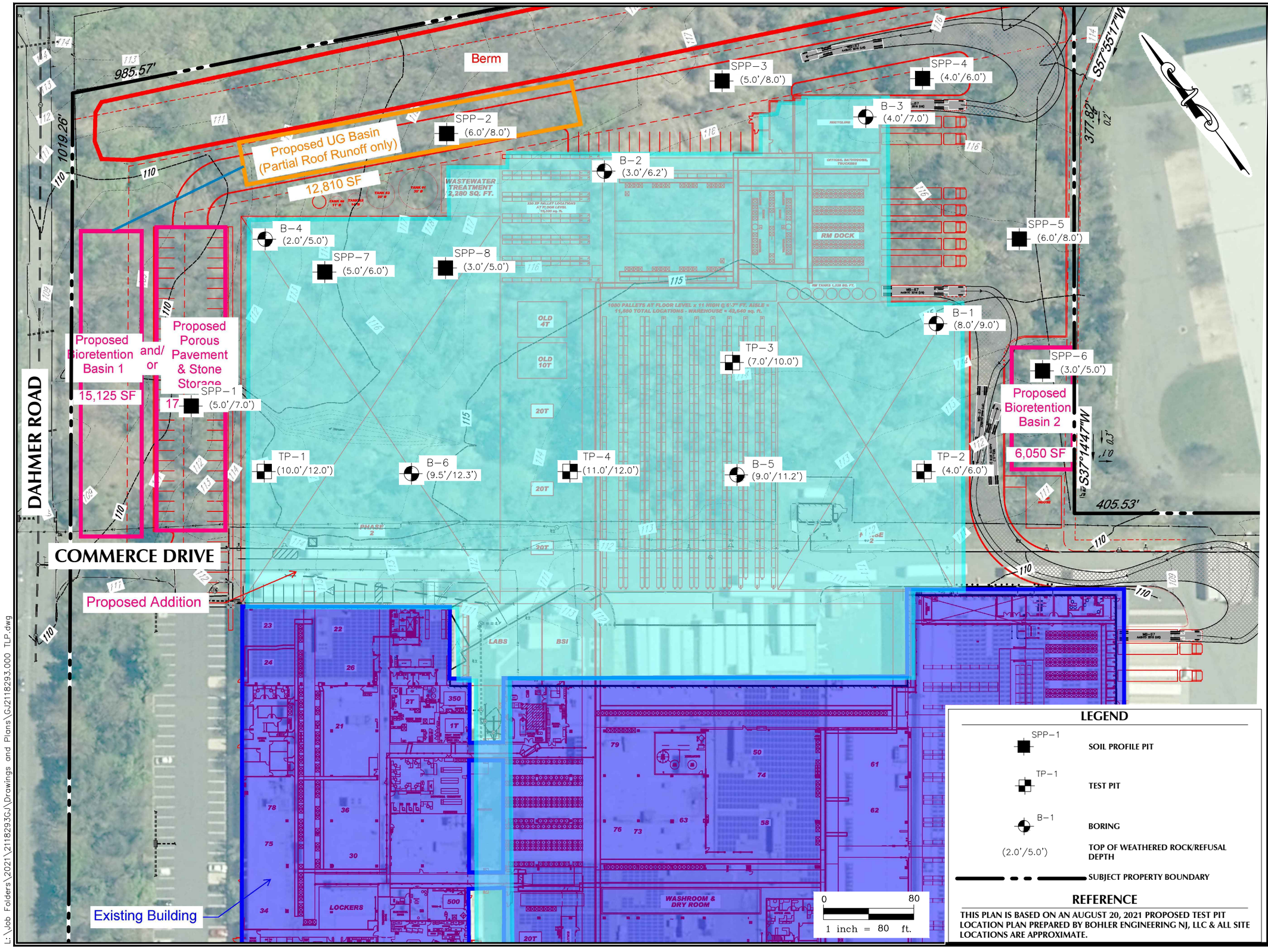
FIGURE 1
Test Location Plan



LEGEND

SPP-1	SOIL PROFILE PIT
TP-1	TEST PIT
B-1	BORING
(2.0'/5.0')	TOP OF WEATHERED ROCK/REFUSAL DEPTH
	SUBJECT PROPERTY BOUNDARY

REFERENCE

THIS PLAN IS BASED ON AN AUGUST 20, 2021 PROPOSED TEST PIT LOCATION PLAN PREPARED BY BOHLER ENGINEERING NJ, LLC & ALL SITE LOCATIONS ARE APPROXIMATE.

WHITESTONE
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908.668.7777 WHITESTONEASSOC.COM

DRAWING TITLE: **TEST LOCATION PLAN**

CLIENT: **BOHLER ENGINEERING NJ, LLC**

PROJECT: L'OREAL DISTRIBUTION FACILITY - PROPOSED EXPANSION
100 COMMERCE DRIVE
FRANKLIN, SOMERSET COUNTY, NJ

PROJECT #: GJ2118293.000	
DESIGNED BY: GR	PROJ. MGR.: MK
DATE: 9/27/21	FIGURE: 1
SCALE: 1" = 80'	

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APPENDIX A
Records of Subsurface Exploration

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RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-1

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 115.0 feet	**Date Started:**	9/17/2021		**Water Depth (feet bgs) | Elevation (feet)**		**Cave-In Depth (feet bgs) | Elevation (feet)**
Termination Depth:	9.0 feet bgs	**Date Completed:**	9/17/2021				
Proposed Location:	Building Pad	**Logged By:**	RL	**During:**	NE | ---		
Drill / Test Method:	HSA / SPT	**Contractor:**	FS	**At Completion:**	NE | ---	**At Completion:**	8.0 | 107.0
		Equipment:	Geoprobe	**24 Hours:**	--- | ---	**24 Hours:**	--- | ---

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
0 - 2	S-1		2 - 2 - 2 - 4	18	4		RESIDUAL		Reddish-Brown Clayey Sand, Moist, Loose (SC)	
2 - 4	S-2		2 - 2 - 3 - 6	18	5				As Above (SC)	
4 - 6	S-3		5 - 6 - 8 - 12	20	14	5.0			As Above, Medium Dense (SC)	
6 - 8	S-4		9 - 11 - 16 - 30	18	27				As Above (SC)	
						8.0				
8 - 8.8	S-5		19 - 50/4"	6	50/4"		WEATHERED ROCK		Reddish-Brown Weathered Shale, Dry, Very Dense (WR)	
						9.0				
									Boring Log B-1 Terminated at a Depth of 9.0 Feet Below Ground Surface Due to Auger Refusal	
						10.0				
						15.0				
						20.0				
						25.0				

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-2

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

				Water Depth | Elevation (feet bgs) | (feet)	Cave-In Depth | Elevation (feet bgs) | (feet)
Surface Elevation:	± 116.0 feet	**Date Started:**	9/17/2021		
Termination Depth:	6.2 feet bgs	**Date Completed:**	9/17/2021		
Proposed Location:	Building Pad	**Logged By:**	RL	**During:** NE | ---	
Drill / Test Method:	HSA / SPT	**Contractor:**	FS	**At Completion:** NE | ---	**At Completion:** 6.0 | 110.0
		Equipment:	Geoprobe	**24 Hours:** --- | ---	**24 Hours:** --- | ---

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
0 - 2	S-1		2 - 1 - 1 - 2	18	2		RESIDUAL		Reddish-Brown Lean Clay, Moist, Stiff (CL)	Qu = 1.0 tsf
2 - 3.4	S-2		8 - 20 - 50/5"	14	70/11"	3.0			As Above, Very Stiff (CL)	Qu = 2.0 tsf
							WEATHERED ROCK		Reddish-Brown Shale, Dry, Very Dense (WR)	
4 - 4.8	S-3		31 - 50/4"	9	50/4"				As Above (WR)	
						5.0				
6 - 6.2	S-4		50/2"	2	50/2"	6.2			As Above (WR)	Auger Refusal @ 6.0 fbgs
									Boring Log B-2 Terminated at a Depth of 6.2 Feet Below Ground Surface Due to Auger and Split-Spoon Refusal	
						10.0				
						15.0				
						20.0				
						25.0				

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-3

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

				Water Depth | Elevation (feet bgs) | (feet)	Cave-In Depth | Elevation (feet bgs) | (feet)
Surface Elevation:	± 116.0 feet	**Date Started:**	9/17/2021		
Termination Depth:	7.0 feet bgs	**Date Completed:**	9/17/2021		
Proposed Location:	Building Pad	**Logged By:**	RL	**During:** NE | ---	
Drill / Test Method:	HSA / SPT	**Contractor:**	FS	**At Completion:** NE | ---	**At Completion:** 6.0 | 110.0
		Equipment:	Geoprobe	**24 Hours:** --- | ---	**24 Hours:** --- | ---

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
0 - 2	S-1		1 - 2 - 2 - 6	18	4		RESIDUAL		Reddish-Brown Lean Clay, Moist, Stiff (CL)	Qu = 1.5 tsf
2 - 4	S-2		9 - 13 - 15 - 32	24	28				As Above, Very Stiff (CL)	Qu = 2.0 tsf
						4.0				
4 - 6	S-3		17 - 30 - 36 - 50	24	66	5.0	WEATHERED ROCK		Reddish-Brown Weathered Shale, Dry, Very Dense (WR)	
6 - 6.8	S-4		40 - 50/4"	10	50/4"				As Above, (WR)	
						7.0			Boring Log B-3 Terminated at a Depth of 7.0 Feet Below Ground Surface Due to Auger Refusal	
						10.0				
						15.0				
						20.0				
						25.0				

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-4

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

				Water Depth | Elevation (feet bgs) | (feet)	Cave-In Depth | Elevation (feet bgs) | (feet)
Surface Elevation:	± 112.0 feet	**Date Started:**	9/17/2021		
Termination Depth:	5.0 feet bgs	**Date Completed:**	9/17/2021		
Proposed Location:	Building Pad	**Logged By:**	RL	**During:** NE | ---	
Drill / Test Method:	HSA / SPT	**Contractor:**	FS	**At Completion:** NE | ---	**At Completion:** 5.0 | 107.0
		Equipment:	Geoprobe	**24 Hours:** --- | ---	**24 Hours:** --- | ---

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
0 - 2	S-1		1 - 2 - 8 - 30	18	10		RESIDUAL		Reddish-Brown Lean Clay, Moist, Stiff (CL)	Qu = 1.25 tsf
						2.0				
2 - 2.8	S-2		30 - 50/3"	9	50/3"		WEATHERED ROCK		Reddish-Brown Weathered Shale, Dry, Very Dense (WR)	
						2.8				
4 - 4.2	S-3		50/2"	2	50/2"				As Above (WR)	
						5.0				
									Boring Log B-4 Terminated at a Depth of 5.0 Feet Below Ground Surface Due to Auger Refusal	
						10.0				
						15.0				
						20.0				
						25.0				

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-5

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

				Water Depth | Elevation (feet bgs) | (feet)	Cave-In Depth | Elevation (feet bgs) | (feet)
Surface Elevation:	± 113.0 feet	**Date Started:**	9/17/2021		
Termination Depth:	11.2 feet bgs	**Date Completed:**	9/17/2021		
Proposed Location:	Building Pad	**Logged By:**	RL	**During:** NE | ---	
Drill / Test Method:	HSA / SPT	**Contractor:**	FS	**At Completion:** NE | ---	**At Completion:** 10.5 | 102.5
		Equipment:	Geoprobe	**24 Hours:** --- | ---	**24 Hours:** --- | ---

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
0 - 2	S-1		2 - 2 - 3 - 5	20	5		RESIDUAL		Reddish-Brown Lean Clay, Moist, Stiff (CL)	Qu = 1.75 tsf
2 - 4	S-2		6 - 6 - 10 - 19	24	16	4.0			As Above (CL)	Qu = 1.75 tsf
4 - 6	S-3		5 - 21 - 21 - 20	20	42	5.0			Reddish-Brown Silt, Moist, Very Stiff (ML)	Fragments of Highly Weathered Shale Starting @ 4.0 fbgs Qu = 3.0 tsf
6 - 8	S-4		19 - 25 - 32 - 39	18	57				As Above, Dry, Hard (ML)	Qu = >4.5 tsf Auger Grinding @ 8.0 fbgs
8 - 9.3	S-5		20 - 20 - 50/3"	12	70/9"	9.0			As Above (ML)	Qu = >4.5 tsf
						10.0	WEATHERED ROCK		Reddish-Brown Weathered Shale, Dry, Very Dense (WR)	
11 - 11.2	S-6		50/2"	2	50/2"	11.2			As Above (WR)	Auger Refusal @ 11.0 fbgs
									Boring Log B-5 Terminated at a Depth of 11.2 Feet Below Ground Surface Due to Auger and Split-Spoon Refusal	
						15.0				
						20.0				
						25.0				

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-6

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

				Water Depth | Elevation (feet bgs) | (feet)	Cave-In Depth | Elevation (feet bgs) | (feet)
Surface Elevation:	± 116.0 feet	**Date Started:**	9/17/2021		
Termination Depth:	12.3 feet bgs	**Date Completed:**	9/17/2021		
Proposed Location:	Building Pad	**Logged By:**	RL	**During:** NE | ---	
Drill / Test Method:	HSA / SPT	**Contractor:**	FS	**At Completion:** NE | ---	**At Completion:** 8.0 | 108.0
		Equipment:	Geoprobe	**24 Hours:** --- | ---	**24 Hours:** --- | ---

Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	DEPTH (feet)	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
						0.0			
0 - 2	S-1	X	2 - 1 - 3 - 3	12	4		RESIDUAL	Reddish-Brown Lean Clay, Moist, Stiff (CL)	Qu = 1.5 tsf
2 - 4	S-2	X	3 - 3 - 5 - 7	18	8			As Above (CL)	Qu = 1.5 tsf
4 - 6	S-3	X	4 - 9 - 10 - 13	18	19	5.0		As Above, Hard (CL)	Qu = >4.5 tsf
6 - 8	S-4	X	4 - 5 - 8 - 10	21	13			As Above, Stiff (CL)	Qu = 1.75 tsf
8 - 10	S-5	X	7 - 12 - 17 - 50	24	29	9.5		As Above, Hard (CL)	Qu = >4.5 tsf
						10.0	WEATHERED ROCK	Reddish-Brown Weathered Shale, Dry, Very Dense (WR)	
12 - 12.3	S-6	X	41 - 50/1"	6	50/1"	12.3		As Above (WR)	Auger Refusal @ 12.0 fbgs
								Boring Log B-6 Terminated at a Depth of 12.3 Feet Below Ground Surface Due to Auger and Split-Spoon Refusal	
						15.0			
						20.0			
						25.0			

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-1

Page 1 of 1

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 115.0 feet	**Date Started:**	9/14/2021		**Water Depth (feet bgs) | Elevation (feet)**	**Cave-In Depth (feet bgs) | Elevation (feet)**
Termination Depth:	12.0 feet bgs	**Date Completed:**	9/14/2021			
Proposed Location:	Building Pad	**Logged By:**	RL	**During:**	NE | ---	
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**At Completion:**	NE | ---	**At Completion:** NE | ---
Test Method:	Visual Observation	**Rig Type:**	Deere	**24 Hours:**	--- | ---	

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
0 - 10	S-1	BAG	5.0	RESIDUAL		Reddish-Brown Lean Clay, Moist (CL)	
			10.0				
10 - 12	S-2	BAG	12.0	WEATHERED ROCK		Reddish-Brown Weathered Shale, Dry (WR)	
			15.0			Test Pit Log TP-1 Terminated at a Depth of 12.0 Feet Below Ground Surface Due to Refusal	

NOTES: bgs = below ground surface, DNC = Did Not Cave, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-2

Page 1 of 1

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 112.0 feet	**Date Started:**	9/14/2021		**Water Depth (feet bgs)**	**Elevation (feet)**	**Cave-In Depth (feet bgs)** / **Elevation (feet)**
Termination Depth:	6.0 feet bgs	**Date Completed:**	9/14/2021				
Proposed Location:	Building Pad	**Logged By:**	RL	**During:**	4.0(P)	108.0	
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**At Completion:**	4.0(P)	108.0	**At Completion:** NE / ---
Test Method:	Visual Observation	**Rig Type:**	Deere	**24 Hours:**	---	---	

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
0 - 4	S-1	BAG		RESIDUAL		Reddish-Brown Lean Clay, Moist (CL)	
			4.0				
4 - 6	S-2	BAG		WEATHERED ROCK		Reddish-Brown Weathered Shale, Wet (WR)	Water Seeping In @ 4.0 fbgs
			5.0				
			6.0				
						Test Pit Log TP-2 Terminated at a Depth of 6.0 Feet Below Ground Surface Due to Refusal	
			10.0				
			15.0				

NOTES: bgs = below ground surface, DNC = Did Not Cave, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-3

Page 1 of 1

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 114.0 feet	**Date Started:**	9/14/2021	**Water Depth (feet bgs) | Elevation (feet)**		**Cave-In Depth (feet bgs) | Elevation (feet)**	
Termination Depth:	10.0 feet bgs	**Date Completed:**	9/14/2021				
Proposed Location:	Building Pad	**Logged By:**	RL	**During:**	NE | ---		
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**At Completion:**	NE | ---	**At Completion:**	NE | ---
Test Method:	Visual Observation	**Rig Type:**	Deere	**24 Hours:**	--- | ---		

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
0 - 7	S-1	BAG	5.0	RESIDUAL		Reddish-Brown Lean Clay, Moist (CL)	
			7.0				
7 - 10	S-2	BAG	10.0	WEATHERED ROCK		Reddish-Brown Weathered Shale, Dry (WR)	
			15.0			Test Pit Log TP-3 Terminated at a Depth of 10.0 Feet Below Ground Surface Due to Refusal	

NOTES: bgs = below ground surface, DNC = Did Not Cave, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-4

Page 1 of 1

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 113.0 feet	**Date Started:**	9/14/2021	**Water Depth (feet bgs) | Elevation (feet)**		**Cave-In Depth (feet bgs) | Elevation (feet)**	
Termination Depth:	12.0 feet bgs	**Date Completed:**	9/14/2021				
Proposed Location:	Building Pad	**Logged By:**	RL	**During:**	NE | ---		
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**At Completion:**	NE | ---	**At Completion:**	NE | ---
Test Method:	Visual Observation	**Rig Type:**	Deere	**24 Hours:**	--- | ---		

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
0 - 11	S-1	BAG	5.0	RESIDUAL		Reddish-Brown Lean Clay, Moist (CL)	
			10.0				
			11.0				
11 - 12	S-2	BAG	12.0	WEATHERED ROCK		Reddish-Brown Weathered Shale, Dry (WR)	
						Test Pit Log TP-4 Terminated at a Depth of 12.0 Feet Below Ground Surface	
			15.0				

NOTES: bgs = below ground surface, DNC = Did Not Cave, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-1

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 111.0 feet	**Date Started:**	9/17/2021		**Water Depth (feet bgs)**	**Elevation (feet)**	**Estimated Seasonal High Groundwater Depth (feet bgs)** / **Elevation (feet)**
Termination Depth:	7.0 feet bgs	**Date Completed:**	9/17/2021	**During:**	5.0(P)	106.0	
Proposed Location:	Porous Pavement	**Logged By:**	RL	**At Completion:**	5.0(P)	106.0	**At Completion:** 5.0 / 106.0
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**24 Hours:**	---	---	
Test Method:	Visual Observation	**Rig Type:**	Deere				

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet				
			0.0				
0 - 5	S-1	BAG	1.0 2.0 3.0 4.0 5.0	0 - 5	RESIDUAL	Reddish-Brown (10R 4/8) CLAY; No Coarse Fragments; Fine, Strong Blocky Structure; Moist; Friable; No Roots; No Mottling	No Topsoil
5 - 7	S-2	BAG	6.0 7.0	5 -- 7	WEATHERED ROCK	Reddish-Brown (10R 4/8) Weathered Shale	Water Seeping Into Test Pit @ 5.0 fbgs
			8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0			Soil Profile Pit SPP-1 Terminated at a Depth of 7.0 Feet Below Ground Surface Due to Refusal	

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-2

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 117.0 feet	**Date Started:**	9/17/2021		**Water Depth (feet bgs) | Elevation (feet)**		**Estimated Seasonal High Groundwater Depth (feet bgs) | Elevation (feet)**
Termination Depth:	8.0 feet bgs	**Date Completed:**	9/17/2021				
Proposed Location:	Underground Basin	**Logged By:**	RL	**During:**	NE | ---		
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**At Completion:**	NE | ---		**At Completion:** NE | ---
Test Method:	Visual Observation	**Rig Type:**	Deere	**24 Hours:**	--- | ---		

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet				
			0.0				
0 - 6	S-1	BAG	1.0 2.0 3.0 4.0 5.0 6.0	0 - 6	RESIDUAL	Reddish-Brown (10R 4/8) CLAY; No Coarse Fragments; Fine, Strong Blocky Structure; Moist; Friable; No Roots; No Mottling	No Topsoil
6 - 8	S-2	BAG	7.0 8.0	6 - 8	WEATHERED ROCK	Reddish-Brown (10R 4/8) Weathered Shale	
			9.0 10.0 11.0 12.0 13.0 14.0 15.0			Soil Profile Pit SPP-2 Terminated at a Depth of 8.0 Feet Below Ground Surface Due to Auger Refusal	

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-3

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 117.0 feet	**Date Started:**	9/17/2021		**Water Depth (feet bgs)**	**Elevation (feet)**	**Estimated Seasonal High Groundwater Depth (feet bgs)** / **Elevation (feet)**
Termination Depth:	8.0 feet bgs	**Date Completed:**	9/17/2021				
Proposed Location:	SWM	**Logged By:**	RL	**During:**	6.0(P)	111.0	
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**At Completion:**	6.0(P)	111.0	**At Completion:** 6.0 / 111.0
Test Method:	Visual Observation	**Rig Type:**	Deere	**24 Hours:**	---	---	

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet				
			0.0				
0 - 5	S-1	BAG	1.0 2.0 3.0 4.0 5.0	0 - 5	RESIDUAL	Reddish-Brown (10R 4/8) CLAY; No Coarse Fragments; Fine, Strong Blocky Structure; Moist; Friable; No Roots; No Mottling	No Topsoil
5 - 8	S-2	BAG	6.0 ▽▼ 7.0 8.0	5 - 8	WEATHERED ROCK	Reddish-Brown (10R 4/8) Weathered Shale	Water Seeping Into Test Pit @ 6.0 fbgs
			9.0 10.0 11.0 12.0 13.0 14.0 15.0			Soil Profile Pit SPP-3 Terminated at a Depth of 8.0 Feet Below Ground Surface Due to Refusal	

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-4

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 116.0 feet	**Date Started:**	9/17/2021		**Water Depth (feet bgs) | Elevation (feet)**		**Estimated Seasonal High Groundwater Depth (feet bgs) | Elevation (feet)**
Termination Depth:	6.0 feet bgs	**Date Completed:**	9/17/2021				
Proposed Location:	SWM	**Logged By:**	RL	**During:**	NE | ---		
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**At Completion:**	NE | ---		**At Completion:** NE | ---
Test Method:	Visual Observation	**Rig Type:**	Deere	**24 Hours:**	--- | ---		

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet				
			0.0				
0 - 4	S-1	BAG	1.0 / 2.0 / 3.0 / 4.0	0 - 4	RESIDUAL	Reddish-Brown (10R 4/8) CLAY; No Coarse Fragments; Fine, Strong Blocky Structure; Moist; Friable; No Roots; No Mottling	No Topsoil
4 - 6	S-2	BAG	5.0 / 6.0	4 - 6	WEATHERED ROCK	Reddish-Brown (10R 4/8) Weathered Shale	
			7.0 / 8.0 / 9.0 / 10.0 / 11.0 / 12.0 / 13.0 / 14.0 / 15.0			Soil Profile Pit SPP-4 Terminated at a Depth of 6.0 Feet Below Ground Surface Due to Refusal	

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-5

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 116.0 feet	**Date Started:**	9/17/2021		**Water Depth (feet bgs) | Elevation (feet)**	**Estimated Seasonal High Groundwater Depth (feet bgs) | Elevation (feet)**
Termination Depth:	8.0 feet bgs	**Date Completed:**	9/17/2021			
Proposed Location:	SWM	**Logged By:**	RL	**During:**	7.5(P) | 108.5	
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**At Completion:**	7.5(P) | 108.5	**At Completion:** 7.5 | 108.5
Test Method:	Visual Observation	**Rig Type:**	Deere	**24 Hours:**	--- | ---	

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet				
			0.0				
0 - 6	S-1	BAG	1.0 / 2.0 / 3.0 / 4.0 / 5.0 / 6.0	0 - 6	RESIDUAL	Reddish-Brown (10R 4/8) CLAY; No Coarse Fragments; Fine, Strong Blocky Structure; Moist; Friable; No Roots; No Mottling	No Topsoil
6 - 8	S-2	BAG	7.0 / 8.0	6 - 8	WEATHERED ROCK	Reddish-Brown (10R 4/8) Weathered Shale	Water Seeping Into Test Pit @ 7.5 fbgs
			9.0 / 10.0 / 11.0 / 12.0 / 13.0 / 14.0 / 15.0			Soil Profile Pit SPP-5 Terminated at a Depth of 8.0 Feet Below Ground Surface Due to Refusal	

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-6

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 113.0 feet	**Date Started:**	9/17/2021		**Water Depth (feet bgs)**	**Elevation (feet)**	**Estimated Seasonal High Groundwater Depth (feet bgs)** / **Elevation (feet)**
Termination Depth:	5.0 feet bgs	**Date Completed:**	9/17/2021				
Proposed Location:	Bioretention Basin	**Logged By:**	RL	**During:**	NE	---	
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**At Completion:**	NE	---	**At Completion:** NE / ---
Test Method:	Visual Observation	**Rig Type:**	Deere	**24 Hours:**	---	---	

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet				
			0.0				
0 - 3	S-1	BAG	1.0 / 2.0 / 3.0	0 - 3	RESIDUAL	Reddish-Brown (10R 4/8) CLAY; No Coarse Fragments; Fine, Strong Blocky Structure; Moist; Friable; No Roots; No Mottling	No Topsoil
3 - 5	S-2	BAG	4.0 / 5.0	3 - 5	WEATHERED ROCK	Reddish-Brown (10R 4/8) Weathered Shale	
			6.0 / 7.0 / 8.0 / 9.0 / 10.0 / 11.0 / 12.0 / 13.0 / 14.0 / 15.0			Soil Profile Pit SPP-6 Terminated at a Depth of 5.0 Feet Below Ground Surface Due to Refusal	

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-7

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 114.0 feet	**Date Started:**	9/17/2021		**Water Depth (feet bgs) | Elevation (feet)**		**Estimated Seasonal High Groundwater Depth (feet bgs) | Elevation (feet)**
Termination Depth:	6.0 feet bgs	**Date Completed:**	9/17/2021				
Proposed Location:	SWM	**Logged By:**	RL	**During:**	NE | ---		
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**At Completion:**	NE | ---		**At Completion:** NE | ---
Test Method:	Visual Observation	**Rig Type:**	Deere	**24 Hours:**	--- | ---		

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet				
			0.0				
0 - 5	S-1	BAG	1.0 2.0 3.0 4.0 5.0	0 - 5	RESIDUAL	Reddish-Brown (10R 4/8) CLAY; No Coarse Fragments; Fine, Strong Blocky Structure; Moist; Friable; No Roots; No Mottling	No Topsoil
5 - 6	S-2	BAG	6.0	5 - 6	WEATHERED ROCK	Reddish-Brown (10R 4/8) Weathered Shale	
			7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0			Soil Profile Pit SPP-7 Terminated at a Depth of 6.0 Feet Below Ground Surface Due to Refusal	

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-8

Project:	L'Oreal Distribution Facility - Proposed Expansion	**WAI Project No.:**	GJ2118293.000
Location:	100 Commerce Drive; Franklin, Somerset County, NJ	**Client:**	Bohler Engineering NJ, LLC

Surface Elevation:	± 117.0 feet	**Date Started:**	9/17/2021		**Water Depth (feet bgs) | Elevation (feet)**		**Estimated Seasonal High Groundwater Depth (feet bgs) | Elevation (feet)**
Termination Depth:	5.0 feet bgs	**Date Completed:**	9/17/2021				
Proposed Location:	SWM	**Logged By:**	RL	**During:**	NE | ---		
Excavating Method:	Test Pit Excavation	**Contractor:**	MC	**At Completion:**	NE | ---		**At Completion:** NE | ---
Test Method:	Visual Observation	**Rig Type:**	Deere	**24 Hours:**	--- | ---		

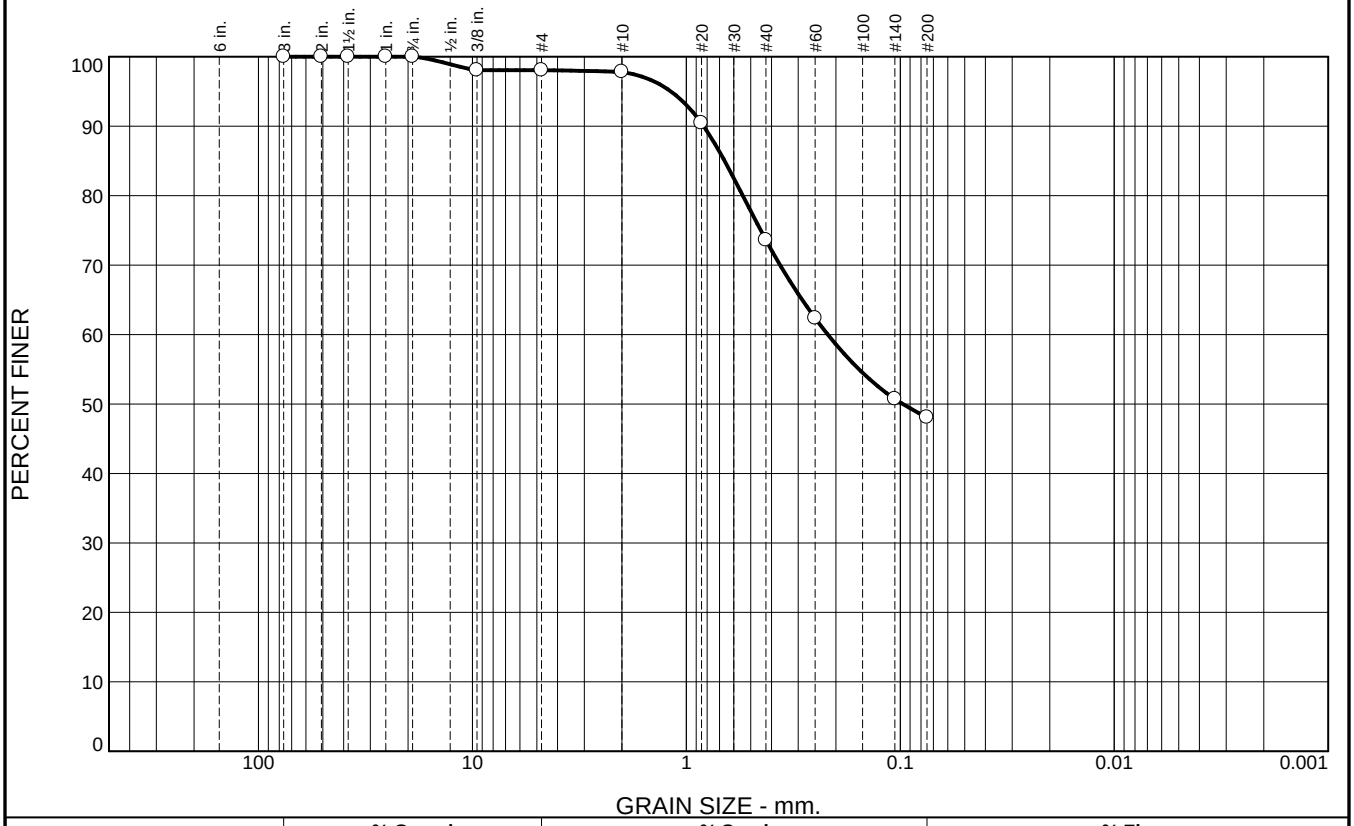
SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet				
			0.0				
0 - 3	S-1	BAG	1.0 / 2.0 / 3.0	0 - 3	RESIDUAL	Reddish-Brown (10R 4/8) CLAY; No Coarse Fragments; Fine, Strong Blocky Structure; Moist; Friable; No Roots; No Mottling	No Topsoil
3 - 5	S-2	BAG	4.0 / 5.0	3 - 5	WEATHERED ROCK	Reddish-Brown (10R 4/8) Weathered Shale	
			6.0 / 7.0 / 8.0 / 9.0 / 10.0 / 11.0 / 12.0 / 13.0 / 14.0 / 15.0			Soil Profile Pit SPP-8 Terminated at a Depth of 5.0 Feet Below Ground Surface	

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

APPENDIX B
Laboratory Test Results

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.0	0.2	24.2	25.5	48.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
.75	100.0		
.375	98.0		
#4	98.0		
#10	97.8		
#20	90.4		
#40	73.6		
#60	62.4		
#140	50.7		
#200	48.1		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 19 LL= 32 PI= 13

Coefficients

D_{90}= 0.8306 D_{85}= 0.6627 D_{60}= 0.2184
D_{50}= 0.0974 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(3)

Remarks

W_n = 21.9 %

Source of Sample: B-1 **Depth:** 2.0' - 4.0'
Sample Number: S-2

Date: 09/24/2021

WHITESTONE ASSOCIATES, INC.
Warren, New Jersey

Client: Bohler Engineering NJ, LLC
Project: L'Oreal Distribution Facility - Proposed Expansion
100 Commerce Drive, Franklin, Somerset County, New Jersey
Project No: GJ2118293.000 **Figure**

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-1** **Sample No.:** **T-1** **Depth:** 3.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____Large Gravel _____ Large Roots

_____ Dry Soil _____Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-1** **Sample No.:** **T-1** **Depth:** 3.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.50

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 72.36

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-2** **Sample No.:** **T-1** **Depth:** 4.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-2** **Sample No.:** **T-1** **Depth:** 4.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-3** **Sample No.:** **T-1** **Depth:** 3.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-3** **Sample No.:** **T-1** **Depth:** 3.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-4** **Sample No.:** **T-1** **Depth:** 2.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-4** **Sample No.:** **T-1** **Depth:** 2.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-5** **Sample No.:** **T-1** **Depth:** 4.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.50

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 72.36

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-5** **Sample No.:** **T-1** **Depth:** 4.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-6** **Sample No.:** **T-1** **Depth:** 2.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-6** **Sample No.:** **T-1** **Depth:** 2.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.50

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 72.36

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-7** **Sample No.:** **T-1** **Depth:** 3.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.50

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 72.36

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-7** **Sample No.:** **T-1** **Depth:** 3.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-8** **Sample No.:** **T-1** **Depth:** 2.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ2118293.000
Project: Proposed Expansion
Client: BENJ
Lab Tech: MK

Sample ID: **Profile Pit No.:** **SPP-8** **Sample No.:** **T-1** **Depth:** 2.0'

COUNTY/MUNICIPALITY Franklin BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected _____

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		60.00
		60.00
		60.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 60.00

    K (in/hr) = 0.00 **Classification:** **K0**

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

_____ None

_____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

_____ Dry Soil _____ Smearing _____ Compaction

_____ Other - Specify _____

WHITESTONE

APPENDIX C
Supplemental Information (USCS, Terms & Symbols)

WHITESTONE
An Employee-Owned Company

30 INDEPENDENCE BOULEVARD
SUITE 250
WARREN, NJ 07059
908.668.7777
whitestoneassoc.com

UNIFIED SOIL CLASSIFICATION SYSTEM

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMITS LESS THAN 50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMITS GREATER THAN 50	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS FOR SAMPLES WITH 5% TO 12% FINES

GRADATION*

% FINER BY WEIGHT

TRACE..... 1% TO 10%
LITTLE..... 10% TO 20%
SOME..... 20% TO 35%
AND..... 35% TO 50%

COMPACTNESS*
Sand and/or Gravel

RELATIVE DENSITY

LOOSE. ..... 0% TO 40%
MEDIUM DENSE.... 40% TO 70%
DENSE..... 70% TO 90%
VERY DENSE..... 90% TO 100%

CONSISTENCY*
Clay and/or Silt

RANGE OF SHEARING STRENGTH IN POUNDS PER SQUARE FOOT

VERY SOFT..... LESS THAN 250
SOFT..... ..... 250 TO 500
MEDIUM..... 500 TO 1000
STIFF..... 1000 TO 2000
VERY STIFF..... 2000 TO 4000
HARD..... GREATER THAN 4000

** VALUES ARE FROM LABORATORY OR FIELD TEST DATA, WHERE APPLICABLE. WHEN NO TESTING WAS PERFORMED, VALUES ARE ESTIMATED.*

L:\Geotechnical Forms and References\Reports\USCSTRMSSYM NJ.docx

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GEOTECHNICAL TERMS AND SYMBOLS

SAMPLE IDENTIFICATION

The Unified Soil Classification System is used to identify the soil unless otherwise noted.

SOIL PROPERTY SYMBOLS

N: Standard Penetration Value: Blows per ft. of a 140 lb. hammer falling 30" on a 2" O.D. split-spoon.
Qu: Unconfined compressive strength, TSF.
Qp: Penetrometer value, unconfined compressive strength, TSF.
Mc: Moisture content, %.
LL: Liquid limit, %.
PI: Plasticity index, %.
δd: Natural dry density, PCF.
▼: Apparent groundwater level at time noted after completion of boring.

DRILLING AND SAMPLING SYMBOLS

NE: Not Encountered (Groundwater was not encountered).
SS: Split-Spoon - 1 ⅜" I.D., 2" O.D., except where noted.
ST: Shelby Tube - 3" O.D., except where noted.
AU: Auger Sample.
OB: Diamond Bit.
CB: Carbide Bit
WS: Washed Sample.

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

Term (Non-Cohesive Soils)	Standard Penetration Resistance
Very Loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	Over 50

Term (Cohesive Soils)	Qu (TSF)
Very Soft	0 - 0.25
Soft	0.25 - 0.50
Firm (Medium)	0.50 - 1.00
Stiff	1.00 - 2.00
Very Stiff	2.00 - 4.00
Hard	4.00+

PARTICLE SIZE

Boulders	8 in.+	Coarse Sand	5mm-0.6mm	Silt	0.074mm-0.005mm
Cobbles	8 in.-3 in.	Medium Sand	0.6mm-0.2mm	Clay	-0.005mm
Gravel	3 in.-5mm	Fine Sand	0.2mm-0.074mm		

Other Office Locations:

CHALFONT, PA 215.712.2700 | SOUTHBOROUGH, MA 508.485.0755 | ROCKY HILL, CT 860.726.7889 | WALL, NJ 732.592.2101 | PHILADELPHIA, PA 215.848.2323

Environmental & Geotechnical Engineers & Consultants