d

Preliminary
Geotchnical Report

Preliminary Geotechnical Report

MLS Next Pro Multi-Use Soccer Stadium
Carroll Park, Baltimore, Maryland
DMY Project No. 03.06802.01

Prepared for

Moody Nolan
December 2, 2024

TABLE OF CONTENTS

1.0 PROJECT OVERVIEW....3
2.0 FIELD EXPLORATION....3
2.1. GEOTECHNICAL EXPLORATION....3
3.0 SITE GEOLOGY AND SUBSURFACE CONDITIONS....4
3.1. SITE GEOLOGY....4
3.2. SUBSURFACE CONDITIONS....4
4.0 LABORATORY TESTING....6
5.0 GEOTECHNICAL RECOMMENDATIONS....7
5.1. FOUNDATION CONSIDERATIONS....7
5.2. SEISMIC DESIGN....9
5.3. UNSUITABLE SOILS....9
5.4. ENGINEERED FILLS....10
5.5. ADDITIONAL SUBSURFACE INVESTIGATION....10
6.0 LIMITATIONS....10

APPENDIX A FIGURES
APPENDIX B FIELD OPERATIONS
APPENDIX C LABORATORY TESTING

1.0 PROJECT OVERVIEW

The proposed project involves the construction of the MLS Next Pro Multi-Use Soccer Stadium. We understand that two sites (Carroll Park and Baltimore Peninsula) have been selected for consideration. This report has been prepared for the preliminary design of the Carroll Park site located at the Carroll Park Golf Course in Baltimore, Maryland. This site is bounded by I-95 to the south, railroad tracks and commercial buildings to the north, a warehouses to the east, and railroad tracks and Gwynns Falls stream to the west. A Site Location Map showing the approximate location of the project is included in Appendix A. The preliminary geotechnical recommendations for the Baltimore Peninsula site will be addressed in a separate report.

The description of the proposed project given above is based on the information provided to us by Moody Nolan, Inc (referred to as the Client, herein), and information gathered during our site reconnaissance. If any of the assumptions or project information is incorrect, DMY should be informed so that we may revise our geotechnical recommendations, if necessary.

2.0 FIELD EXPLORATION

2.1. GEOTECHNICAL EXPLORATION

The field exploration consisted of drilling five (5) Standard Penetration Test (SPT) borings (B-01 through B-05) to explore the subsurface soil conditions. The borings were drilled to depths ranging from 20.0 to 58.5 feet below existing site grades. Rock cores were obtained from within Borings B-01, B-02A, B-03, and B-04 between the ranges of 5 to 25 feet. In addition to SPT borings, one (1) auger probe boring (B-02A) was performed to obtain rock cores offset to Boring B-02. Bulk samples for corrosion series testing were collected from Borings B-02, B-04, and B-05. One (1) undisturbed Shelby tube sample was also collected from Boring B-03 for Consolidation testing.

The boring locations were selected by the client and were located in the field by DMY based on the coordinates using a handheld GPS device and existing site features. Boring elevations were estimated from Google Earth. The approximate locations of the borings are shown on the Boring Location Plan included in Appendix A. The SPT borings were performed in accordance with the following applicable ASTM Standards:

- *ASTM D1586 Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils*
- *ASTM D2113 Standard Practice for Rock Core Drilling and Sampling of Rock for Site Investigation*

The SPT borings were drilled with a rubber tire mounted CME-55 drill rig using the hollow stem auger method. All rock coring was performed with wireline equipment and N-size bits. The percentages of rock core recovery (REC) and rock quality designation (RQD) were calculated. RQD was evaluated in accordance with ASTM D6032 (Standard Test Method for Rock Quality Designation). Groundwater levels were measured at each boring location at the time of drilling and upon completion of drilling. Long-term

groundwater readings were taken at Borings B-01, B-02, and B-03. Upon completion of the field exploration, all boreholes were backfilled with compacted auger cuttings. The field exploration procedures are included in Appendix B.

Following field operations, the soil and rock samples were transported to our laboratory for further analysis and testing. The samples will be stored in our laboratory for a period of two weeks from the submittal date of this report. After this period, the samples will be discarded unless we are instructed otherwise.

3.0 SITE GEOLOGY AND SUBSURFACE CONDITIONS

3.1. SITE GEOLOGY

Based on the Geologic Map of Maryland (1968) published by the USGS, the site lies within the Fall Zone between Piedmont Physiographic Province and the Coastal Plain Physiographic Province. More specifically, the geology at this site consists of Existing fill underlain by Lowland Deposits from Quaternary geologic age and then by Baltimore Gneiss from Precambrian geologic age. The Baltimore Gneiss is primarily composed of biotite-quartz-feldspar gneiss and biotite-hornblende gneiss, with amphibolite occurring frequently as a secondary component. It exhibits a range of textures, including granitic gneiss, veined gneiss, augen gneiss, banded gneiss, and migmatite. This rock type generally weathers deeply and forms a thick residual soil cover of well-drained micaceous silty and sandy soils. In this area, residual soils have developed by the in-place chemical and physical weathering of the parent bedrock. A typical soil profile in the Piedmont consists of a layer of silt, sand, or gravel and where weathering is more advanced, transitions to a more granular soil, finally grading into weathered rock then un-weathered rock material with depth. The transition zone between soil and rock is termed “Highly Weathered Rock” on our boring logs. For the purposes of this report, Standard Penetration Test (SPT) N-values greater than 50 blows over 6 inches of penetration within the Piedmont is defined as highly weathered rock.

The Lowland Deposits overly the Piedmont primarily consist of medium- to coarse-grained sand and gravel, often accompanied by cobbles and boulders near the base. These sediments frequently contain reworked Eocene glauconite. Additionally, the deposits include varicolored silts and clays, as well as brown to dark gray lignitic silty clay. In certain locations, estuarine to marine fauna are present within the deposits. Lowland deposits were not encountered within the borings drilled but may be encountered at other parts of the site.

Additionally, existing man-placed fill associated with previous site developments was encountered at the site. The existing fill may contain debris and organic material.

3.2. SUBSURFACE CONDITIONS

The subsurface conditions encountered at the locations explored are shown in the boring logs in Appendix B. The records represent our interpretation of the subsurface conditions in accordance with generally accepted geotechnical engineering practice. The lines designating the interfaces between

various strata on the boring logs are approximate, as the actual transitions between soil strata are often gradual. In the absence of foreign substances, it is difficult to distinguish between natural soils and clean soil fills. Although individual test borings are representative of the subsurface conditions at the precise boring locations on the dates shown, they are not necessarily indicative of the subsurface conditions at other locations or at other times.

Surficial Materials

Approximately 3 to 6 inches of topsoil were encountered in all borings. Topsoil encountered is typically a dark-colored soil material containing roots, fibrous matter, and/or other organic components, and is generally unsuitable for engineering purposes. DMY has not performed any laboratory testing; therefore, the term topsoil is not intended to indicate suitability for landscaping and/or other purposes.

Strata I (F1, F2, and F3), Existing Fill Materials

Existing fill material classified as SILT (ML), SANDY SILT (ML), SILT WITH SAND (ML), LEAN CLAY (CL), SANDY LEAN CLAY (CL), LEAN CLAY WITH SAND (CL), FAT CLAY (CH), CLAYEY SAND (SC), CLAYEY SAND WITH GRAVEL (SC), CLAYEY GRAVEL (GC), POORLY-GRADED SAND WITH CLAY (SP-SC), and POORLY-GRADED GRAVEL WITH SAND (GP) were encountered immediately below surficial materials and extended to a depth between 2 to 8 feet below existing site grades in all borings. N-values ranging from 6 to 19 bpf were recorded for the fine-grained fill materials, indicating firm to very stiff consistency. N-values ranging from 6 bpf to 50 blows over 4 inches of split spoon penetration were recorded for the coarse-grained fill materials, indicating a loose to very dense relative density.

No compaction information was available, and we have considered fill encountered within the borings as un-controlled.

Strata II (R1, R2, and R3), Residual Soils

Coarse-grained residual soils classified as SILTY SAND (SM), SILTY SAND WITH GRAVEL (SM), POORLY GRADED SAND WITH SILT (SP-SM), SILTY GRAVEL (GM), SILTY GRAVEL WITH SAND (GM), CLAYEY SAND (SC), and SILTY CLAYEY SAND (SC-SM) and fine-grained residual soils classified as SANDY SILT WITH GRAVEL (ML), SANDY LEAN CLAY (CL), and ELASTIC SILT (MH) were encountered immediately below the fill material and extended to depths ranging from 17 to 48.5 feet below the existing site grades. N-values ranging from 5 to 38 bpf were recorded for the fine-grained residual soils, indicating firm to hard consistency. N-values ranging from 6 bpf to 53 bpf of split spoon penetration were recorded for the coarse-grained residual soils, indicating a loose to very dense relative density.

Strata III (WR), Highly Weathered Rock

Below the residual soils described above, highly weathered rocks sampled as POORLY-GRADED GRAVEL WITH SILT (GP-GM), POORLY-GRADED SAND WITH GRAVEL (SP), SILTY SAND (SM), and SANDY SILT (ML) were encountered in 3 out of the 5 borings and extended to the auger refusal depths. N-values of 50 blows over 5 inches to 50 blows over 0 inch of split spoon penetration were recorded.

Auger Refusal Materials

Auger refusal was encountered in all borings at depths ranging from 17 to 52 feet below existing site grades. Auger refusal may be encountered on boulders, rock pinnacles, or bedrock. Refusal conditions are equipment dependent. Auger refusal experienced while drilling may differ from refusal conditions encountered by construction equipment. The variability in auger refusal at the site suggests that rock pinnacles and ledges may be present.

Rock

Immediately below auger refusal materials, rock coring was performed in Borings B-01, B-02A, B-03 and B-04. Rock at Borings B-01, B-02A, and B-03 are classified as BIOTITE GNEISS. The rock at Boring B-04 is classified as GNEISS. The rock core recovery ranged from 20% to 95% and RQD ranged from 0% to 46.7%. Highly weathered seams and very low recovery zones were encountered within the rock cores. Additionally, quartz seams greater than 6 inches in length were also observed.

Groundwater

Groundwater was encountered in all borings during drilling and upon completion of drilling. Groundwater readings were taken 24 hours after drilling at Borings B-01, B-02, and B-03, and the summary is shown in the table below. It should be noted that groundwater levels fluctuate with seasonal and climatic variations and may be different at other times and locations than those stated in this report. Water table will also vary due to the existing stream.

Table 3-1: Summary of Groundwater Reading

Boring ID	Groundwater During Drilling or Upon Completion of Drilling		Groundwater Reading After 24 Hours	
	Depth (ft)	Date	Depth (ft)	Date
B-01	21.5	7/23/2024	22.0	7/24/2024
B-02	13.5	7/22/2024	15.0	7/23/2024
B-03	8.8	7/24/2024	7.9	7/25/2024
B-04	12.9	7/25/2024	No Measurements Taken	
B-05	7.5	7/30/2024	No Measurements Taken	

4.0 LABORATORY TESTING

Representative soil samples were selected and tested in our laboratory to verify field classifications and to determine pertinent engineering properties. The laboratory testing results are included in Appendix C of this report. The laboratory testing program included the following:

- Natural moisture content (ASTM D 2216) 29 Tests
- Grain size analysis (ASTM D 6913) 13 Tests

- Atterberg Limits (ASTM D 4318) 13 Tests
- Unconfined Compression Test for Rock Cores (ASTM D 7012C) 2 Tests
- Corrosion Series Testing* 3 Tests
- Consolidation Test (ASTM D 2435) 1 Test

* pH ASTM G-51, Oxidation Reduction Potential ASTM D 1498, Resistivity ASTM G 57, Chloride ASTM D 512, Sulfate ASTM D 516, Sulfide by Metlhlyne Titration

5.0 GEOTECHNICAL RECOMMENDATIONS

5.1. FOUNDATION CONSIDERATIONS

Based on the information provided by Client, the preliminary column loading would be on the order of 500 to 800 kips with a finished floor elevation at about EL. 40 feet. Lateral loads were not available at the time of preparing this report. Based on the limited topographic information available, cuts on the order of 7 feet and fills on the order of 5 feet will be required to reach the finished floor elevation.

We have considered multiple foundation options for this project, and the following sections provide an overview of each system evaluated.

Option 1 Driven Piles: Driven piles driven to refusal within the dense residual soils of Stratum R1 to R3 and tipping into the highly weathered rock (WR) are anticipated suitable for the proposed development. To prevent downdrag forces acting on the piles, the site should be graded close to finished grades prior to pile driving. Depending on the pile type, pre-drilling thru the fill may be required for the pile to achieve the target depths. Precast pre-stressed square concrete piles and steel H-piles are common types of driven piles. The preliminary subsurface investigation performed by DMY showed variability in soil conditions across the borings. Borings B-02, B-02A and B-05 showed the presence of highly fractured rock or very dense soil at shallow depths. Steel piles are ideal for use in areas with highly variable soil conditions, especially where frequent splicing may be necessary. The piles are anticipated to develop most of the required capacity from end bearing, and termination criteria based on a minimum blow count or penetration into the dense material should be anticipated. Given the hard driving anticipated, pile-points should be considered. Steel piles consisting of HP 10x57 up to 14x73 are common for this application. The piles will be driven close to the structural limits as permitted by IBC 1810.3. The allowable capacity for each pile would be on the order of 100 to 200 tons. The axial compression testing shall be done with dynamic pile testing following the requirements of ASTM D 4945 with a capacity designed for a factor of safety of 2.0. The pile lengths will be highly variable with lengths on the order of 25 to 50 feet. The final report should indicate the total number of piles to be tested. The appropriate hammer size and type to be used for pile driving operations should be selected on the basis of wave equation analyses, prior to mobilization to the site.

Option 2 Drilled Shaft: Drilled shafts, also referred to as drilled piers, caissons, or bored piles, are deep foundation systems to support structures with large axial and lateral loads by excavating cylindrical shafts into the ground and filling them with concrete. Based on the loading, it may be feasible to support the columns on a single drilled shaft as an alternative to multiple driven piles, depending on the soil and rock

conditions at the site. This foundation type is often preferred at sites where competent rock or dense bearing layers are found at shallow depths and with adequate thickness. Drilled shafts are also advantageous for locations sensitive to construction-related vibrations. However, the quality control of drilled shaft installation involves increased engineering judgement and careful oversight. Drilled shafts are anticipated to develop the required axial capacities predominantly from end bearing in the dense highly weathered rock and low RQD rock. Based on the presence of rock ledges, rock drilling methods should be anticipated at the site. The wet methods of shaft construction may not be feasible at the site due to gravel layers and possible voids within the rock formation. Given the presence of water at the site, we anticipate temporary casing to be used for shaft construction. Typically, this will require telescoping casing with various lengths and subsequently smaller diameters. Groundwater control during drilling may require the use of slurry or, if properly controlled at the end of shaft drilling, groundwater can be reliably pumped.

High end bearing may require downhole entry to confirm the presence of competent material. End bearing capacity within the highly weathered rock will also require sufficient embedment (typically at least one shaft diameter). Allowable end bearing capacities on the order of 25 to 55 ksf is considered feasible in the weathered rock and low RQD rock. Given the low RQD and poor quality of Rock within the depth explored, rock capacities within the depths explored are not considered feasible without significant rock socket depths. Alternatively, the shafts can be designed for skin friction with a reduced end bearing. Allowable skin friction within the residual soils of stratum R1 to R3 on the order of 0.2 to 0. 5 ksf and within the highly weathered rock and rock on the order of 0.75 to 3 ksf is feasible. Considering the range, in allowable skin friction, a detailed analysis on shaft should be performed in the final report if shafts are to be considered. The final geotechnical report should confirm the allowable skin friction and methods used. The final report should also address if a load test and any specific construction methods should be followed.

Option 3 Shallow Foundations Over Ground Improvement: Deep existing fill is present at the site, and the fill is not considered suitable for support of the proposed building. However, shallow spread footings bearing on soils improved by either rigid inclusions or aggregate piers are considered suitable. The design and construction of ground improvement systems should be completed by a specialty contractor. The contractor will ultimately provide the foundation design bearing pressures and anticipated settlement as well as prepare drawings and specifications for the ground improvements. The aggregate piers or rigid inclusions is anticipated to develop resistance within the stiff and dense residual soils of Stratum R1 to R3 or tip into the highly weathered rock and rock. Groundwater may be encountered above the tip elevation of the ground improvement, and if aggregate piers are used, construction using a bottom feed method may be required. By reinforcing and stiffening the existing soils of this site area with ground improvement elements, the composite reinforced soil will be capable of supporting a significantly higher allowable bearing pressure, while reducing and controlling total and differential settlement. Although the design-build specialty contractor will provide the required drawings and analyses, we anticipate allowable bearing capacity on the order of 4 to 6 ksf may be feasible. Aggregate piers or rigid inclusion lengths on the order 20 to 35 feet are anticipated. For preliminary evaluation, aggregate piers with a diameter of 24 to 30 inch with a spacing of 4 to 6 feet (average of 5 feet) on center can be assumed; however, the actual lengths, diameter, and spacing of the ground improvements must be determined by the specialty contractor during the design phase. A load test or modulus test may also be required.

Considering the subsurface condition based on the limited geotechnical investigation, the geology of the site, the preliminary anticipated structural loading, our preliminary engineering analyses and discussions above, we recommend either *Option 1 Driven Piles* or *Option 3 Shallow Foundations Over Ground Improvement* be considered for this preliminary design phase. Other foundation systems including auger-cast in place piles were considered. These piles typically rely on skin friction for the capacity and validated by load testing. End bearing is typically neglected.

All below-grade walls should be designed to withstand lateral earth pressures and any surcharge loads from the adjacent traffic load from the street and the parking lot. The below-grade walls should also be designed to withstand any applicable hydrostatic pressure unless an appropriate drainage system is installed to effectively eliminate hydrostatic pressures behind the walls.

Selecting the right foundation system for a structure depends on the final structural loads, soil conditions, and construction constraints such as proximity to nearby structures. The final foundation type will be selected in the next phase of the project after the site selection is finalized and a full geotechnical investigation is performed.

5.2. SEISMIC DESIGN

The seismic site class and design response spectrum were determined in accordance with the procedures outlined in Section 1613 of the 2018 International Building Code (IBC). Section 1613 of IBC outlines the procedures for seismic site classification, determination of maximum considered earthquake ground motion, and computation of design spectral response accelerations for various site classes. The current code site class definitions range from A (hard rock) to F (very soft soil profile). Based on the analyses of the subsurface profile using standard penetration data and our local experience, we recommend a Seismic Site Class “D” (Stiff Soil Profile) be used for this site. Based on this site class, the design spectral response acceleration parameters are provided below.

Short Period Duration (S_{DS}): 0.149 g
One Second Duration (S_{D1}): 0.069 g

5.3. UNSUITABLE SOILS

Unsuitable soils including highly plastic soils (e.g., ELASTIC SILT and FAT CLAY) were encountered during our subsurface exploration. Highly plastic soils can exhibit significant shrinkage and/or swelling due to changes in moisture content and should not be used as structural fill if encountered during construction. If highly plastic soils are encountered near or above the foundation-bearing level, they should be removed and replaced with suitable backfill materials. Backfilling with gravel and sands such as GW, GP, SW, and SP is not recommended below the foundations as this would create a reservoir condition that could saturate the highly plastic soils.

5.4. ENGINEERED FILLS

All engineered fills should have a maximum particle size of 3 inches and contain a minimal amount of organic matter or debris. Engineered fills should also have a Liquid Limit of less than 40 and a Plasticity Index less than 15. Based on the borings, most of the on-site soils within the top 10 feet of the site are not anticipated to meet the above criteria, except at boring B-01 which is anticipated to satisfy this criteria. Depending on the proposed grading, importing fill may not be required. Before field operations begin, a representative sample of each proposed engineered fill (borrow) should be collected and tested to determine its Atterberg Limits, gradation, maximum dry density, optimum moisture content, and natural moisture content. The test results will be used to evaluate the suitability of each proposed engineered fill for quality control purposes during fill placement.

Engineered fills should be placed in lifts not exceeding eight (8) inches in loose thickness and moisture conditioned to within two (2) percentage points of the optimum moisture content. The engineered fill should be compacted to a minimum of 95% of the maximum dry density obtained in accordance with ASTM Specification D-698, Standard Proctor Method. The top one (1) foot of soil supporting pavements, sidewalks, or gutters should be compacted to a minimum of 100% of the maximum dry density in accordance with ASTM Specification ASTM D-698.

5.5. ADDITIONAL SUBSURFACE INVESTIGATION

A final geotechnical investigation shall be performed by the project Geotechnical Engineer of Record. The final geotechnical investigation should consist of additional soil test borings based on the final design concept.

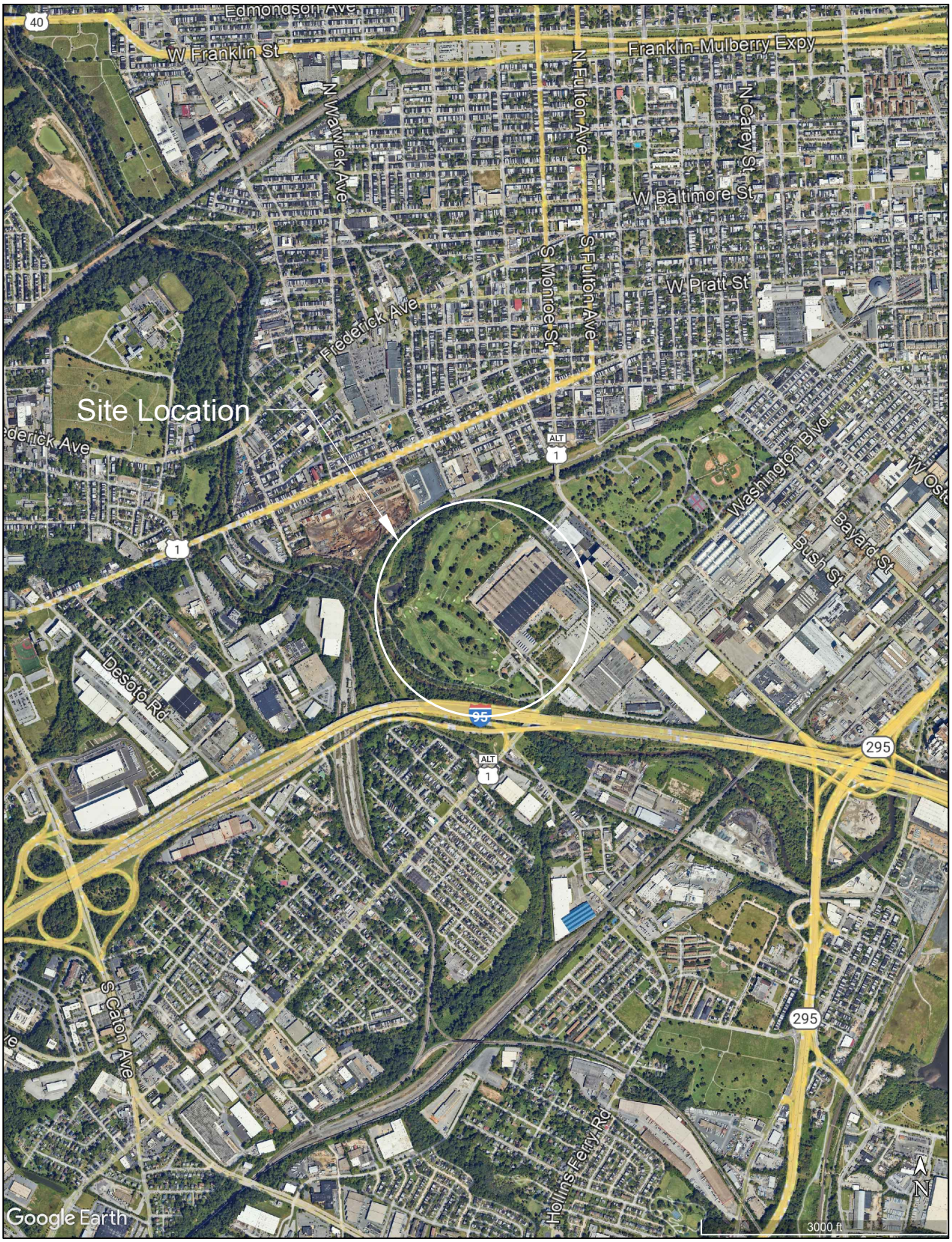
6.0 LIMITATIONS

The preliminary recommendations provided are based in part on project information provided to us and are only applied to the specific project and site discussed in this report. If the project information section in this report contains incorrect information or if additional information is available, DMY should be contacted to review our recommendations. We can then modify our preliminary recommendations for the proposed project.

The purposes of this study were to obtain limited subsurface soil and groundwater information and to provide preliminary geotechnical recommendations. This report shall not be used for final design purposes. ***A final geotechnical investigation shall be performed by the project Geotechnical Engineer of Record based on the final design concept.***

We have prepared this preliminary report for use by the design professionals in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made as to the professional advice included in this report.

APPENDIX A FIGURES

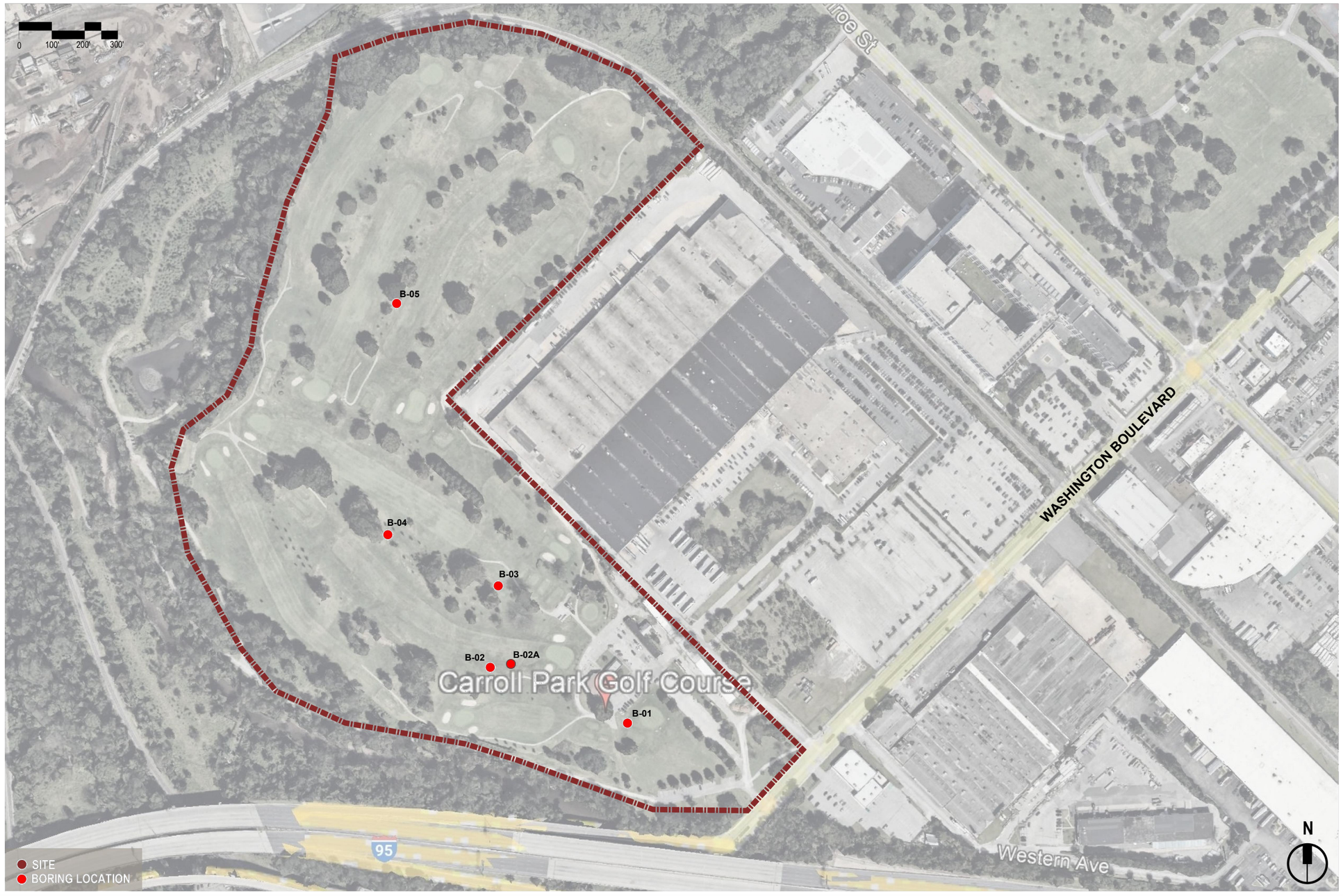


SITE LOCATION MAP

DMY ENGINEERING CONSULTANTS INC.
4170 LAFAYETTE CENTER, SUITE 500
CHANTILLY, VIRGINIA 20151
PHONE: (703) 665-0586
FAX: (301) 768-4169

MLS NEXT PRO MULTI USE SOCCER STADIUM
CARROLL PARK, MARYLAND

DATE:	DRAFTED BY:	PROJECT NO.:
09/30/2024	SS	03.06802.01
SCALE: AS SHOWN	CHECKED BY: GP	FIGURE NO.: 1



BASE MAP IS PROVIDED BY: *MOODY NOLAN*

APPROXIMATE BORING LOCATION

BORING
LOCATION PLAN

DMY ENGINEERING CONSULTANTS INC.
4170 LAFAYETTE CENTER, SUITE 500
CHANTILLY, VIRGINIA 20151
PHONE: (703) 665-0586
FAX: (301) 768-4169

MLS NEXT PRO MULTI USE SOCCER STADIUM
CARROLL PARK, MARYLAND

DATE:	DRAFTED BY:	PROJECT NO.:
10/28/2024	SS	03.06802.01
SCALE: AS SHOWN	CHECKED BY: GP	FIGURE NO.: 2

APPENDIX B FIELD OPERATIONS

SUBSURFACE EXPLORATION PROCEDURES

Soil Borings – Hollow Stem Auger

In hollow stem auger drilling, the drill rig utilizes continuous flight, hollow stem (center opening ranges from 2-1/4 to 4-1/4 inches in size) augers to advance the boreholes. During drilling or formation cutting, the center of the hollow augers is filled with rods connected to a plug at the bottom bit. Once the desired drilling depth is reached, the center plug and rods can be pulled out, leaving the hollow augers in place to hold the borehole open for sampling and well installation. Sampling is performed through the center opening in the hollow stem augers by means of the split-barrel sampling procedure in accordance with ASTM D1586. Usually, drilling fluid is not used during the soil drilling using this procedure.

Standard Penetration Tests

In this process, a 2-foot long, 2-inch outside-diameter split-barrel sampler attached to the end of a string of drilling rods is driven 18 inches into the ground by successive blows of a 140-pound hammer freely dropping 30 inches. The number of blows needed for every 6 inches of penetration is recorded. The blows required for the first 6 inches of penetration are allowed for seating the sampler into any loose cuttings, and the sum of the blows required for penetration of the second and third 6-inch increments constitutes the standard penetration resistance or N-value. After the test, the sampler is extracted from the ground and opened to allow visual examination and classification of the retained soil sample. The N-value can be used as a qualitative indication of the in-place relative density of cohesionless soils (sands). In a less reliable way, it also indicates the consistency of cohesive soils (clays/silts). This indication is qualitative since many factors can significantly affect the N-value and prevent a direct correlation among drilling crews, drill rigs, drilling procedures, and hammer-rod-sampler assemblies. The N-value also has been empirically correlated with various soil properties including strength, compressibility, and potential for difficult excavation.

REFERENCE NOTES FOR BORING LOGS

I. Drilling and Sampling Symbols:

SS	-	Split Spoon Sampler	RB	-	Rock Bit Drilling
ST	-	Shelby Tube Sampler	BS	-	Bulk Sample of Cuttings
RC	-	Rock Core; NX, BX, AX	PA	-	Power Auger (no sample)
PM	-	Pressuremeter	HSA	-	Hollow Stem Auger
DC	-	Dutch Cone Penetrometer	WS	-	Wash Sample

Standard Penetration Test (SPT) resistance refers to the blows per foot (bpf) of a 140 lb hammer falling 30 inches on a 2 in. O.D. split-spoon sampler as specified in ASTM D-1586. The blow count is commonly referred to as the N-value.

II. Correlation of Penetration Resistances to Soil Properties:

Relative Density of Cohesionless Soils

SPT-N (bpf)	Relative Density
0 – 3	Very Loose
4 – 9	Loose
10 – 29	Medium Dense
30 – 50	Dense
>50	Very Dense

Consistency of Cohesive Soils

SPT-N (bpf)	Consistency
0 – 1	Very Soft
2 – 4	Soft
5 – 8	Firm
9 – 15	Stiff
16 – 30	Very Stiff
31 – 50	Hard
>50	Very Hard

Weathered Rock (WR) may be defined as SPT-N values exceeding 60 bpf depending on site specific conditions. Refer carefully to boring logs.

Rock Fragments, gravel, cobbles, boulders, or debris may produce N-values that are not representative of actual soil properties.

III. Unified Soil Classification Symbols:

GP – Poorly Graded Gravel
GW – Well Graded Gravel
GM – Silty Gravel
GC – Clayey Gravels
SP – Poorly Graded Sands
SW – Well Graded Sands
SM – Silty Sands
SC – Clayey Sands

ML – Low Plasticity Silts
MH – High Plasticity Silts
CL – Low Plasticity Clays
CH – High Plasticity Clays
OL – Low Plasticity Organics
OH – High Plasticity Organics
CL-ML – Dual Classification (Typical)

IV. Laboratory Testing and Water Level Symbols:

LL – Liquid Limit (%)
PI – Plastic Index (%)
W – Moisture Content (%)
DD – Dry Density (PCF)
NP – Non Plastic
-200 – Percent Passing No. 200 Sieve
PP – Pocket Penetrometer (TSF)


Water Level at Time of Drilling, or as Shown


Water Level at End of Drilling, or as Shown


Water Level after 24 Hours, or as Shown

V. Geologic Strata Symbols:

F1 – Fill material of high plasticity clays and silts
F2 – Fill material of low plasticity clays and silts
F3 – Coarse-grained fill material (i.e., sand or gravel)
R1 – Residual soils of high plasticity clays and silts
R2 – Residual soils of low plasticity clays and silts
R3 – Coarse-grained residual soils (i.e., sand or gravel)
WR1 – Weathered rock sampled as high plasticity clays and silts
WR2 – Weathered rock sampled as low plasticity clays and silts
WR3 – Weathered rock sampled as sand or gravel

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Carroll Park, Maryland
CLIENT: Moody Nolan

B-01

PAGE 1 OF 2

DATE(S) DRILLED:7/23/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME 550 ATV
DRILLER: A. Espinosa LOGGER: S. Foster
SURFACE ELEVATION: 47.0

GROUND WATER FIRST ENCOUNTERED AT: 21.5 ft

AFTER DRILLING: 22.0 ft (24 HOURS)

FIELD DATA | **LAB DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
				0.0						0.0 / 47.0 TOPSOIL **Tops** -5 in				
		1 4 5 5			50					0.4 / 46.6 Yellow and brown, sandy silt FILL, stiff to very stiff, moist **FL-ML**				
	45	6 8 11 12		2.0	100			F2		SAME, brown			19.1	
				4.0						4.0 / 43.0 Brown, fine to coarse SILTY CLAYEY SAND, medium dense, moist **SC-SM**				
5		4 8 10 12			92									
				6.0						SAME, yellow				
	40	5 5 7 7			88						26	6	12.4	27.6
				8.0										
		6 7 7 23			83			R3		SAME, gray and brown, contains quartz gravel and mica				
10														
	35													
				13.5						13.5 / 33.5 Brown and yellow, sandy LEAN CLAY, contains mica, firm to very stiff, moist **CL**				
		1 2 3			100						36	14	29.2	54.1
15														
	30													
				18.5				R2						
		22 13 11			72									
20														
25														
				23.5						23.5 / 23.5 Gray and brown, sandy SILT WITH GRAVEL, contains quartz gravel and mica, hard, moist **ML**				
		16 13 21			72								8.8	
	20							R2						
				28.5										
		6 10 22			88			R3			30	4	11.1	26.4
30														

REMARKS: Surface Elevation was estimated from Google Earth.

PAGE 1 OF 2

B-01

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECTMD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\CARROLL PARK\DRAFT LOGS 2024-11-25.GPJ;DRAFT LOGS 2024-11-2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Carroll Park, Maryland
CLIENT: Moody Nolan

B-01

PAGE 2 OF 2

DATE(S) DRILLED:7/23/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME 550 ATV
DRILLER: A. Espinosa LOGGER: S. Foster
SURFACE ELEVATION: 47.0

GROUND WATER FIRST ENCOUNTERED AT: 21.5 ft

AFTER DRILLING: 22.0 ft (24 HOURS)

FIELD DATA | **LAB DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
								R3		28.5 / 18.5 Dark gray, fine to medium SILTY SAND, contains mica, dense, wet **SM**				
35	15	50/2		33.5	100			WR3		33.5 / 13.5 Gray, HIGHLY WEATHERED ROCK sampled as fine to coarse POORLY-GRADED GRAVEL WITH SILT, very dense, wet **GP-GM**				
40	10	50/5		38.5	100			WR2		38.5 / 8.5 Dark gray and brown, HIGHLY WEATHERED ROCK sampled as sandy SILT, contains mica, very hard, wet **ML**			14.9	
45	5	50/5		43.5	100			WR3		43.5 / 3.5 Dark gray and brown, HIGHLY WEATHERED ROCK sampled as fine to medium SILTY SAND, contains mica, very dense, wet **SM**				
50	0	50/3		48.5	100									
55	-5	50/0		53.5	0					Auger Refusal at 53.5 feet				
	-10				67	8.3				53.5 / -6.5 Highly weathered, moderately hard, highly fractured, black and green BIOTITE GNEISS; rough surface, primary joint set at 14 degrees.				
										58.5 / -11.5 Boring Terminated				

REMARKS: Surface Elevation was estimated from Google Earth.

PAGE 2 OF 2

B-01

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\CARROLL PARK\DRAFT LOGS 2024-11-25.GPJ;DRAFT LOGS 2024-11-2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Carroll Park, Maryland
CLIENT: Moody Nolan

B-02

PAGE 1 OF 1

DATE(S) DRILLED:7/22/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME 550 ATV
DRILLER: A. Espinosa LOGGER: S. Foster
SURFACE ELEVATION: 36.0

GROUND WATER FIRST ENCOUNTERED AT: 13.5 ft
AT END OF DRILLING: 14.0 ft
AFTER DRILLING: 15.0 ft (24 HOURS)

FIELD DATA | **LAB DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
	35	5 8 10 12		0.0	58			F2		0.0 / 36.0 TOPSOIL **Tops** -3 in	45	24	17.2	73.5
		9 12 25 29		2.0	42			F3		0.3 / 35.8 Brown, lean clay with sand FILL, very stiff, moist **FL-CL**			7.2	
5		16 50/4		4.0	70			F3		2.0 / 34.0 Yellow and brown, medium to coarse poorly-graded sand with clay FILL, trace gravel, contains mica, dense, moist **FL-SP-SC**	30	12	8.5	31.3
	30	19 23 50/5		6.0	6			F3		4.0 / 32.0 Brown, fine to medium clayey sand with gravel FILL, contains mica, very dense, moist, possible large cobbles **FL-SC**				
		14 9 11 17		8.0	83			R3		6.0 / 30.0 Brown, fine to coarse poorly-graded gravel with sand FILL, contains mica, very dense, moist **FL-GP**			11.6	
10	25									8.0 / 28.0 Brown, medium to coarse SILTY SAND WITH GRAVEL, medium dense, moist **SM**				
		44 42 11 12		13.5	38			R3		13.0 / 23.0 Brown, fine to coarse SILTY GRAVEL, contains rock fragments, medium dense to very dense, wet **GM**			9.7	
15	20													
		39 33 25 50/0		18.5	94					SAME, contains mica				
20				20.0	0					20.0 / 16.0 Auger Refusal				

REMARKS: Surface Elevation was estimated from Google Earth.

PAGE 1 OF 1

B-02

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\CARROLL PARK\DRAFT LOGS 2024-11-25.GPJ;DRAFT LOGS 2024-11-2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Carroll Park, Maryland
CLIENT: Moody Nolan

B-02 A

PAGE 1 OF 2

DATE(S) DRILLED:7/22/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME 550 ATV
DRILLER: A. Espinosa LOGGER: S. Foster
SURFACE ELEVATION: 36.0

GROUND WATER FIRST ENCOUNTERED AT: 13.5 ft

NO LONG TERM MEASUREMENTS TAKEN

FIELD DATA | **LAB DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)
										LL	PI	

MATERIAL DESCRIPTION OF STRATA

0.0 / 36.0
Auger probed to 11 feet

11.0 / 25.0
11.0 to 12.1 feet - Slightly weathered, moderately hard, highly fractured, black and green BIOTITE GNEISS; 12.1 to 16 - no recovery from rock core

12.1 to 16.0 feet - No recovery from rock cores

0	36			0.0								
5	30											
10	25			11.0	20	6.7						
15	20			16.0								
20	15			21.0	38	10						
25	10			26.0	47	0						
30					95	15						

16.0 / 20.0
Highly weathered, highly fractured Black and Green BIOTITE GNEISS inter layered with rounded quartz gravel. Low recovery

26.0 / 10.0
Highly weathered, moderately hard, highly fractured, black and green BIOTITE GNEISS; rough surface, primary joint set at 14 degrees.

REMARKS: Surface Elevation was estimated from Google Earth.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Carroll Park, Maryland
CLIENT: Moody Nolan

B-02 A

DATE(S) DRILLED:7/22/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME 550 ATV
DRILLER: A. Espinosa LOGGER: S. Foster
SURFACE ELEVATION: 36.0

GROUND WATER FIRST ENCOUNTERED AT: 13.5 ft

NO LONG TERM MEASUREMENTS TAKEN

FIELD DATA

LAB DATA

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)
5				31.0	83	31.7							
35													
	0									36.0 / 0.0 Boring Terminated			

REMARKS: Surface Elevation was estimated from Google Earth.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\CARROLL PARK\DRAFT LOGS 2024-11-25.GPJ;DRAFT LOGS 2024-11-2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Carroll Park, Maryland
CLIENT: Moody Nolan

B-03

PAGE 1 OF 2

DATE(S) DRILLED:7/24/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME 550 ATV
DRILLER: A. Espinosa LOGGER: S. Foster
SURFACE ELEVATION: 35.0

GROUND WATER FIRST ENCOUNTERED AT: 14.0 ft
AT END OF DRILLING: 8.8 ft
AFTER DRILLING: 7.9 ft (24 HOURS)

FIELD DATA | **LAB DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
		3 3 3 5		0.0	38			F2		0.0 / 35.0 TOPSOIL **Tops** -4 in			35.4	
		3 3 5 6		2.0	75			R2		0.3 / 34.7 Brown, sandy lean clay FILL, contains organics, firm, moist **FL-CL**	42	22	24.3	79.0
5	30	2 3 4 4		4.0	88					2.0 / 33.0 Gray and brown, LEAN CLAY WITH SAND, firm, moist **CL**			19.5	
				6.0	67			R3		4.0 / 31.0 Gray and brown, fine to medium CLAYEY SAND, contains mica, loose, moist **SC**				
		4 6 4 2		8.0	75					8.0 / 27.0 Gray and brown, fine to coarse SILTY CLAYEY SAND, contains mica, medium dense, moist **SC-SM**	23	6	16.3	27.8
10	25							R3						
		15 24 29		13.5	89					13.5 / 21.5 Dark gray, fine to coarse SILTY SAND WITH GRAVEL, contains rock fragments, very dense, wet **SM**			6.1	
15	20							R3						
		50/0		17.0	0					Auger Refusal at 17.0 feet				
20	15				45	13.3				17.0 / 18.0 Moderately weathered, moderately hard, highly fractured, light gray and black BIOTITE GNEISS; rough surface, primary joint set at 14 degrees Same, no recovery from 19.3 to 22.0 feet				
				22.0										
25	10				30	0								
				27.0						Same, contains quartz seam from 27.0 to 28.1 feet Same, highly weathered from 28.1 to 28.5 feet				
30	5				37	6.7								

REMARKS: Surface Elevation was estimated from Google Earth.

PAGE 1 OF 2

B-03

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECTMD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\CARROLL PARK\DRAFT LOGS 2024-11-25.GPJ;DRAFT LOGS 2024-11-2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Carroll Park, Maryland
CLIENT: Moody Nolan

DATE(S) DRILLED:7/24/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME 550 ATV
DRILLER: A. Espinosa LOGGER: S. Foster
SURFACE ELEVATION: 35.0

GROUND WATER FIRST ENCOUNTERED AT: 14.0 ft
AT END OF DRILLING: 8.8 ft
AFTER DRILLING: 7.9 ft (24 HOURS)

FIELD DATA										LAB DATA			
DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)	% Finer than #200
										LL	PI		
35	0			32.0	77	40							

MATERIAL DESCRIPTION OF STRATA

Same, no recovery from 28.5 to 32.0 feet

Same, contains quartz seam from 32.0 to 32.5 feet

Same, slighly weathered from 32.5 feet

37.0 / -2.0 Boring Terminated

REMARKS: Surface Elevation was estimated from Google Earth.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\CARROLL PARK\DRAFT LOGS 2024-11-25.GPJ;DRAFT LOGS 2024-11-2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Carroll Park, Maryland
CLIENT: Moody Nolan

B-04

PAGE 1 OF 2

DATE(S) DRILLED:7/25/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME 550 ATV
DRILLER: A. Espinosa LOGGER: S. Foster
SURFACE ELEVATION: 37.0

GROUND WATER FIRST ENCOUNTERED AT: 12.9 ft

NO LONG TERM MEASUREMENTS TAKEN

FIELD DATA | **LAB DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
				0.0						0.0 / 37.0 TOPSOIL **Tops** -4 in				
	35	3 4 6 8		2.0	38			F2		0.3 / 36.7 Yellow and brown, silt with sand FILL, contains organics and trace roots, stiff, moist **FL-ML**				
		4 4 6 7		4.0	83			F2		2.0 / 35.0 Gray and brown, lean clay with sand FILL, contains mica, stiff, moist **FL-CL**	39	23	20.1	70.2
5		4 5 10 10		6.0	88								19.3	
	30	2 3 3 5		8.0	100			F3		6.0 / 31.0 Gray, fine to medium clayey sand FILL, contains mica, loose, moist **FL-SC**	27	11	21.2	41.6
		2 3 3 3			92					8.0 / 29.0 Gray, fine to medium SILTY SAND, contains mica and rock fragments, loose, moist **SM**			21.3	
10								R3						
	25			13.5										
		4 12 23			89					13.5 / 23.5 Brown and gray, fine to coarse SILTY GRAVEL WITH SAND, dense, moist **GM**	20	1	8.1	13.0
15								R3						
	20			18.5										
		15 28 50/4			94					18.5 / 18.5 Gray, HIGHLY WEATHERED ROCK sampled as fine to coarse SILTY SAND, contains mica, very dense, moist **SM**			12.3	
20	15													
		50/3		23.5	100			WR3						
25														
	10													
		50/4		28.5	100			WR3						
30														

REMARKS: Surface Elevation was estimated from Google Earth.

PAGE 1 OF 2

B-04

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\CARROLL PARK\DRAFT LOGS 2024-11-25.GPJ;DRAFT LOGS 2024-11-2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Carroll Park, Maryland
CLIENT: Moody Nolan

B-04

DATE(S) DRILLED:7/25/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME 550 ATV
DRILLER: A. Espinosa LOGGER: S. Foster
SURFACE ELEVATION: 37.0

GROUND WATER FIRST ENCOUNTERED AT: 12.9 ft

NO LONG TERM MEASUREMENTS TAKEN

FIELD DATA | **LAB DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
		50/0		31.0	0			WR3		28.5 / 8.5 Gray, HIGHLY WEATHERED ROCK sampled as fine to coarse POORLY-GRADED SAND WITH GRAVEL, contains mica and quartz gravel, very dense, moist **SP** Auger Refusal at 31.0 feet				
5					68	46.7				31.0 / 6.0 Highly to moderately weathered, hard, highly fractured, light gray and tan GNEISS; decomposed rock at 33.7'-33.9', rough surface, primary joint set at 12 degrees				
35										36.0 / 1.0 Auger Refusal				

REMARKS: Surface Elevation was estimated from Google Earth.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\CARROLL PARK\DRAFT LOGS 2024-11-25.GPJ;DRAFT LOGS 2024-11-2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Carroll Park, Maryland
CLIENT: Moody Nolan

B-05

PAGE 1 OF 2

DATE(S) DRILLED:7/30/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME 550 ATV
DRILLER: A. Espinosa LOGGER: S. Foster
SURFACE ELEVATION: 43.0

GROUND WATER FIRST ENCOUNTERED AT: 13.5 ft
AT END OF DRILLING: 7.5 ft
NO LONG TERM MEASUREMENTS TAKEN

FIELD DATA | **LAB DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
		4 5 4 6		0.0	54			F2		0.0 / 43.0 TOPSOIL **Tops** -6 in 0.5 / 42.5 Dark brown, sandy silt FILL, contains organics, stiff, moist **FL-ML**				
	40	2 4 5 6		2.0	42			F1		67	47	25.7	94.4
		4 8 10 14		4.0	83			F1		2.0 / 41.0 Dark brown, fat clay FILL, contains organics, stiff, moist **FL-CH**			14.3	
5		29 50/5		6.0	72			F3		4.0 / 39.0 SAME, gray, sandy lean clay FILL, trace gravel, contains organics, very stiff, moist **FL-CL**				
	35	14 15 16 19		8.0	100			R3		6.0 / 37.0 Gray and brown, fine to coarse clayey gravel FILL, very dense, moist **FL-GC**				
10										8.0 / 35.0 Yellow and brown, fine to coarse SILTY SAND WITH GRAVEL, contains mica, dense, moist **SM**				
	30	11 5 2		13.5	61			R3		13.5 / 29.5 Brown and yellow, fine to medium CLAYEY SAND, contains mica, loose, wet **SC**	48	24	19.8	37.2
15														
	25	7 11 15		18.5	100			R3		18.5 / 24.5 Yellow and gray, fine to coarse POORLY-GRADED SAND WITH SILT, contains mica, medium dense to dense, wet **SP-SM**				
20														
	20	6 14 20		23.5	100			R3					17.0	
25														
	15	7 10 11		28.5	100			R1			78	40	30.4	61.1
30														

REMARKS: Surface Elevation was estimated from Google Earth.

PAGE 1 OF 2

B-05

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\CARROLL PARK\DRAFT LOGS 2024-11-25.GPJ;DRAFT LOGS 2024-11-2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Carroll Park, Maryland
CLIENT: Moody Nolan

DATE(S) DRILLED:7/30/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME 550 ATV
DRILLER: A. Espinosa LOGGER: S. Foster
SURFACE ELEVATION: 43.0

GROUND WATER FIRST ENCOUNTERED AT: 13.5 ft
AT END OF DRILLING: 7.5 ft
NO LONG TERM MEASUREMENTS TAKEN

FIELD DATA										LAB DATA			
DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)	% Finer than #200
										LL	PI		
35	10	8 11 16		33.5	100			R1					
40	5	14 16 22		38.5	100							21.7	
45	0	11 16 18		43.5	100			R3					
50	-5	15 50/3		48.5	89			WR3				24.6	
		50/0		52.0									

MATERIAL DESCRIPTION OF STRATA

28.5 / 14.5
Gray, sandy ELASTIC SILT, contains mica, very stiff, wet **MH**

38.5 / 4.5
Gray, fine to medium SILTY SAND, contains mica, dense, wet **SM**

48.5 / -5.5
Gray, HIGHLY WEATHERED ROCK sampled as fine to medium SILTY SAND, very dense, moist **SM**

52.0 / -9.0 Auger Refusal

REMARKS: Surface Elevation was estimated from Google Earth.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\CARROLL PARK\DRAFT LOGS 2024-11-25.GPJ;DRAFT LOGS 2024-11-2

DMY
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia 20151
tel: (703) 665-0586 fax: (301) 768-4169

CLIENT Moody Nolan

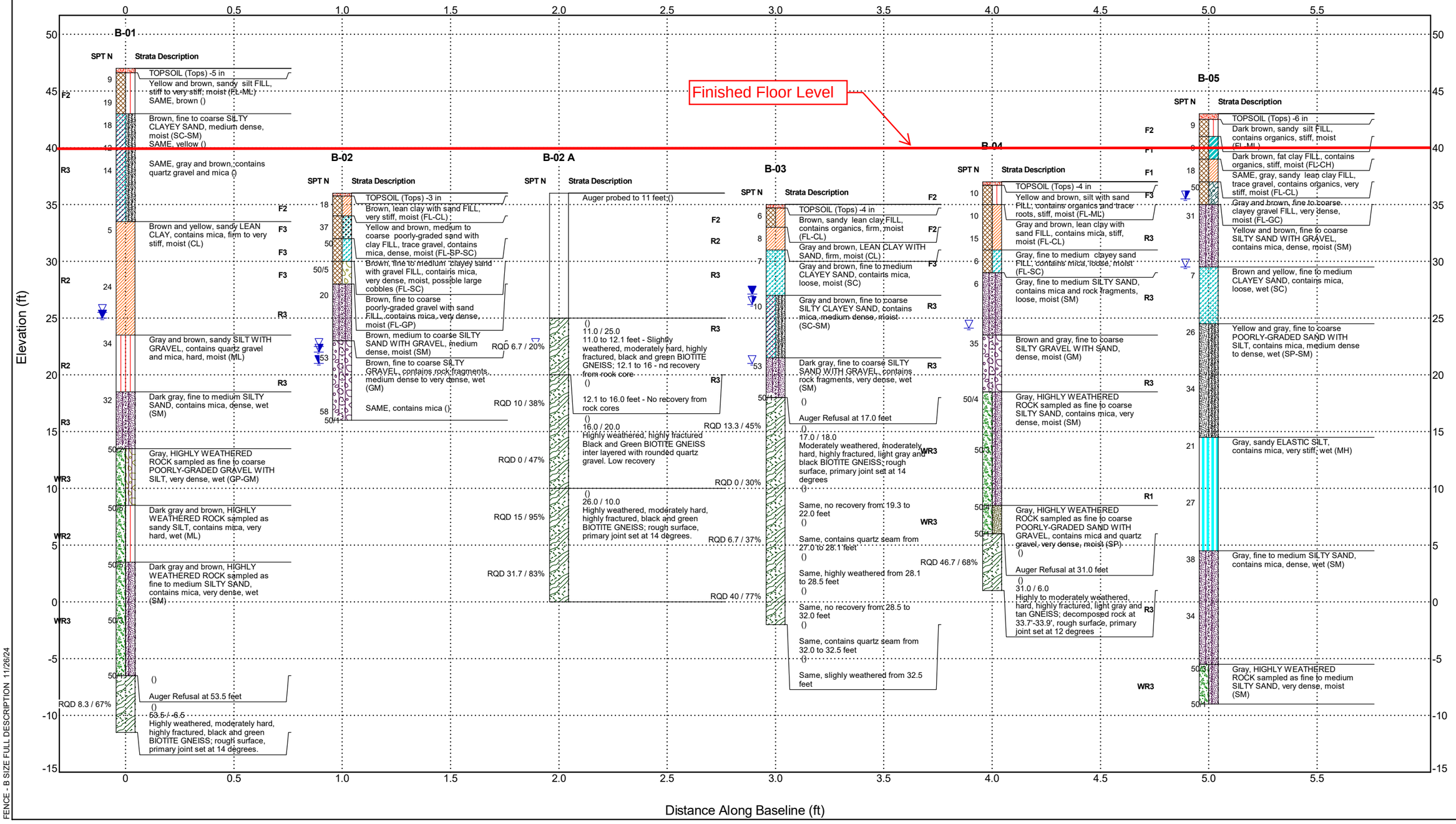
PROJECT NUMBER 03.06802.01

SUBSURFACE DIAGRAM

PROJECT NAME MLS Next Pro Multi-Use Soccer Stadium

PROJECT LOCATION Carroll Park, Maryland

- Topsoil
- Lean CLAY
- Poorly-graded Sand with Clay
- Fill
- Silt with Low Plasticity
- Silty Sand
- Clayey Sand
- Highly Weathered Rock
- Silty, Clayey Sand
- Poorly-graded Gravel with Silt
- Poorly-graded Gravel



FENCE - B SIZE FULL DESCRIPTION 11/26/24

PROJECT NAME:	MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.:	03.06802.01
LOCATION:	Carroll Park, Maryland
CLIENT:	Moody Nolan

ROCK CORE PHOTOGRAPH LOG

Boring No.	Run No.	Depth (ft)		Recovered Length (in)	Recovery (%)	RQD (%)
		From	To			
B-01	1	53.5	58.5	40	66.7	8.3

Boring No.	Run No.	Depth (ft)		Recovered Length (in)	Recovery (%)	RQD (%)
		From	To			
B-02A	1	11.0	16.0	12	20.0	6.7
	2	16.0	21.0	23	38.3	10.0
	3	21.0	26.0	28	46.7	0
	4	26.0	31.0	57	95.0	15.0
	5	31.0	36.0	50	83.3	31.7

PROJECT NAME:	MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.:	03.06802.01
LOCATION:	Carroll Park, Maryland
CLIENT:	Moody Nolan

ROCK CORE PHOTOGRAPH LOG

Boring No.	Run No.	Depth (ft)		Recovered Length (in)	Recovery (%)	RQD (%)
		From	To.0			
B-03	1	17.0	22.0	27	45.0	13.3
	2	22.0	27.0	18	30.0	0
	3	27.0	32.0	22	36.7	6.7
	4	32.0	37.0	46	76.7	40.0

Boring No.	Run No.	Depth (ft)		Recovered Length (in)	Recovery (%)	RQD (%)
		From	To			
B-04	1	31.0	36.0	41	68.3	46.7

APPENDIX C LABORATORY TESTING

MSA MLS Stadium

Project Number: 03.06802.01

Location: Baltimore, Maryland

Sample Date:

Jay Kay Testing
(814) 404-9283
www.jaykaytesting.com

Summary of Laboratory Testing

Sample Identification		Depth				Atterberg Limits				Compaction					
Boring ID	Sample ID	Top, ft	Bottom, ft	NMC, % (ASTM D-2216)	Organic Matter, % (ASTM D-2974)	Liquid Limit, % (ASTM D-4318)	Plastic Limit, % (ASTM D-4318)	Plasticity Index, % (ASTM D-4318)	Specific Gravity (ASTM D-854)	Maximum Dry Density, lb/ft³	Optimum Moisture Content, %	AASHTO Classification (M-145)	% < 0.002 mm	% Fines	USCS Classification (ASTM D-2487)
B-01	S-2	2	4	19.1	-	-	-	-	-	-	-	-	-	-	-
B-01	S-4	6	8	12.4	-	26	20	6	-	-	-	A-2-4	-	27.6	SC-SM
B-01	S-6	13.5	15	29.2	-	36	22	14	-	-	-	A-6	-	54.1	CL
B-01	S-8	23.5	25	8.8	-	-	-	-	-	-	-	-	-	-	-
B-01	S-9	28.5	30	11.1	-	30	26	4	-	-	-	A-2-4	-	26.4	SM
B-01	S-11	38.5	39	14.9	-	-	-	-	-	-	-	-	-	-	-
B-02	S-1	0	2	17.2	-	45	21	24	-	-	-	A-7-6	-	73.5	CL
B-02	S-2	2	4	7.2	-	-	-	-	-	-	-	-	-	-	-
B-02	S-3	4	6	8.5	-	30	18	12	-	-	-	A-2-6	-	31.3	SC
B-02	S-5	8	10	11.6	-	-	-	-	-	-	-	-	-	-	-
B-02	S-6	13	15	9.7	-	-	-	-	-	-	-	-	-	-	-
B-03	S-1	0	2	35.4	-	-	-	-	-	-	-	-	-	-	-
B-03	S-2	2	4	24.3	-	42	20	22	-	-	-	A-7-6	-	79.0	CL
B-03	S-3	4	6	19.5	-	-	-	-	-	-	-	-	-	-	-
B-03	S-5	8	10	16.3	-	23	17	6	-	-	-	A-2-4	-	27.8	SC-SM
B-03	S-6	13.5	15	6.1	-	-	-	-	-	-	-	-	-	-	-
B-04	S-2	2	4	20.1	-	39	16	23	-	-	-	A-6	-	70.2	CL
B-04	S-3	4	6	19.3	-	-	-	-	-	-	-	-	-	-	-
B-04	S-4	6	8	21.2	-	27	16	11	-	-	-	A-6	-	41.6	SC
B-04	S-5	8	10	21.3	-	-	-	-	-	-	-	-	-	-	-
B-04	S-6	13.5	15	8.1	-	20	19	1	-	-	-	A-1-a	-	13.0	GM
B-04	S-7	18.5	19.9	12.3	-	-	-	-	-	-	-	-	-	-	-
B-05	S-2	2	4	25.7	-	67	20	47	-	-	-	A-7-6	-	94.4	CH
B-05	S-3	4	6	14.3	-	-	-	-	-	-	-	-	-	-	-
B-05	S-6	13.5	15	19.8	-	48	24	24	-	-	-	A-7-6	-	37.2	SC
B-05	S-8	23.5	25	17.0	-	-	-	-	-	-	-	-	-	-	-
B-05	S-9	28.5	30	30.4	-	78	38	40	-	-	-	A-7-5	-	61.1	MH
B-05	S-11	38.5	40	21.7	-	-	-	-	-	-	-	-	-	-	-
B-05	S-13	48.5	48.8	24.6	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

MSA MLS Stadium

Project Number: 03.06802.01

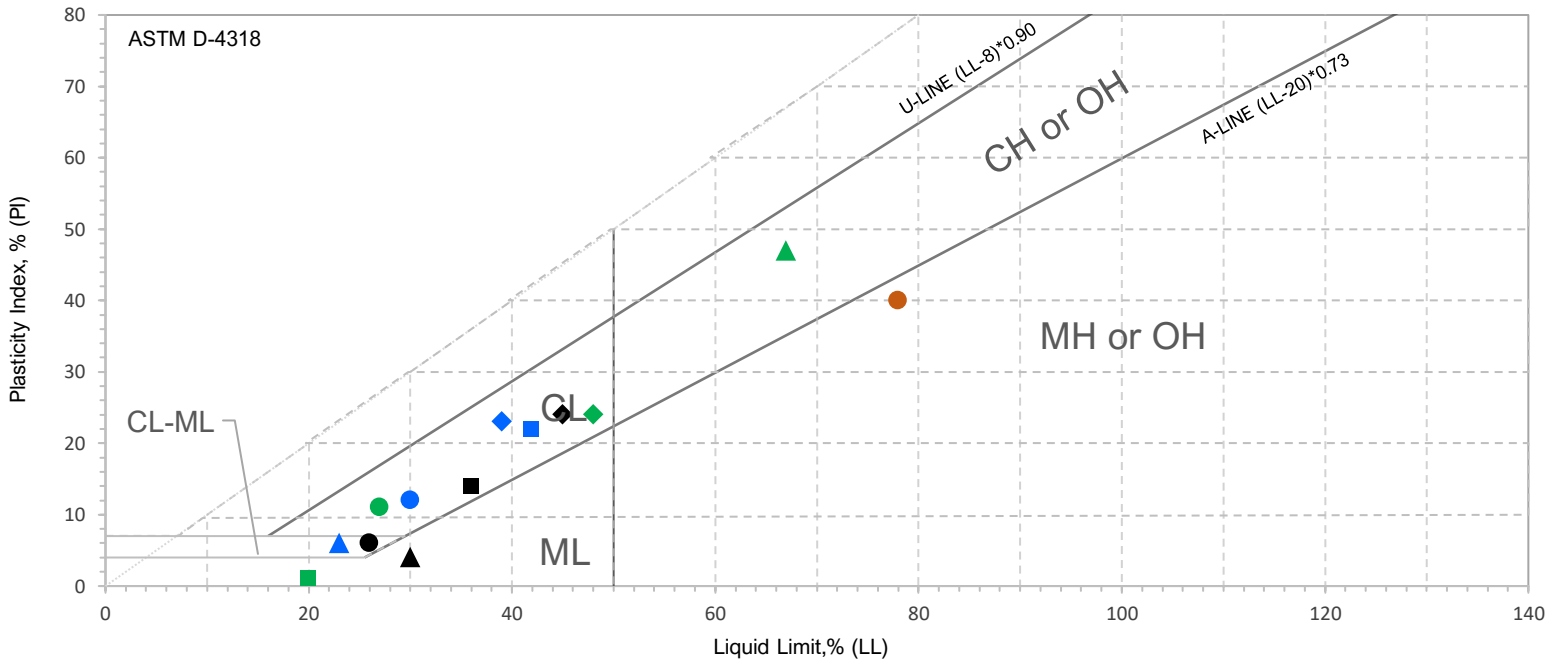
Location: Baltimore, Maryland

Sample Date:

Jay Kay Testing
(814) 404-9283
www.jaykaytesting.com

Summary of Atterberg Limit Testing

Atterberg Limit Results



	Boring ID	Sample ID	Top	Btm	LL	PL	PI		Boring ID	Sample ID	Top	Btm	LL	PL	PI
●	B-01	S-4	6	8	26	20	6								
■	B-01	S-6	13.5	15	36	22	14								
▲	B-01	S-9	28.5	30	30	26	4								
◆	B-02	S-1	0	2	45	21	24								
●	B-02	S-3	4	6	30	18	12								
■	B-03	S-2	2	4	42	20	22								
▲	B-03	S-5	8	10	23	17	6								
◆	B-04	S-2	2	4	39	16	23								
●	B-04	S-4	6	8	27	16	11								
■	B-04	S-6	13.5	15	20	19	1								
▲	B-05	S-2	2	4	67	20	47								
◆	B-05	S-6	13.5	15	48	24	24								
●	B-05	S-9	28.5	30	78	38	40								

MSA MLS Stadium

Project Number: 03.06802.01

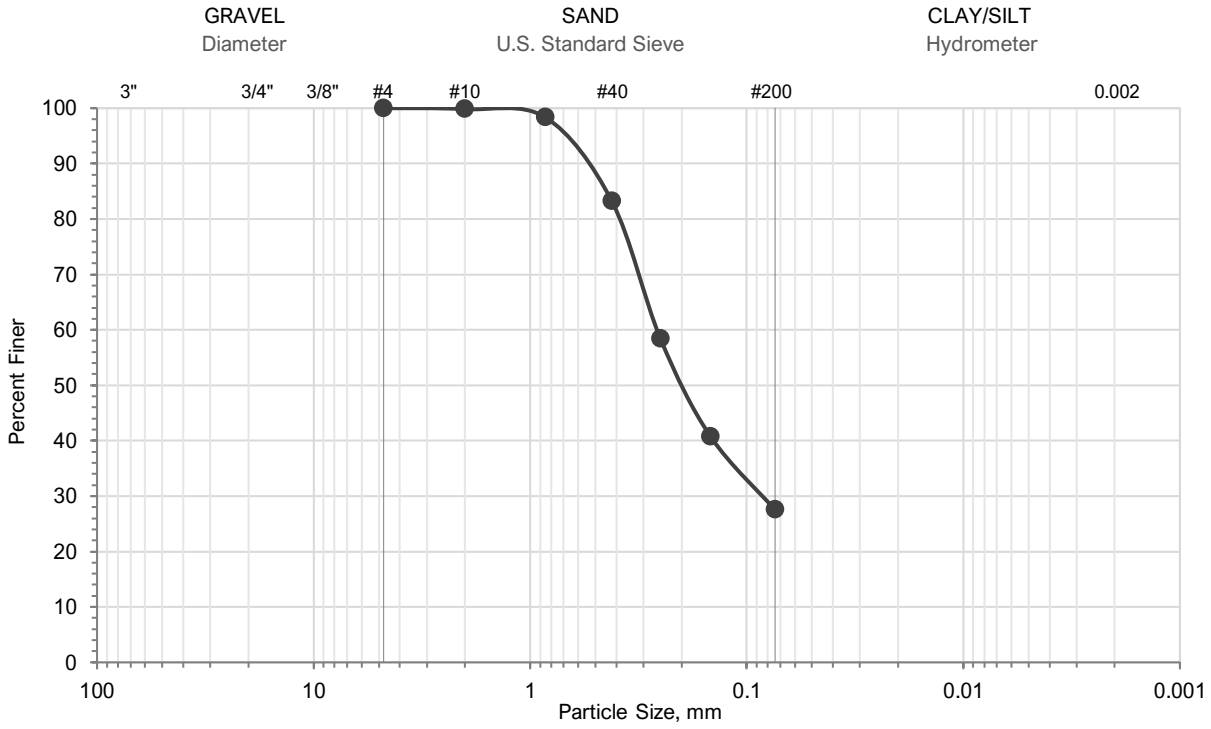
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-01	S-4	6'	8'

Location: Baltimore, Maryland

Sample Date: -

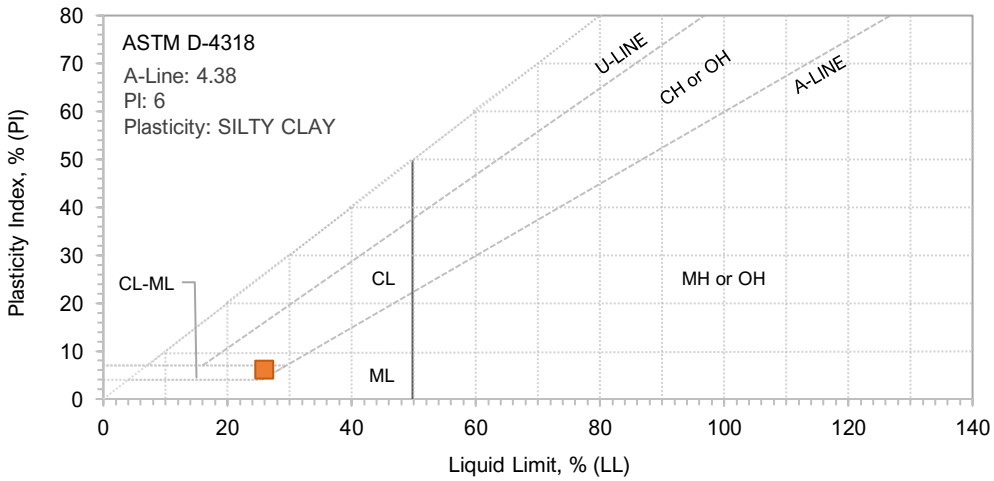
ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.8
#20	0.85	98.3
#40	0.42	83.2
#60	0.25	58.3
#100	0.147	40.7
#200	0.074	27.6

% Gravel (> 4.75 mm)				% Sand					
Coarse	Fine		Total	Coarse	Medium	Fine		Total	
0.0	0.0	=	0.0	0.2	16.6	55.6	=	72.4	

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	26
Plastic Limit, %	20
Plasticity Index, %	6

USCS (D-2487)	AASHTO (M-145)
SC-SM	A-2-4

Soil Description (D-2487)

Dark brown silty clayey SAND

NMC	12.4%		Sample Type*	-	Data 4	-
OM	-		Data 2	-	Data 5	-
			Data 3	-	Data 6	-
+ 3/8"	0.0%					

08/25/24 Tested by: ST/JT Reviewed by: GP Jay Kay Testing

MSA MLS Stadium

Project Number: 03.06802.01

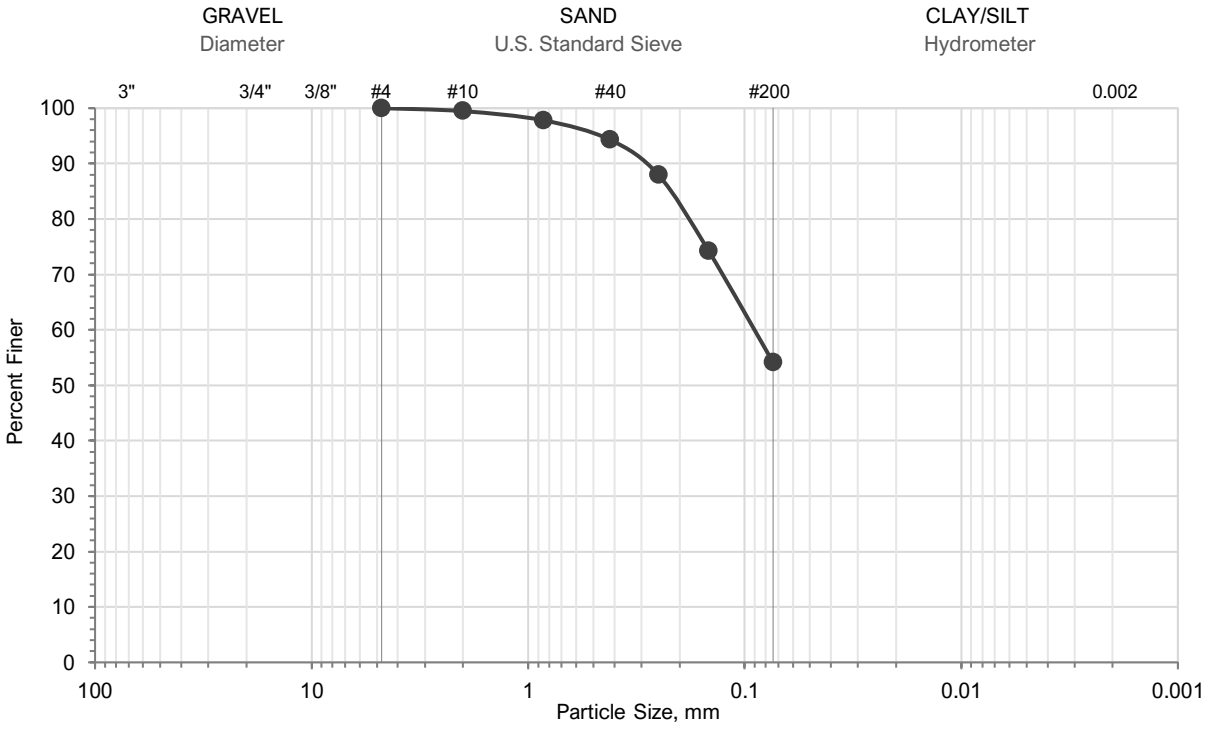
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-01	S-6	13.5'	15'

Location: Baltimore, Maryland

Sample Date: -

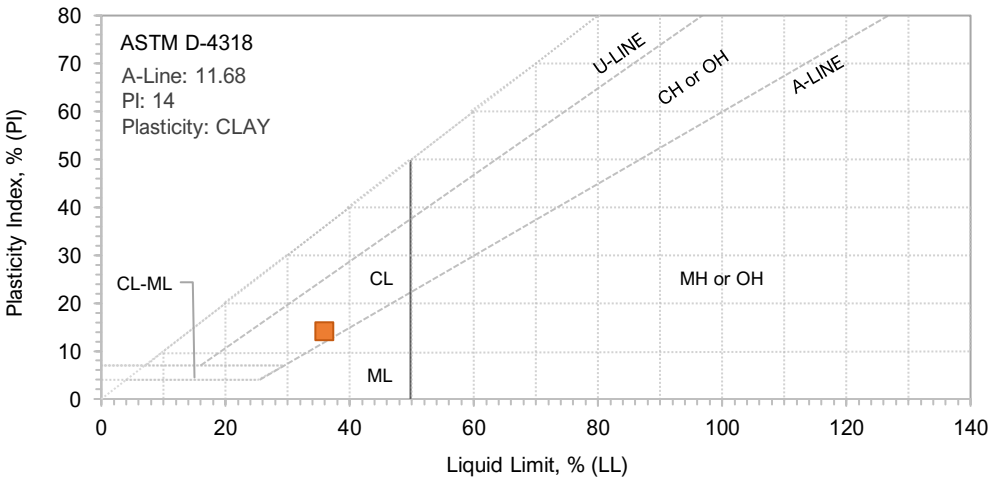
ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.5
#20	0.85	97.8
#40	0.42	94.3
#60	0.25	87.9
#100	0.147	74.3
#200	0.074	54.1

% Gravel (> 4.75 mm)				% Sand				
Coarse	Fine		Total	Coarse	Medium	Fine		Total
0.0	0.0	=	0.0	0.5	5.2	40.2	=	45.9

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	36
Plastic Limit, %	22
Plasticity Index, %	14

USCS (D-2487)	AASHTO (M-145)
CL	A-6

Soil Description (D-2487)

Brown sandy lean CLAY

NMC	29.2%		Sample Type*	-	Data 4	-
OM	-		Data 2	-	Data 5	-
			Data 3	-	Data 6	-
+ 3/8"	0.0%					

08/25/24 Tested by: ST/JT Reviewed by: GP Jay Kay Testing

MSA MLS Stadium

Project Number: 03.06802.01

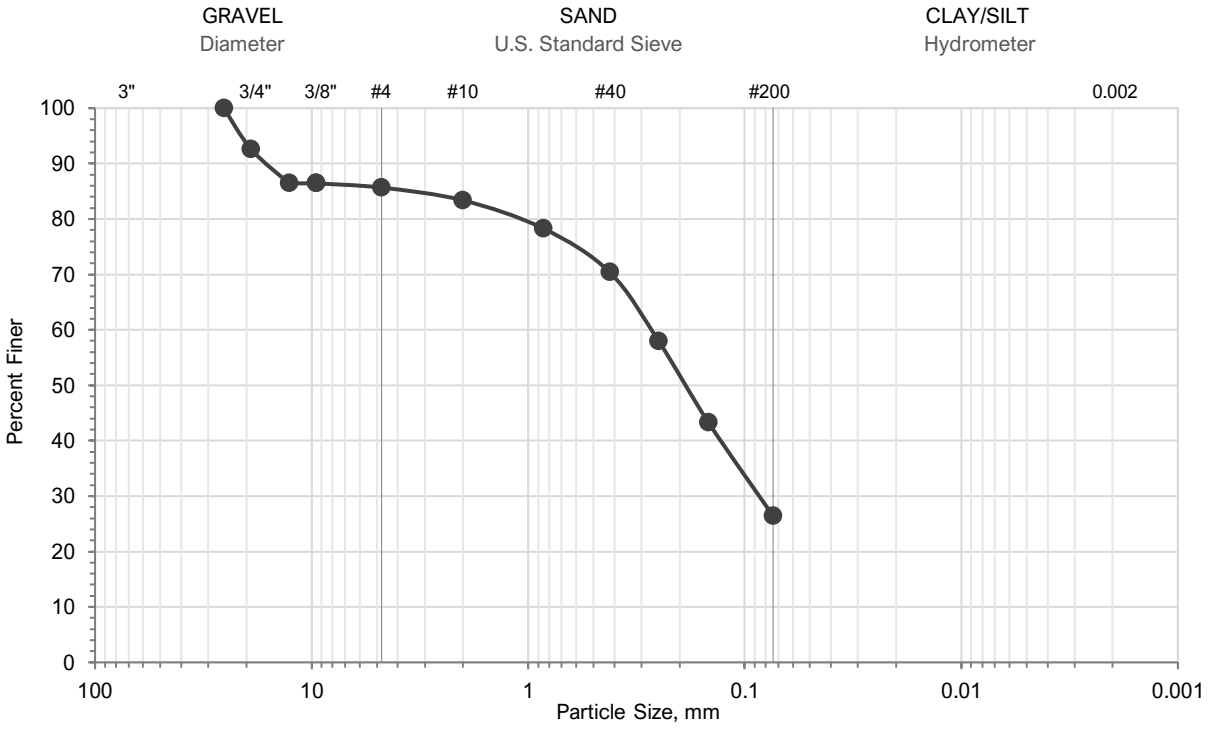
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-01	S-9	28.5'	30'

Location: Baltimore, Maryland

Sample Date: -

ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	100.0
3/4"	19.0	92.6
1/2"	12.7	86.4
3/8"	9.51	86.4
#4	4.75	85.7
#10	2.00	83.4
#20	0.85	78.3
#40	0.42	70.4
#60	0.25	58.0
#100	0.147	43.3
#200	0.074	26.4

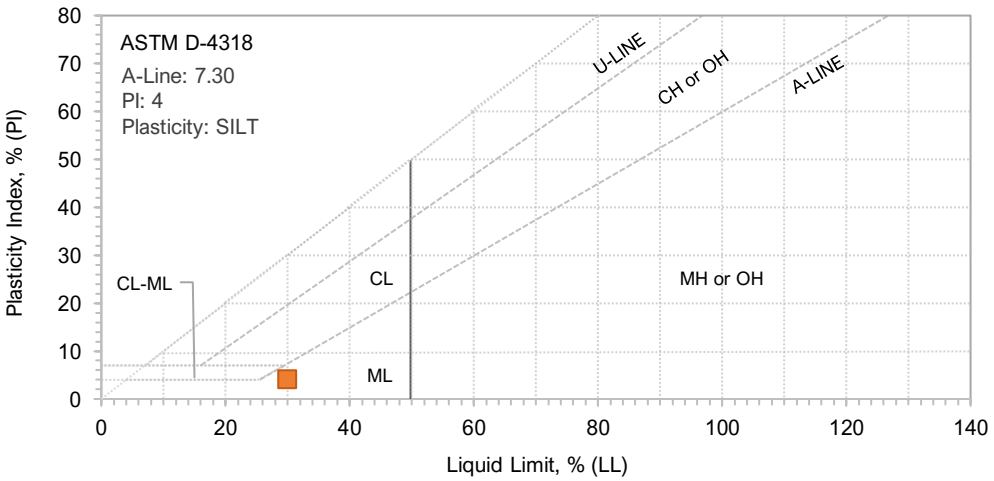
% Gravel (> 4.75 mm)

Coarse	Fine		Total
7.4	6.9	=	14.3

% Sand

Coarse	Medium	Fine		Total
2.3	13.0	44.0	=	59.3

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	30
Plastic Limit, %	26
Plasticity Index, %	4

USCS (D-2487)	AASHTO (M-145)
SM	A-2-4

Soil Description (D-2487)

Dark green silty SAND

NMC	11.1%
OM	-
+ 3/8"	13.6%

Sample Type*	-
Data 2	-
Data 3	-

Data 4	-
Data 5	-
Data 6	-

MSA MLS Stadium

Project Number: 03.06802.01

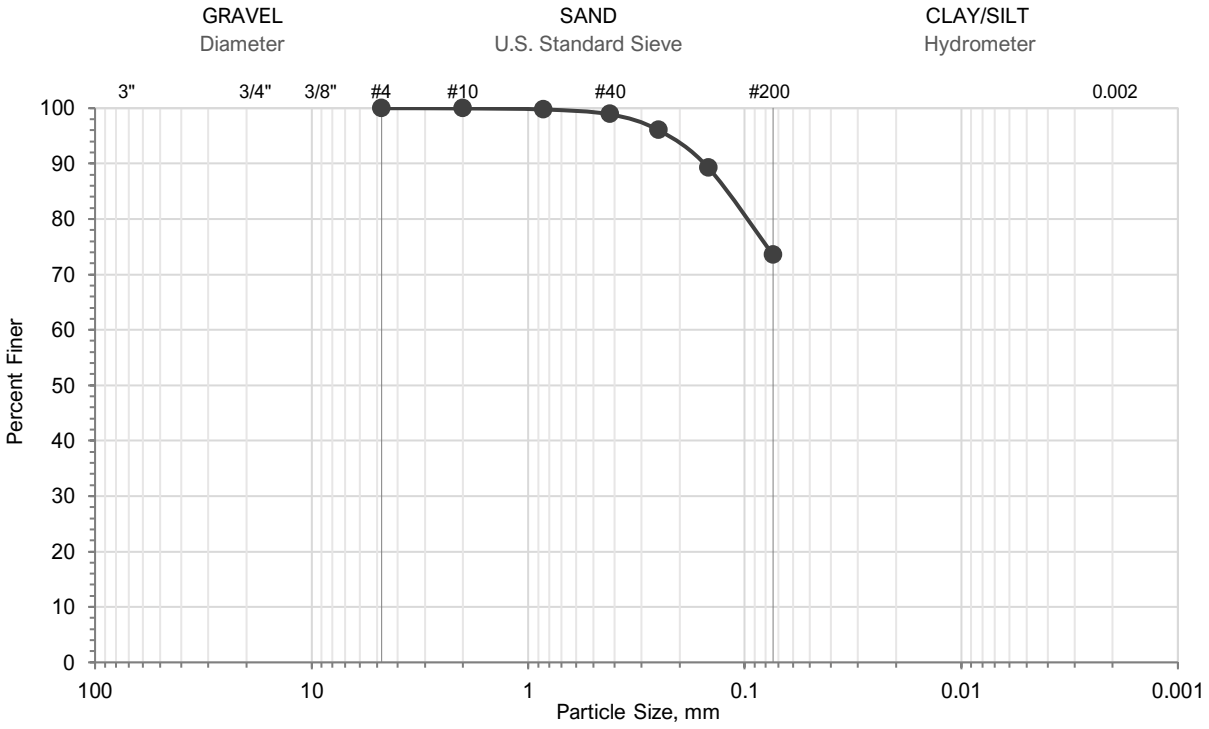
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-02	S-1	0'	2'

Location: Baltimore, Maryland

Sample Date: -

ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	99.8
#40	0.42	98.9
#60	0.25	96.0
#100	0.147	89.2
#200	0.074	73.5

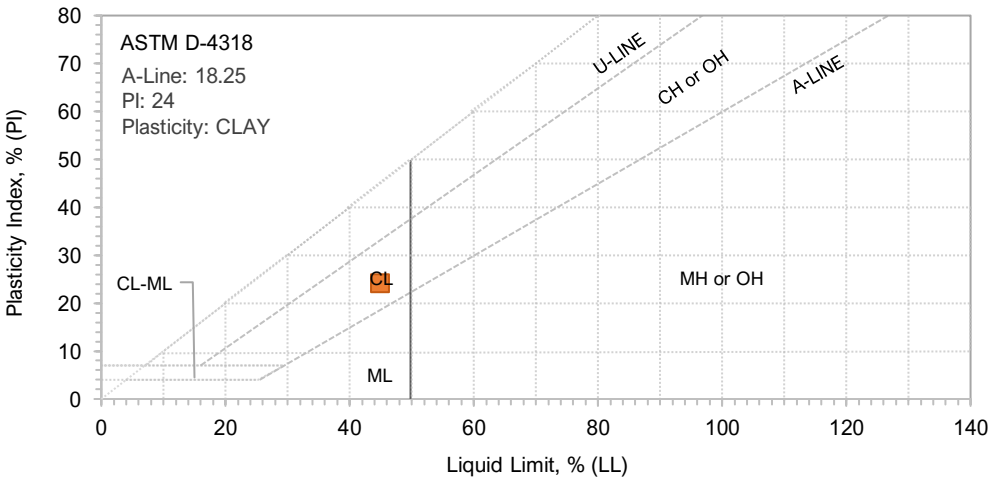
% Gravel (> 4.75 mm)

Coarse	Fine		Total
0.0	0.0	=	0.0

% Sand

Coarse	Medium	Fine		Total
0.1	1.0	25.4	=	26.5

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	45
Plastic Limit, %	21
Plasticity Index, %	24

USCS (D-2487)	AASHTO (M-145)
CL	A-7-6

Soil Description (D-2487)

Brown lean CLAY with sand

NMC	17.2%	Sample Type*	-	Data 4	-
OM	-	Data 2	-	Data 5	-
		Data 3	-	Data 6	-
+ 3/8"	0.0%				

08/25/24 Tested by: ST/JT Reviewed by: GP Jay Kay Testing

MSA MLS Stadium

Project Number: 03.06802.01

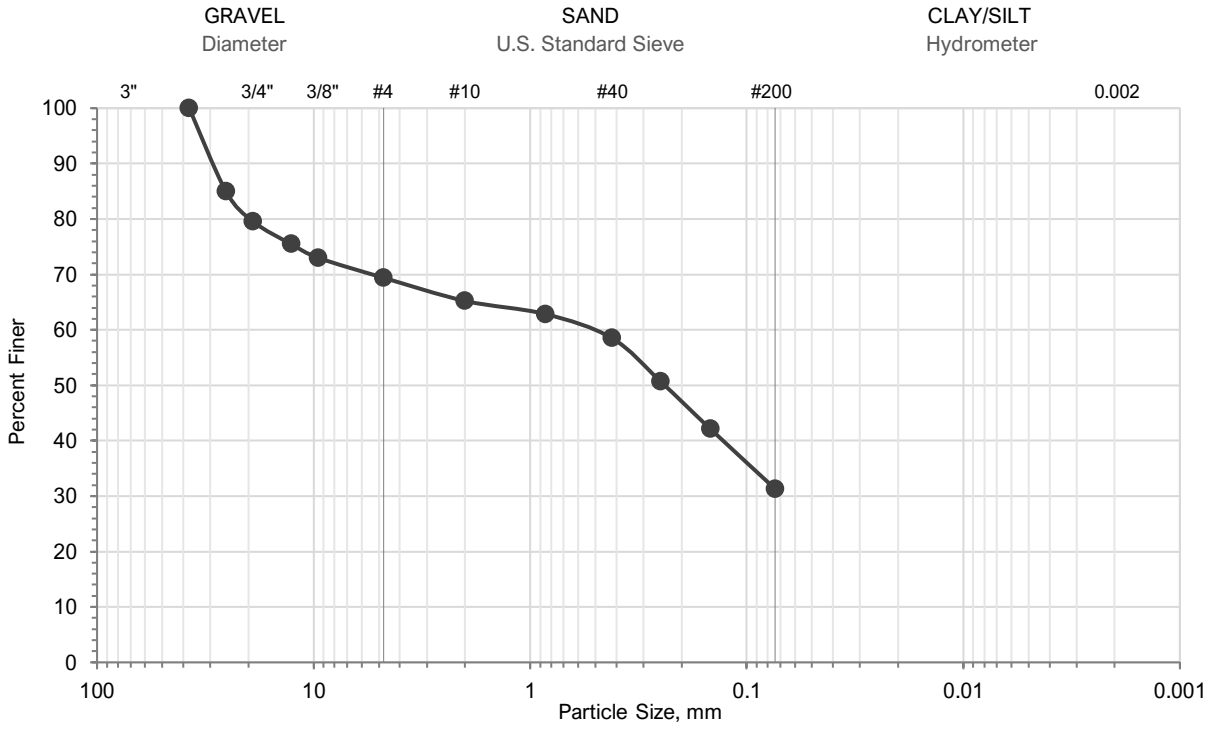
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-02	S-3	4'	6'

Location: Baltimore, Maryland

Sample Date: -

ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	100.0
1"	25.4	85.0
3/4"	19.0	79.5
1/2"	12.7	75.5
3/8"	9.51	73.0
#4	4.75	69.4
#10	2.00	65.2
#20	0.85	62.8
#40	0.42	58.5
#60	0.25	50.7
#100	0.147	42.1
#200	0.074	31.3

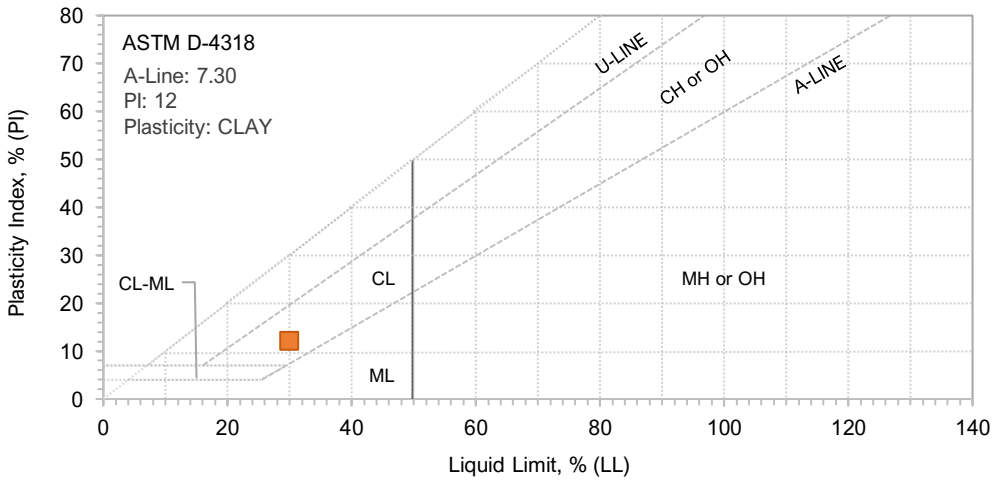
% Gravel (> 4.75 mm)

Coarse	Fine		Total
20.5	10.1	=	30.6

% Sand

Coarse	Medium	Fine		Total
4.2	6.7	27.2	=	38.1

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	30
Plastic Limit, %	18
Plasticity Index, %	12

USCS (D-2487)	AASHTO (M-145)
SC	A-2-6

Soil Description (D-2487)

Brown clayey SAND with gravel

NMC	8.5%
OM	-
+ 3/8"	27.0%

Sample Type*	-
Data 2	-
Data 3	-

Data 4	-
Data 5	-
Data 6	-

MSA MLS Stadium

Project Number: 03.06802.01

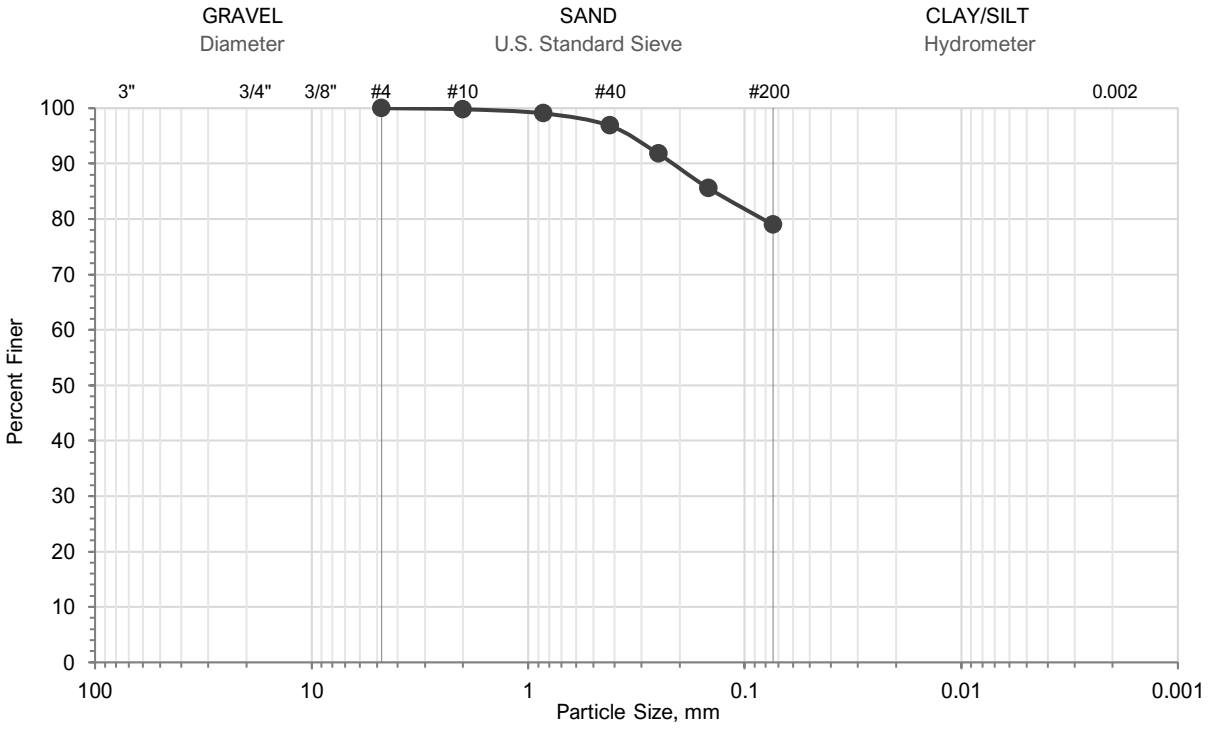
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-03	S-2	2'	4'

Location: Baltimore, Maryland

Sample Date: -

ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.8
#20	0.85	99.1
#40	0.42	96.8
#60	0.25	91.8
#100	0.147	85.6
#200	0.074	79.0

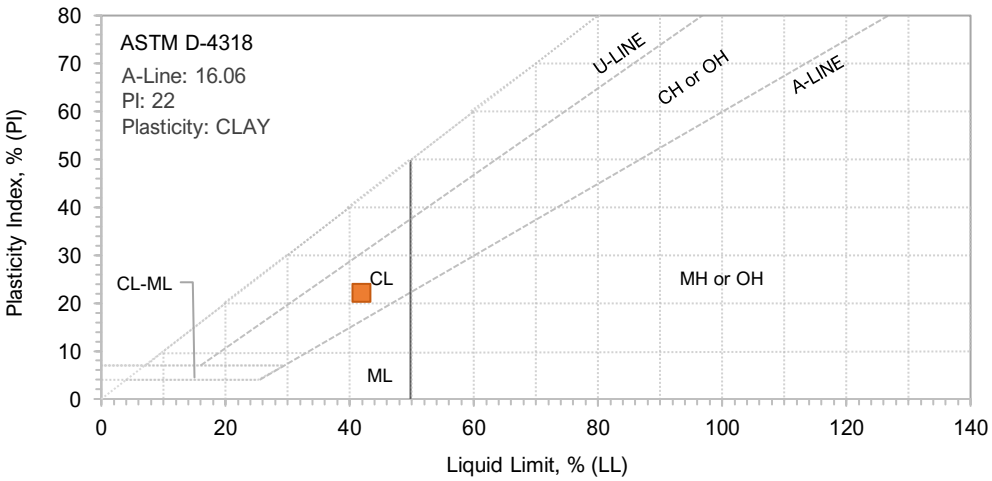
% Gravel (> 4.75 mm)

Coarse	Fine		Total
0.0	0.0	=	0.0

% Sand

Coarse	Medium	Fine		Total
0.2	3.0	17.8	=	21.0

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	42
Plastic Limit, %	20
Plasticity Index, %	22

USCS (D-2487)	AASHTO (M-145)
CL	A-7-6

Soil Description (D-2487)

Dark green lean CLAY with sand

NMC	24.3%
OM	-
+ 3/8"	0.0%

Sample Type*	-
Data 2	-
Data 3	-

Data 4	-
Data 5	-
Data 6	-

08/25/24 Tested by: ST/JT Reviewed by: GP Jay Kay Testing

MSA MLS Stadium

Project Number: 03.06802.01

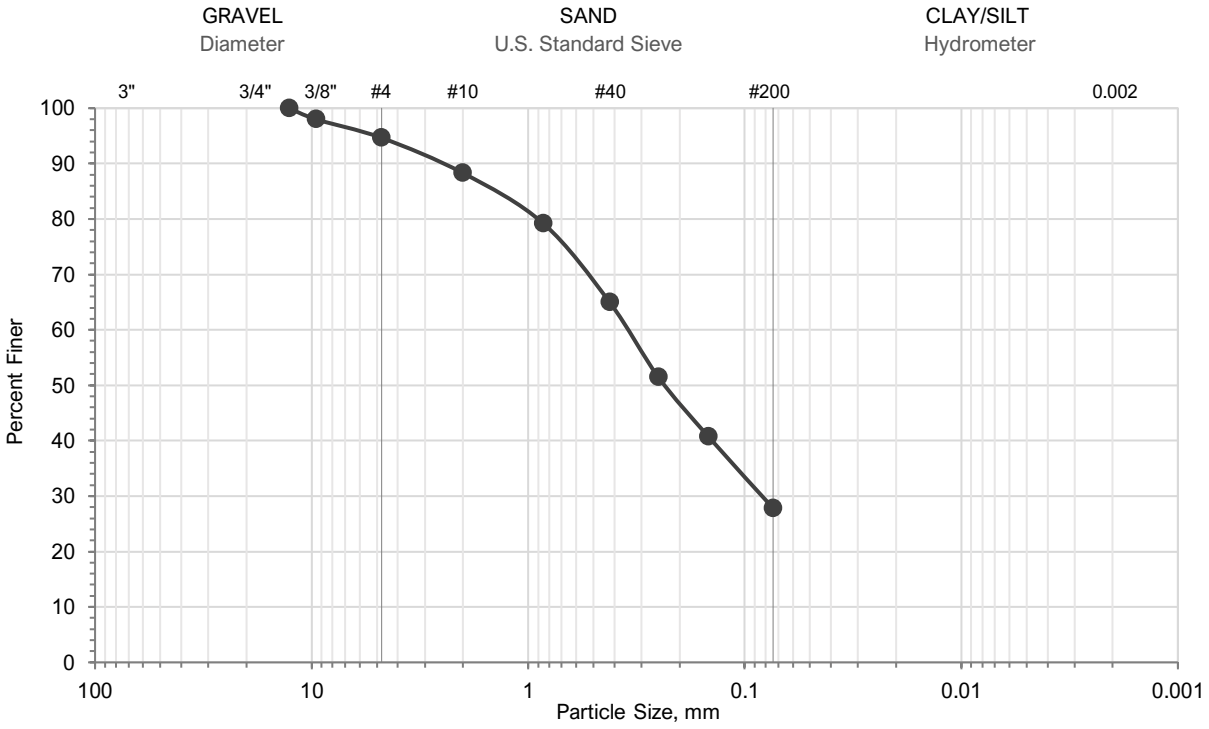
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-03	S-5	8'	10'

Location: Baltimore, Maryland

Sample Date: -

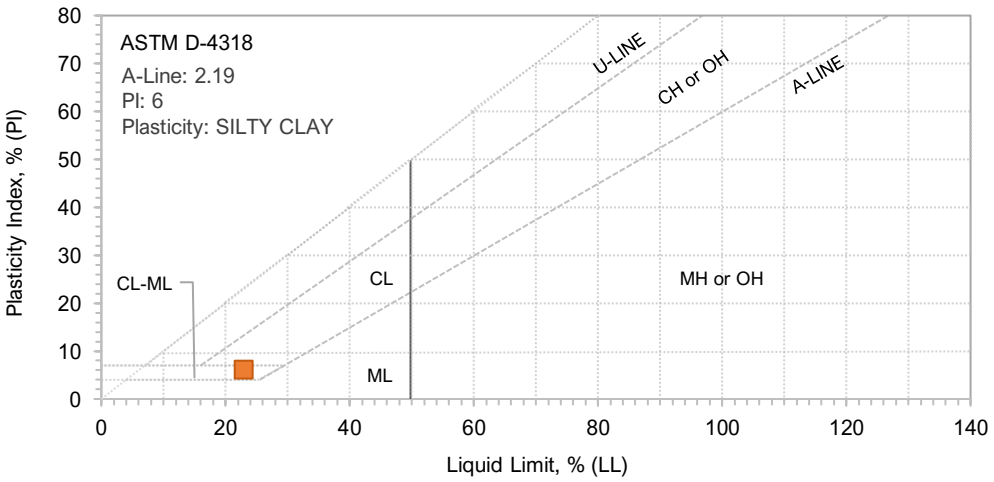
ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	100.0
3/8"	9.51	98.0
#4	4.75	94.6
#10	2.00	88.3
#20	0.85	79.2
#40	0.42	65.0
#60	0.25	51.4
#100	0.147	40.7
#200	0.074	27.8

% Gravel (> 4.75 mm)				% Sand				
Coarse	Fine		Total	Coarse	Medium	Fine		Total
0.0	5.4	=	5.4	6.3	23.3	37.2	=	66.8

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	23
Plastic Limit, %	17
Plasticity Index, %	6

USCS (D-2487)	AASHTO (M-145)
SC-SM	A-2-4

Soil Description (D-2487)

Dark greenish-brown silty clayey SAND

NMC	16.3%		Sample Type*	-	Data 4	-
OM	-		Data 2	-	Data 5	-
			Data 3	-	Data 6	-
+ 3/8"	2.0%					

08/25/24 Tested by: ST/JT Reviewed by: GP Jay Kay Testing

MSA MLS Stadium

Project Number: 03.06802.01

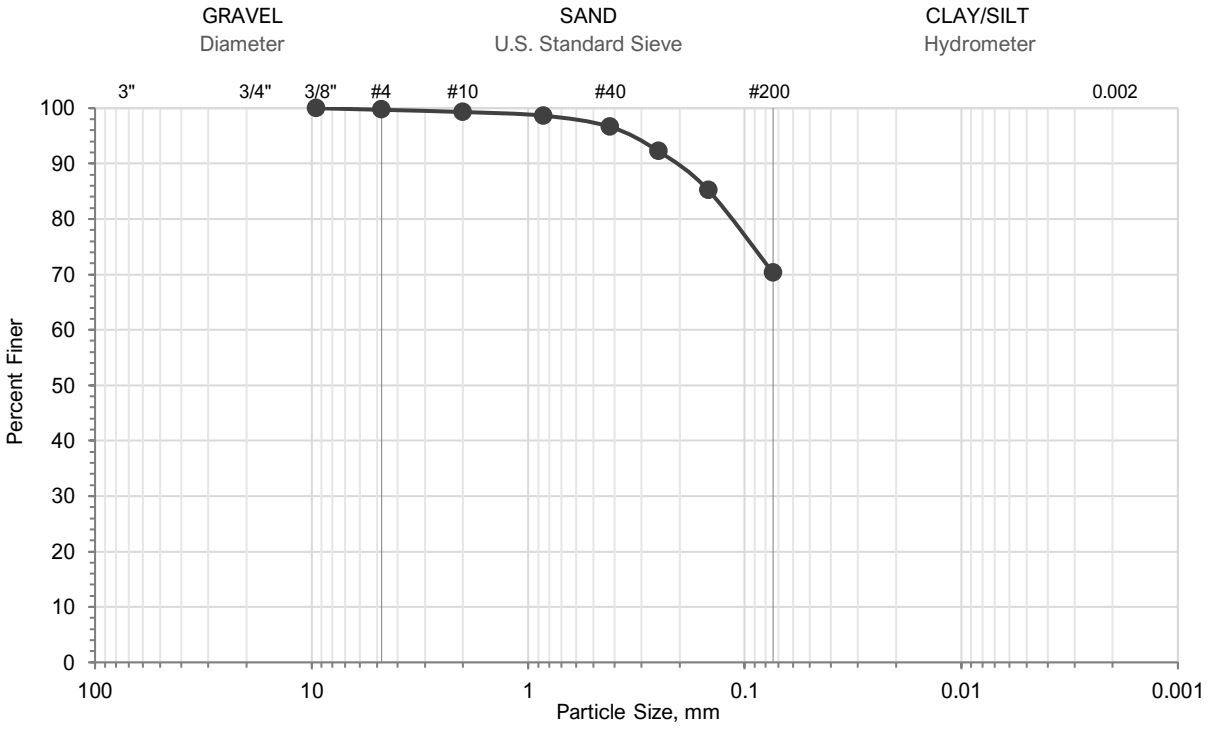
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-04	S-2	2'	4'

Location: Baltimore, Maryland

Sample Date: -

ASTM D-6913

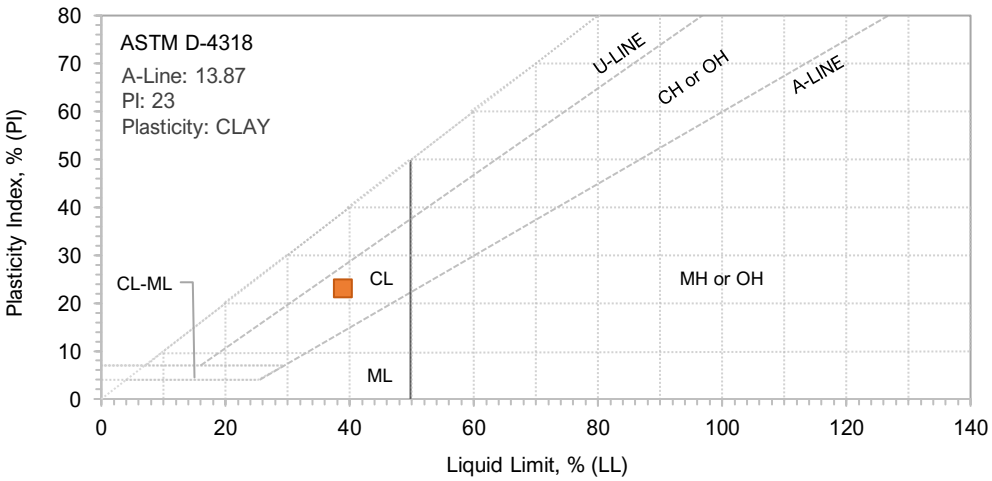


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	100.0
#4	4.75	99.7
#10	2.00	99.3
#20	0.85	98.6
#40	0.42	96.7
#60	0.25	92.2
#100	0.147	85.2
#200	0.074	70.2

% Gravel (> 4.75 mm)			
Coarse	Fine		Total
0.0	0.3	=	0.3

% Sand				
Coarse	Medium	Fine		Total
0.4	2.6	26.5	=	29.5

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	39
Plastic Limit, %	16
Plasticity Index, %	23

USCS (D-2487)	AASHTO (M-145)
CL	A-6

Soil Description (D-2487)

Dark brown lean CLAY with sand

NMC	20.1%		Sample Type*	-	Data 4	-
OM	-		Data 2	-	Data 5	-
			Data 3	-	Data 6	-
+ 3/8"	0.0%					

08/25/24 Tested by: ST/JT Reviewed by: GP Jay Kay Testing

MSA MLS Stadium

Project Number: 03.06802.01

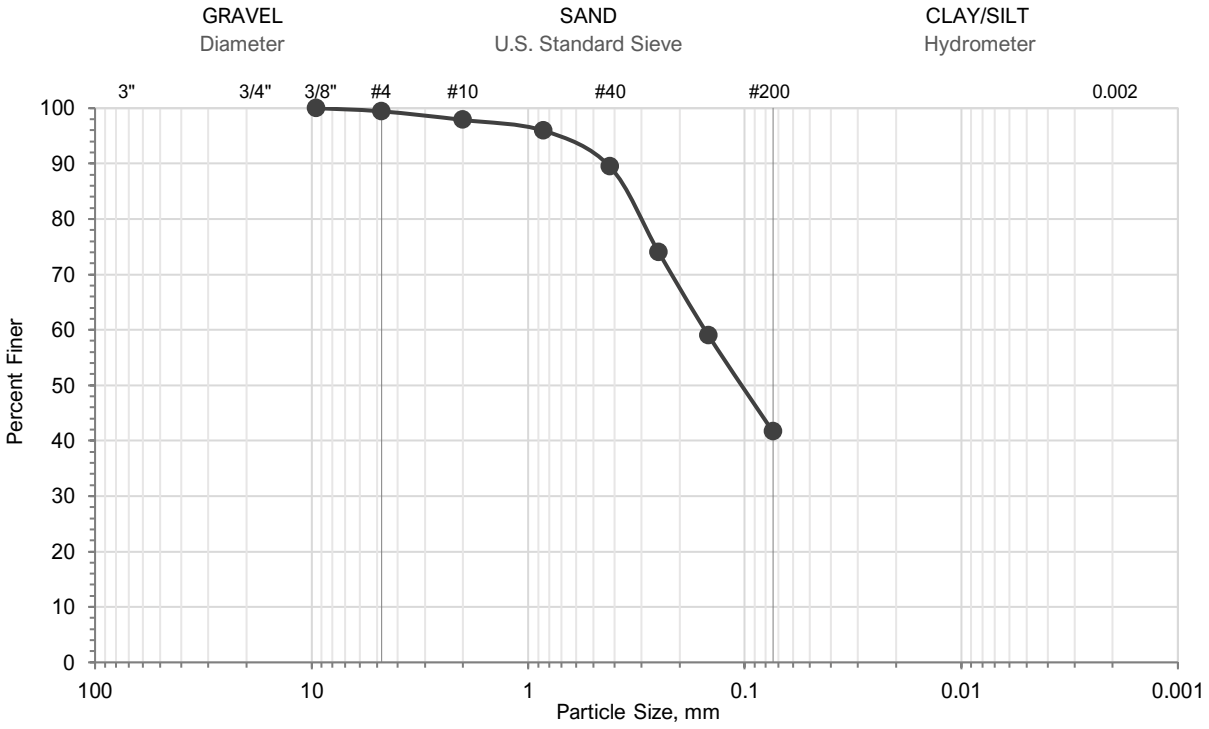
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-04	S-4	6'	8'

Location: Baltimore, Maryland

Sample Date: -

ASTM D-6913

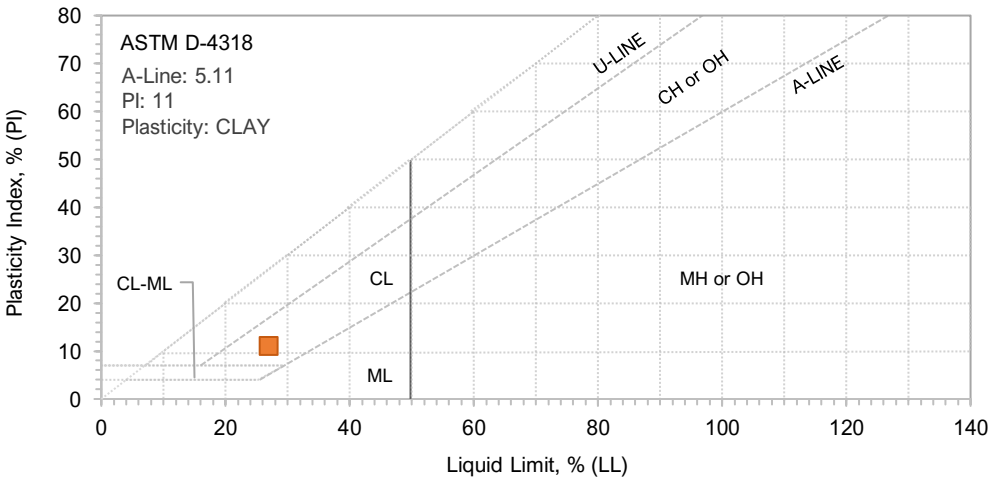


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	100.0
#4	4.75	99.4
#10	2.00	97.9
#20	0.85	96.0
#40	0.42	89.5
#60	0.25	74.0
#100	0.147	59.0
#200	0.074	41.6

% Gravel (> 4.75 mm)			
Coarse	Fine		Total
0.0	0.6	=	0.6

% Sand				
Coarse	Medium	Fine		Total
1.5	8.4	47.9	=	57.8

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	27
Plastic Limit, %	16
Plasticity Index, %	11

USCS (D-2487)	AASHTO (M-145)
SC	A-6

Soil Description (D-2487)

Dark greenish-brown clayey SAND

NMC	21.2%	Sample Type*	-	Data 4	-
OM	-	Data 2	-	Data 5	-
		Data 3	-	Data 6	-
+ 3/8"	0.0%				

MSA MLS Stadium

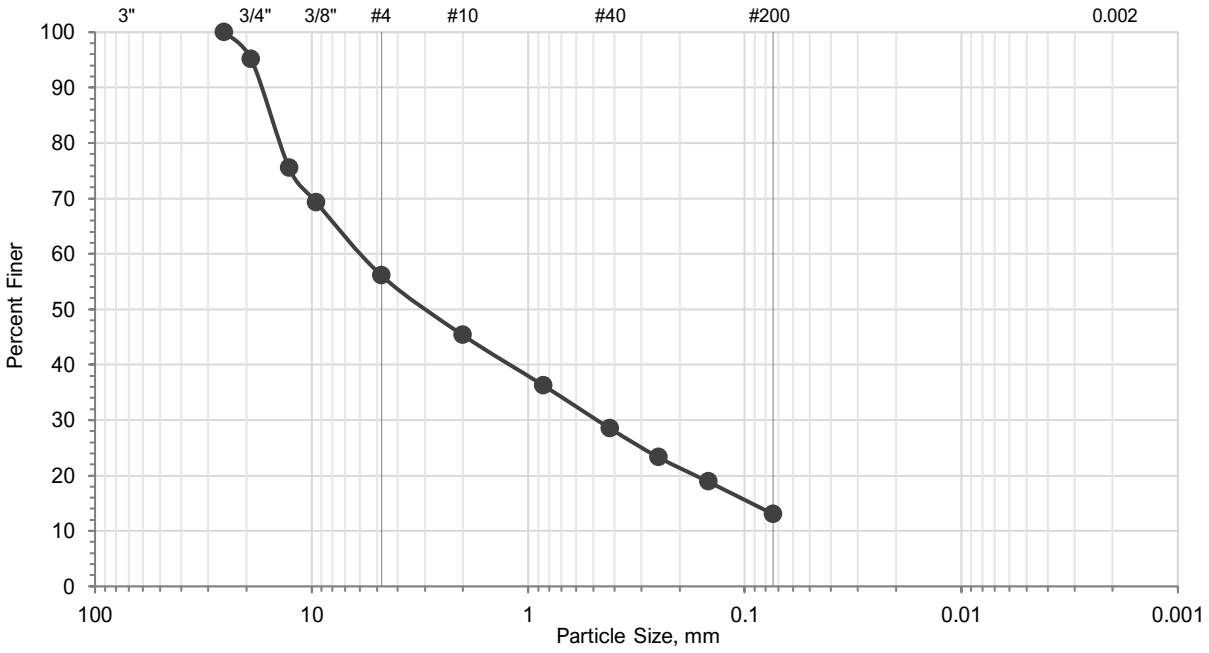
Project Number: 03.06802.01

Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-04	S-6	13.5'	15'

Location: Baltimore, Maryland

Sample Date: -



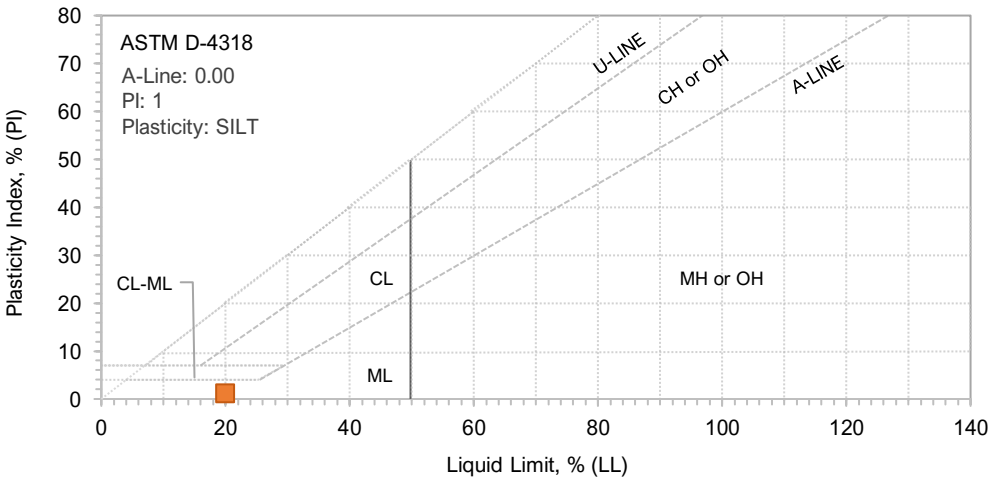
ASTM D-6913

Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	100.0
3/4"	19.0	95.1
1/2"	12.7	75.5
3/8"	9.51	69.3
#4	4.75	56.1
#10	2.00	45.3
#20	0.85	36.2
#40	0.42	28.5
#60	0.25	23.3
#100	0.147	18.9
#200	0.074	13.0

% Gravel (> 4.75 mm)			
Coarse	Fine		Total
4.9	39.0	=	43.9

% Sand				
Coarse	Medium	Fine		Total
10.8	16.8	15.5	=	43.1

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	20
Plastic Limit, %	19
Plasticity Index, %	1

USCS (D-2487)	AASHTO (M-145)
GM	A-1-a

Soil Description (D-2487)

Dark brown silty GRAVEL with sand

NMC	8.1%
OM	-
+ 3/8"	30.7%

Sample Type*	-
Data 2	-
Data 3	-

Data 4	-
Data 5	-
Data 6	-

08/25/24 Tested by: ST/JT Reviewed by: GP Jay Kay Testing

MSA MLS Stadium

Project Number: 03.06802.01

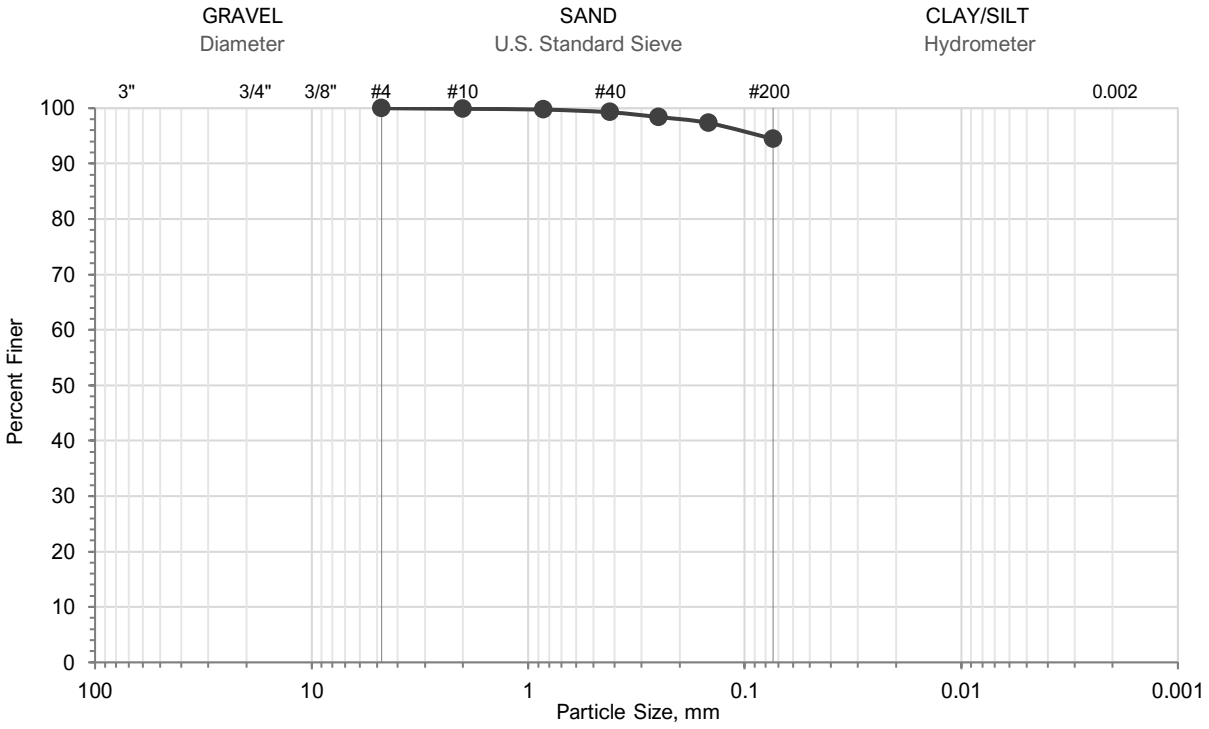
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-05	S-2	2'	4'

Location: Baltimore, Maryland

Sample Date: -

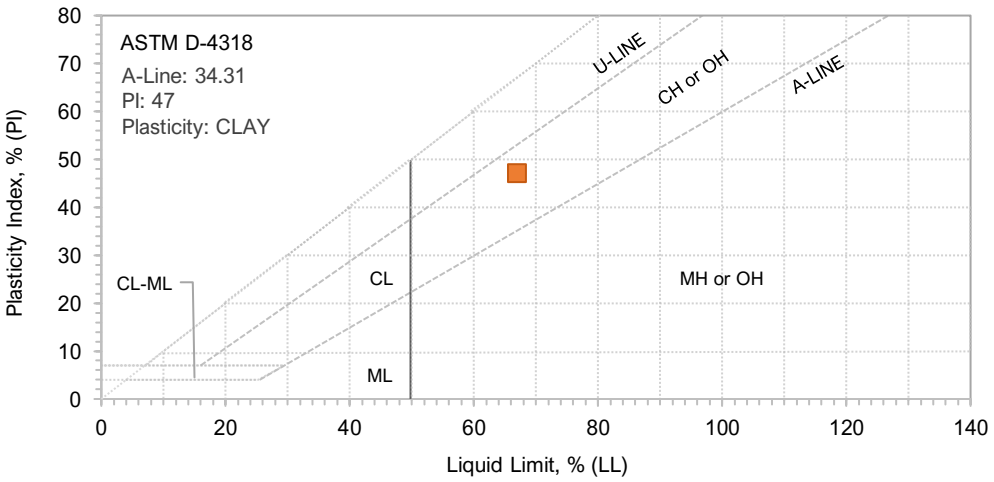
ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	99.8
#40	0.42	99.3
#60	0.25	98.4
#100	0.147	97.3
#200	0.074	94.4

% Gravel (> 4.75 mm)				% Sand					
Coarse	Fine		Total	Coarse	Medium	Fine		Total	
0.0	0.0	=	0.0	0.1	0.6	4.9	=	5.6	

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	67
Plastic Limit, %	20
Plasticity Index, %	47

USCS (D-2487)	AASHTO (M-145)
CH	A-7-6

Soil Description (D-2487)

Brown fat CLAY

NMC	25.7%		Sample Type*	-	Data 4	-
OM	-		Data 2	-	Data 5	-
			Data 3	-	Data 6	-
+ 3/8"	0.0%					

MSA MLS Stadium

Project Number: 03.06802.01

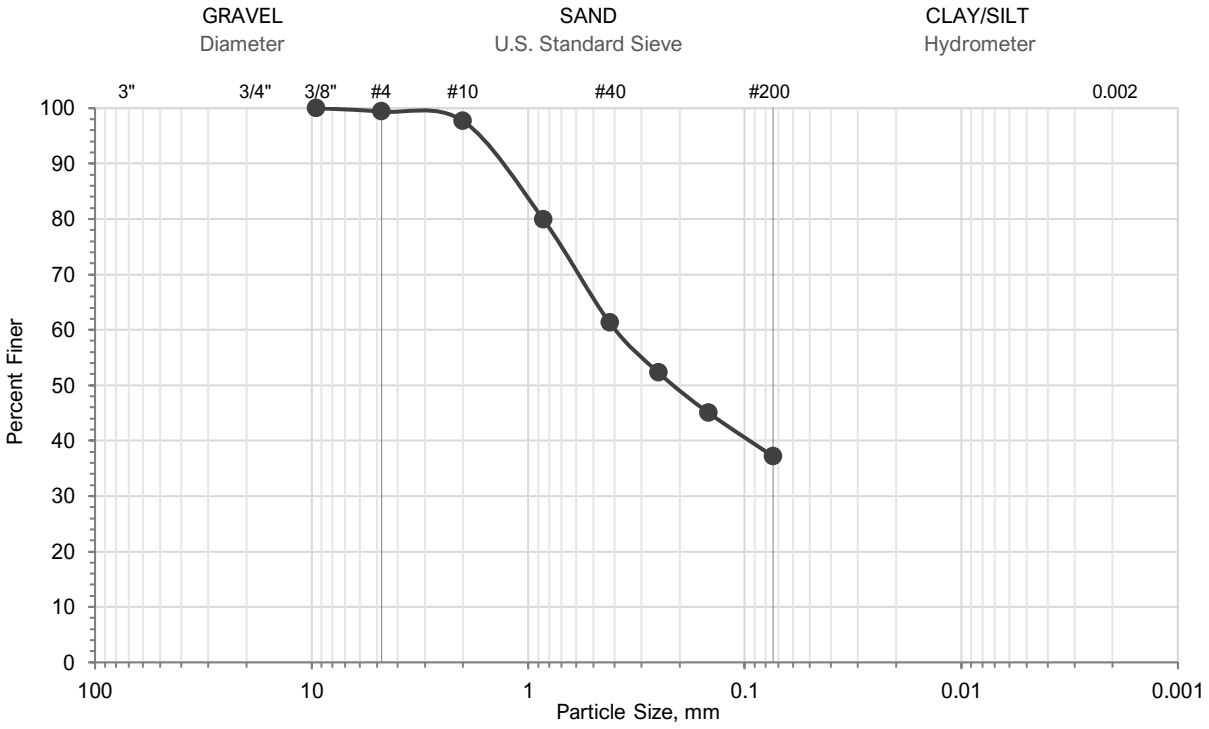
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-05	S-6	13.5'	15'

Location: Baltimore, Maryland

Sample Date: -

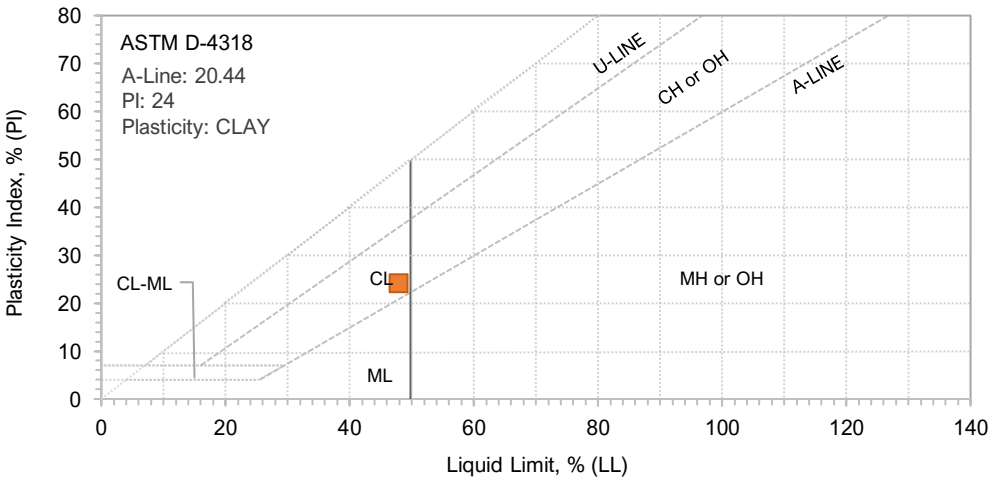
ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	100.0
#4	4.75	99.4
#10	2.00	97.7
#20	0.85	79.9
#40	0.42	61.3
#60	0.25	52.3
#100	0.147	45.0
#200	0.074	37.2

% Gravel (> 4.75 mm)			% Sand				
Coarse	Fine	Total	Coarse	Medium	Fine	Total	
0.0	0.6	= 0.6	1.7	36.4	24.1	= 62.2	

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	48
Plastic Limit, %	24
Plasticity Index, %	24

USCS (D-2487)	AASHTO (M-145)
SC	A-7-6

Soil Description (D-2487)

Yellow-brown clayey SAND

NMC	19.8%	Sample Type*	-	Data 4	-
OM	-	Data 2	-	Data 5	-
		Data 3	-	Data 6	-
+ 3/8"	0.0%				

MSA MLS Stadium

Project Number: 03.06802.01

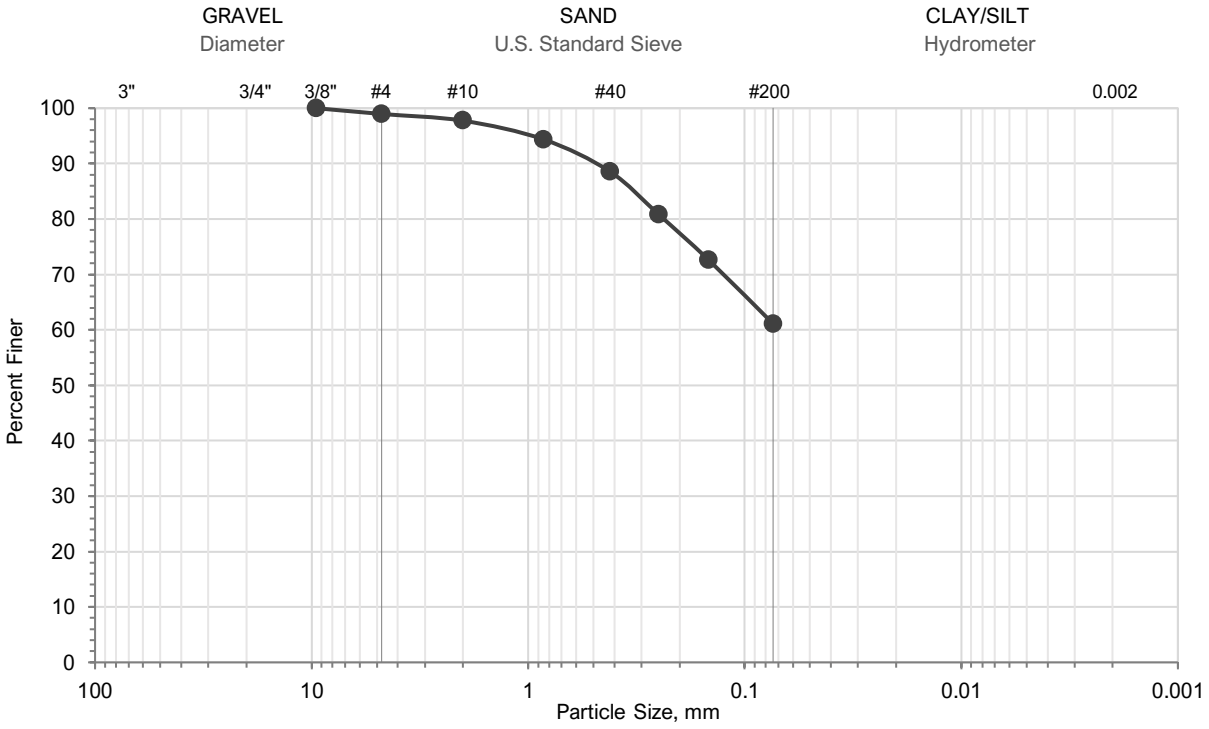
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-05	S-9	28.5'	30'

Location: Baltimore, Maryland

Sample Date: -

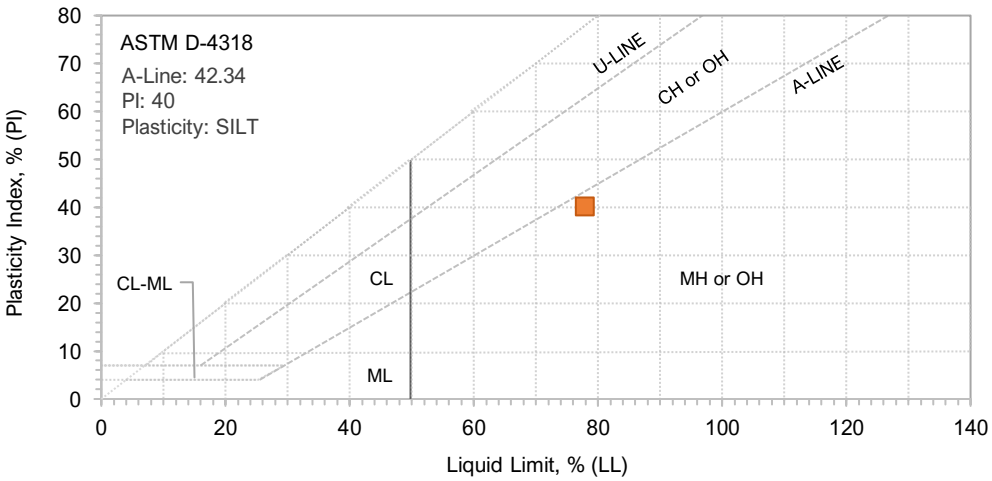
ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	100.0
#4	4.75	99.0
#10	2.00	97.7
#20	0.85	94.4
#40	0.42	88.6
#60	0.25	80.8
#100	0.147	72.6
#200	0.074	61.1

% Gravel (> 4.75 mm)				% Sand				
Coarse	Fine		Total	Coarse	Medium	Fine		Total
0.0	1.0	=	1.0	1.3	9.1	27.5	=	37.9

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	78
Plastic Limit, %	38
Plasticity Index, %	40

USCS (D-2487)	AASHTO (M-145)
MH	A-7-5

Soil Description (D-2487)

Dark green sandy elastic SILT

NMC	30.4%		Sample Type*	-	Data 4	-
OM	-		Data 2	-	Data 5	-
			Data 3	-	Data 6	-
+ 3/8"	0.0%					

08/25/24 Tested by: ST/JT Reviewed by: GP Jay Kay Testing

Client:	DMY Engineering Consultants				
Project:	MLS NEXT Pro Soccer Stadium				
Location:	Baltimore, MD			Project No:	GTX-319722
Boring ID:	B-03	Sample Type:	Tube	Tested By:	ajl
Sample ID:	S-4	Test Date:	09/04/24	Checked By:	ank
Depth :	6-8	Test Id:	783560		
Test Comment:	---				
Visual Description:	Moist, dark yellowish brown silty sand				
Sample Comment:	---				

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
B-03	S- 4	6-8	Moist, dark yellowish brown silty sand	20.6

Notes: Temperature of Drying : 110º Celsius

Client:	DMY Engineering Consultants				
Project:	MLS NEXT Pro Soccer Stadium				
Location:	Baltimore, MD			Project No:	GTX-319722
Boring ID:	B-03	Sample Type:	Tube	Tested By:	ajl
Sample ID:	S-4	Test Date:	09/12/24	Checked By:	ank
Depth :	6-8	Test Id:	783558		
Test Comment:	---				
Visual Description:	Moist, dark yellowish brown silty sand				
Sample Comment:	---				

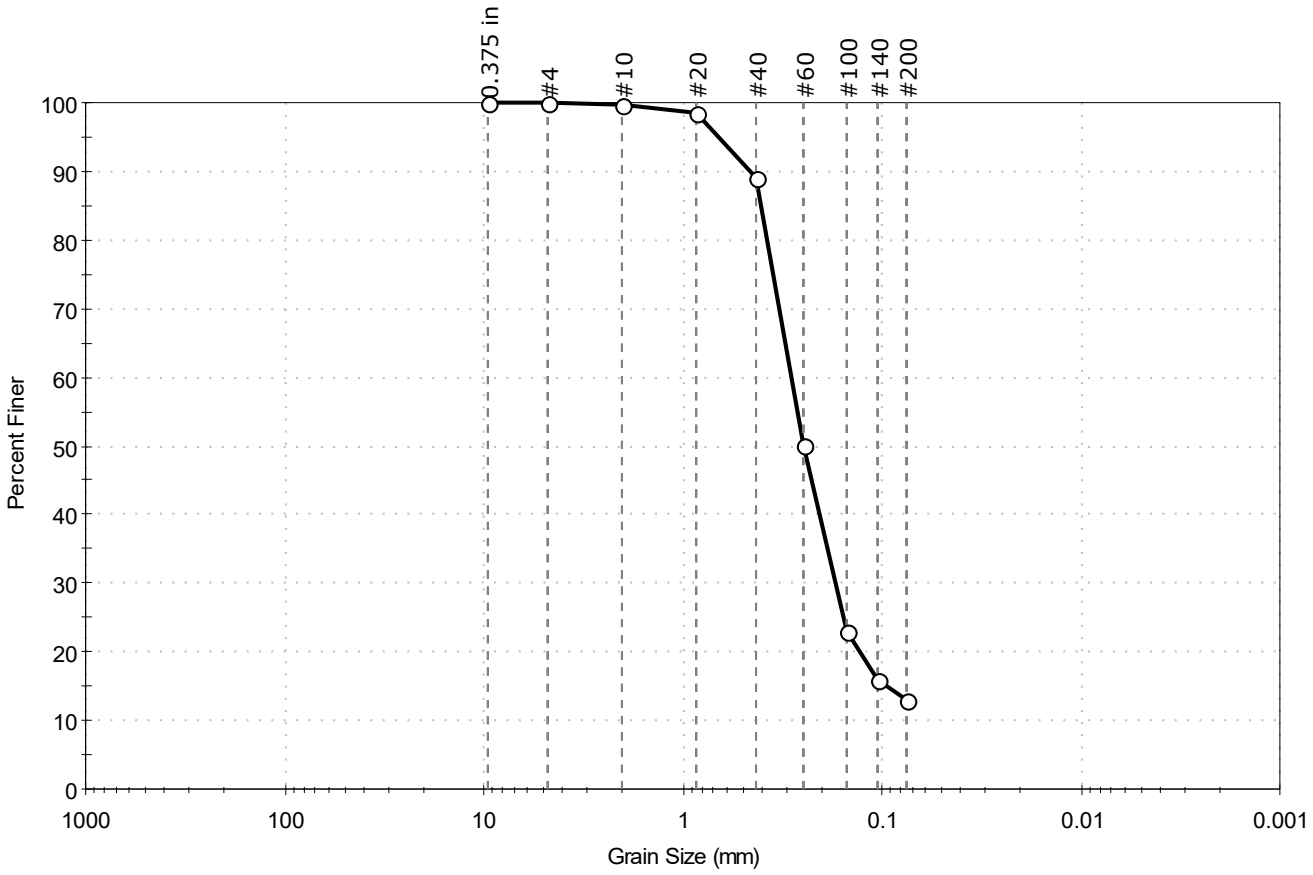
USCS Classification - ASTM D2487

Boring ID	Sample ID	Depth	Group Name	Group Symbol	Gravel, %	Sand, %	Fines, %
B-03	S-4	6-8	Silty SAND	SM	0.0	87.0	13.0

Remarks: Grain Size analysis performed by ASTM D 6913 results enclosed
Atterberg Limits performed by ASTM D4318, results enclosed

Client:	DMY Engineering Consultants				
Project:	MLS NEXT Pro Soccer Stadium				
Location:	Baltimore, MD			Project No:	GTX-319722
Boring ID:	B-03	Sample Type:	Tube	Tested By:	ajl
Sample ID:	S-4	Test Date:	09/09/24	Checked By:	ank
Depth :	6-8	Test Id:	783559		
Test Comment:	---				
Visual Description:	Moist, dark yellowish brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	87.0	13.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	89		
#60	0.25	50		
#100	0.15	23		
#140	0.11	16		
#200	0.075	13		

Coefficients

D_{85} = 0.4025 mm D_{30} = 0.1708 mm

D_{60} = 0.2861 mm D_{15} = 0.0947 mm

D_{50} = 0.2495 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	DMY Engineering Consultants				
Project:	MLS NEXT Pro Soccer Stadium				
Location:	Baltimore, MD			Project No:	GTX-319722
Boring ID:	B-03	Sample Type:	Tube	Tested By:	cam
Sample ID:	S-4	Test Date:	09/03/24	Checked By:	ank
Depth :	6-8	Test Id:	783557		
Test Comment:	---				
Visual Description:	Moist, dark yellowish brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

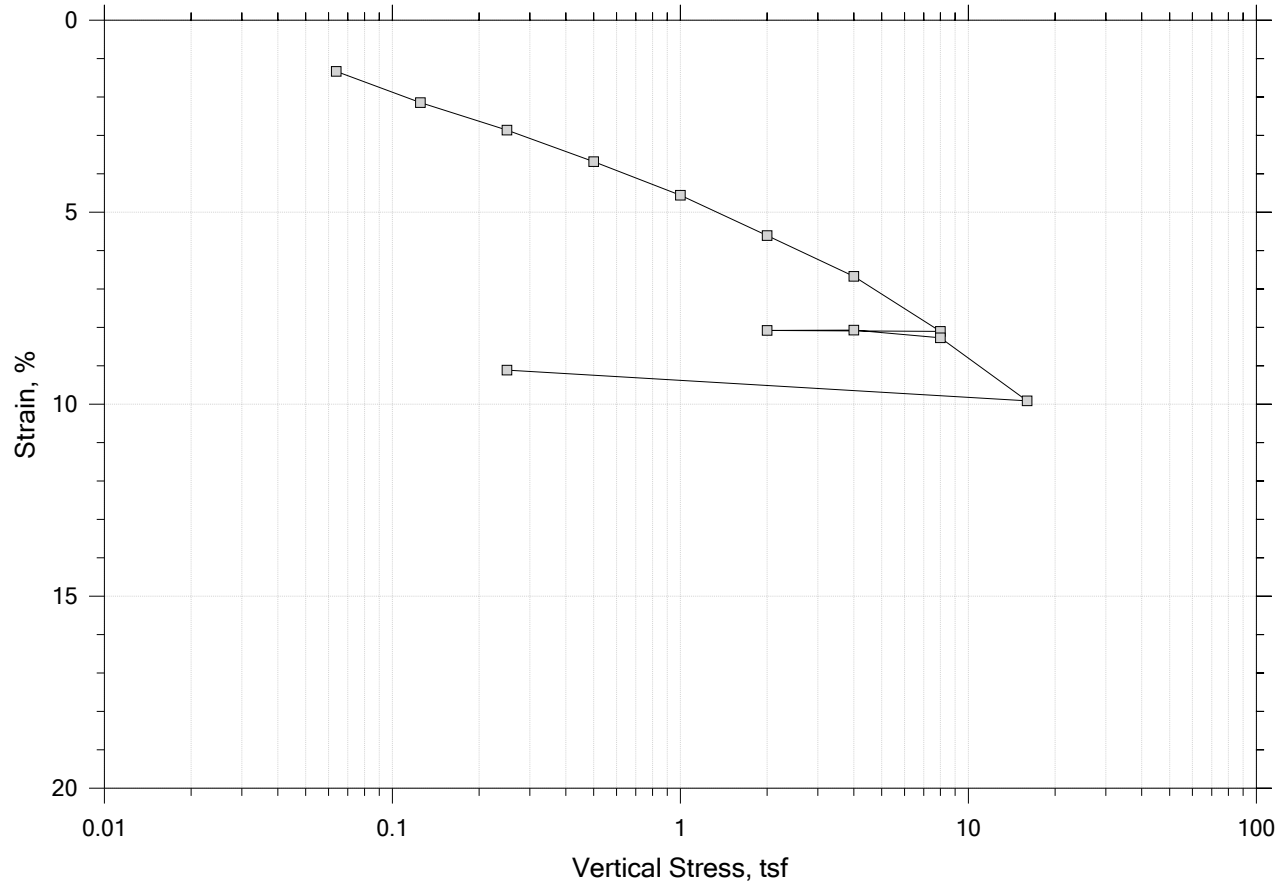
Sample Determined to be non-plastic

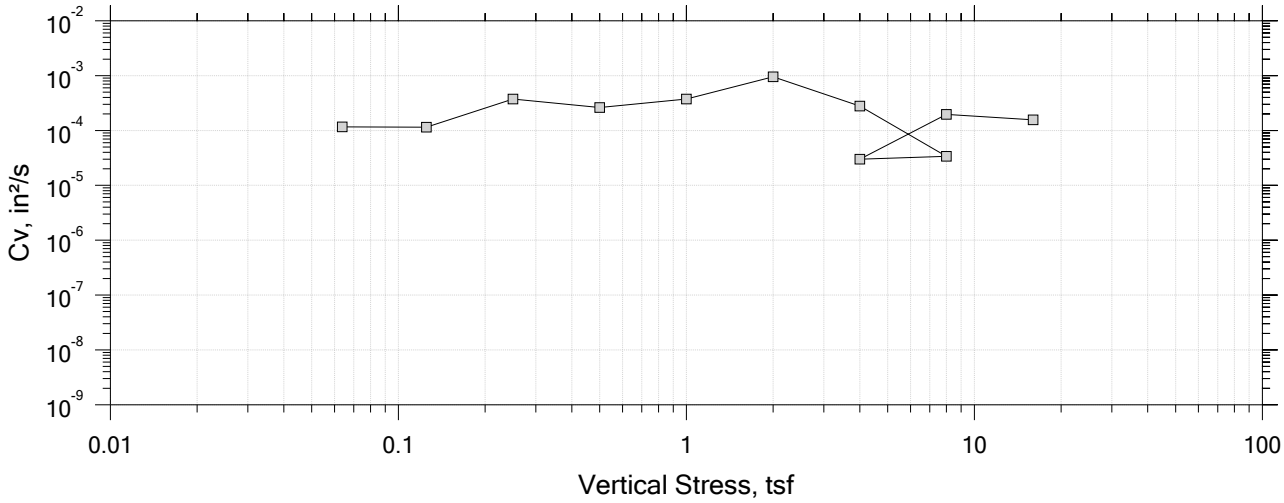
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	S-4	B-03	6-8	21	n/a	n/a	n/a	n/a	Silty SAND (SM)

11% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

One-Dimensional Consolidation by ASTM D2435 - Method B

Summary Report

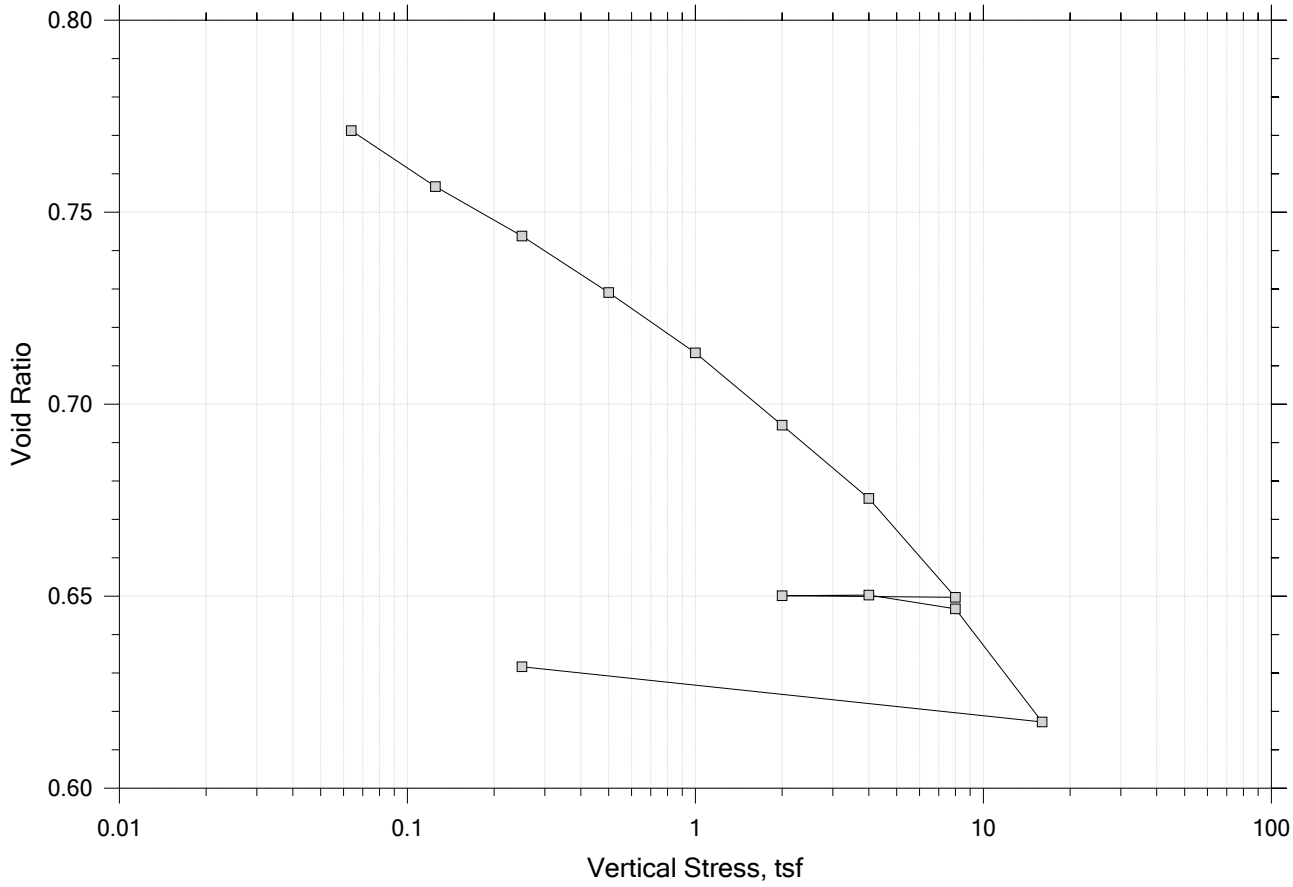


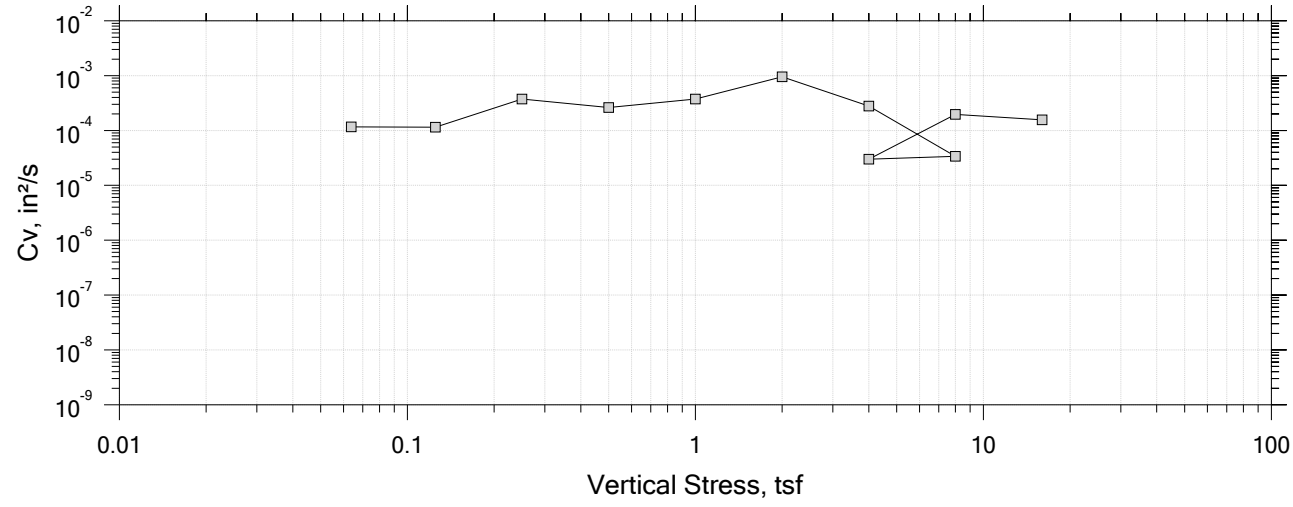


GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		
	Displacement at End of Increment		

One-Dimensional Consolidation by ASTM D2435 - Method B

Summary Report





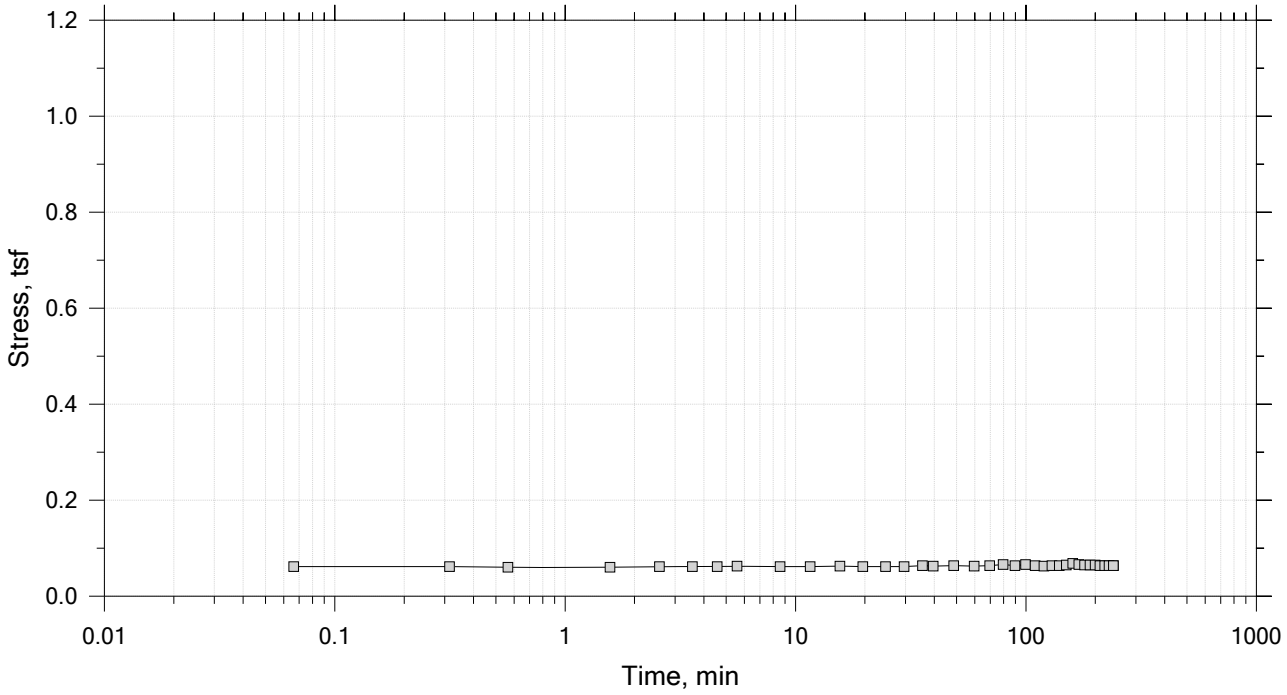
GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		
	Displacement at End of Increment		

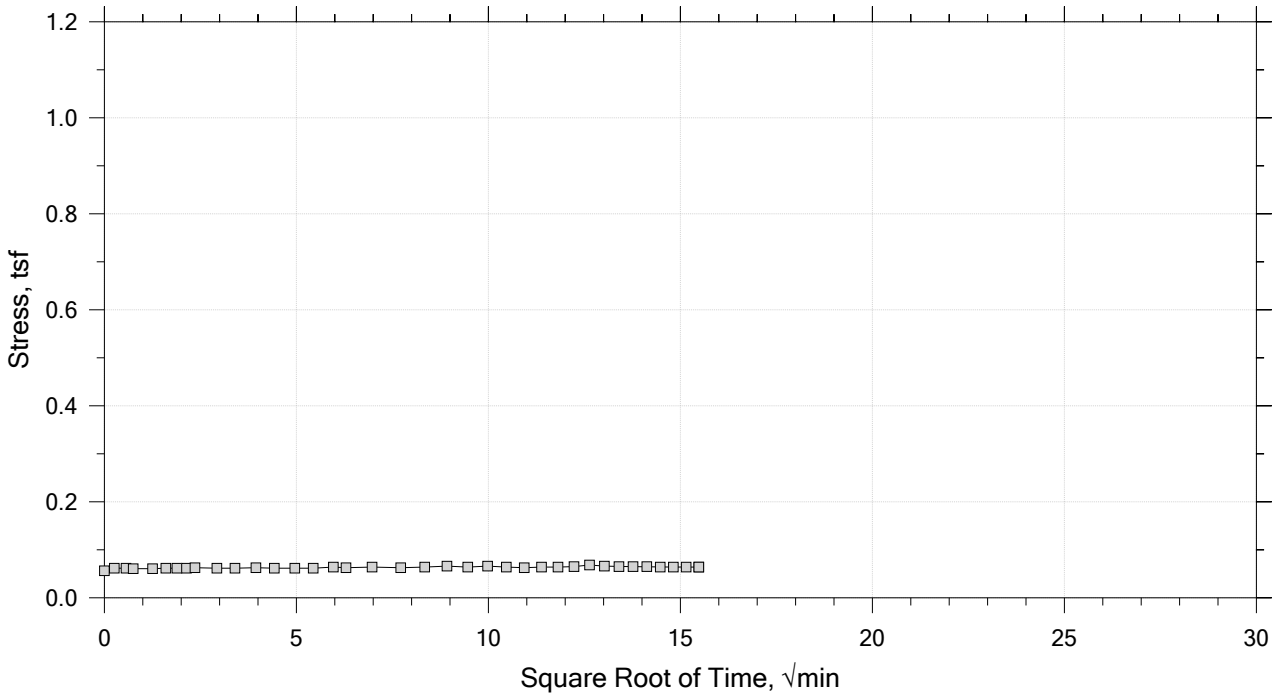
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 1 of 13

Constant Volume Step

Stress: 0.0638 tsf

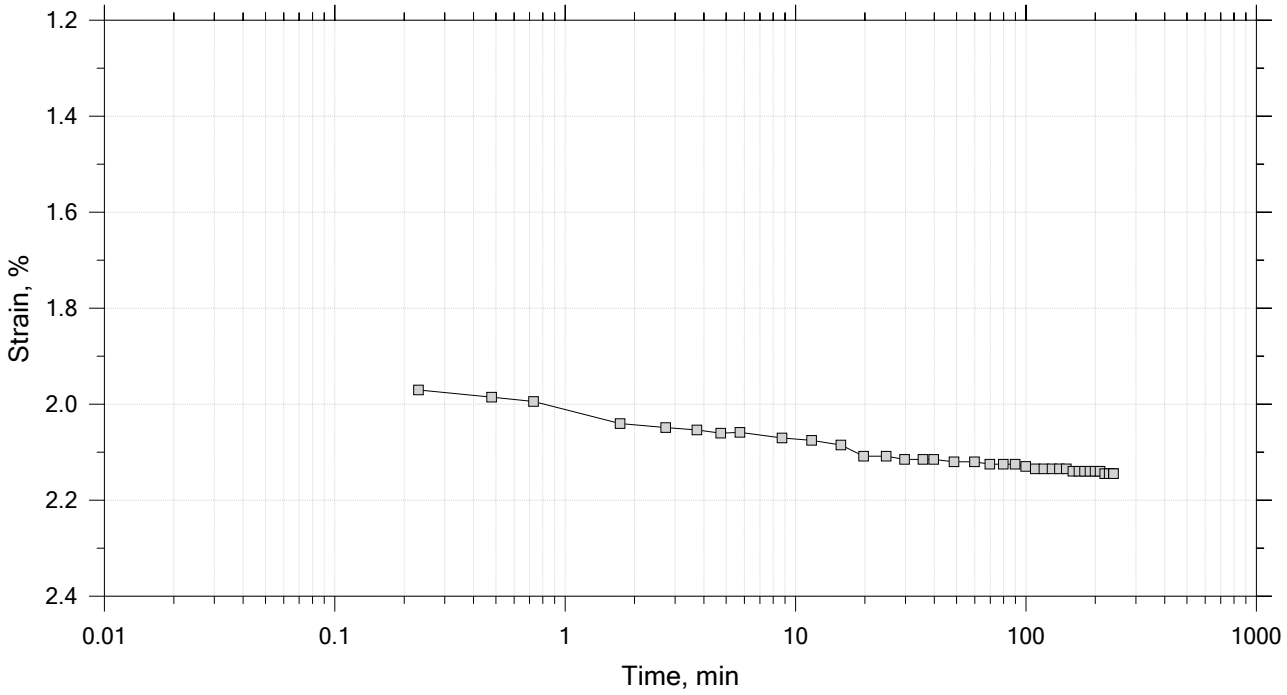


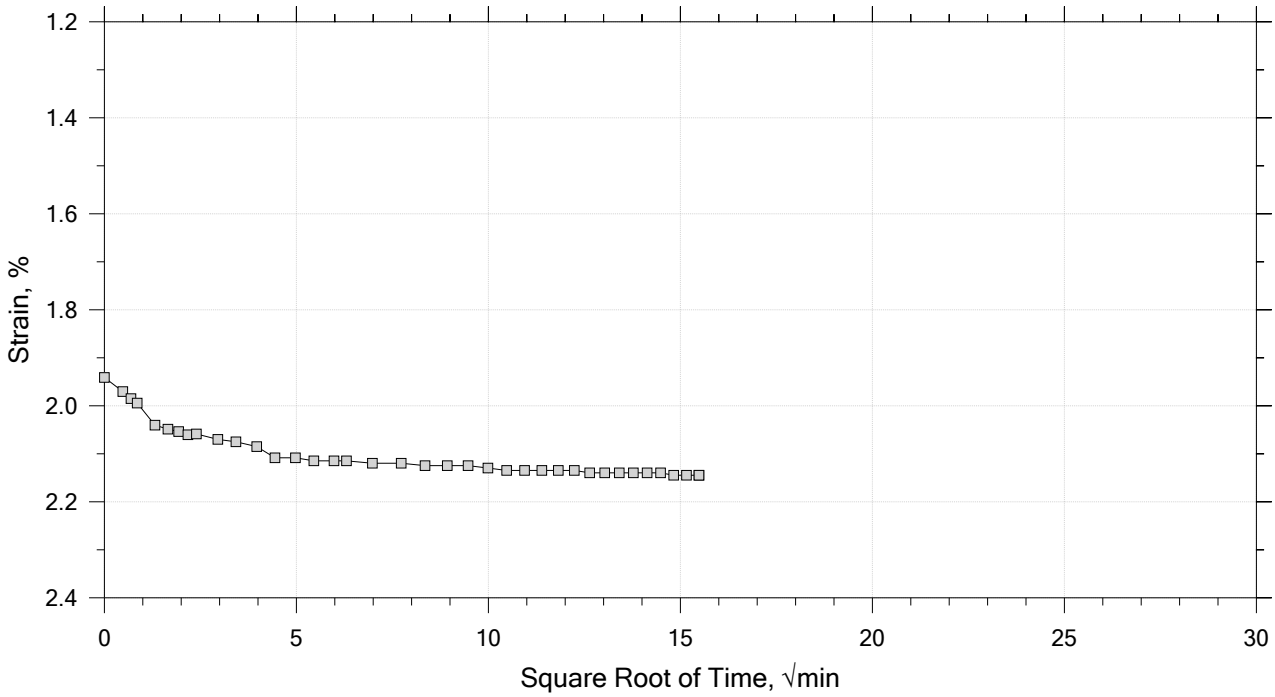


GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 2 of 13
Constant Load Step
Stress: 0.125 tsf

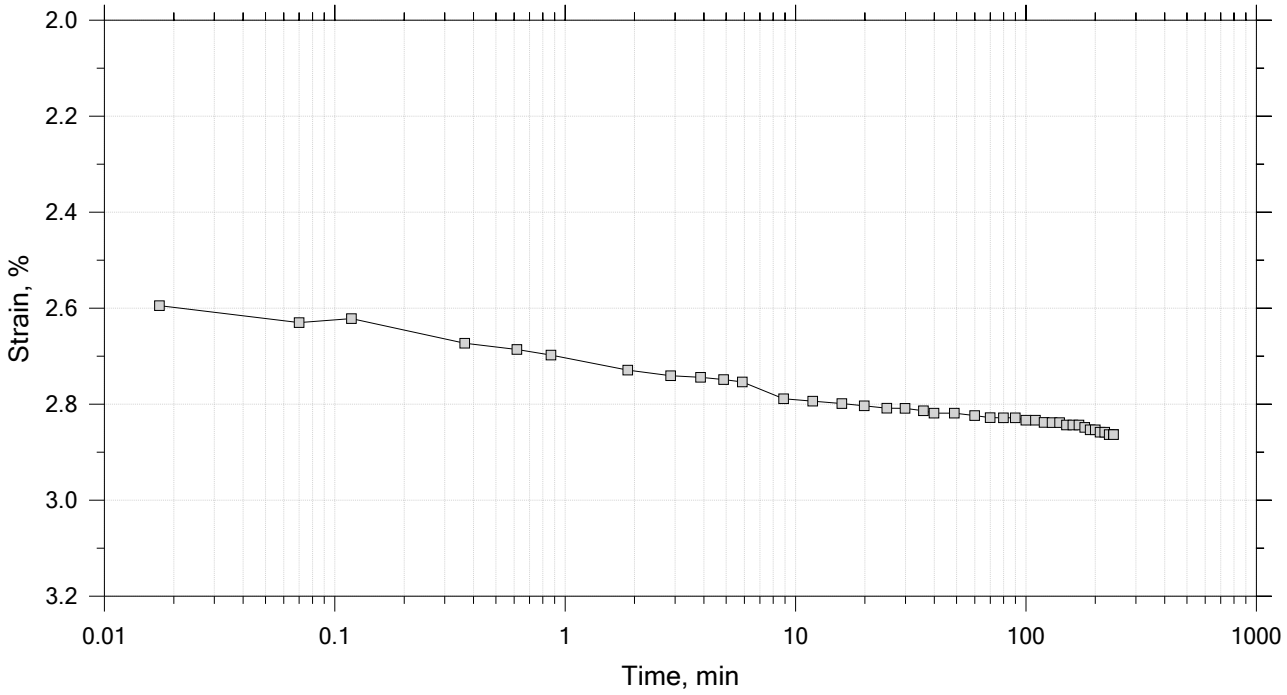


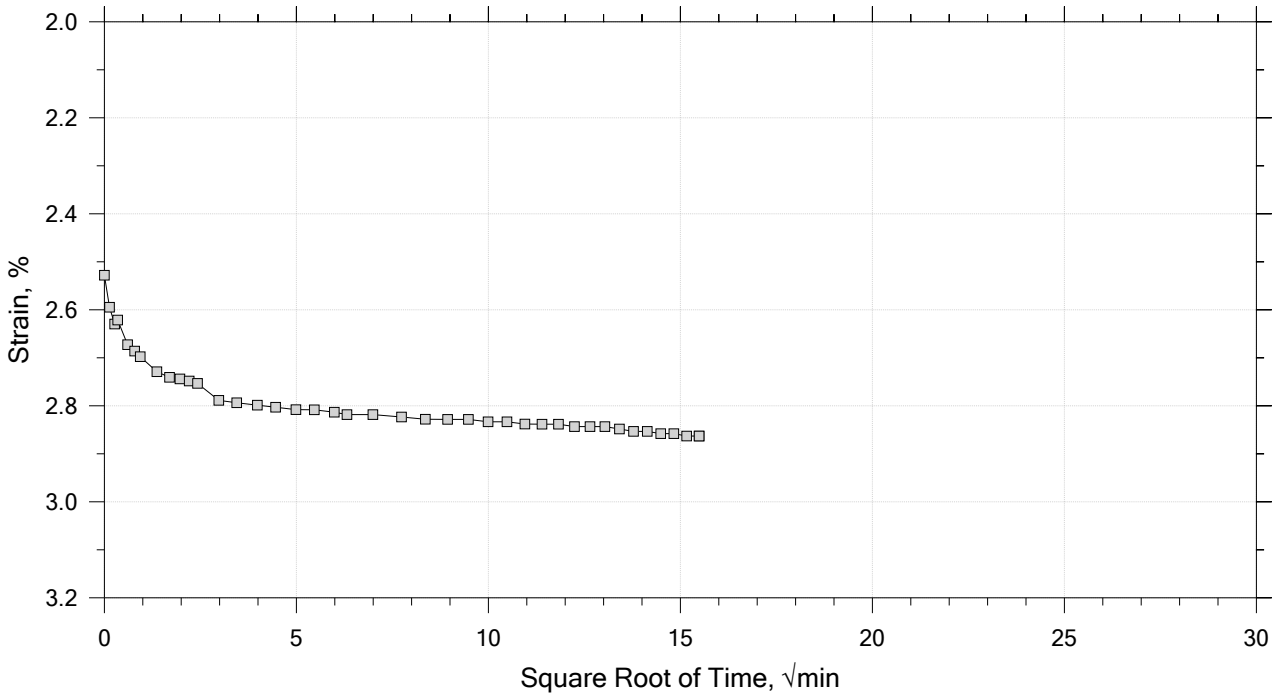


GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 3 of 13
Constant Load Step
Stress: 0.25 tsf





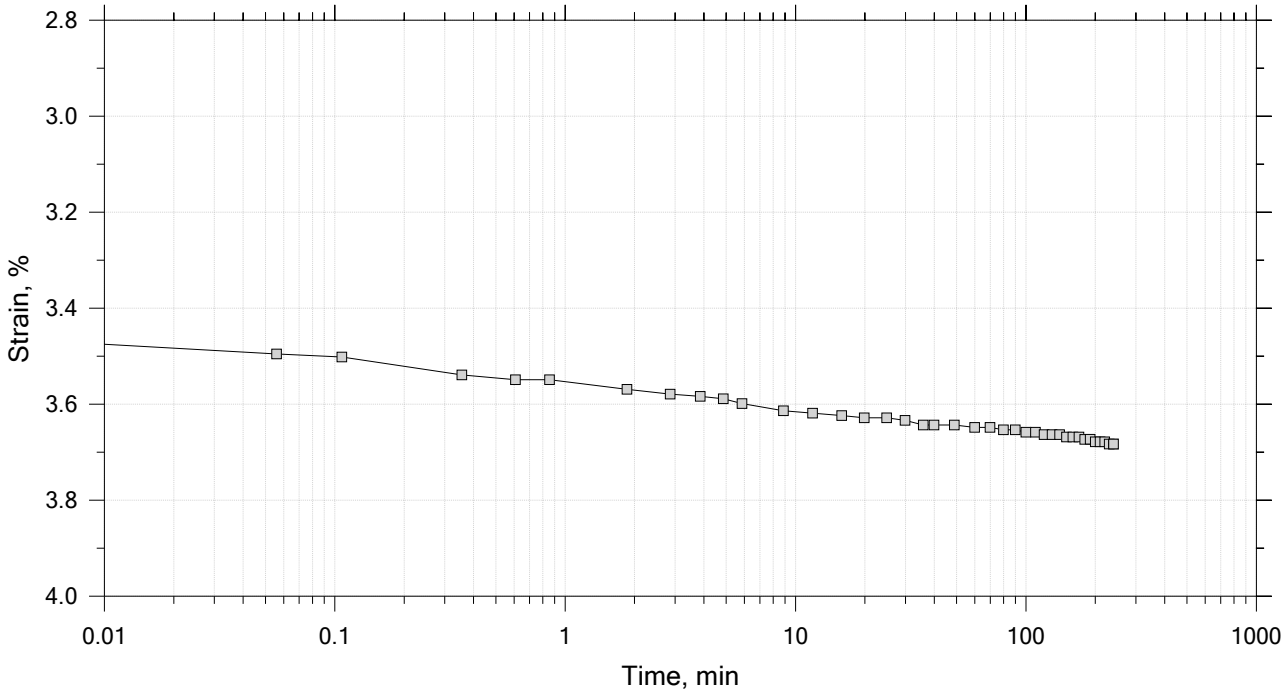
GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

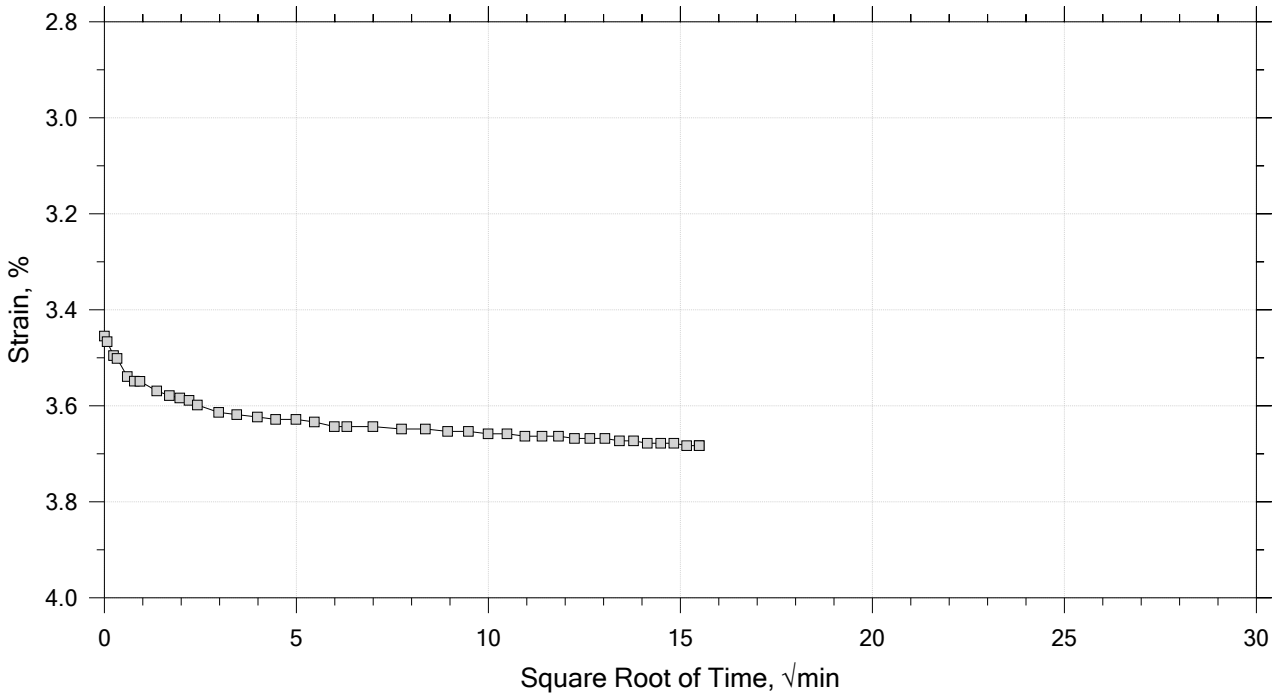
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 4 of 13

Constant Load Step

Stress: 0.5 tsf





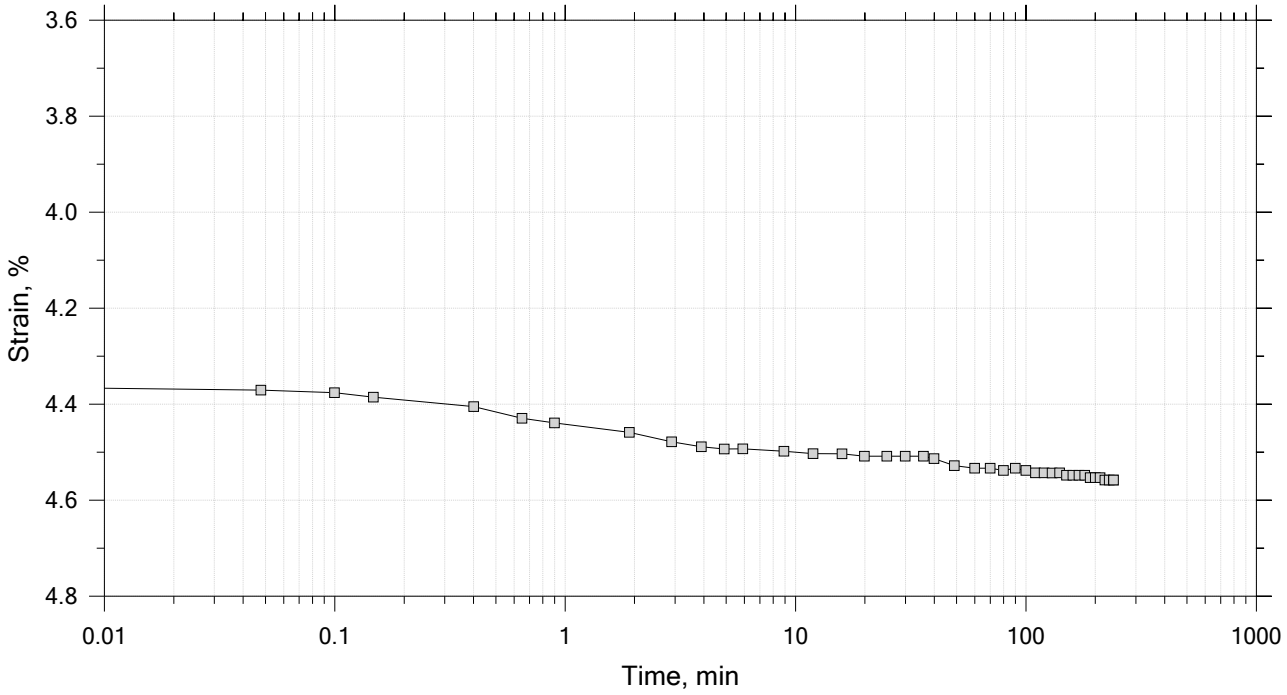
GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

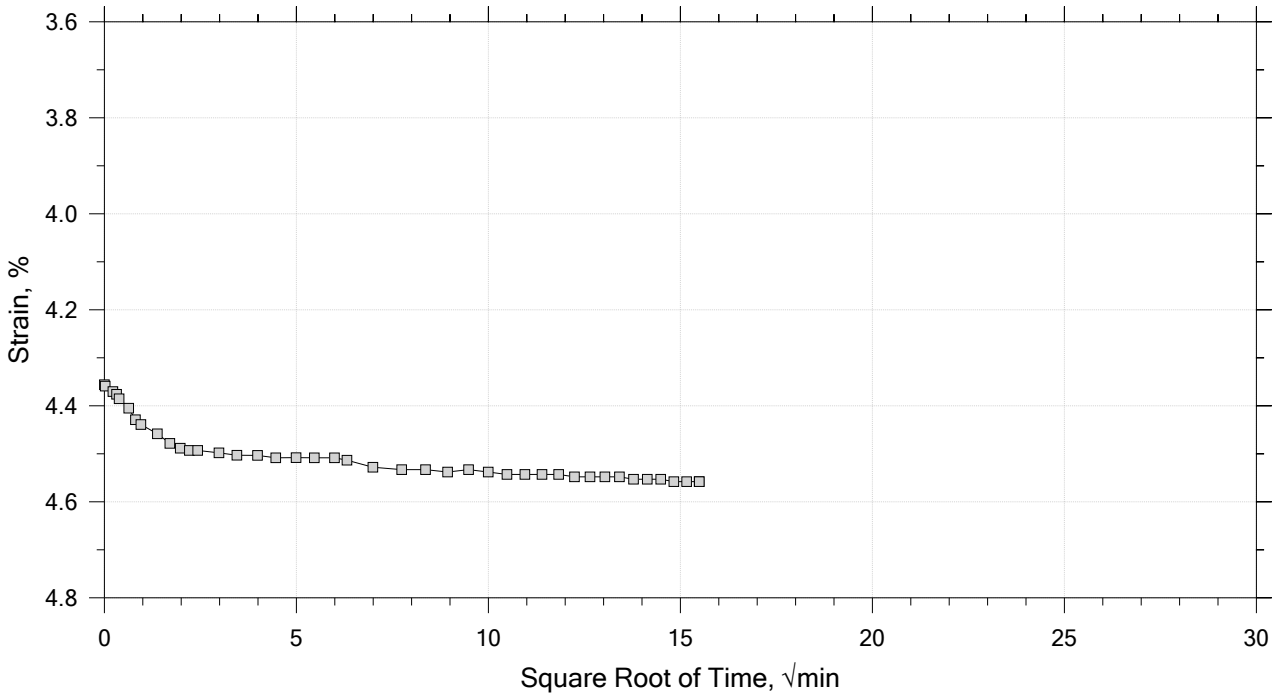
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 5 of 13

Constant Load Step

Stress: 1 tsf





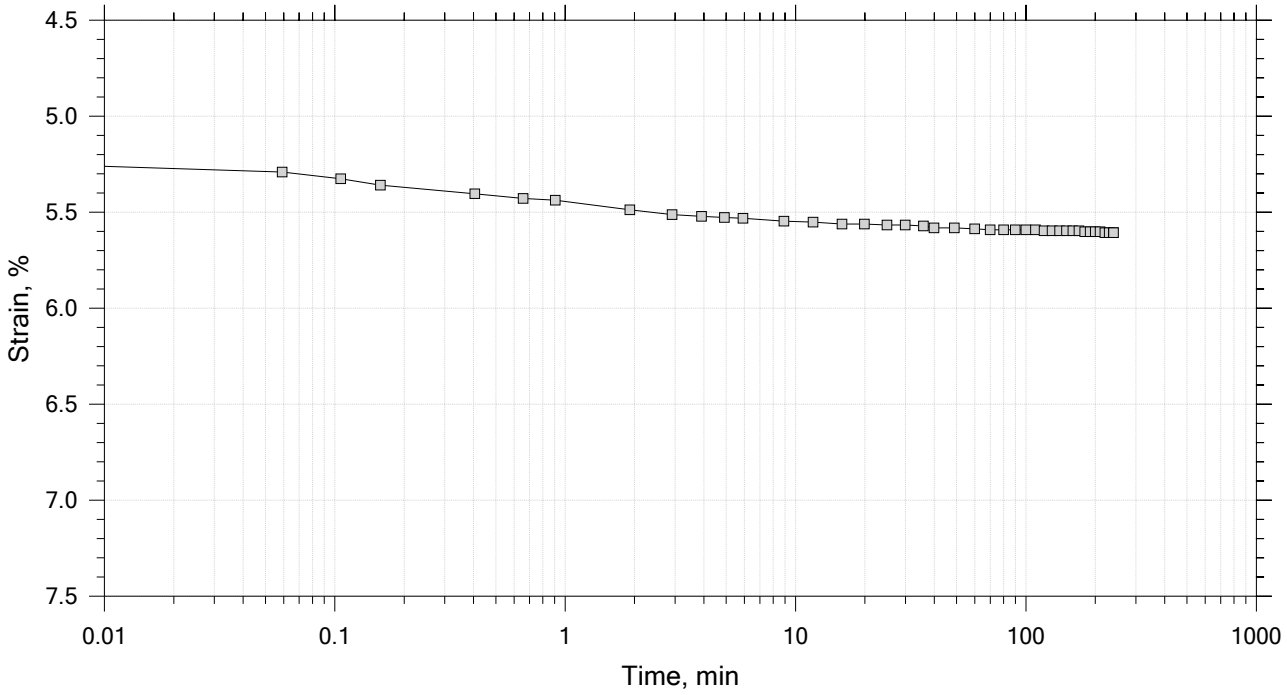
GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

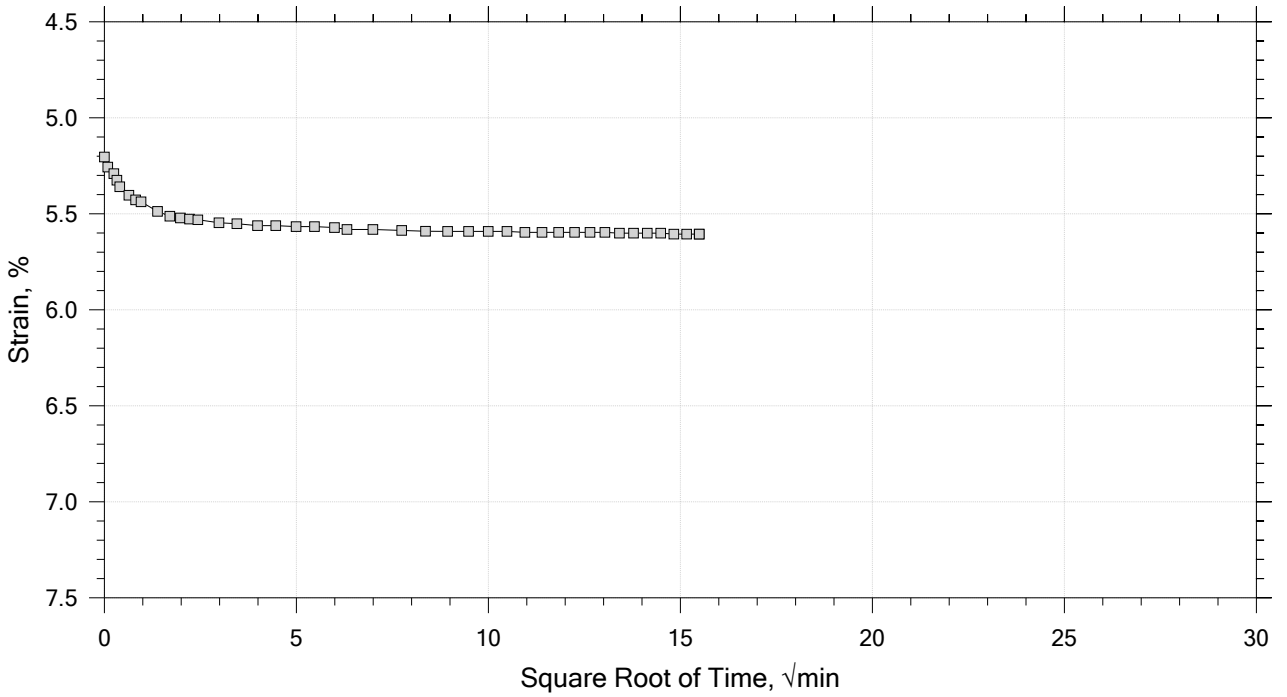
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 6 of 13

Constant Load Step

Stress: 2 tsf





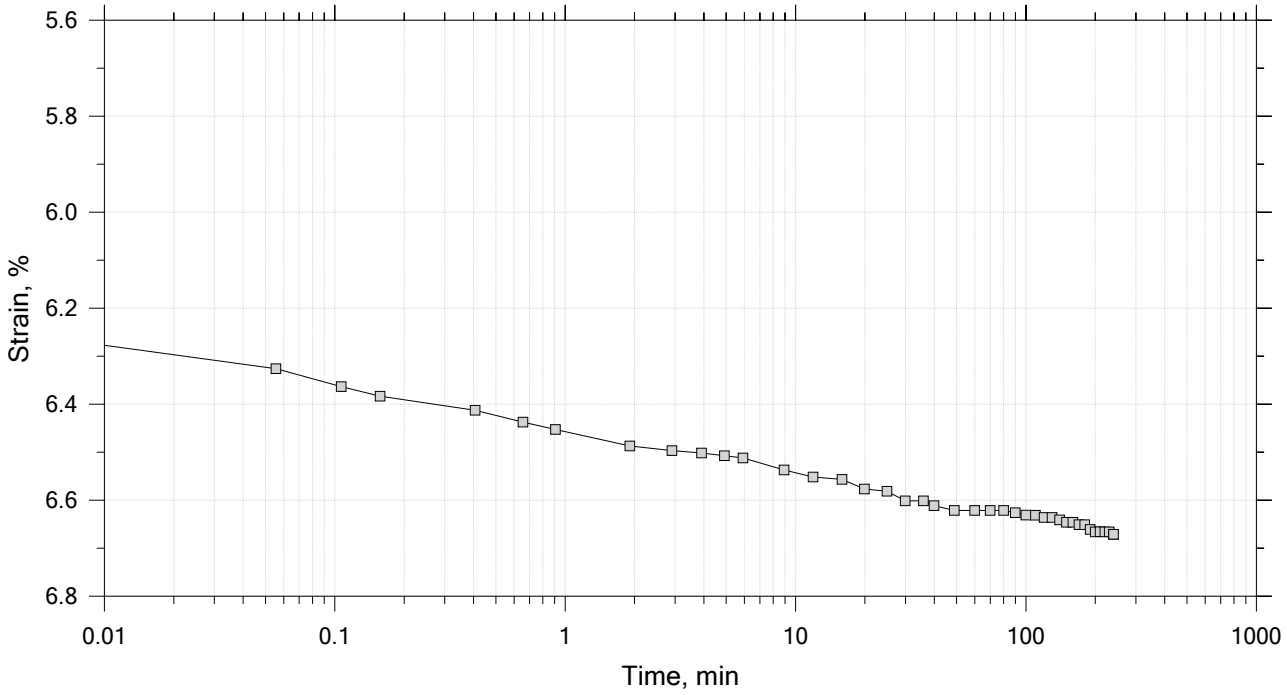
GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

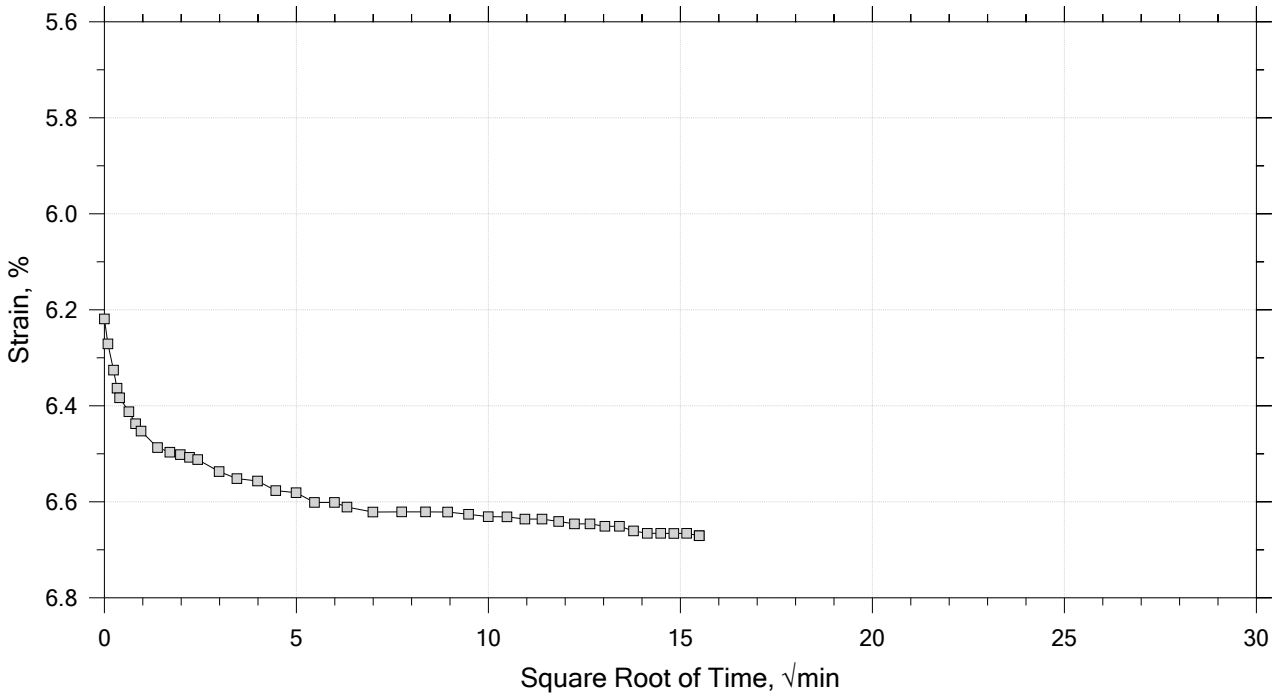
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 7 of 13

Constant Load Step

Stress: 4 tsf





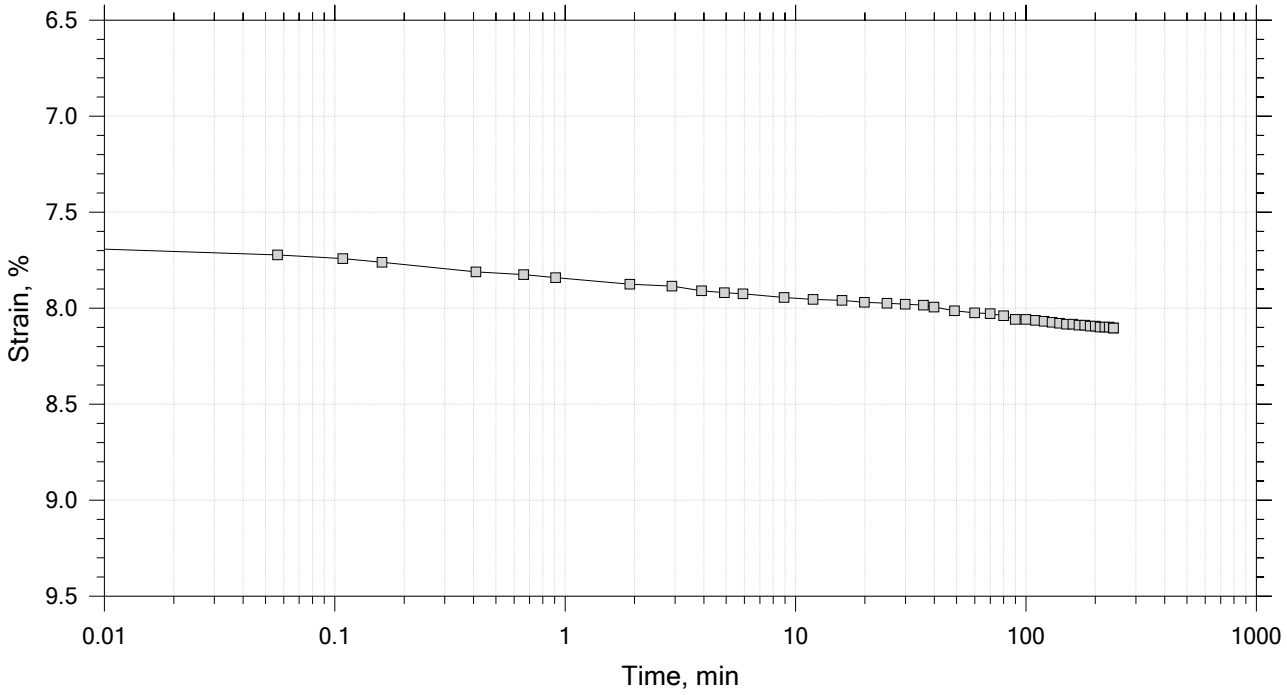
GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

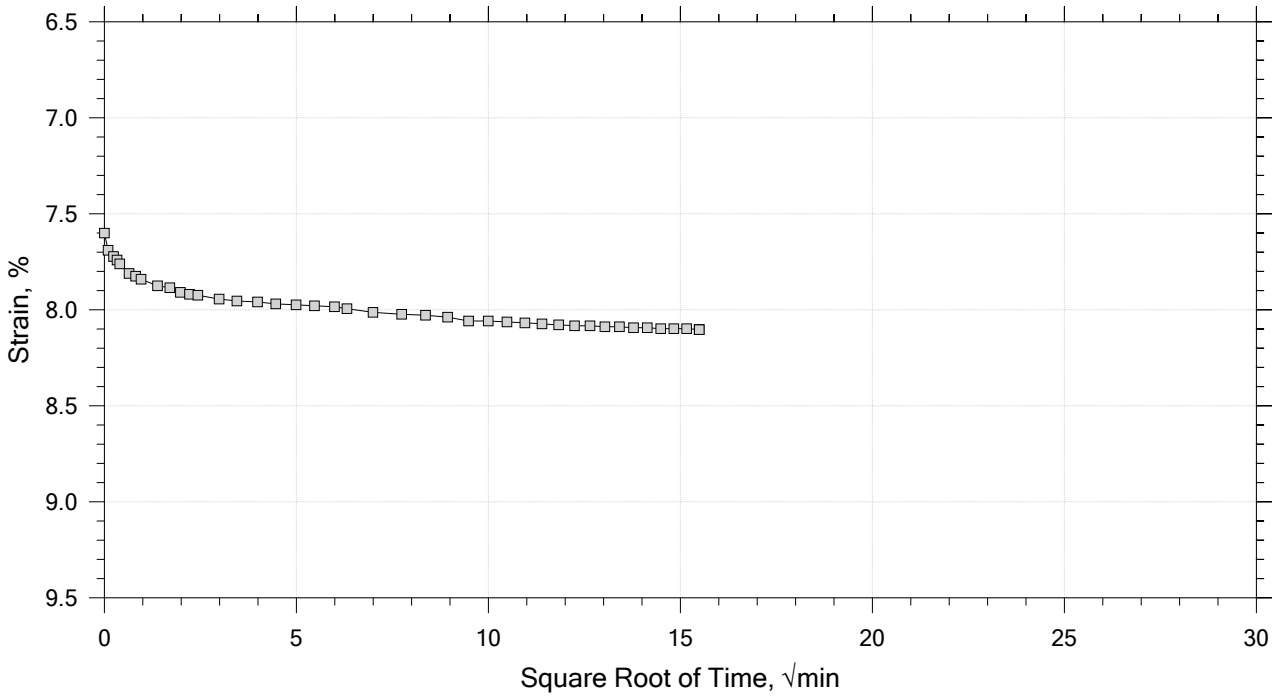
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 8 of 13

Constant Load Step

Stress: 8 tsf





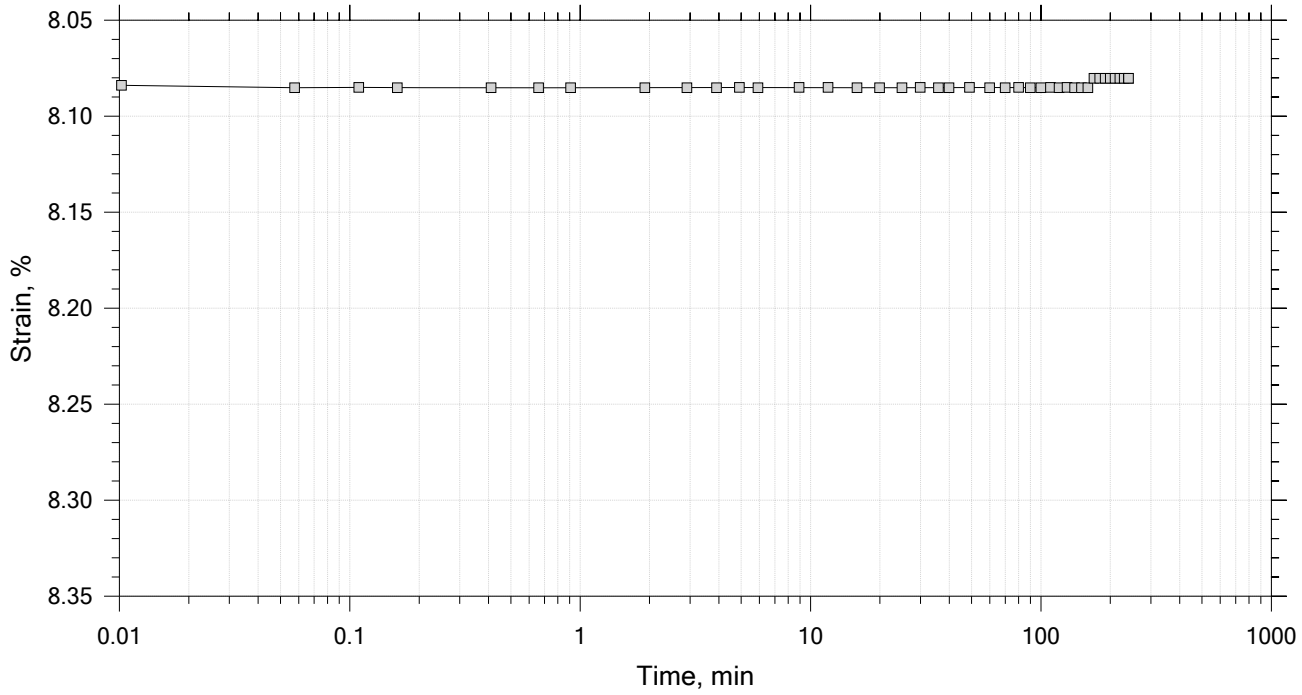
GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

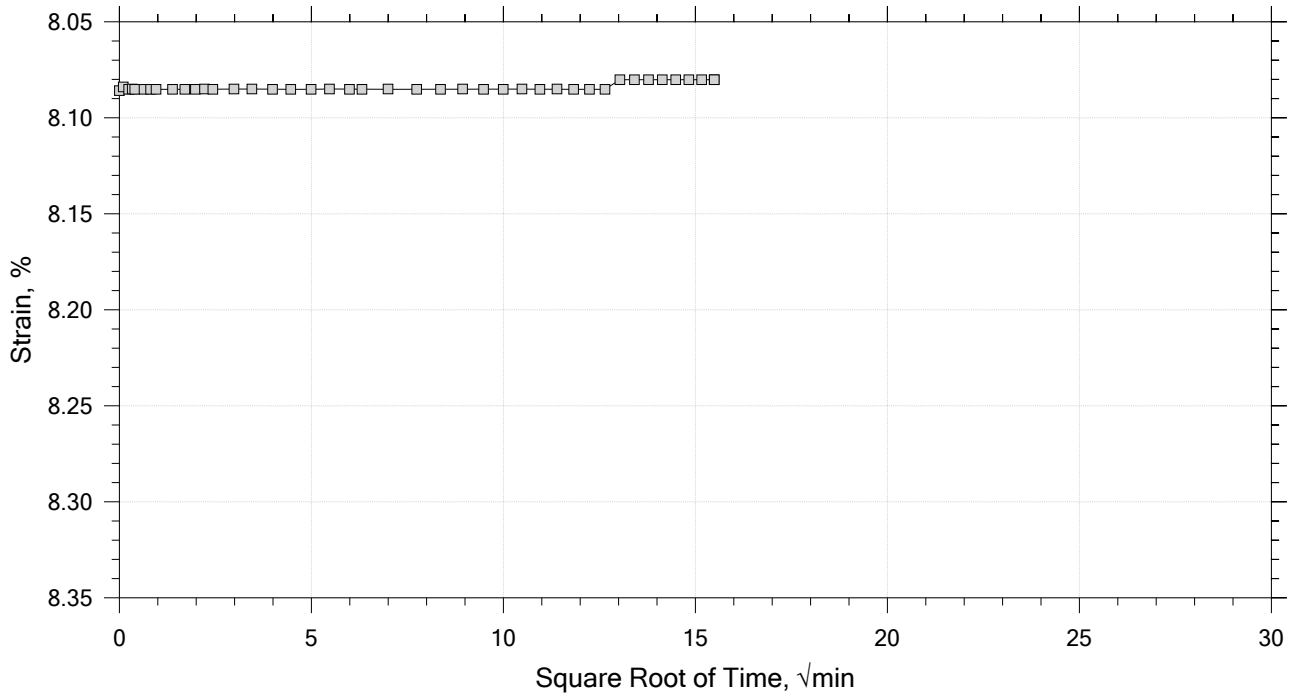
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 9 of 13

Constant Load Step

Stress: 2 tsf

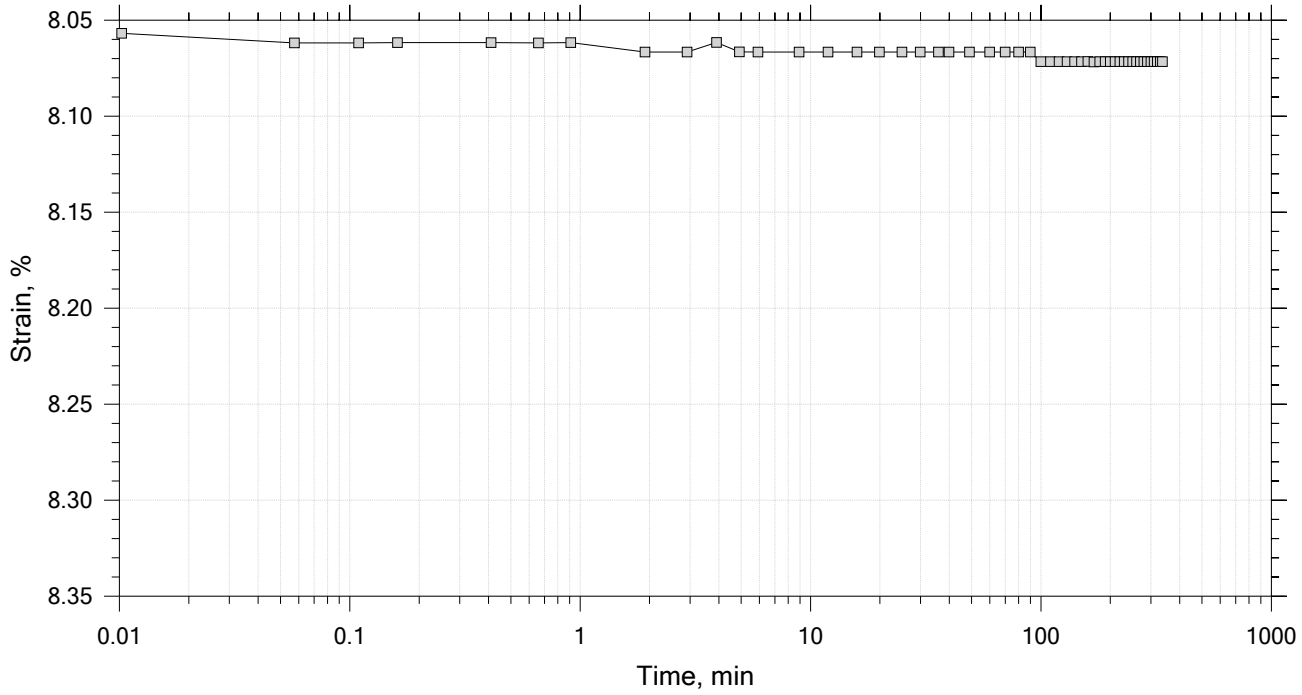


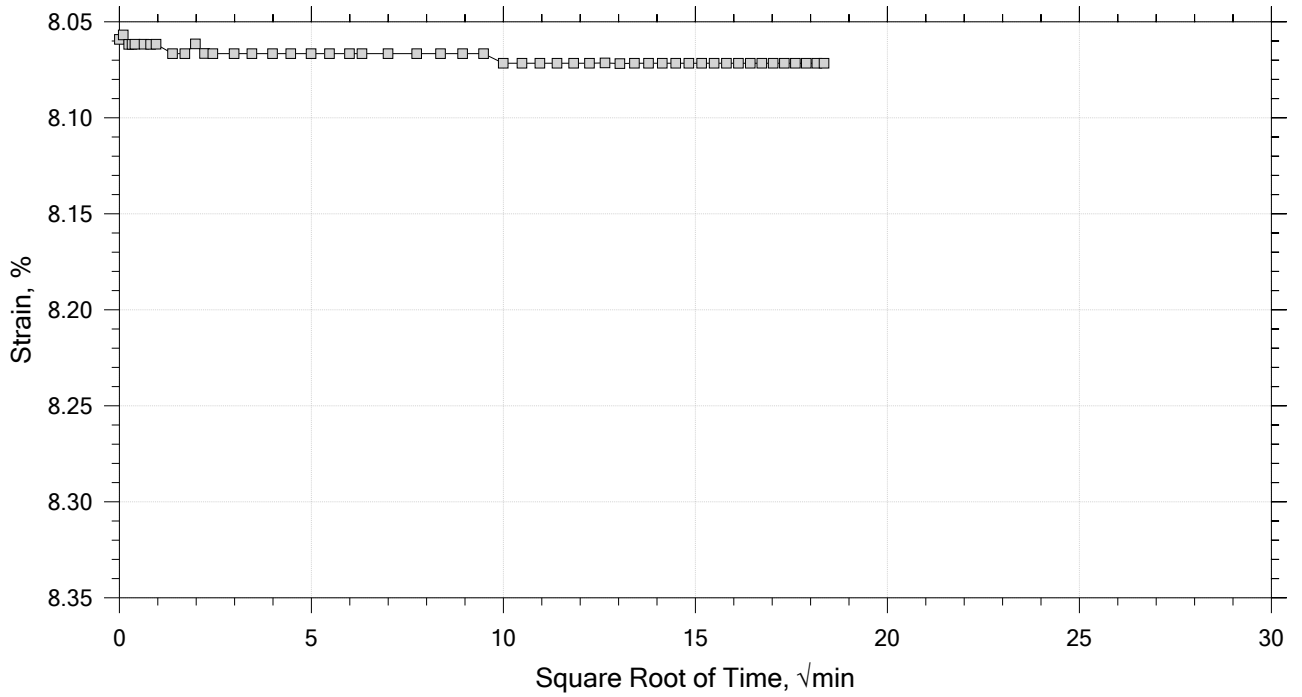


GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 10 of 13
Constant Load Step
Stress: 4 tsf

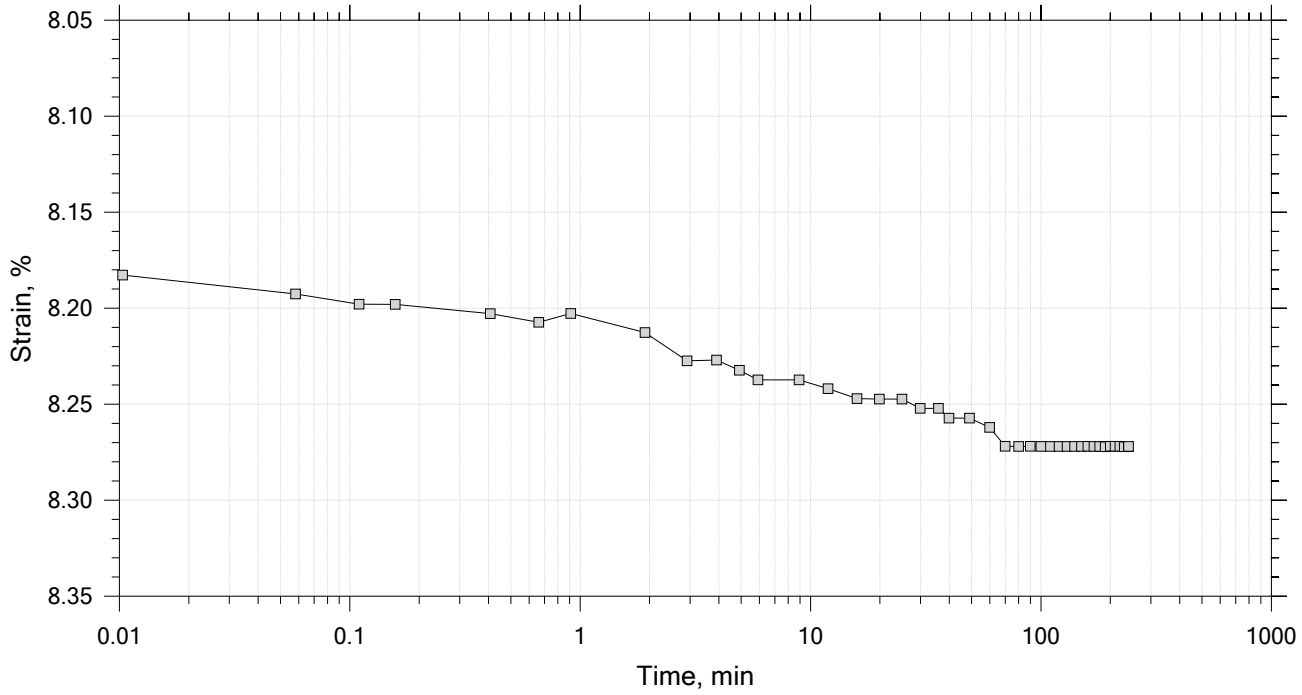


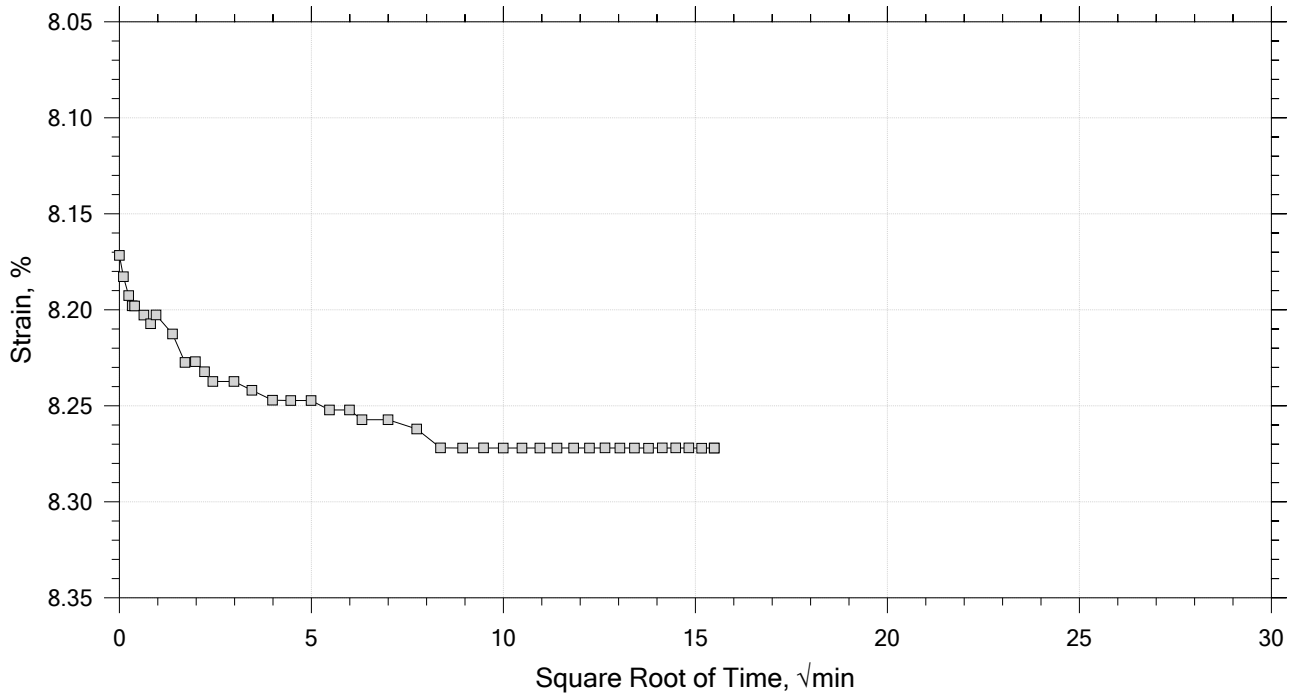


GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 11 of 13
Constant Load Step
Stress: 8 tsf

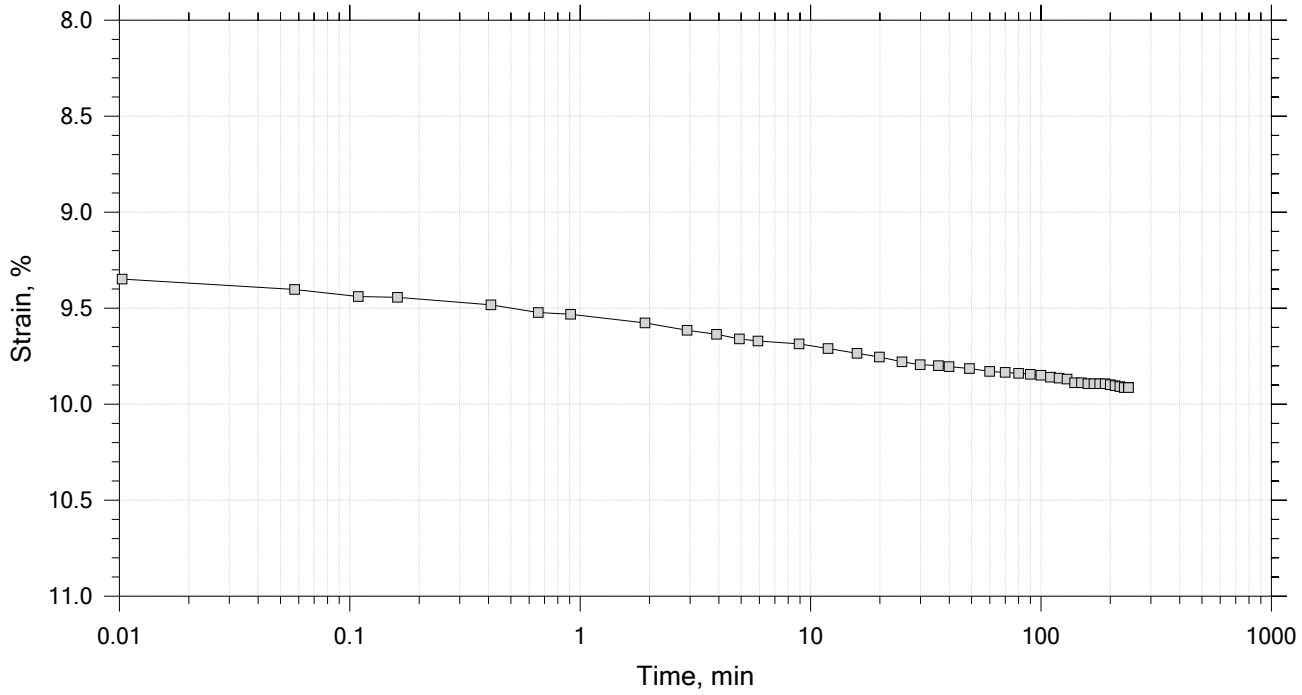


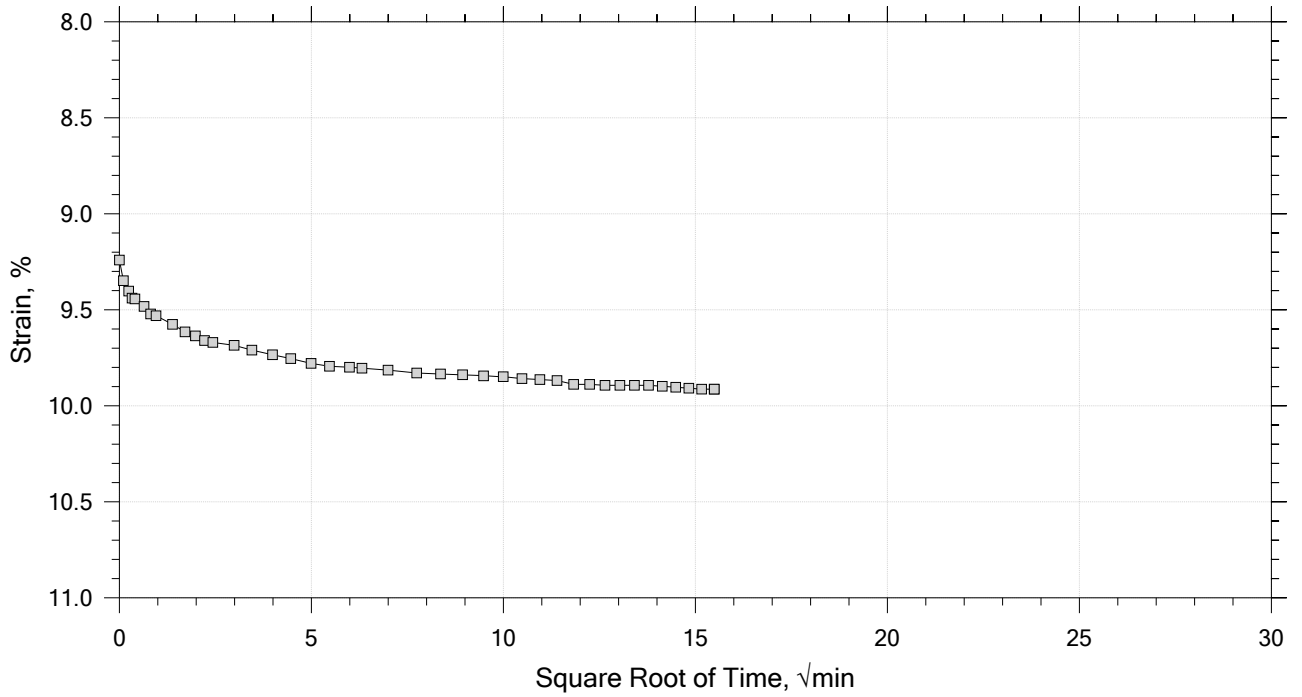


GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 12 of 13
Constant Load Step
Stress: 16 tsf

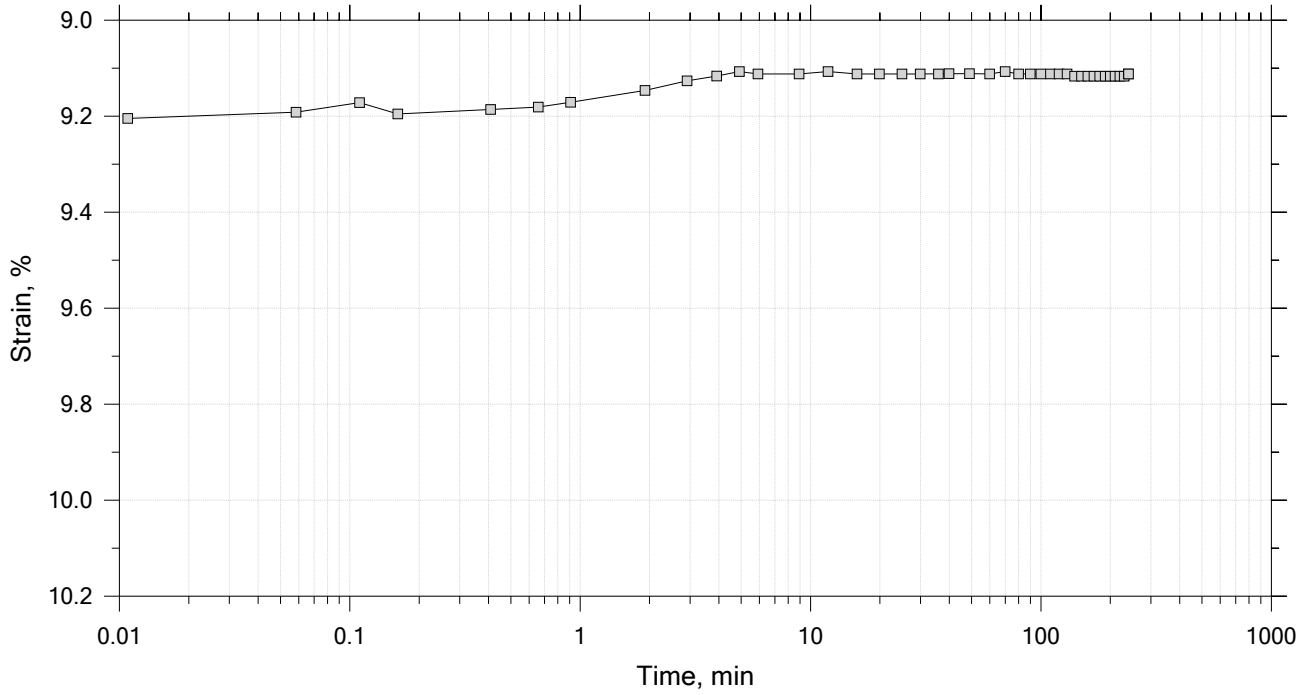


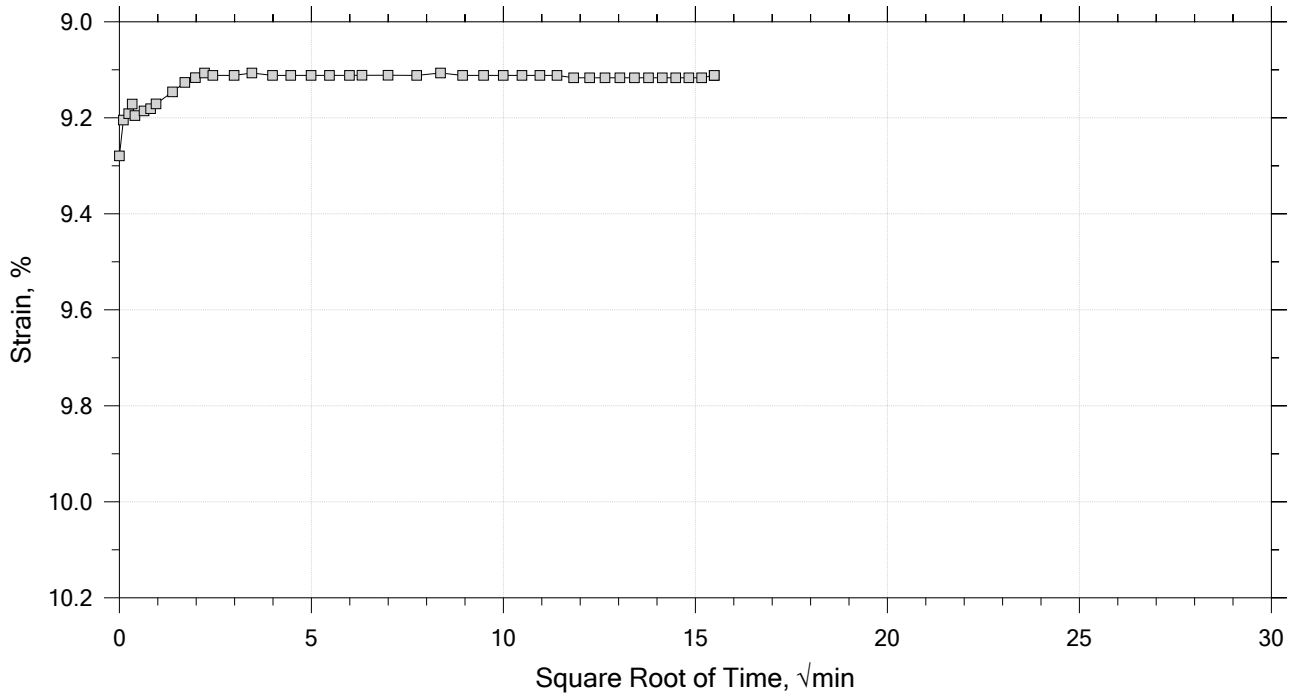


GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 13 of 13
Constant Load Step
Stress: 0.25 tsf





GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Specimen Diameter: 2.50 in	Estimated Specific Gravity: 2.64	Liquid Limit: NP
Initial Height: 1.00 in	Initial Void Ratio: 0.795	Plastic Limit: NP
Final Height: 0.90 in	Final Void Ratio: 0.616	Plasticity Index: NP

	Before Test Trimmings	Before Test Specimen	After Test Specimen	After Test Trimmings
Container ID	E11827	RING		E11869
Mass Container, gm	8.23	109.63	109.63	8.63
Mass Container + Wet Soil, gm	335.6	241.5	255.47	151.84
Mass Container + Dry Soil, gm	296.9	227.88	227.88	124.75
Mass Dry Soil, gm	288.67	118.25	118.25	116.12
Water Content, %	13.41	11.52	23.33	23.33
Void Ratio	---	0.80	0.62	---
Degree of Saturation, %	---	38.22	100.00	---
Dry Unit Weight, pcf	---	91.774	101.97	---

Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.

GeoTesting EXPRESS A Sercel Business	Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
	Boring No.: B-03	Tested By: te	Checked By: anm
	Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark yellowish brown sand with silt		
	Remarks: TX-011, Swell Pressure = 0.0638 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Square Root of Time Coefficients

Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Sq.Rt. T90 min	Cv in²/s	Mv 1/tsf	k ft/day
1	0.0638	0.01334	0.771	1.33	29.920	1.17e-04	2.09e-01	4.56e-04
2	0.125	0.02145	0.757	2.14	29.731	1.15e-04	1.32e-01	2.85e-04
3	0.250	0.02863	0.744	2.86	8.965	3.75e-04	5.75e-02	4.03e-04
4	0.500	0.03683	0.729	3.68	12.603	2.62e-04	3.28e-02	1.61e-04
5	1.00	0.04558	0.713	4.56	8.661	3.75e-04	1.75e-02	1.23e-04
6	2.00	0.05606	0.695	5.61	3.337	9.54e-04	1.05e-02	1.87e-04
7	4.00	0.06671	0.675	6.67	11.177	2.79e-04	5.32e-03	2.78e-05
8	8.00	0.08103	0.650	8.10	89.909	3.37e-05	3.58e-03	2.26e-06
9	2.00	0.08080	0.650	8.08	169.909	1.76e-05	3.83e-05	1.26e-08
10	4.00	0.08072	0.650	8.07	---	---	---	---
11	8.00	0.08272	0.647	8.27	15.172	1.96e-04	5.01e-04	1.84e-06
12	16.0	0.09913	0.617	9.91	18.685	1.56e-04	2.05e-03	6.00e-06
13	0.250	0.09112	0.632	9.11	4.374	6.61e-04	5.09e-04	6.30e-06

GeoTesting EXPRESS
A Sercel Business

Project: MLS NEXT Pro Soccer Stadium	Location: Baltimore, MD	Project No.: GTX-319722
Boring No.: B-03	Tested By: te	Checked By: anm
Sample No.: S-4	Test Date: 8/30/24	Depth: 6-8
Test No.: IP-1	Sample Type: intact	Elevation: ---
Description: Moist, dark yellowish brown sand with silt		
Remarks: TX-011, Swell Pressure = 0.0638 tsf		
Displacement at End of Increment		

UNIVERSAL ENGINEERING SCIENCES
Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

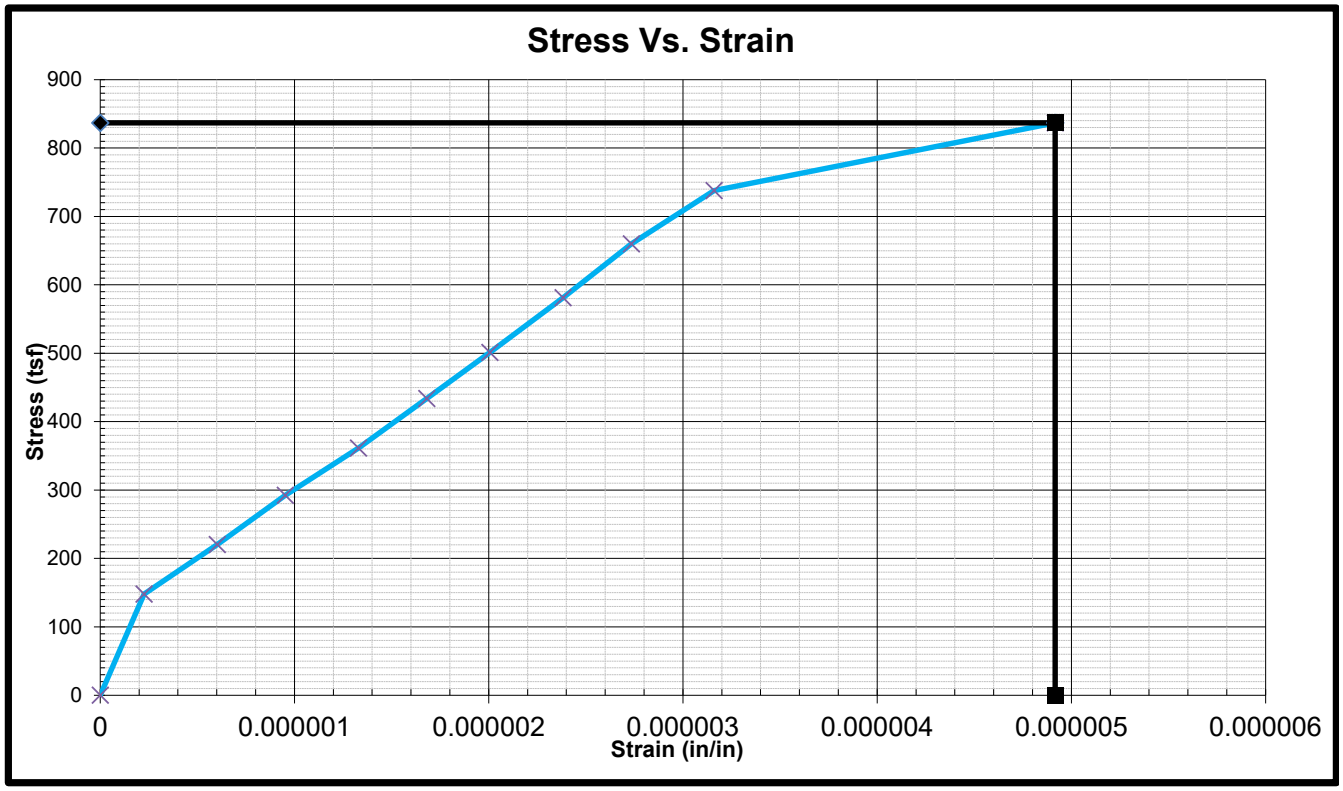
14221B Willard Rd Suite 700
Chantilly, VA 20151

Phone (571) 652-5111
Fax (571) 444-6090

Unconfined Compression Test for Rock Cores

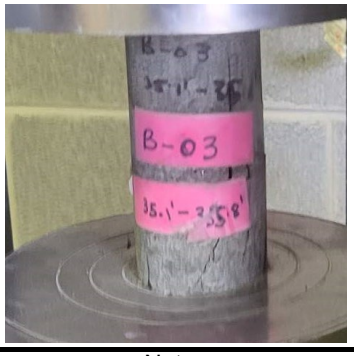
Date:	10/2/2024	Project:	N/A
Tested by:	CM	Project No:	N/A
Client:	DMY	Location:	N/A

Average Initial Height (in):	3.99	Boring :	B-03
Average Initial Diameter (in):	1.98	Sample Number:	N/A
Water Content %:	0.3	Sample Depth:	35.1-35.8
Wet Density (pcf):	193.6		
Dry Density (pcf):	193.0	Rock Description:	
LL - PL = PI:	NP - NP = NP		



Unconfined Compression Strength q_u (tsf):	**837**
Unconfined Compression Strength q_u (psf):	**1673788**
Unconfined Compression Strength q_u (psi):	**11624**
Height to Diameter Ratio:	**2.0**
Percent Strain at Failure :	**0.00%**
Average Rate of Strain to Failure (% Strain/min):	**0.00%**
Time to Failure (min):	**5.0**

Failure Picture



This test was performed according to ASTM D7012 - 14 Method C.
Compressive Strength of Intact Rock Core Specimens.

Tolerances:

Straightness	S1
Flatness and Parallelism	FP1
Perpendicularity	P1

Notes

UNIVERSAL ENGINEERING SCIENCES
Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

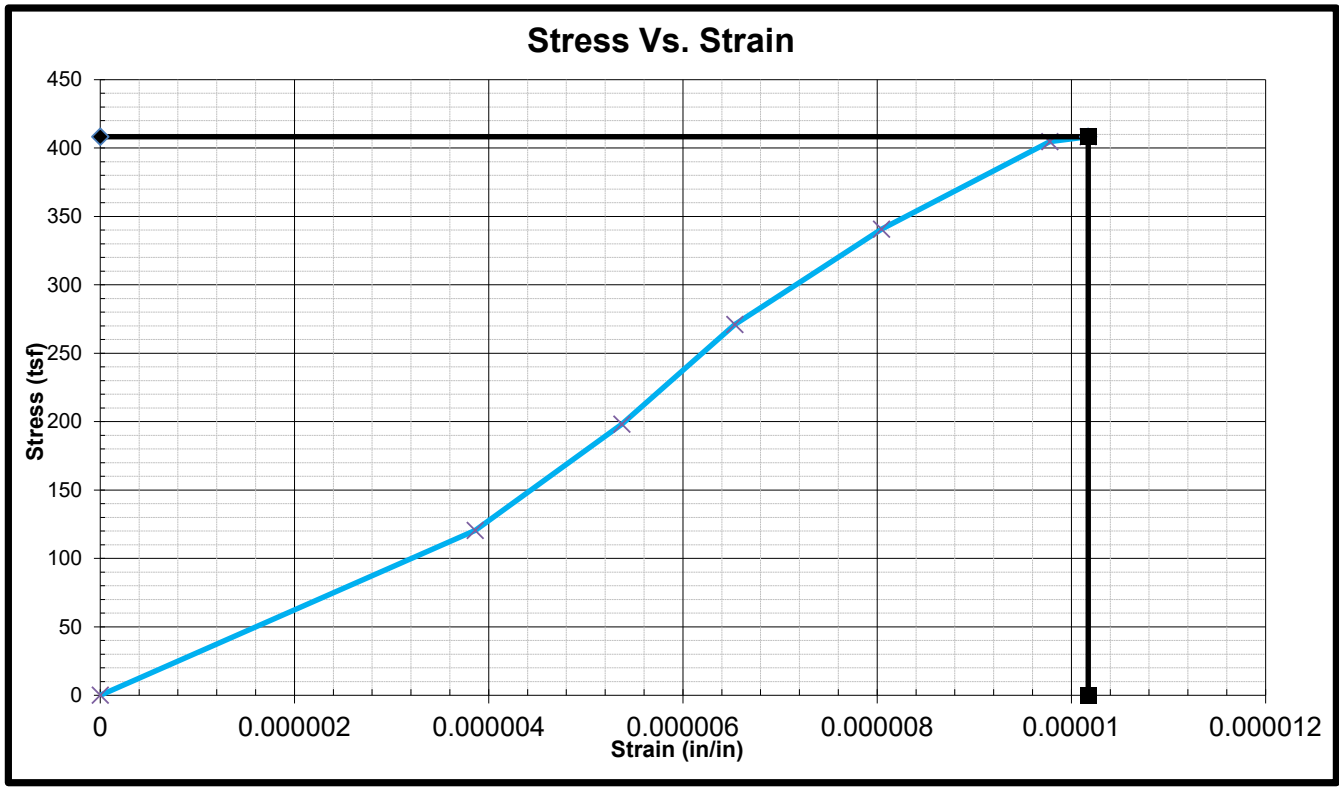
14221B Willard Rd Suite 700
Chantilly, VA 20151

Phone (571) 652-5111
Fax (571) 444-6090

Unconfined Compression Test for Rock Cores

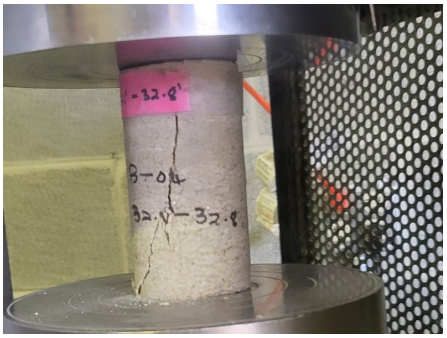
Date:	10/2/2024	Project:	N/A
Tested by:	CM	Project No:	N/A
Client:	DMY	Location:	N/A

Average Initial Height (in):	4.04	Boring :	B-04
Average Initial Diameter (in):	1.95	Sample Number:	N/A
Water Content %:	1.0	Sample Depth:	32.1-32.8
Wet Density (pcf):	159.1		
Dry Density (pcf):	157.6	Rock Description:	
LL - PL = PI:	NP - NP = NP		



Unconfined Compression Strength q_u (tsf):	**408**
Unconfined Compression Strength q_u (psf):	**816612**
Unconfined Compression Strength q_u (psi):	**5671**
Height to Diameter Ratio:	**2.1**
Percent Strain at Failure :	**0.00%**
Average Rate of Strain to Failure (% Strain/min):	**0.00%**
Time to Failure (min):	**2.6**

Failure Picture



This test was performed according to ASTM D7012 - 14 Method C.
Compressive Strength of Intact Rock Core Specimens.

Tolerances:

Straightness	S1
Flatness and Parallelism	FP1
Perpendicularity	P1

Notes

JAY KAY TESTING

LABORATORY CORROSIVITY TESTING REPORT

Job Name: **MSA MLS Stadium**
Job Number: 03.06802.01
Location: Baltimore, Maryland
Sample Date:

Client: DMY
PM/Reviewer: GP
Tester: ST/JT
Report Date: 10/14/24

Sample ID		Depth			pH[1]		ORP[2]	Resistivity[3]			Chloride[4]		Sulfate[5]		Sulfide[6]	
					ASTM G-51		ASTM D-1498	ASTM G-57			ASTM D-512		ASTM D-516		Methylene Titration	
Boring ID	Sample ID	Top, ft	Bottom, ft	Natural Water Content, %	pH (1:1)	Test Temperature, °C	ORP (Redox), mV (1:1)	As Received, Ω-cm	Minimum, Ω-cm	Saturated, Ω-cm	Chlorides, PPM (mg/kg) (1:1)	Chlorides, µg/kg (1:1)	Sulfates, PPM (mg/kg) (3:1)	Sulfates, % Dry Weight (3:1)	Sulfides Ion Presence (1:1)	Remarks
B-02	Bag	13	15	-	6.85	19.7	178	6,400	-	6,250	15	15,000	24	0.0024	negative	-
B-04	Bag	23.5	25	-	6.75	19.9	183	1,950	-	1,750	12	12,000	86	0.0086	negative	-
B-05	Bag	43.5	45	-	8.82	19.9	114	420	-	440	5	5,000	29	0.0029	negative	-

All dilutions are 1:1 except sulfate 3:1 (per method). Material screened on the #10 sieve.

[1] pH verified with second pH meter. [2] ORP electrode. Verified with separate ORP meter. [3] Four-electrode Miller Box. [4] Verified with separate mercurimetric titration method.
[5] Turbidimetric photometer method. Verified with separate turbidimetric titration method. [6] Pomeroy methylene blue method (titration). Verified with auto-dilution ampoules for colorimetric analysis.

Preliminary Geotechnical Report

MLS Next Pro Multi-Use Soccer Stadium
Baltimore Peninsula, Baltimore, Maryland
DMY Project No. 03.06802.01

Prepared for

Moody Nolan
December 2, 2024

TABLE OF CONTENTS

1.0 PROJECT OVERVIEW....3
2.0 FIELD EXPLORATION....3
2.1. GEOTECHNICAL EXPLORATION....3
3.0 SITE GEOLOGY AND SUBSURFACE CONDITIONS....4
3.1. SITE GEOLOGY....4
3.2. SUBSURFACE CONDITIONS....4
4.0 LABORATORY TESTING....6
5.0 GEOTECHNICAL RECOMMENDATIONS....6
5.1. FOUNDATION CONSIDERATIONS....6
5.2. SEISMIC DESIGN....9
5.3. UNSUITABLE SOILS....9
5.4. ENGINEERED FILLS....9
5.5. ADDITIONAL SUBSURFACE INVESTIGATION....10
6.0 LIMITATIONS....10

APPENDIX A FIGURES
APPENDIX B FIELD OPERATIONS
APPENDIX C LABORATORY TESTING

1.0 PROJECT OVERVIEW

The proposed project involves the construction of the MLS Next Pro Multi-Use Soccer Stadium. We understand that two sites (Carroll Park and Baltimore Peninsula) have been selected for consideration. This report has been prepared for the preliminary design of the Baltimore Peninsula site located at the former location of the Baltimore Sun Building in Baltimore, Maryland. We understand that the Baltimore Sun Building was demolished, and the current site consists of concrete floor slab of that demolished building. The project site is bounded by I-95 to the north, East Cromwell Street to the south, commercial and residential complexes to the east, and S Hanover Street to the west. The existing grade at the site is relatively flat. A Site Location Map showing the approximate location of the project is included in Appendix A. The preliminary geotechnical recommendations for the Carroll Park site will be addressed in a separate report.

The description of the proposed project given above is based on the information provided to us by Moody Nolan, Inc (referred to as the Client, herein), and information gathered during our site reconnaissance. If any of the assumptions or project information is incorrect, DMY should be informed so that we may revise our geotechnical recommendations, if necessary.

2.0 FIELD EXPLORATION

2.1. GEOTECHNICAL EXPLORATION

The field exploration consisted of drilling five (5) Standard Penetration Test (SPT) borings (B-1 through B-5) and two (2) offset SPT borings (B-1 OS and B-5 OS) to explore the subsurface soil conditions. The borings were drilled to depths ranging from 5.4 to 99.4 feet below existing site grades. Bulk samples for corrosion series testing were collected from Borings B-2 and B-3. One (1) undisturbed Shelby tube sample was also collected from Boring B-4 for Consolidation testing.

The boring locations were selected by DMY in collaboration with the client and were located in the field by DMY using a handheld GPS device based on the coordinates and existing site features. Boring elevations were estimated from Google Earth. The approximate locations of the borings are shown on the Boring Location Plan included in Appendix A. The SPT borings were performed in accordance with the following applicable ASTM Standards:

- *ASTM D1586 Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils*

The SPT borings were drilled with a track-mounted Diedrich D50 drill rig using the hollow stem auger method. Groundwater levels were measured at each boring location at the time of drilling and upon completion of drilling. Groundwater readings after 24 hours were taken at all of the boring locations except for Borings B-1, B-5, and B-5 OS. Upon completion of the field exploration, all boreholes were backfilled with compacted auger cuttings and borings at the concrete slab were patched with Quick-set concrete. The field exploration procedures are included in Appendix B.

Following field operations, the soil samples were transported to our laboratory for further analysis and testing. The samples will be stored in our laboratory for a period of two weeks from the submittal date of this report. After this period, the samples will be discarded unless we are instructed otherwise.

3.0 SITE GEOLOGY AND SUBSURFACE CONDITIONS

3.1. SITE GEOLOGY

Based on the Geologic Map of Maryland (1968) published by the USGS and Geologic Map of the Baltimore East Quadrangle (1979), the site lies within the Coastal Plain Province. More specifically, the geology at this site consists of existing fill underlain by Lowland Deposits and the Arundel Formation of the Cretaceous Age Potomac Group. The Lowland deposits consist of Quaternary Age gravel, sand, silt, and clay with medium- to coarse-grained sand and gravel; cobbles and boulders near base; commonly contains reworked Eocene glauconite; varicolored silts and clays; brown to dark gray lignitic silty clay; contains estuarine to marine fauna in some areas. The Arundel Formation consists of gray, brown, black, and red kaolinitic and illitic clays, often interbedded with localized quartz silt or sand lenses and pods. The clays are typically poorly bedded to massive with occasional color mottling. Irregular sideritic concretions and lignitized wood fragments range from sparse to abundant. The silts and clays within the formation contain sparse to abundant debris from fern, cycadioid, and conifers, with occasional rare angiosperm remains. The deposition occurred primarily within a floodplain and back-swamp complex with variable sediment input.

Additionally, an existing man-placed fill associated with previous site developments was encountered at the site. The existing fill may contain debris and organic material.

3.2. SUBSURFACE CONDITIONS

The subsurface conditions encountered at the locations explored are shown in the boring logs in Appendix B. The records represent our interpretation of the subsurface conditions in accordance with generally accepted geotechnical engineering practice. The lines designating the interfaces between various strata on the boring logs are approximate, as the actual transitions between soil strata are often gradual. In the absence of foreign substances, it is difficult to distinguish between natural soils and clean soil fills. Although individual test borings are representative of the subsurface conditions at the precise boring locations on the dates shown, they are not necessarily indicative of the subsurface conditions at other locations or at other times.

Surficial Materials

Borings B-1, B-1 OS, B-3, and B-4 were drilled through the existing slab of razed building and approximately 9 inches of concrete was encountered at these locations. Approximately 6 inches of asphalt was encountered at Boring B-5 OS. Approximately 4 to 6 inches of topsoil were encountered in Borings B-2 and B-5. Topsoil encountered is typically a dark-colored soil material containing roots, fibrous matter, and/or other organic components, and is generally unsuitable for engineering purposes. DMY has

not performed any laboratory testing; therefore, the term topsoil is not intended to indicate suitability for landscaping and/or other purposes.

Strata I (F1, F2, and F3), Existing Fill Materials

Existing fill material classified as SILTY SAND (SM), SILTY SAND WITH GRAVEL (SM), POORLY GRADED SAND (SP), POORLY GRADED SAND WITH GRAVEL (SP), SANDY SILT (ML), SILT WITH SAND (ML), and LEAN CLAY WITH SAND (CL) were encountered immediately below surficial materials and extended to a depth ranging from 5.4 to 13 feet below existing site grades in all the borings. N-values ranging from 13 bpf (blows per foot) to 50 blows over 2 inches were recorded for the fine-grained fill material, indicating stiff to very hard consistency. N-values ranging from 5 bpf to 50 blows over 2 inches of split spoon penetration were recorded for the coarse-grained fill material, indicating a loose to very dense relative density.

No compaction information was available, and we have considered fill encountered within the borings as uncontrolled.

Strata II (C1, C2, and C3), Coastal Soils

Coarse-grained coastal soils classified as POORLY GRADED SAND (SP), POORLY GRADED SAND WITH GRAVEL (SP), POORLY GRADED SAND WITH SILT (SP-SM), POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), SILTY SAND (SM), and SILTY SAND WITH GRAVEL (SM), and fine-grained coastal soils classified as fine materials are SANDY SILT (ML), SILT WITH SAND (ML), LEAN CLAY (CL), LEAN CLAY WITH SAND (CL), ELASTIC SILT (MH), and FAT CLAY (CH) were encountered below the fill and surficial material and extended to depths ranging from 6.0 to 99.4 feet below the existing site grades. N-values ranging from 2 to 66 bpf were recorded for the fine-grained coastal soils, indicating soft to very hard consistency. N-values ranging from 2 bpf to 50 over 5 inches of split spoon penetration were recorded for the coarse-grained coastal soils, indicating a very loose to very dense relative density.

Auger Refusal

Auger refusal was encountered within the existing fill materials in Borings B-1, B-5, and B-5 OS at depths ranging from 5.4 to 8.3 feet below existing site grades. Auger refusal may be encountered on debris, gravel, cobbles, and similar obstructors. Refusal conditions are equipment dependent. Auger refusal experienced while drilling may differ from refusal conditions encountered by construction equipment.

Groundwater

Groundwater was encountered in 4 out of the 7 borings during drilling and upon completion of drilling. Groundwater readings were taken 24 hours after drilling at Borings B-1 OS, B-2, B-3, and B-4 and are summarized in the table 3-1 below. It should be noted that groundwater levels fluctuate with seasonal, tidal, and climatic variations, and may be different at other times and locations than those stated in this report.

Table 3-1: Summary of Groundwater Reading

Boring ID	Groundwater During Drilling or Upon Completion of Drilling		Groundwater Reading After 24 Hours	
	Depth (ft)	Date	Depth (ft)	Date
B-1 OS	13.0	10/02/2024	10.4	10/03/2024
B-2	8.7	09/23/2024	18.5	09/24/2024
B-3	18.0	09/30/2024 – 10/03/2024	15.5	10/04/2024
B-4	11.4	09/26/2024	5.1	09/27/2024

4.0 LABORATORY TESTING

Representative soil samples were selected and tested in our laboratory to verify field classifications and to determine pertinent engineering properties. The laboratory testing results are included in Appendix C of this report. The laboratory testing program included the following:

- Natural moisture content (ASTM D 2216) 23 Tests
- Grain size analysis (ASTM D 6913) 13 Tests
- Atterberg Limits (ASTM D 4318) 13 Tests
- Corrosion Series Testing* 3 Tests
- Consolidation Test (ASTM D 2435) 1 Test

* pH ASTM G-51, Oxidation Reduction Potential ASTM D 1498, Resistivity ASTM G 57, Chloride ASTM D 512, Sulfate ASTM D 516, Sulfide byMetlhlyne Titration)

5.0 GEOTECHNICAL RECOMMENDATIONS

5.1. FOUNDATION CONSIDERATIONS

Based on the information provided by Client, the preliminary column loading would be on the order of 500 to 800 kips with a finished floor elevation at about EL. 18 feet. Based on the limited topographic information available, cuts on the order 2 feet below current site grades are anticipated to reach the finished floor elevation. Lateral loads were not available at the time of preparing this report.

We have considered multiple foundation options for this project, and the following sections provide an overview of each system evaluated.

Option 1 Driven Piles: Driven piles bearing in the dense sands and very stiff clay of the Arundel Formation are considered suitable for the site. The piles will tip between EL -30 and EL -60 feet. The piles will transition from very soft/loose lowland deposits quickly into the denser bearing strata. Cobbles,

dense sands, and gravels may be present close to the bearing elevation, to prevent damage to the piles, pile-points should be considered. Based on our auger refusal within the fill, pre-drilling within the top 15 feet should also be considered to achieve the target depths. Precast, pre-stressed square concrete, steel H-piles, or pipe piles are common types of driven piles installed in this area. Steel H-piles may be preferred due to the highly variable soil conditions, especially where frequent splicing may be necessary. As low-displacement piles, steel H-Piles generate minimal vibrations during installation. The preliminary subsurface investigation performed by DMY showed variability in the bearing stratum across the borings, and a termination criteria consisting of a minimum blow count and tip elevation should be considered. Cobbles may also be anticipated close to the bearing stratum, and the pile should be inspected during installation to ensure that the piles remain plumb and are not bearing on a boulder. Steel piles consisting of HP 10x57 up to 14x73 are common for this application. The piles will be driven close to the structural limits as permitted by IBC 1810.3. The allowable capacity for each pile would be on the order of 100 to 200 tons. The axial compression testing shall be done with dynamic pile testing following the requirements of ASTM D 4945 with a capacity designed for a factor of safety of 2.0. The final report should indicate the total number of piles to be tested. The appropriate hammer size and type to be used for pile driving operations should be selected on the basis of wave equation analyses, prior to mobilization to the site.

Option 2 Auger Cast Piles: Auger cast-in place, also referred to as Continuous Flight Auger piles, are a form of deep foundation system in which a hollow-stem auger creates a borehole, and as the auger is withdrawn, sand-cement grout or concrete is pumped in, forming a cast-in-place column. Alternative method using displacement augers which displace the soils rather than bring the soil to the surface can also be considered. Similar to the driven piles, the presence of cobbles and above the bearing elevation may result in shallow refusal. The variability in the bearing stratum elevation may also require additional load testing and a variable termination criterion than just providing a minimum tip elevation. The final report should also address the risk of running sands and maintaining a sufficient grout head during grouting. The presence of auger refusal and possible voids in the existing fill material at borings B-1, B-5 and B-5 OS is also a concern and should be evaluated in the final report. The design of augured cast-in-place piles is typically performed by a specialty foundation contractor. If auger cast piles are selected, we anticipate that each pile will be between 14 and 18 inches in diameter and have a 100 to 150 kips allowable bearing capacity. The piles are anticipated to be between 75 and 90 feet in length. Auger cast piles should be spaced at least 3 diameters.

Option 3 Shallow Foundations Over Ground Improvement: Deep existing fill is present at the site, and the fill is not considered suitable for support of the proposed building. However, shallow spread footings bearing on soils improved by either rigid inclusions or aggregate piers are considered suitable. The design and construction of ground improvement systems should be completed by a specialty contractor. The contractor will ultimately provide the foundation design bearing pressures and anticipated settlement as well as prepare drawings and specifications for the ground improvements. Groundwater may be encountered above the tip elevation of the ground improvement, and if aggregate piers are used, construction using a bottom feed method may be required. By reinforcing and stiffening the existing soils of this site area with ground improvement elements, the composite reinforced soil will be capable of supporting a significantly higher allowable bearing pressure, while reducing and controlling total and differential settlement. Although the design-build specialty contractor will provide the required drawings

and analyses, we anticipate allowable bearing capacity on the order of 4 to 5 ksf may be feasible. Aggregate piers or rigid inclusion lengths on the order 50 to 70 feet are anticipated. For preliminary evaluation, aggregate piers with a diameter of 24 to 30 inch with a spacing of 4 to 6 feet (average of 5 feet) on center can be assumed; however, the actual lengths, diameter, and spacing of the ground improvements must be determined by the specialty contractor during the design phase. A load test or modulus test may also be required.

Option 4 Drilled Shaft: Drilled shafts, also referred to as drilled piers, caissons, or bored piles, are deep foundation systems to support structures with large axial and lateral loads by excavating cylindrical shafts into the ground and filling them with concrete. Based on the loading, it may be feasible to support the columns on single drilled shaft as an alternative to multiple driven piles, depending on the soil conditions at the site. This foundation type is often preferred at sites where competent dense bearing layers with adequate thickness are present. Drilled shafts are also advantageous for locations sensitive to construction-related vibrations. However, the quality control of drilled shaft installation involves increased engineering judgement and careful oversight. Drilled shafts are anticipated to develop the required axial capacities predominantly from in the dense sand layer between EL. -30 and EL. -50 feet. Belling the shafts is not feasible unless the shafts bear in the very stiff clay deposits below EL.-60 feet which was only encountered in Boring B-3. Given the water table, the shafts installation using wet methods should be considered. Telescoping temporary casing may be feasible, but artesian conditions may be present within the sand layers and should be evaluated in the final report. Desanding of the slurry and several passes to clean the bottom of the shaft from loose sands should be anticipated if the wet method is used. Based on the auger refusal observed in the existing fill, there is a possibility that voids may be present within the fill, and permanent casing may be required within the fill to prevent concrete loss. The presence of voids in the top 15 feet should be evaluated during the final report.

Drilled shaft allowable end bearing is anticipated to vary between 15 to 45 ksf depending on the minimum embedment and assumptions on methods to evaluate the shaft bottom cleanliness and bearing conditions. Alternatively, the shafts may be designed for skin friction within the dense Potomac Sands and a reduced end bearing capacity. Allowable skin friction on the order of 1.0 to 2.5 ksf is feasible. This reduces the requirement for expensive construction methods and difficulty in verifying the end bearing conditions. Regardless of the method to evaluate the allowable capacities, given the anticipated number of shafts, we recommend that at least one shaft be load tested using either dynamic, statnamic, or using Osterberg methods. The final report should address any additional construction and testing recommendations for the shafts.

Considering the subsurface condition based on the limited geotechnical investigation, the geology of the site, the preliminary anticipated structural loading, our preliminary engineering analyses and discussions above, we recommend either *Option 1 Driven Piles*, *Option 2 Auger Cast piles*, or *Option 3 Shallow Foundations Over Ground Improvement* be considered for the preliminary design phase.

All below-grade walls should be designed to withstand lateral earth pressures and any surcharge loads from the adjacent traffic load from the street and the parking lot. The below-grade walls should also be designed to withstand any applicable hydrostatic pressure unless an appropriate drainage system is installed to effectively eliminate hydrostatic pressures behind the walls.

Selecting the right foundation system for a structure depends on the final structural loads, soil conditions, and construction constraints such as proximity to nearby structures. The structural engineer or the designer should evaluate the uplift forces or buoyancy. The final foundation type will be selected in the next phase of the project after the site selection is finalized and a full geotechnical investigation is performed.

5.2. SEISMIC DESIGN

The seismic site class and design response spectrum were determined in accordance with the procedures outlined in Section 1613 of the 2018 International Building Code (IBC). Section 1613 of IBC outlines the procedures for seismic site classification, determination of maximum considered earthquake ground motion, and computation of design spectral response accelerations for various site classes. The current code site class definitions range from A (hard rock) to F (very soft soil profile). Based on the analyses of the subsurface profile using standard penetration data and our local experience, we recommend a seismic Site Class “D” (Stiff Soil Profile) be used for this site. Based on this site class, the design spectral response acceleration parameters are provided below.

Short Period Duration (S_{DS}): 0.149 g
One Second Duration (S_{D1}): 0.069 g

5.3. UNSUITABLE SOILS

Unsuitable soils including highly plastic soils (e.g., ELASTIC SILT and FAT CLAY) were encountered during our subsurface exploration. Highly plastic soils can exhibit significant shrinkage and/or swelling due to changes in moisture content and should not be used as structural fill if encountered during construction. If highly plastic soils are encountered near or above the foundation-bearing level, they should be removed and replaced with suitable backfill materials. Backfilling with gravel and sands such as GW, GP, SW, and SP is not recommended below the foundations as this would create a reservoir condition that could saturate the highly plastic soils.

5.4. ENGINEERED FILLS

All engineered fills should have a maximum particle size of 3 inches and contain a minimal amount of organic matter or debris. Engineered fills should also have a Liquid Limit of less than 40 and a Plasticity Index less than 15. Based on the borings, most of the on-site soils within the top 10 feet of the site are anticipated to meet the above criteria, except at boring B-5. Depending on the proposed grading, importing fill may not be required. Before field operations begin, a representative sample of each proposed engineered fill (borrow) should be collected and tested to determine its Atterberg Limits, gradation, maximum dry density, optimum moisture content, and natural moisture content. The test results will be used to evaluate the suitability of each proposed engineered fill for quality control purposes during fill placement.

Engineered fills should be placed in lifts not exceeding eight (8) inches in loose thickness and moisture conditioned to within two (2) percentage points of the optimum moisture content. The engineered fill

should be compacted to a minimum of 95% of the maximum dry density obtained in accordance with ASTM Specification D-698, Standard Proctor Method. The top one (1) foot of soil supporting pavements, sidewalks, or gutters should be compacted to a minimum of 100% of the maximum dry density in accordance with ASTM Specification ASTM D-698.

5.5. ADDITIONAL SUBSURFACE INVESTIGATION

A final geotechnical investigation shall be performed by the project Geotechnical Engineer of Record. The final geotechnical investigation should consist of additional soil test borings and Cone Penetrometer Testing based on the final design concept. The additional borings for final phase should extend to elevation -70 feet or lower.

6.0 LIMITATIONS

The preliminary recommendations provided are based in part on project information provided to us and are only applied to the specific project and site discussed in this report. If the project information section in this report contains incorrect information or if additional information is available, DMY should be contacted to review our recommendations. We can then modify our preliminary recommendations for the proposed project.

The purposes of this study were to obtain limited subsurface soil and groundwater information and to provide preliminary geotechnical recommendations. This report shall not be used for final design purposes. ***A final geotechnical investigation shall be performed by the project Geotechnical Engineer of Record based on the final design concept.***

We have prepared this preliminary report for use by the design professionals in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made as to the professional advice included in this report.

APPENDIX A FIGURES

SITE LOCATION MAP

DMY ENGINEERING CONSULTANTS INC.
4170 LAFAYETTE CENTER, SUITE 500
CHANTILLY, VIRGINIA 20151
PHONE: (703) 665-0586
FAX: (301) 768-4169

MLS NEXT PRO MULTI USE SOCCER STADIUM
BALTIMORE PENINSULA, MARYLAND

DATE:	DRAFTED BY:	PROJECT NO.:
11/08/2024	SS	03.06802.01
SCALE:	CHECKED BY:	FIGURE NO.:
AS SHOWN	GP	1

BASE MAP IS PROVIDED BY: *MOODY NOLAN*

- **APPROXIMATE BORING LOCATION (EARTH)**
- **APPROXIMATE BORING LOCATION (CONCRETE SLAB)**
- **APPROXIMATE BORING LOCATION (ASPHALT)**

BORING LOCATION PLAN

DMY ENGINEERING CONSULTANTS INC.
4170 LAFAYETTE CENTER, SUITE 500
CHANTILLY, VIRGINIA 20151
PHONE: (703) 665-0586
FAX: (301) 768-4169

MLS NEXT PRO MULTI USE SOCCER STADIUM
BALTIMORE PENINSULA, MARYLAND

DATE:	DRAFTED BY:	PROJECT NO.:
11/08/2024	SS	03.06802.01
SCALE:	CHECKED BY:	FIGURE NO.:
AS SHOWN	GP	2

APPENDIX B FIELD OPERATIONS

SUBSURFACE EXPLORATION PROCEDURES

Soil Borings – Hollow Stem Auger

In hollow stem auger drilling, the drill rig utilizes continuous flight, hollow stem (center opening ranges from 2-1/4 to 4-1/4 inches in size) augers to advance the boreholes. During drilling or formation cutting, the center of the hollow augers is filled with rods connected to a plug at the bottom bit. Once the desired drilling depth is reached, the center plug and rods can be pulled out, leaving the hollow augers in place to hold the borehole open for sampling and well installation. Sampling is performed through the center opening in the hollow stem augers by means of the split-barrel sampling procedure in accordance with ASTM D1586. Usually, drilling fluid is not used during the soil drilling using this procedure.

Standard Penetration Tests

In this process, a 2-foot long, 2-inch outside-diameter split-barrel sampler attached to the end of a string of drilling rods is driven 18 inches into the ground by successive blows of a 140-pound hammer freely dropping 30 inches. The number of blows needed for every 6 inches of penetration is recorded. The blows required for the first 6 inches of penetration are allowed for seating the sampler into any loose cuttings, and the sum of the blows required for penetration of the second and third 6-inch increments constitutes the standard penetration resistance or N-value. After the test, the sampler is extracted from the ground and opened to allow visual examination and classification of the retained soil sample. The N-value can be used as a qualitative indication of the in-place relative density of cohesionless soils (sands). In a less reliable way, it also indicates the consistency of cohesive soils (clays/silts). This indication is qualitative since many factors can significantly affect the N-value and prevent a direct correlation among drilling crews, drill rigs, drilling procedures, and hammer-rod-sampler assemblies. The N-value also has been empirically correlated with various soil properties including strength, compressibility, and potential for difficult excavation.

REFERENCE NOTES FOR BORING LOGS

I. Drilling and Sampling Symbols:

SS	-	Split Spoon Sampler	RB	-	Rock Bit Drilling
ST	-	Shelby Tube Sampler	BS	-	Bulk Sample of Cuttings
RC	-	Rock Core; NX, BX, AX	PA	-	Power Auger (no sample)
PM	-	Pressuremeter	HSA	-	Hollow Stem Auger
DC	-	Dutch Cone Penetrometer	WS	-	Wash Sample

Standard Penetration Test (SPT) resistance refers to the blows per foot (bpf) of a 140 lb hammer falling 30 inches on a 2 in. O.D. split-spoon sampler as specified in ASTM D-1586. The blow count is commonly referred to as the N-value.

II. Correlation of Penetration Resistances to Soil Properties:

Relative Density of Cohesionless Soils

SPT-N (bpf)	Relative Density
0 – 3	Very Loose
4 – 9	Loose
10 – 29	Medium Dense
30 – 50	Dense
>50	Very Dense

Consistency of Cohesive Soils

SPT-N (bpf)	Consistency
0 – 1	Very Soft
2 – 4	Soft
5 – 8	Firm
9 – 15	Stiff
16 – 30	Very Stiff
31 – 50	Hard
>50	Very Hard

Weathered Rock (WR) may be defined as SPT-N values exceeding 60 bpf depending on site specific conditions. Refer carefully to boring logs.

Rock Fragments, gravel, cobbles, boulders, or debris may produce N-values that are not representative of actual soil properties.

III. Unified Soil Classification Symbols:

GP – Poorly Graded Gravel
GW – Well Graded Gravel
GM – Silty Gravel
GC – Clayey Gravels
SP – Poorly Graded Sands
SW – Well Graded Sands
SM – Silty Sands
SC – Clayey Sands

ML – Low Plasticity Silts
MH – High Plasticity Silts
CL – Low Plasticity Clays
CH – High Plasticity Clays
OL – Low Plasticity Organics
OH – High Plasticity Organics
CL-ML – Dual Classification (Typical)

IV. Laboratory Testing and Water Level Symbols:

LL – Liquid Limit (%)
PI – Plastic Index (%)
W – Moisture Content (%)
DD – Dry Density (PCF)
NP – Non Plastic
-200 – Percent Passing No. 200 Sieve
PP – Pocket Penetrometer (TSF)


Water Level at Time of Drilling, or as Shown


Water Level at End of Drilling, or as Shown


Water Level after 24 Hours, or as Shown

V. Geologic Strata Symbols:

F1 – Fill material of high plasticity clays and silts
F2 – Fill material of low plasticity clays and silts
F3 – Coarse-grained fill material (i.e., sand or gravel)
R1 – Residual soils of high plasticity clays and silts
R2 – Residual soils of low plasticity clays and silts
R3 – Coarse-grained residual soils (i.e., sand or gravel)
WR1 – Weathered rock sampled as high plasticity clays and silts
WR2 – Weathered rock sampled as low plasticity clays and silts
WR3 – Weathered rock sampled as sand or gravel

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

B-1

PAGE 1 OF 1

DATE(S) DRILLED:09/27/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

GROUND WATER NOT ENCOUNTERED DURING DRILLING
GROUND WATER NOT ENCOUNTERED AT THE END OF DRILLING
NO LONG TERM MEASUREMENTS TAKEN

FIELD DATA | **LAB DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)
		7 7 10 12		0.7	83					0.0 / 20.0 CONCRETE **Conc** -8.8 in 0.7 / 19.3 Brown, fine to coarse silty sand FILL, contains quartz gravel, medium dense to very dense, moist **FL-SM**			
		7 9 18 19		2.7	79			F3		SAME, black, contains burnt soil & brick fragments			
5	15	8 50/2"		4.7	63					SAME, brown 5.4 / 14.6 Auger Refusal			

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 4.5 ft.

PAGE 1 OF 1

B-1

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

B-1 OS

DATE(S) DRILLED:10/02/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

▽ GROUND WATER FIRST ENCOUNTERED AT: 13.0 ft

▼ AFTER DRILLING: 10.4 ft (24 HOURS)

FIELD DATA | **LABORATORY DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT (LL)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf)
				0.7						0.0 / 20.0 CONCRETE **Conc** -8.5 in					
		11 17 19 16			58			F3		0.7 / 19.3 Brown, fine to coarse poorly-graded sand FILL, contains quartz gravel, dense to very dense, moist **FL-SP**					
		8 17 36 35		2.7	100					3.3 / 16.7 Brown and black, fine to coarse silty sand FILL, contains quartz gravel, loose to very dense, moist **FL-SM**					
5	15	9 38 50/4"		4.7	75			F3							
		5 5 10 7		6.7	71					SAME, trace clay seams, contains brick fragments					
		3 3 3 8		8.7	79										
10 ▼ ▽	10									9.3 / 10.7 Gray, sandy SILT, firm, moist **ML**			15.1		
								C2							
		11 13 15 19		13.0	100					13.0 / 7.0 Brown, fine to medium POORLY-GRADED SAND WITH SILT, contains mica, medium dense, wet **SP-SM**	NP	NP	20.2	9.1	
15	5							C3							
				18.0				C3							
		2 3 5 8			100			C1		18.0 / 2.0 Brown, fine to coarse POORLY-GRADED SAND WITH SILT, contains mica, loose, wet **SP-SM**					0.5
20	0							C3		18.6 / 1.4 Dark gray, ELASTIC SILT, trace sand, contains mica, firm, wet **MH**					
										19.5 / 0.5 Dark gray, fine to medium SILTY SAND, contains mica, loose, wet **SM**					
		5 6 7 8		23.0	79					23.0 / -3.0 Dark gray, sandy SILT, contains mica, stiff, wet **ML**					
25	-5							C2							
				28.0						28.0 / -8.0 Dark gray, FAT CLAY, trace sand, contains mica, firm to stiff, wet **CH**					
		3 3 4 5			100			C1							0.5
30	-10														

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 10.4 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

DATE(S) DRILLED:10/02/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

GROUND WATER FIRST ENCOUNTERED AT: 13.0 ft

AFTER DRILLING: 10.4 ft (24 HOURS)

FIELD DATA										LABORATORY DATA				
DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION % RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf) tsf
35	-15	3 5 8 8		33.0	100		C1		34.2 / -14.2 Dark gray, sandy SILT, contains mica, stiff, wet **ML**	66	37	42.2	96.7	1.5
							C2							
40	-20	1 3 4 5		38.0	100		C1		38.0 / -18.0 Dark gray, FAT CLAY, contains mica, firm, wet **CH**					0.5
							C2		39.0 / -19.0 Dark gray, LEAN CLAY, contains mica, firm, wet **CL**					
45	-25	2 4 5 7		43.0	100				43.0 / -23.0 Dark gray, ELASTIC SILT, trace sand, contains mica, stiff, wet **MH**	89	37	66.2	92.0	1.25
50	-30	3 4 6 8		48.0	100		C1							1.5
55	-35	3 5 7 9		53.0	100									1.5
60	-40	2 3 9 7		58.0	100		C2		58.0 / -38.0 Dark gray, sandy SILT, contains mica, stiff to hard, wet **ML**					

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 10.4 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

B-1 OS

DATE(S) DRILLED:10/02/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

▽ GROUND WATER FIRST ENCOUNTERED AT: 13.0 ft

▼ AFTER DRILLING: 10.4 ft (24 HOURS)

FIELD DATA | **LABORATORY DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf) tsf
65	-45	8 15 22 24		63.0	88			C2		64.0 / -44.0 Dark gray, fine to coarse POORLY-GRADED SAND WITH GRAVEL, contains mica, medium dense to dense, wet **SP**					
								C3							
70	-50	6 9 9 13		68.0	100					70.0 / -50.0 Boring Terminated					

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 10.4 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

B-2

DATE(S) DRILLED:09/23/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

GROUND WATER FIRST ENCOUNTERED AT: 8.7 ft
AT END OF DRILLING: 42.4 ft
AFTER DRILLING: 18.5 ft (24 HOURS)

FIELD DATA | **LABORATORY DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf)
		4 8 11 8		0.0	88					0.0 / 20.0 TOPSOIL, contains trace roots **Tops** -6 in					
		12 15 20 24		2.0	71			F3		0.5 / 19.5 Mottled, fine to coarse silty sand with gravel FILL, contains organics, medium dense to dense, moist **FL-SM**					
5	15	12 10 12 13		4.0	58			F3		4.0 / 16.0 Black, fine to coarse silty sand FILL, contains quartz gravel, medium dense, moist **FL-SM**	NP	NP	14.3	24.9	
		13 14 15 14		6.0	92					6.0 / 14.0 Brown and orange, fine to medium SILTY SAND, medium dense, moist **SM**					
		4 9 11 11		8.0	79					SAME, wet					
10	10							C3							
		5 7 8 6		13.0	100						21	NP	22.6	43.4	
15	5							C2		14.8 / 5.2 Brown and gray, LEAN CLAY WITH SAND, contains mica, stiff, wet **CL**					
		4 7 8 11		18.0	100					18.0 / 2.0 Gray, SILT WITH SAND, contains mica, stiff, wet **ML**			29.2		
20	0							C2							
		3 3 4 3		23.0	100					23.0 / -3.0 Dark gray, FAT CLAY, trace sand, contains mica, soft to firm, wet **CH**					
25	-5							C1							
		WOH 1 2 2		28.0	100						85	50	60.4	98.6	0.5
30	-10														

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 18.5 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

B-2

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

DATE(S) DRILLED:09/23/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

GROUND WATER FIRST ENCOUNTERED AT: 8.7 ft
AT END OF DRILLING: 42.4 ft
AFTER DRILLING: 18.5 ft (24 HOURS)

FIELD DATA | **LABORATORY DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION % RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf) tsf
							C1							
35	-15	5 7 7 8		33.0	100		C2		33.0 / -13.0 Gray, sandy SILT, contains mica, stiff, wet **ML**			26.8		
40	-20	14 47 50/4"		38.0	150				38.0 / -18.0 Gray, fine to medium SILTY SAND, contains mica, loose to very dense, wet **SM**					
45	-25	6 4 3 4		43.0	79		C3							
50	-30	5 6 7 7		48.0	88									
55	-35	4 3 5 5		53.0	100		C1		53.0 / -33.0 Gray, FAT CLAY, contains mica, firm to stiff, wet **CH**					0.75
60	-40	WOH 4 4 5		58.0	100							27.5		0.5

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 18.5 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ:DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

B-2

DATE(S) DRILLED:09/23/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

GROUND WATER FIRST ENCOUNTERED AT: 8.7 ft
AT END OF DRILLING: 42.4 ft
AFTER DRILLING: 18.5 ft (24 HOURS)

FIELD DATA | **LABORATORY DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT (LL)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf) tsf
65	-45	4 5 6 8		63.0	100			C1							0.5
				68.0				C2		68.0 / -48.0 Light gray, sandy SILT, contains mica, stiff, wet **ML**					
70	-50	WOH 4 9 25			100					69.8 / -49.8 Brown, fine to coarse POORLY-GRADED SAND WITH GRAVEL, contains mica, medium dense to very dense, wet **SP**					
		34 50 50/4"		73.0	100			C3		SAME, red and brown 74.4 / -54.4 Boring Terminated					

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 18.5 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

B-3

DATE(S) DRILLED:09/30/2024 - 10/03/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

▽ GROUND WATER FIRST ENCOUNTERED AT: 18.0 ft

▼ AFTER DRILLING: 15.5 ft (24 HOURS)

FIELD DATA | **LABORATORY DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT (LL)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf)
				0.0						0.0 / 20.0 CONCRETE **Conc** -8.5 in					
		9 13 14 15		0.7	79			F3		0.7 / 19.3 Brown, fine to coarse silty sand with gravel FILL, medium dense to dense, moist **FL-SM**					
		8 14 24 20		2.7	96										
5	15	6 17 21 19		4.7	92			F3		4.7 / 15.3 Black and brown, fine to coarse silty sand FILL, contains rock fragments, dense **FL-SM** SAME, mottled, contains quartz gravel and mica					
		9 18 17 10		6.7	88								15.7		
		8 6 6 19		8.7	83			F1		8.7 / 11.3 Black and brown, sandy elastic silt FILL, stiff, moist **FL-MH**					2.5
10	10							C2		10.2 / 9.8 Gray, sandy SILT, stiff, moist **ML**					
		8 9 8 8		13.0	75			C3		13.0 / 7.0 Brown, fine to medium SILTY SAND, contains mica, medium dense, moist **SM**					
15	5														
		2 3 2 7		18.0	100					18.0 / 2.0 Dark gray, LEAN CLAY, trace sand, contains mica, firm, wet **CL**					
20	0														
		3 3 3 4		23.0	92			C2			42	20	31.1	96.0	0.5
25	-5			25.0	100										1.25
		2 2 3 4		28.0	92			C1		28.0 / -8.0 Dark gray, FAT CLAY, contains mica, firm, wet **CH**			44.9		0.75
30	-10														

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 15.5 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECTMD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ:DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

DATE(S) DRILLED:09/30/2024 - 10/03/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

GROUND WATER FIRST ENCOUNTERED AT: 18.0 ft
AFTER DRILLING: 15.5 ft (24 HOURS)

FIELD DATA | **LABORATORY DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf) tsf
								C1							
35	-15	3 4 5 7		33.0	92			C2		33.0 / -13.0 Dark gray, sandy SILT, contains mica, stiff, wet **ML**					
40	-20	WOH 2 4 4		38.0	100			C1		38.0 / -18.0 Dark gray, ELASTIC SILT, trace sand, contains mica, firm, wet **MH**	91	49	66.3	95.9	0.75
45	-25	2 3 5 6		43.0	100			C2		43.0 / -23.0 Black, SILT WITH SAND, contains mica, firm, wet **ML**					1
50	-30	2 3 4 6		48.0	100			C3		48.0 / -28.0 Dark gray, fine to coarse SILTY SAND, contains mica, loose, wet **SM**					
55	-35	10 13 34 50/4"		53.0	100			C3		53.0 / -33.0 Dark gray, fine to coarse POORLY-GRADED SAND WITH SILT, contains mica, loose to very dense, wet **SP-SM**					
60	-40	8 4 5 6		58.0	100						NP	NP	17.5	6.0	

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 15.5 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

DATE(S) DRILLED:09/30/2024 - 10/03/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

GROUND WATER FIRST ENCOUNTERED AT: 18.0 ft
AFTER DRILLING: 15.5 ft (24 HOURS)

FIELD DATA | **LABORATORY DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf) tsf
65	-45	13 21 50/5"		63.0	100			C3							
70	-50	7 3 18 18		68.0	100					68.0 / -48.0 Dark gray, fine to coarse POORLY-GRADED SAND WITH GRAVEL, contains mica and quartz gravel, medium dense to very dense, wet **SP**					
75	-55	10 20 17 16		73.0	58			C3							
80	-60	18 27 31 36		78.0	58					78.8 / -58.8 Brown and red, LEAN CLAY, stiff to very hard **CL**					3.25
85	-65	5 7 5 10		83.0	96					SAME, red and gray			29.2		1.5
90	-70	18 23 43 50/5"		88.0	100					SAME, light gray and red					3.5

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 15.5 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ:DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

B-3

DATE(S) DRILLED:09/30/2024 - 10/03/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

GROUND WATER FIRST ENCOUNTERED AT: 18.0 ft

AFTER DRILLING: 15.5 ft (24 HOURS)

FIELD DATA | **LABORATORY DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION % RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf) tsf
95	-75	14 24 37 50/5"		93.0	100				SAME, red					4.5
		26 37 50/5"		98.0	76									4.5
									99.4 / -79.4 Boring Terminated					

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 15.5 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ:DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

B-4

DATE(S) DRILLED:09/26/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 19.0

GROUND WATER FIRST ENCOUNTERED AT: 11.4 ft
AFTER DRILLING: 5.1 ft (24 HOURS)

FIELD DATA | **LABORATORY DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT (LL)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf)
				0.7						0.0 / 19.0 CONCRETE **Conc** -8.5 in					
		5 4 12 15			79			F3		0.7 / 18.3 Brown, fine to coarse silty sand with gravel FILL, medium dense to dense, moist **FL-SM**					
	15	13 19 21 21		2.7	71					SAME, brown and black					
5		7 19 24 25		4.7	67					SAME, black 4.7 / 14.3 Brown and black, fine to coarse silty sand FILL, contains quartz gravel, dense, moist **FL-SM**			8.9		
		11 12 36 50/3"		6.7	100			F3							
	10	21 50/5"		8.7	91			F2		8.5 / 10.6 Light gray, sandy silt FILL, contains quartz gravel, very hard, moist **FL-ML**					
10								F3		SAME, black and brown 9.2 / 9.8 Black, fine to medium silty sand FILL, contains quartz gravel and brick fragments, very dense, moist **FL-SM**					
		3 4 6 7		13.0	100					13.0 / 6.0 Black and brown, fine to coarse SILTY SAND WITH GRAVEL, medium dense, wet **SM**					
15	5							C3							
		1 1 2 2		18.0	100					18.0 / 1.0 Dark gray, fine to medium POORLY-GRADED SAND WITH SILT AND GRAVEL, contains mica, very loose to loose, wet **SP-SM**	NP	NP	17.5	11.7	
20	0							C3							
		2 4 4 3		23.0	83			C2		24.3 / -5.3 Dark gray, sandy SILT, contains mica, firm, wet **ML**					0.75
25	-5							C2		24.8 / -5.8 Dark gray, LEAN CLAY WITH SAND, contains mica, firm, wet **CL**					
		1 3 3 4		28.0	100			C1		28.0 / -9.0 Dark gray, FAT CLAY, contains mica, firm, wet **CH**					0.5
30	-10														

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 5.1 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

DATE(S) DRILLED:09/26/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 19.0

GROUND WATER FIRST ENCOUNTERED AT: 11.4 ft

AFTER DRILLING: 5.1 ft (24 HOURS)

FIELD DATA										LABORATORY DATA				
DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION % RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf) tsf
30				30.0	100		C1			67	41	41.3	99.3	1.5
	-15	3 4 5 5		33.0	92				33.0 / -14.0 Dark gray, sandy SILT, trace clay clumps, contains mica, stiff, wet **ML**					0.25
35							C2							
	-20	2 3 4 5		38.0	100				38.0 / -19.0 Dark gray, FAT CLAY, contains mica, firm, wet **CH**			54.0		1.25
40							C2							
	-25	3 5 6 11		43.0	100				43.0 / -24.0 Black, SILT WITH SAND, contains mica, stiff, wet **ML**					
45							C2							
	-30	WOH WOH 2 3		48.0	100				48.0 / -29.0 Black, fine to medium SILTY SAND, contains mica, very loose to medium dense, wet **SM**	NP	NP	29.9	16.2	
50							C3							
	-35	3 8 10 8		53.0	100				54.5 / -35.5 Dark gray, fine SILTY SAND, contains mica, loose to medium dense, wet **SM**					
55							C3							
	-40	3 4 5 5		58.0	100		C2							
60														

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 5.1 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

B-4

DATE(S) DRILLED:09/26/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 19.0

▽ GROUND WATER FIRST ENCOUNTERED AT: 11.4 ft

▼ AFTER DRILLING: 5.1 ft (24 HOURS)

FIELD DATA | **LABORATORY DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200	POCKET PENETROMETER (tsf) tsf
								C2		58.8 / -39.8 Dark gray, LEAN CLAY, trace sand, contains mica, stiff, wet **CL**					
	-45	2 3 3 5		63.0	100					63.0 / -44.0 Dark gray, sandy SILT, contains mica, firm, wet **ML**			26.8		
65								C2							
	-50	9 6 8 6		68.0	38			C3		68.0 / -49.0 Dark gray, fine to coarse POORLY-GRADED SAND WITH GRAVEL, contains mica, medium dense, wet **SP**					
70										70.0 / -51.0 Boring Terminated					

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 5.1 ft. A temporary piezometer was installed to record 24-hour groundwater reading.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

B-5

PAGE 1 OF 1

DATE(S) DRILLED:09/23/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

GROUND WATER NOT ENCOUNTERED DURING DRILLING
GROUND WATER NOT ENCOUNTERED AT THE END OF DRILLING
NO LONG TERM MEASUREMENTS TAKEN

FIELD DATA | **LAB DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
		3 6 7 7		0.0	79			F2		0.0 / 20.0 TOPSOIL **Tops** -4 in				
								F2		0.3 / 19.7 Red and black, silt with sand FILL, contains organics, stiff, moist **FL-ML**				
		9 12 19 22		2.0	100					0.5 / 19.5 Brown, sandy silt FILL, trace gravel, contains organics, stiff, moist **FL-ML**				
5	15	8 9 12 16		4.0	100			F2		2.0 / 18.0 Dark brown and red, lean clay with sand FILL, contains organics, very stiff to very hard, moist **FL-CL**	49	28	16.1	74.5
		26 33 50/2"		6.0	114					SAME, brown				
		50/3"		8.0	100					8.3 / 11.8 Auger Refusal				

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 5.3 ft

PAGE 1 OF 1

B-5

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

PROJECT NAME: MLS Next Pro Multi-Use Soccer Stadium
PROJECT NO.: 03.06802.01
LOCATION: Baltimore Peninsula, Maryland
CLIENT: Moody Nolan

B-5 OS

DATE(S) DRILLED:09/23/2024
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: D50 ATV
DRILLER: E. Sarto LOGGER: M. Pagadala
SURFACE ELEVATION: 20.0

GROUND WATER NOT ENCOUNTERED DURING DRILLING
GROUND WATER NOT ENCOUNTERED AT THE END OF DRILLING
NO LONG TERM MEASUREMENTS TAKEN

FIELD DATA | **LAB DATA**

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION % RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)
									0.0 / 20.0 ASPHALT **Asph** -6 in 0.5 / 19.5 AGGREGATE BASE **GB** -5 in 0.9 / 19.1 Augered through soil layer			
5	15	3 3 2 50/4"		0.9 4.5 6.5	78 100		F3 F3		4.5 / 15.5 Mottled, fine to medium silty sand with gravel FILL, contains organics, loose, moist **FL-SM** 6.5 / 13.5 Gray and black, fine to coarse poorly-graded sand with gravel FILL, loose to very dense, moist **FL-SP** 6.9 / 13.1 Auger Refusal			

REMARKS: Surface elevation estimated from Google Earth. Caved in depth at 4.5 ft.

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG:C:\USERS\GANESH\ZCC DMY\GEOTECHNICAL PRACTICE - DOCUMENTS\PROPOSAL-PROJECT\MD - GAITHERSBURG\03.06802.01 MSA MLS STADIUM\B-DRILLING\EXCEL LOGS\BALTIMORE PENINSULA\DRAFT_LOG_2024-11-24.GPJ;DRAFT_LOG_2

DMY
4170 Lafayette Center Drive, Suite 500
Chantilly, Virginia 20151
tel: (703) 665-0586 fax: (301) 768-4169

CLIENT Moody Nolan

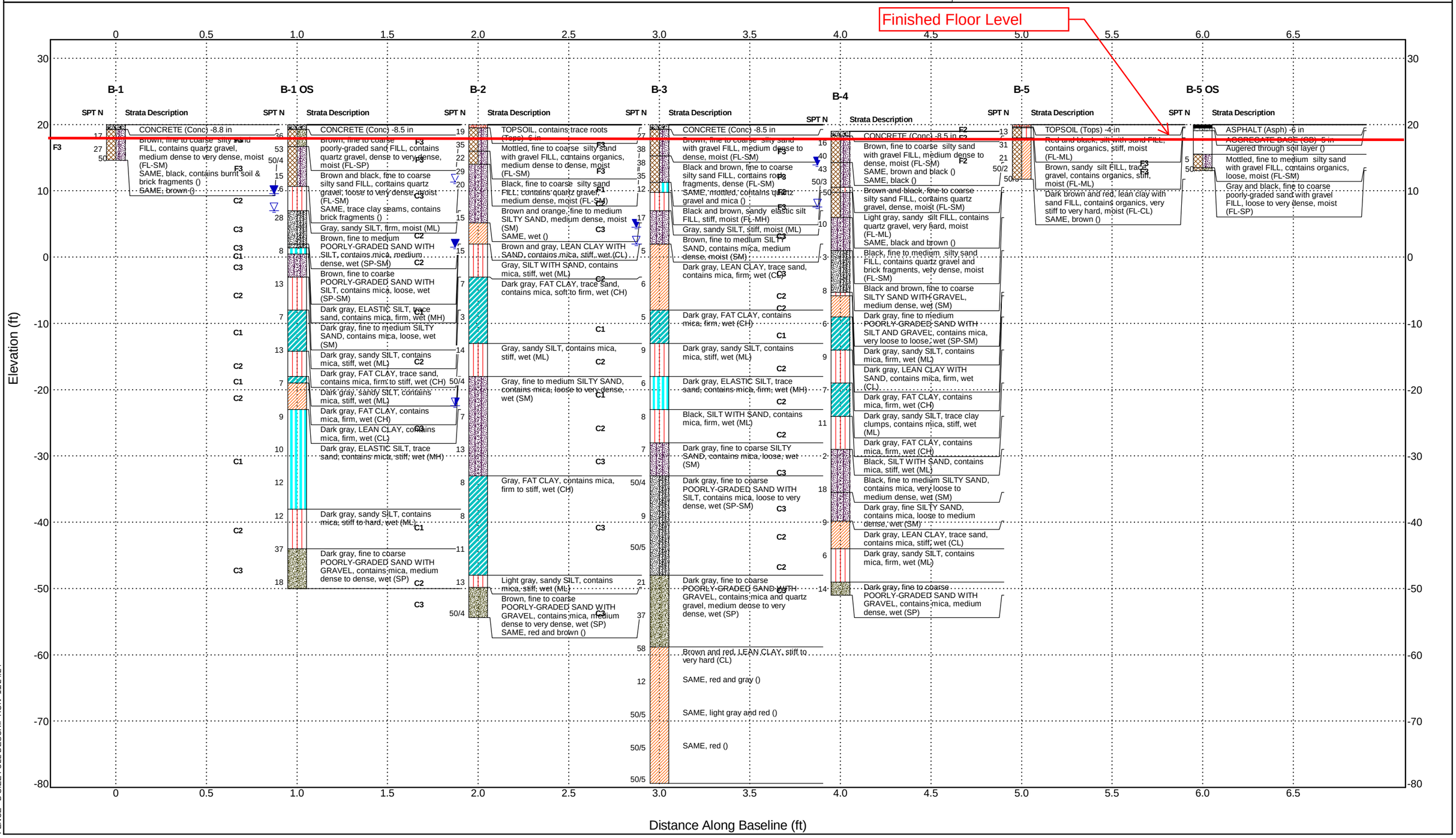
PROJECT NUMBER 03.06802.01

SUBSURFACE DIAGRAM

PROJECT NAME MLS Next Pro Multi-Use Soccer Stadium

PROJECT LOCATION Baltimore Peninsula, Maryland

Concrete
Silt with Low Plasticity
Fat CLAY
Fill
Silty Sand
Poorly-graded Sand with Silt
Lean CLAY
Poorly-graded Sand
Silt with High Plasticity
Topsoil



FENCE - B SIZE FULL DESCRIPTION 11/24/24

APPENDIX C LABORATORY TESTING

JAY KAY TESTING

SUMMARY OF LABORATORY TESTING

Job Name: **MSA MLS Stadium**
Job Number: 03.06802.01
Location: Baltimore Peninsula
Sample Date:

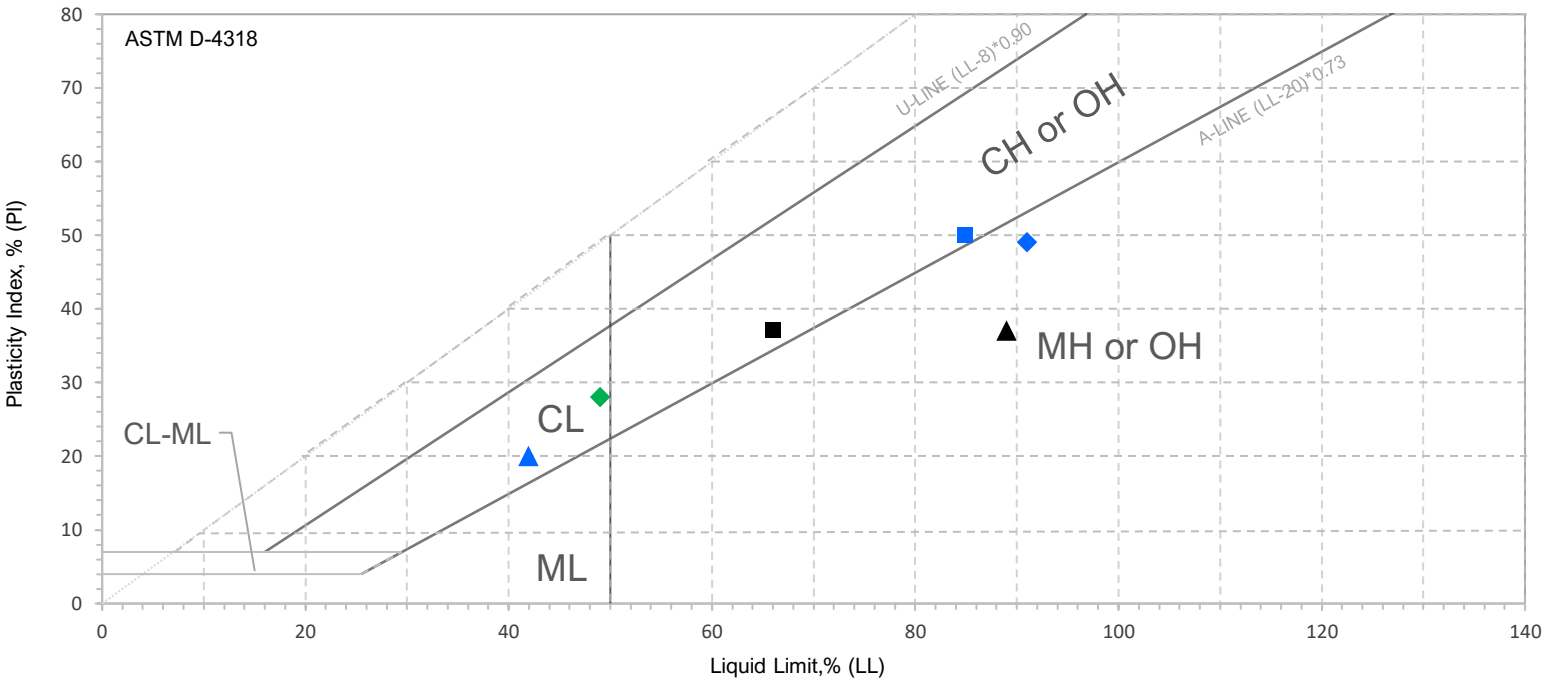
Client: DMY
PM/Reviewer: GP
Tester: ST/JT
Report Date: 10/22/24

Sample Identification		Depth				Atterberg Limits				Compaction					
Boring ID	Sample ID	Top, ft	Bottom, ft	NMC, % (ASTM D-2216)	Organic Matter, % (ASTM D-2974)	Liquid Limit, % (ASTM D-4318)	Plastic Limit, % (ASTM D-4318)	Plasticity Index, % (ASTM D-4318)	Specific Gravity (ASTM D-854)	Maximum Dry Density, lb/ft³	Optimum Moisture Content, %	AASHTO Classification (M-145)	% < 0.002 mm	% Fines	USCS Classification (ASTM D-2487)
B-1 OS	S-5	8.7	10.7	15.1	-	-	-	-	-	-	-	-	-	-	-
B-1 OS	S-6	13	15	20.2	-	NP	NP	NP	-	-	-	A-3	-	9.1	SP-SM
B-1 OS	S-10A	33	34.2	42.2	-	66	29	37	-	-	-	A-7-6	-	96.7	CH
B-1 OS	S-12	43	45	66.2	-	89	52	37	-	-	-	A-7-5	-	92.0	MH
B-2	S-3	4	6	14.3	-	NP	NP	NP	-	-	-	A-1-b	-	24.9	SM
B-2	S-6	13	14.8	22.6	-	21	NP	NP	-	-	-	A-4	-	43.4	SM
B-2	S-7	18	20	29.2	-	-	-	-	-	-	-	-	-	-	-
B-2	S-9	28	30	60.4	-	85	35	50	-	-	-	A-7-5	-	98.6	CH
B-2	S-10	33	35	26.8	-	-	-	-	-	-	-	-	-	-	-
B-2	S-15	58	60	27.5	-	-	-	-	-	-	-	-	-	-	-
B-3	S-4	6.7	8.7	15.7	-	-	-	-	-	-	-	-	-	-	-
B-3	S-8	23	25	31.1	-	42	22	20	-	-	-	A-7-6	-	96.0	CL
B-3	S-10	28	30	44.9	-	-	-	-	-	-	-	-	-	-	-
B-3	S-12	38	40	66.3	-	91	42	49	-	-	-	A-7-5	-	95.9	MH
B-3	S-16	58	60	17.5	-	NP	NP	NP	-	-	-	A-3	-	6.0	SP-SM
B-3	S-21	83	85	29.2	-	-	-	-	-	-	-	-	-	-	-
B-4	S-3	4.7	6.7	8.9	-	-	-	-	-	-	-	-	-	-	-
B-4	S-7	18	20	17.5	-	NP	NP	NP	-	-	-	A-2-4	-	11.7	SP-SM
B-4	S-12	38	40	54.0	-	-	-	-	-	-	-	-	-	-	-
B-4	S-14	48	50	29.9	-	NP	NP	NP	-	-	-	A-2-4	-	16.2	SM
B-4	S-17	63	65	26.8	-	-	-	-	-	-	-	-	-	-	-
B-5	S-3	4	6	16.1	-	49	21	28	-	-	-	A-7-6	-	74.5	CL
B-2	Bag	40	50	-	-	-	-	-	-	-	-	-	-	-	-
B-3	Bag	10	20	-	-	-	-	-	-	-	-	-	-	-	-
B-3	Bag	60	70	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

JAY KAY TESTING

SUMMARY OF ATTERBERG LIMIT TESTING

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:		Report Date:	10/22/24



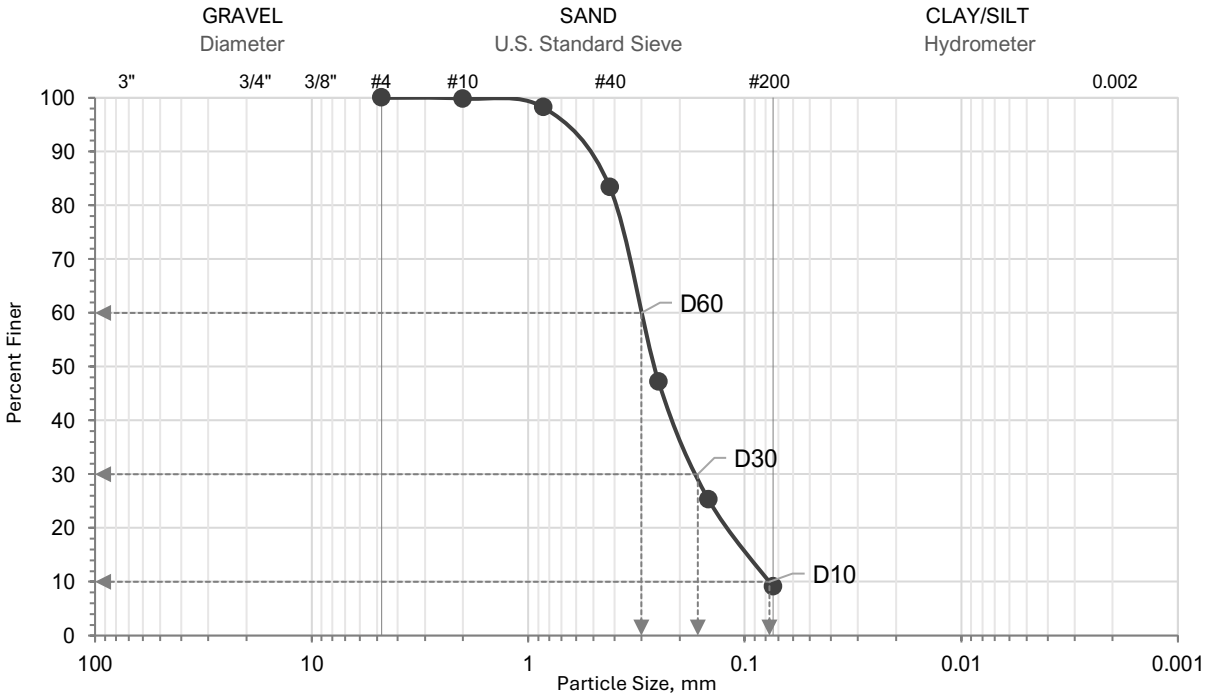
	Boring ID	Sample ID	Top	Btm	LL	PL	PI		Boring ID	Sample ID	Top	Btm	LL	PL	PI
	B-1 OS	S-6	13	15	NP	NP	NP								
■	B-1 OS	S-10A	33	34.2	66	29	37								
▲	B-1 OS	S-12	43	45	89	52	37								
	B-2	S-3	4	6	NP	NP	NP								
	B-2	S-6	13	14.8	21	NP	NP								
■	B-2	S-9	28	30	85	35	50								
▲	B-3	S-8	23	25	42	22	20								
◆	B-3	S-12	38	40	91	42	49								
	B-3	S-16	58	60	NP	NP	NP								
	B-4	S-7	18	20	NP	NP	NP								
	B-4	S-14	48	50	NP	NP	NP								
◆	B-5	S-3	4	6	49	21	28								

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-1 OS** Sample ID: **S-6** Top Depth **13'** Btm Depth **15'**

Particle-Size Distribution of Soils

ASTM D-6913



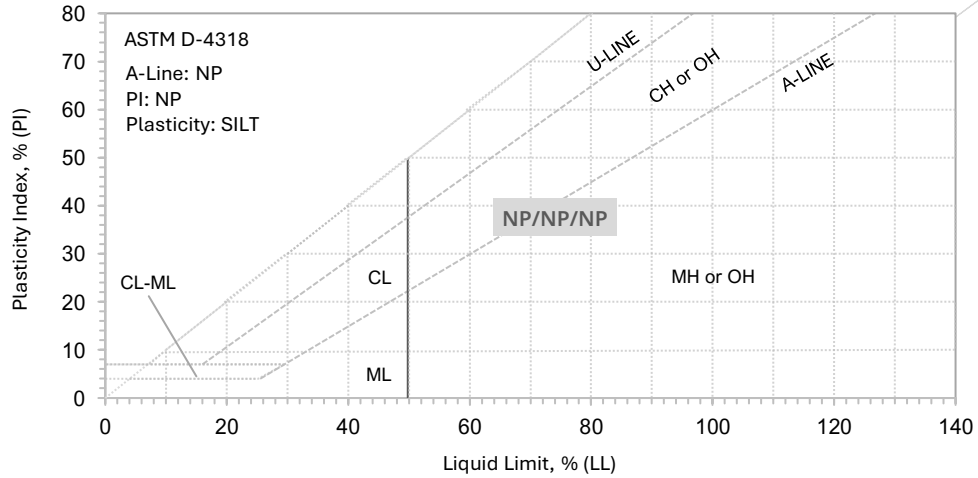
Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	98.2
#40	0.42	83.4
#60	0.25	47.2
#100	0.147	25.3
#200	0.074	9.1

% Gravel (> 4.75 mm)	Coarse	0.0	% Sand (≤ 4.75 mm)	Coarse	0.1	D_{10}	0.0769
	Fine	0.0		Medium	16.5	D_{30}	0.1647
	Total	**0.0**		Fine	74.3	D_{60}	0.3003
				Total	**90.9**		

Cc	1.175
Cu	3.90
Poorly-graded sand	

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	
Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP

AASHTO (M-145): A-3

USCS (D-2487): SP-SM

Soil Description (D-2487)

Brown poorly-graded SAND with silt

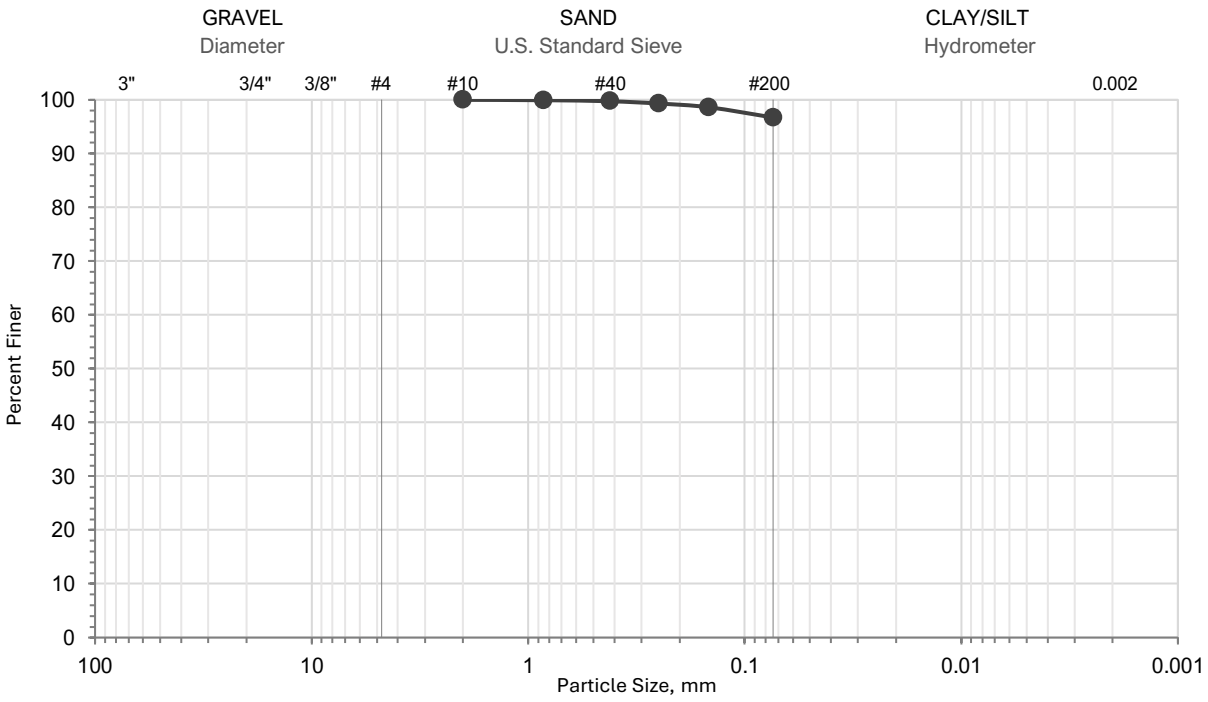
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-1 OS** Sample ID: **S-10A** Top Depth **33'** Btm Depth **34.2'**

Particle-Size Distribution of Soils

ASTM D-6913

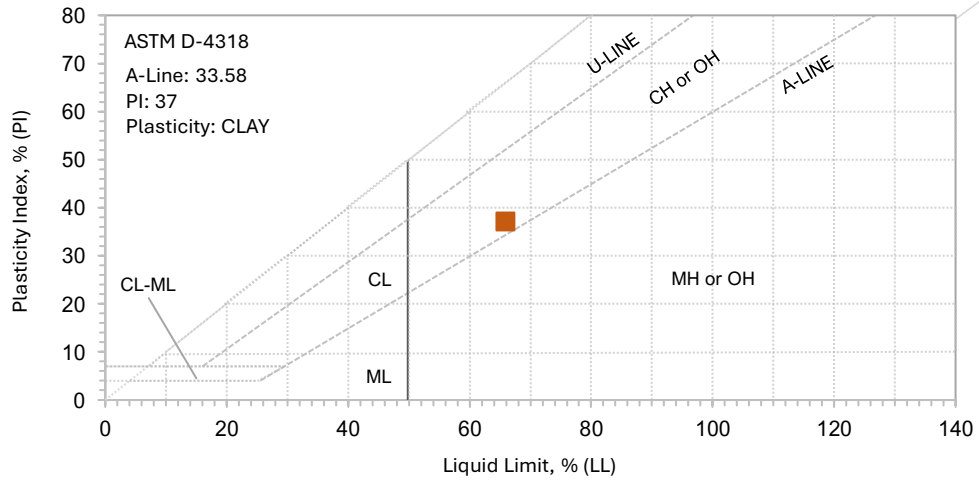


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	-
#10	2.00	100.0
#20	0.85	99.9
#40	0.42	99.7
#60	0.25	99.3
#100	0.147	98.6
#200	0.074	96.7

% Gravel (> 4.75 mm)	Coarse	0.0	% Sand (≤ 4.75 mm)	Coarse	0.0	D_{10} -	Cc -
	Fine	0.0		Medium	0.3	D_{30} -	Cu -
	Total	**0.0**		Fine	3.0	D_{60} -	
				Total	**3.3**		

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	■
Liquid Limit	66
Plastic Limit	29
Plasticity Index	37

AASHTO (M-145)	USCS (D-2487)
A-7-6	CH

Soil Description (D-2487)

Dark gray fat CLAY

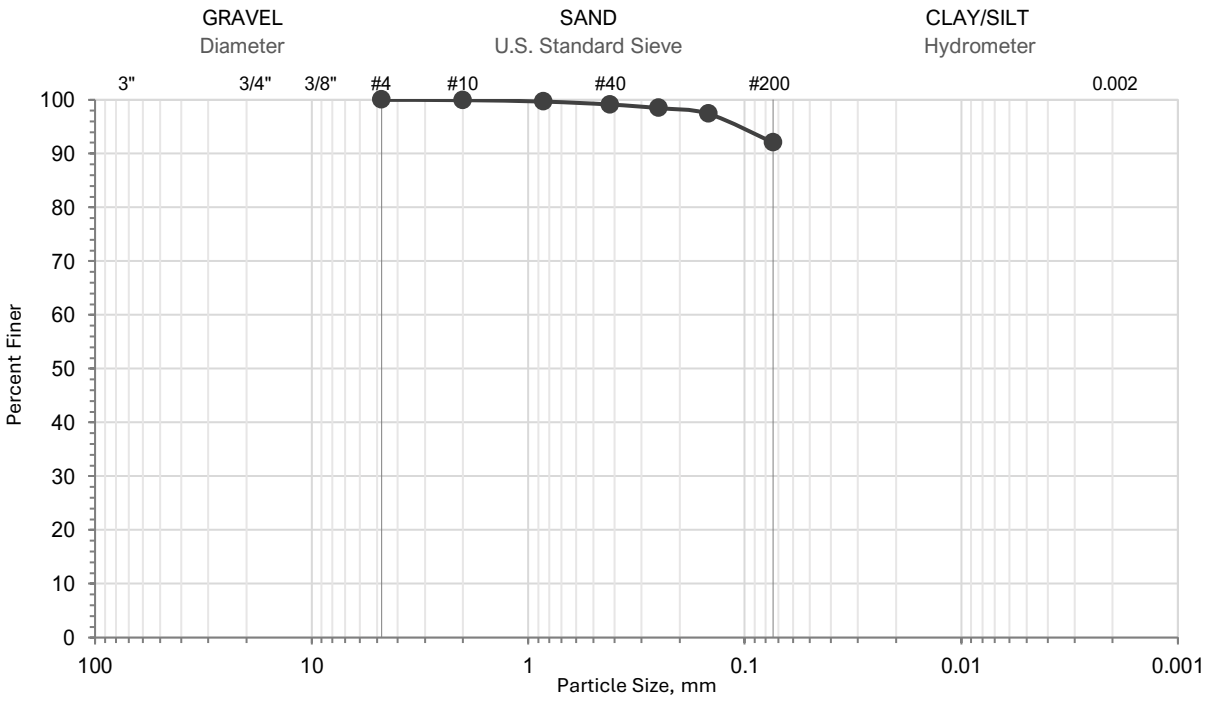
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-1 OS** Sample ID: **S-12** Top Depth **43'** Btm Depth **45'**

Particle-Size Distribution of Soils

ASTM D-6913

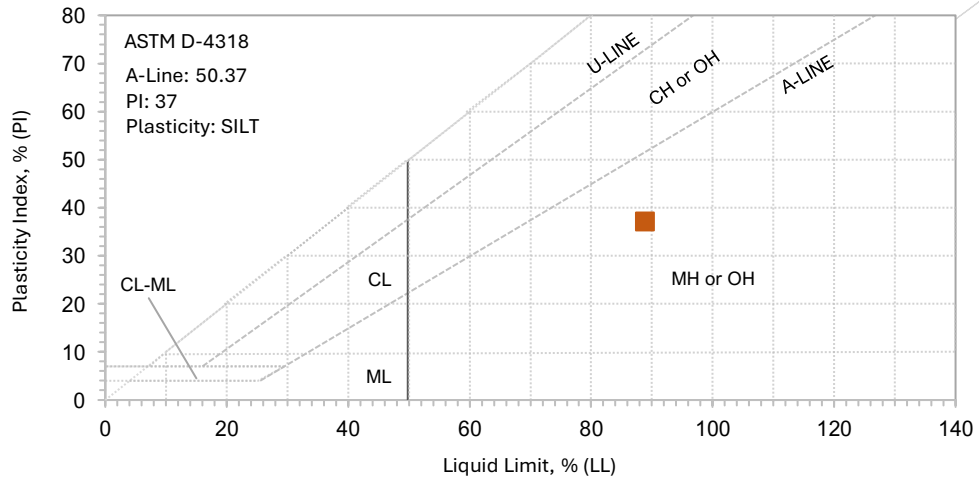


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	99.7
#40	0.42	99.1
#60	0.25	98.5
#100	0.147	97.4
#200	0.074	92.0

% Gravel (> 4.75 mm)	Coarse	0.0	% Sand (≤ 4.75 mm)	Coarse	0.1	D_{10} -	Cc -
	Fine	0.0		Medium	0.8	D_{30} -	Cu -
	Total	**0.0**		Fine	7.1	D_{60} -	
				Total	**8.0**		

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	■
Liquid Limit	89
Plastic Limit	52
Plasticity Index	37

AASHTO (M-145): A-7-5

USCS (D-2487): MH

Soil Description (D-2487)

Dark gray elastic SILT

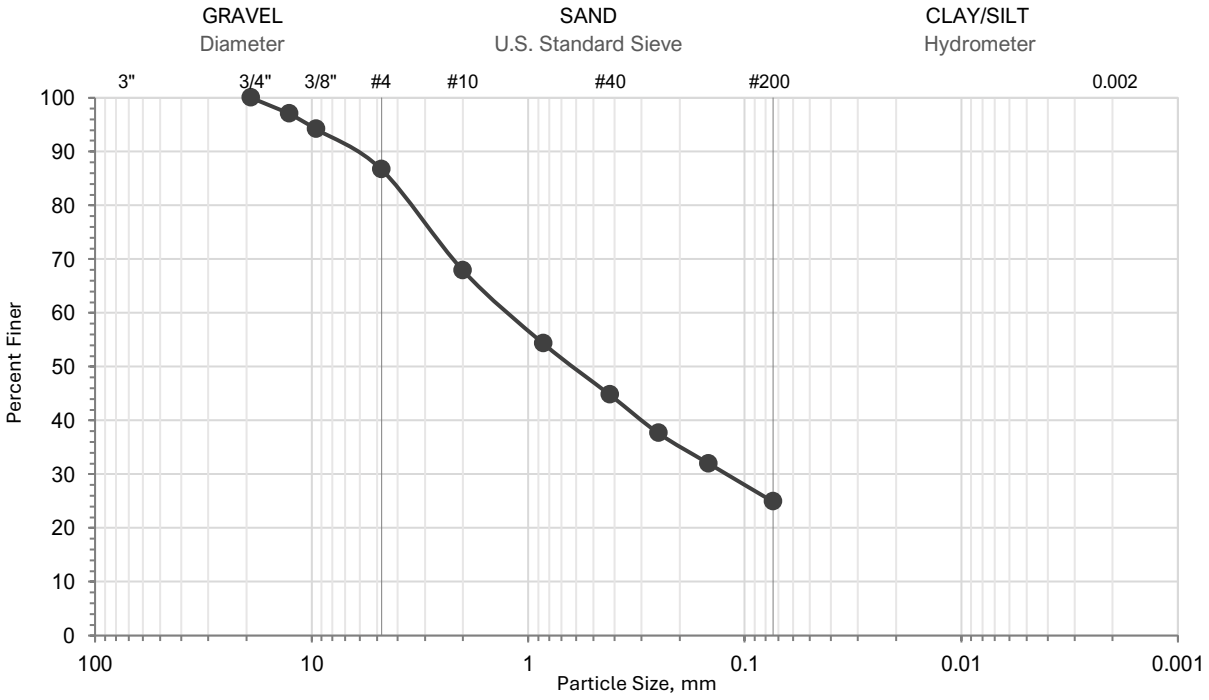
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-2** Sample ID: **S-3** Top Depth **4'** Btm Depth **6'**

Particle-Size Distribution of Soils

ASTM D-6913

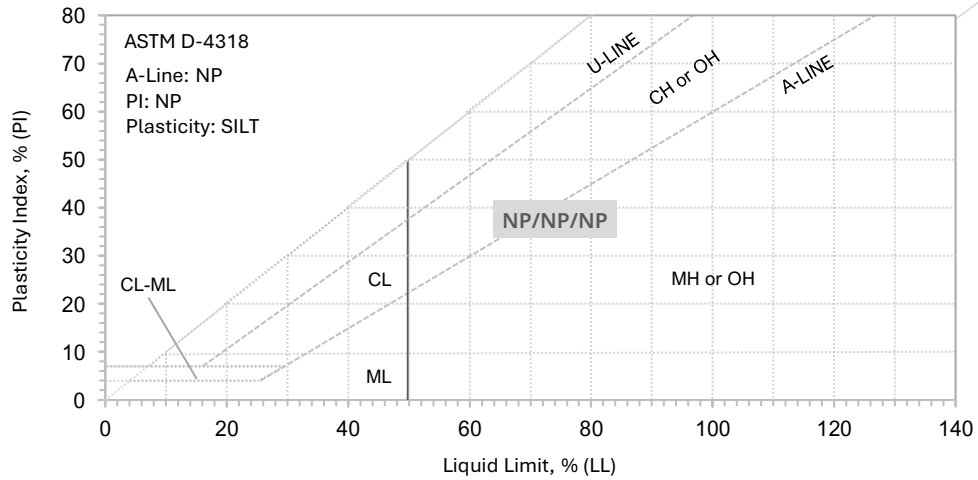


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	100.0
1/2"	12.7	97.0
3/8"	9.51	94.1
#4	4.75	86.6
#10	2.00	67.9
#20	0.85	54.3
#40	0.42	44.8
#60	0.25	37.6
#100	0.147	32.0
#200	0.074	24.9

% Gravel (> 4.75 mm)	Coarse	0.0	% Sand (≤ 4.75 mm)	Coarse	18.7	D_{10} -	Cc -
	Fine	13.4		Medium	23.1	D_{30} -	Cu -
	Total	**13.4**		Fine	19.9	D_{60} -	
				Total	**61.7**		

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	■
Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP

AASHTO (M-145): A-1-b

USCS (D-2487): SM

Soil Description (D-2487)

Black silty SAND

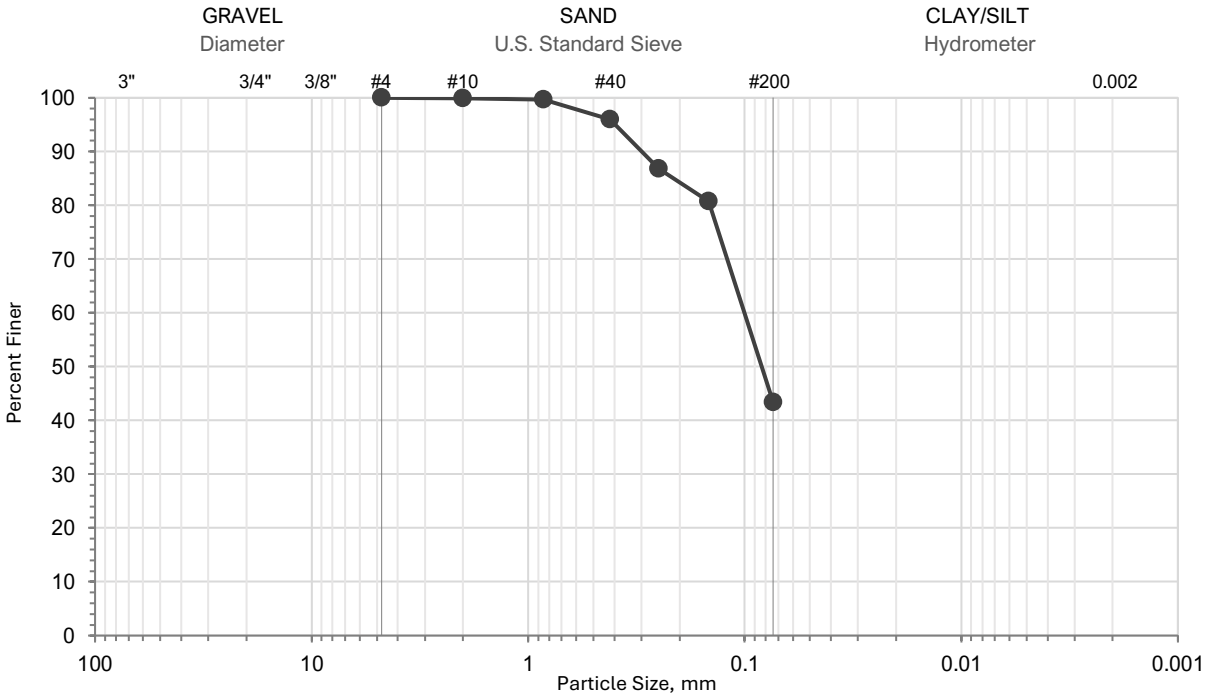
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-2** Sample ID: **S-6** Top Depth **13'** Btm Depth **14.8'**

Particle-Size Distribution of Soils

ASTM D-6913



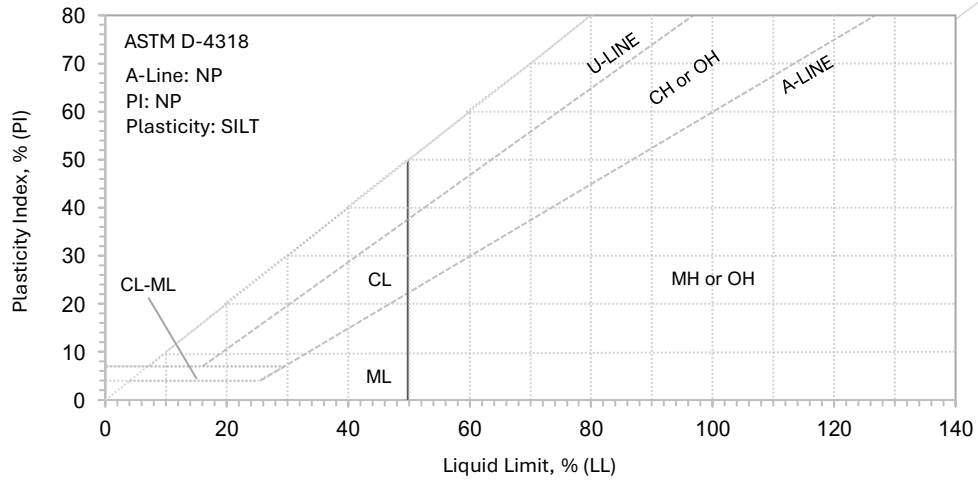
Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	99.7
#40	0.42	95.9
#60	0.25	86.8
#100	0.147	80.8
#200	0.074	43.4

% Gravel (> 4.75 mm)	Coarse	0.0	% Sand (≤ 4.75 mm)	Coarse	0.1	D_{10}	-
	Fine	0.0		Medium	4.0	D_{30}	-
	Total	**0.0**		Fine	52.5	D_{60}	-
				Total	**56.6**		

Cc	-
Cu	-

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	
Liquid Limit	21
Plastic Limit	NP
Plasticity Index	NP

AASHTO (M-145)	USCS (D-2487)
A-4	SM

Soil Description (D-2487)

Orange-brown silty SAND

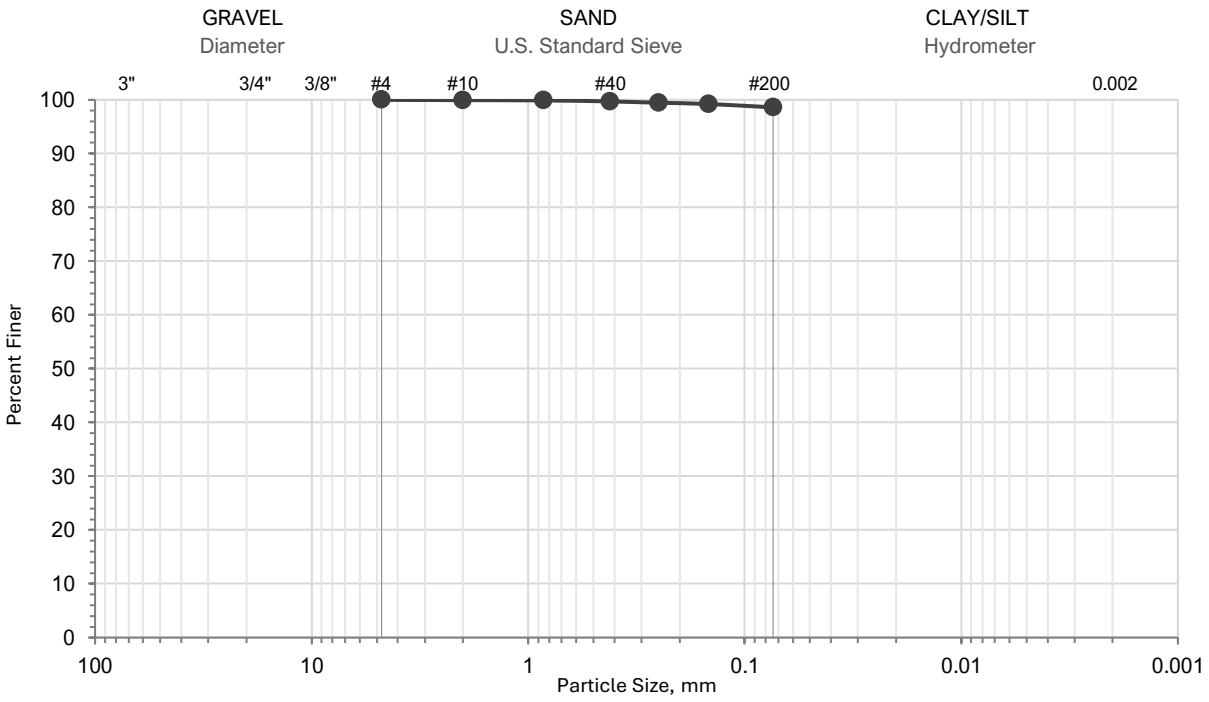
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-2** Sample ID: **S-9** Top Depth **28'** Btm Depth **30'**

Particle-Size Distribution of Soils

ASTM D-6913

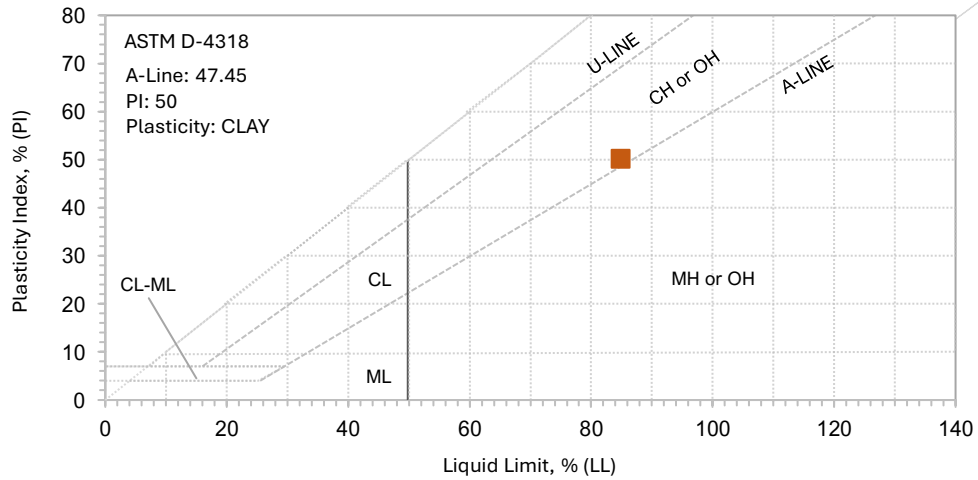


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	99.9
#40	0.42	99.7
#60	0.25	99.5
#100	0.147	99.2
#200	0.074	98.6

% Gravel (> 4.75 mm)	Coarse	0.0	% Sand (≤ 4.75 mm)	Coarse	0.1	D_{10} -	Cc -
	Fine	0.0		Medium	0.2	D_{30} -	Cu -
	Total	**0.0**		Fine	1.1	D_{60} -	
				Total	**1.4**		

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	■
Liquid Limit	85
Plastic Limit	35
Plasticity Index	50

AASHTO (M-145): A-7-5

USCS (D-2487): CH

Soil Description (D-2487)

Dark gray fat CLAY

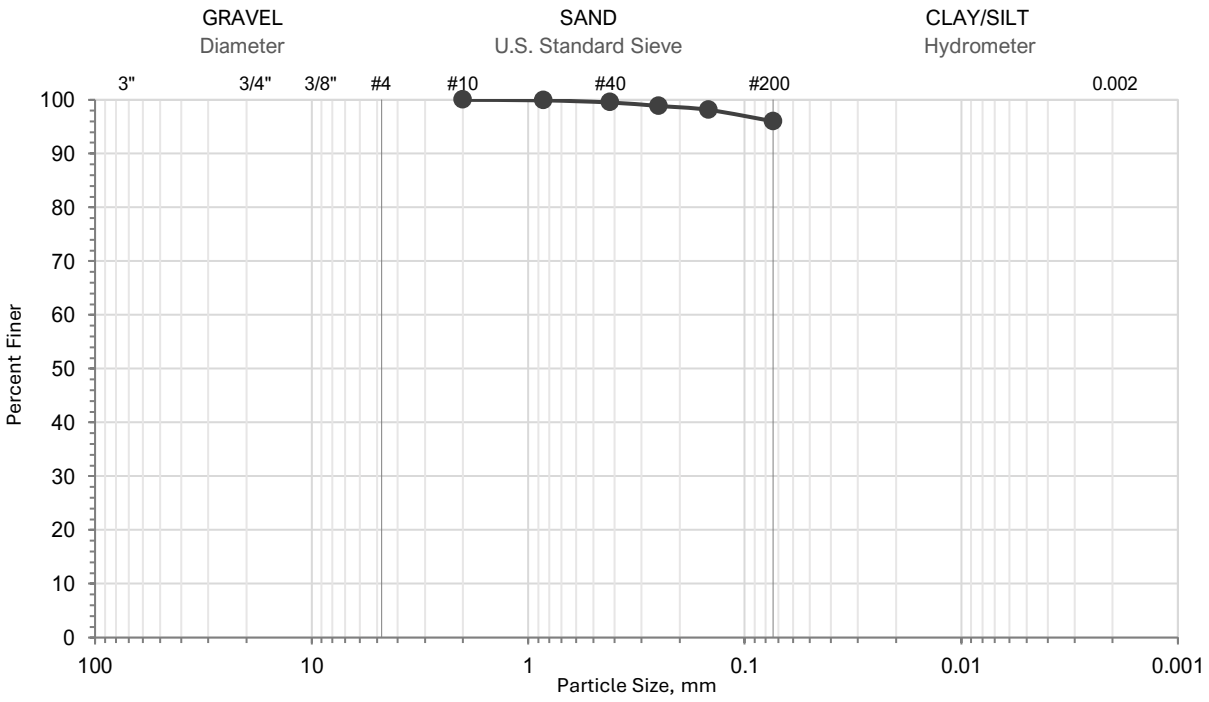
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-3** Sample ID: **S-8** Top Depth **23'** Btm Depth **25'**

Particle-Size Distribution of Soils

ASTM D-6913

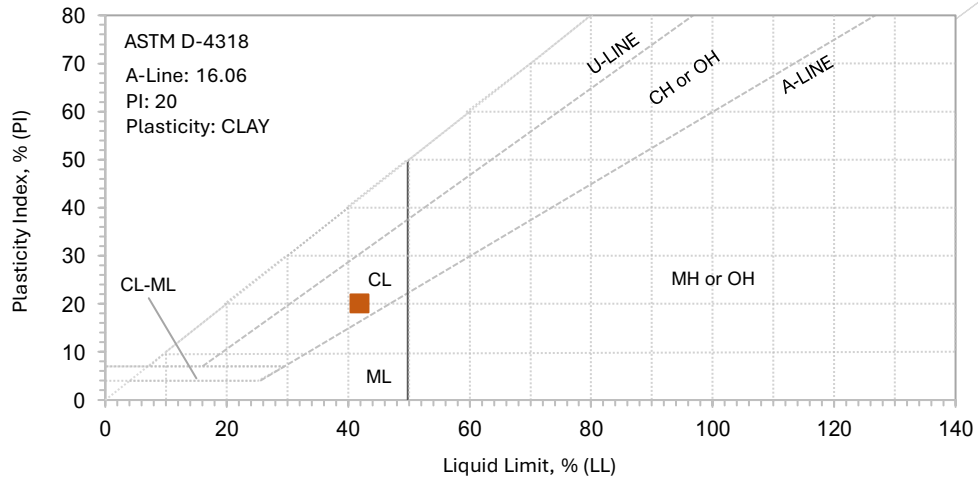


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	-
#10	2.00	100.0
#20	0.85	99.9
#40	0.42	99.5
#60	0.25	98.9
#100	0.147	98.1
#200	0.074	96.0

% Gravel (> 4.75 mm)	Coarse	0.0	% Sand (≤ 4.75 mm)	Coarse	0.0	D_{10} -	Cc -
	Fine	0.0		Medium	0.5	D_{30} -	Cu -
	Total	**0.0**		Fine	3.5	D_{60} -	
				Total	**4.0**		

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	■
Liquid Limit	42
Plastic Limit	22
Plasticity Index	20

AASHTO (M-145): A-7-6

USCS (D-2487): CL

Soil Description (D-2487)

Dark gray lean CLAY

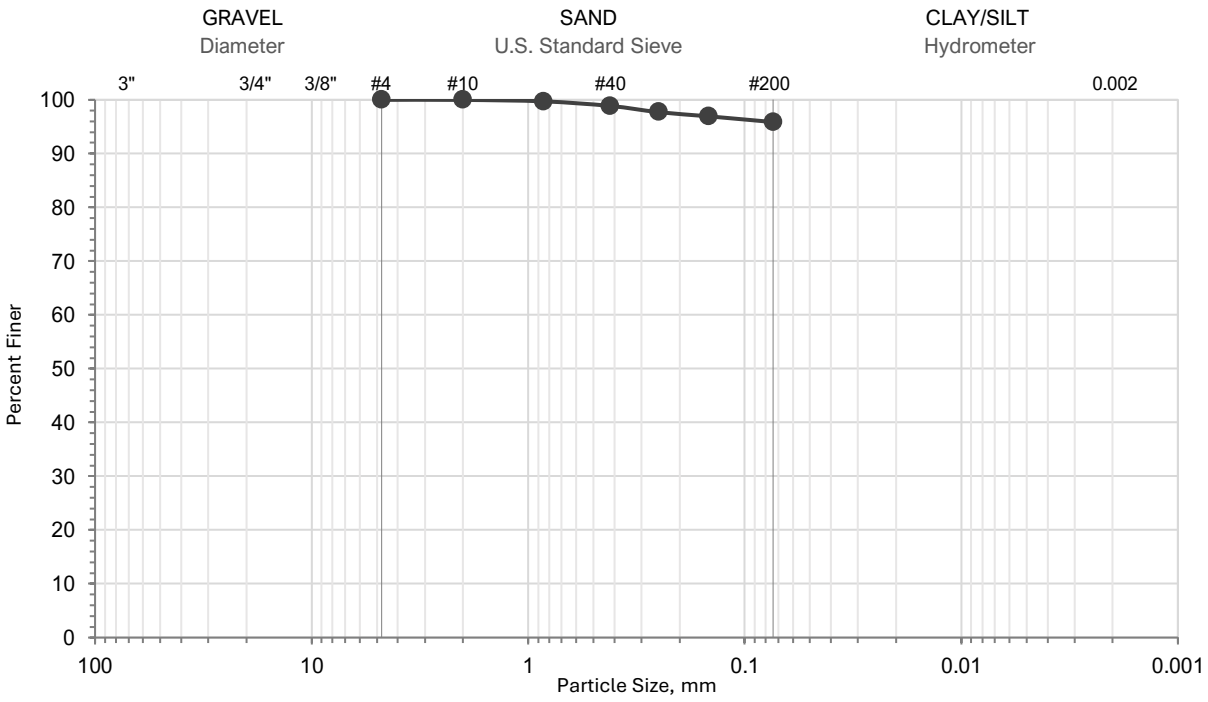
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-3** Sample ID: **S-12** Top Depth **38'** Btm Depth **40'**

Particle-Size Distribution of Soils

ASTM D-6913

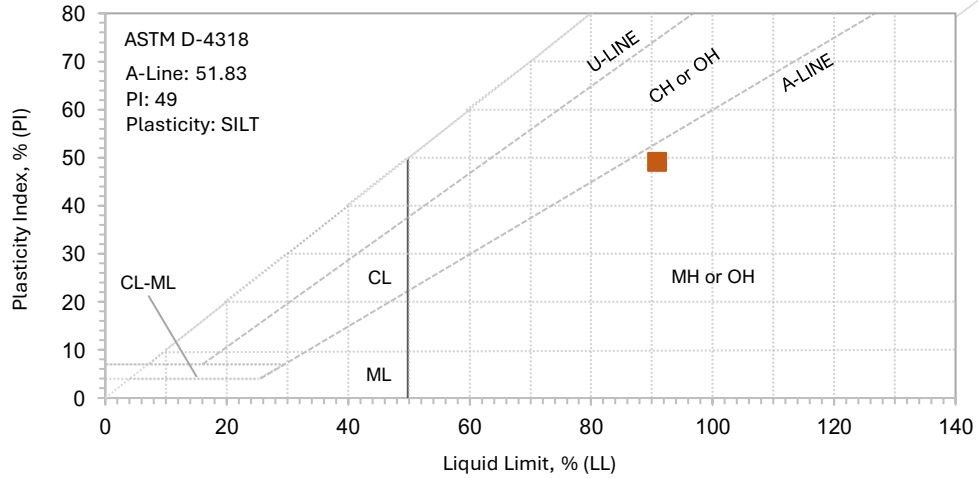


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	99.7
#40	0.42	98.9
#60	0.25	97.7
#100	0.147	96.9
#200	0.074	95.9

% Gravel (> 4.75 mm)	Coarse	0.0	% Sand (≤ 4.75 mm)	Coarse	0.1	D_{10} -	Cc -
	Fine	0.0		Medium	1.0	D_{30} -	Cu -
	Total	**0.0**		Fine	3.0	D_{60} -	
				Total	**4.1**		

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	■
Liquid Limit	91
Plastic Limit	42
Plasticity Index	49

AASHTO (M-145): A-7-5

USCS (D-2487): MH

Soil Description (D-2487)

Dark gray elastic SILT

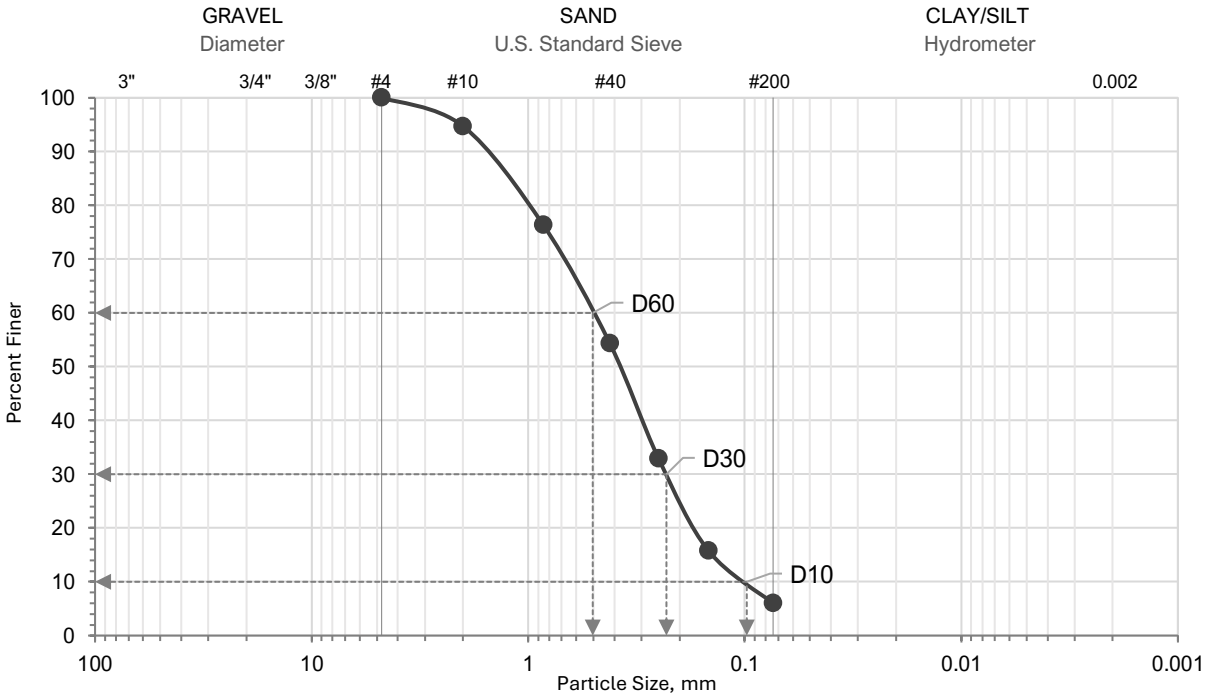
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-3** Sample ID: **S-16** Top Depth **58'** Btm Depth **60'**

Particle-Size Distribution of Soils

ASTM D-6913



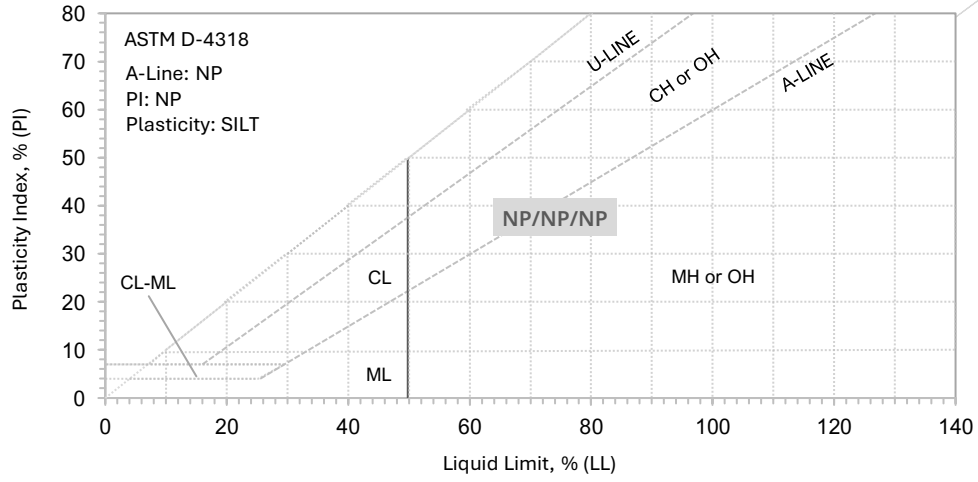
Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	94.7
#20	0.85	76.3
#40	0.42	54.4
#60	0.25	32.9
#100	0.147	15.8
#200	0.074	6.0

% Gravel (> 4.75 mm)	Coarse	0.0	% Sand (≤ 4.75 mm)	Coarse	5.3	D_{10}	0.0979
	Fine	0.0		Medium	40.3	D_{30}	0.2300
	Total	**0.0**		Fine	48.4	D_{60}	0.5034
				Total	**94.0**		

Cc	1.074
Cu	5.14
Poorly-graded sand	

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	
Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP

AASHTO (M-145): A-3

USCS (D-2487): SP-SM

Soil Description (D-2487)

Dark gray poorly-graded SAND with silt

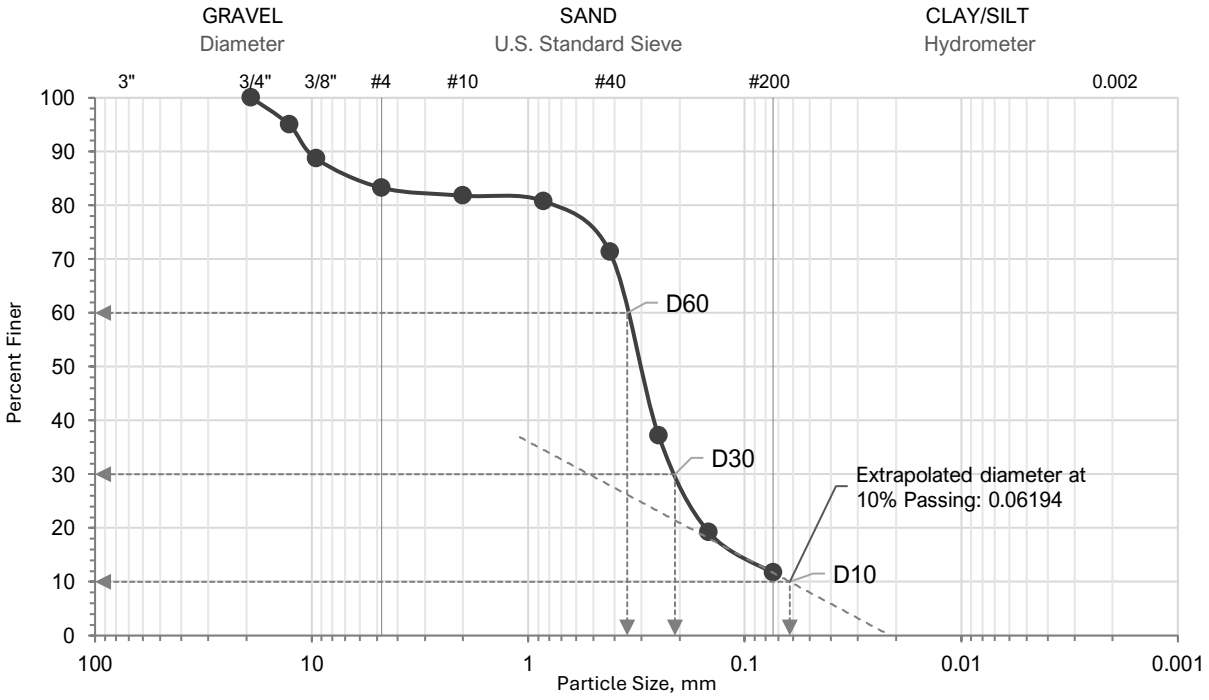
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-4** Sample ID: **S-7** Top Depth **18'** Btm Depth **20'**

Particle-Size Distribution of Soils

ASTM D-6913



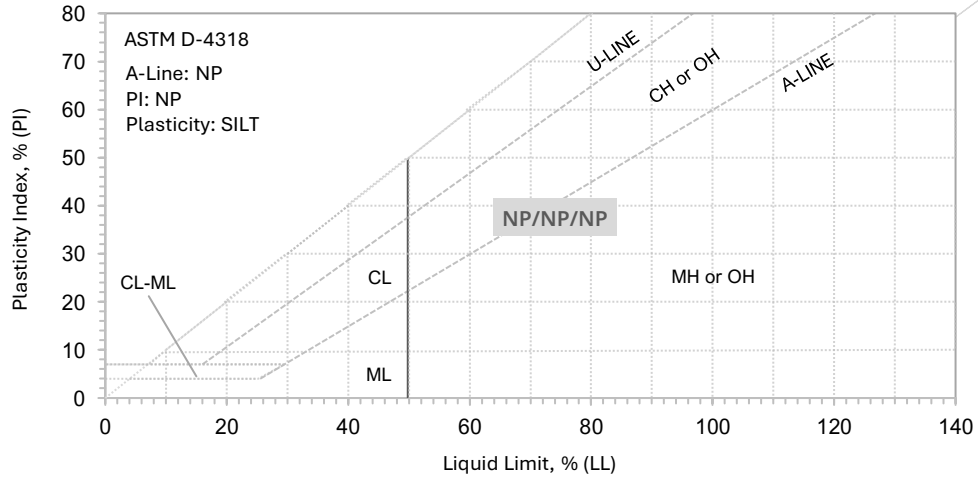
Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	100.0
1/2"	12.7	95.0
3/8"	9.51	88.7
#4	4.75	83.3
#10	2.00	81.8
#20	0.85	80.8
#40	0.42	71.3
#60	0.25	37.2
#100	0.147	19.3
#200	0.074	11.7

% Gravel (> 4.75 mm)	Coarse	0.0	% Sand (≤ 4.75 mm)	Coarse	1.5	D_{10}	0.0619
	Fine	16.7		Medium	10.5	D_{30}	0.2100
	Total	**16.7**		Fine	59.6	D_{60}	0.3490
				Total	**71.6**		

Cc	2.040
Cu	5.63
Poorly-graded sand	

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	■
Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP

AASHTO (M-145): A-2-4

USCS (D-2487): SP-SM

Soil Description (D-2487)

Dark gray poorly-graded SAND with silt and gravel

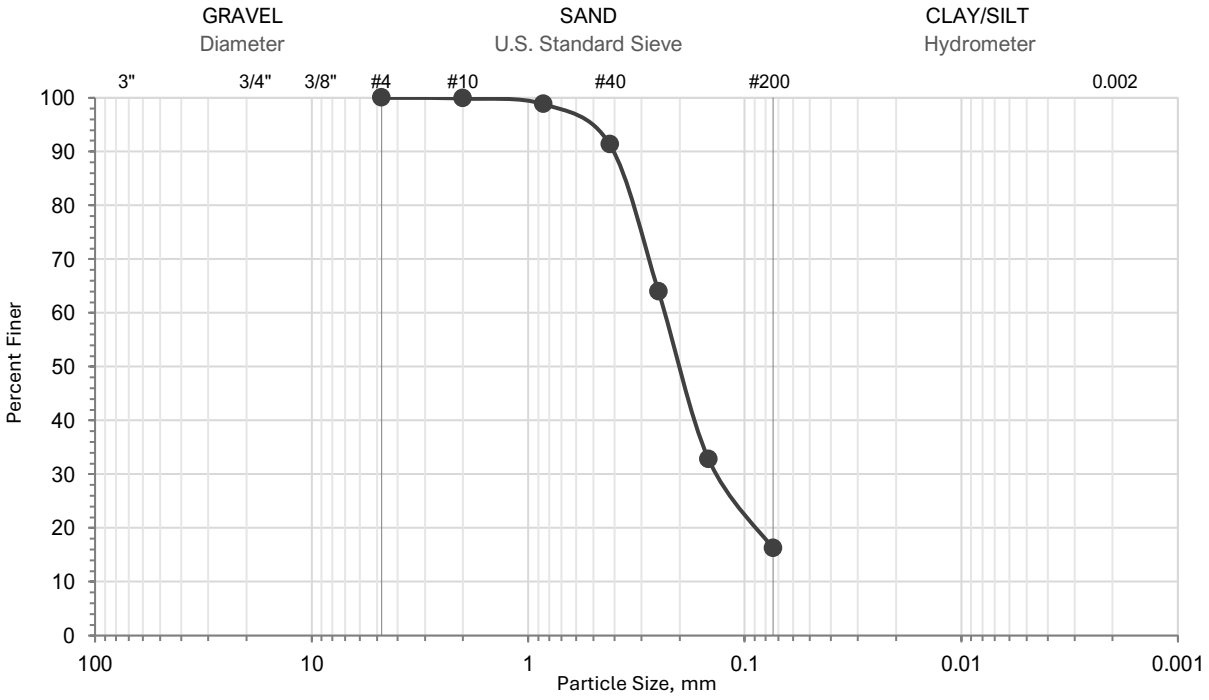
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-4** Sample ID: **S-14** Top Depth **48'** Btm Depth **50'**

Particle-Size Distribution of Soils

ASTM D-6913

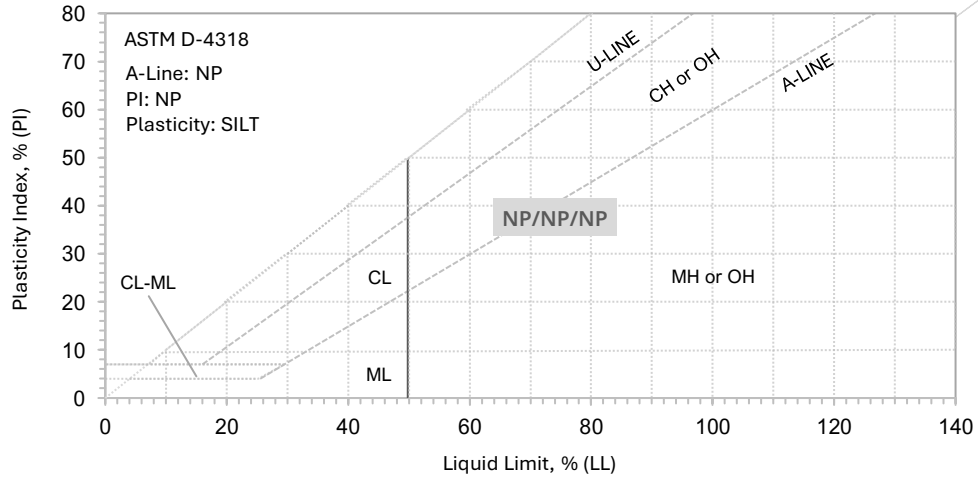


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	98.8
#40	0.42	91.3
#60	0.25	63.9
#100	0.147	32.8
#200	0.074	16.2

% Gravel (> 4.75 mm)	Coarse	0.0	% Sand (≤ 4.75 mm)	Coarse	0.1	D_{10}	-
	Fine	0.0		Medium	8.6	D_{30}	-
	Total	**0.0**		Fine	75.1	D_{60}	-
				Total	**83.8**	Cc	-
						Cu	-

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	■
Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP

AASHTO (M-145): A-2-4

USCS (D-2487): SM

Soil Description (D-2487)

Black silty SAND

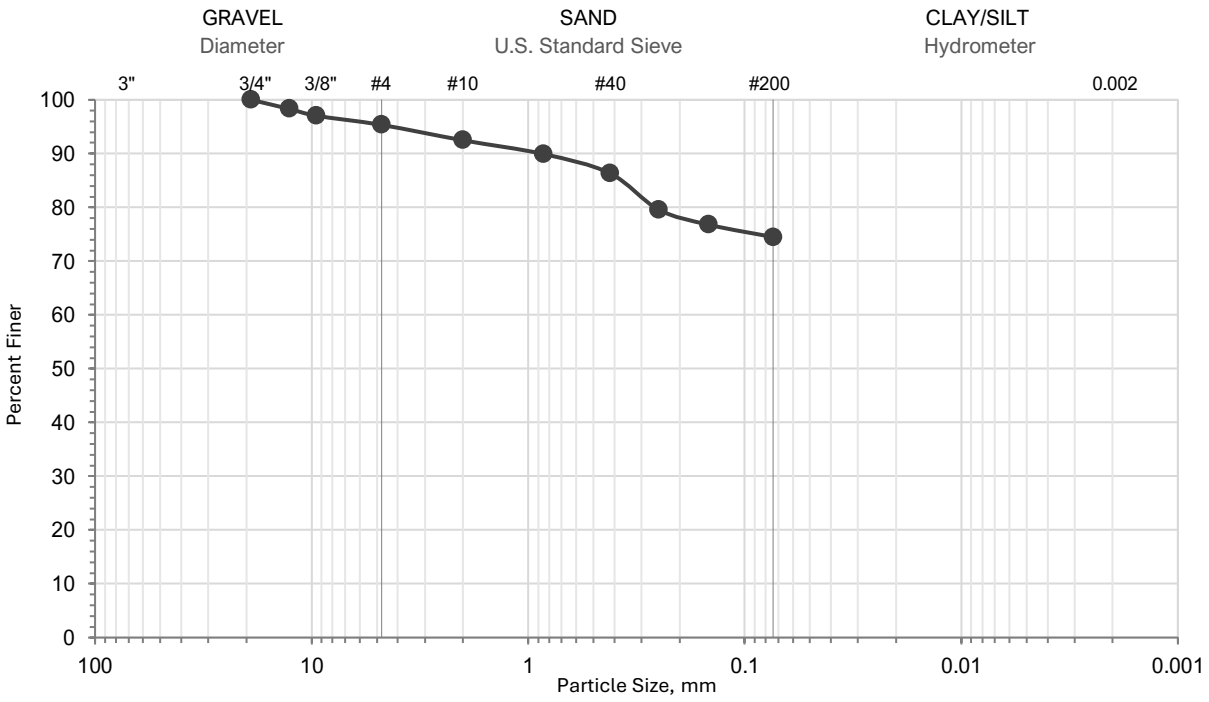
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**MSA MLS Stadium**	Client:	DMY
Job Number:	03.06802.01	PM/Reviewer:	GP
Location:	Baltimore Peninsula	Tester:	ST/JT
Sample Date:	-	Report Date:	10/22/24

Boring ID: **B-5** Sample ID: **S-3** Top Depth **4'** Btm Depth **6'**

Particle-Size Distribution of Soils

ASTM D-6913

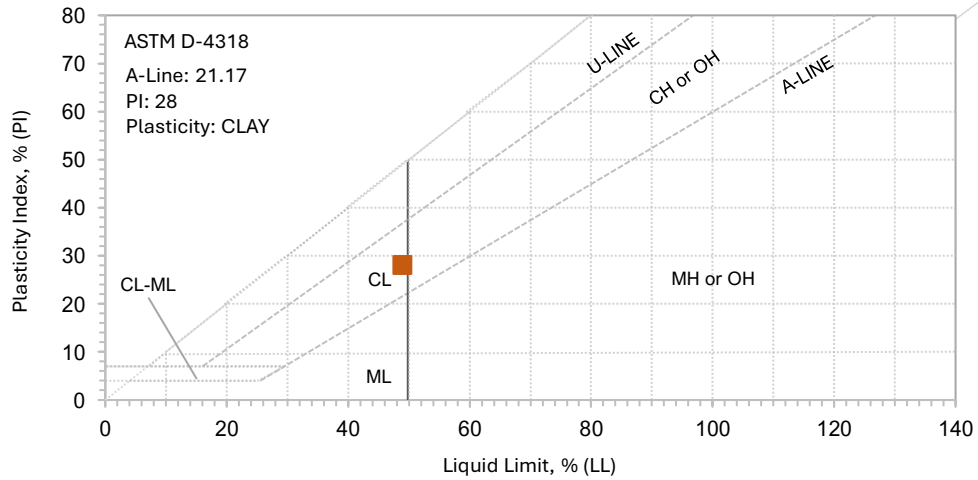


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	100.0
1/2"	12.7	98.3
3/8"	9.51	97.0
#4	4.75	95.3
#10	2.00	92.5
#20	0.85	89.9
#40	0.42	86.3
#60	0.25	79.6
#100	0.147	76.8
#200	0.074	74.5

% Gravel (> 4.75 mm)			% Sand (≤ 4.75 mm)							
	Coarse	0.0		Coarse	2.8	D_{10}	-	Cc	-
	Fine	4.7		Medium	6.2	D_{30}	-	Cu	-
	Total	**4.7**		Fine	11.8	D_{60}	-		
				Total	**20.8**				

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	■
Liquid Limit	49
Plastic Limit	21
Plasticity Index	28

AASHTO (M-145): A-7-6

USCS (D-2487): CL

Soil Description (D-2487)

Dark reddish-brown lean CLAY with sand

JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

JAY KAY TESTING

LABORATORY CORROSIVITY TESTING REPORT

Job Name: **MSA MLS Stadium**
Job Number: 03.06802.01
Location: Baltimore Peninsula
Sample Date:

Client: DMY
PM/Reviewer: GP
Tester: ST/JT
Report Date: 10/22/24

					pH[1]		ORP[2]	Resistivity[3]			Chloride[4]		Sulfate[5]		Sulfide[6]	
Sample ID		Depth			ASTM G-51		ASTM D-1498	ASTM G-57			ASTM D-512		ASTM D-516		Methylene Titration	
Boring ID	Sample ID	Top, ft	Bottom, ft	Natural Water Content, %	pH (1:1)	Test Temperature, °C	ORP (Redox), mV (1:1)	As Received, Ω-cm	Minimum, Ω-cm	Saturated, Ω-cm	Chlorides, PPM (mg/kg) (1:1)	Chlorides, µg/kg (1:1)	Sulfates, PPM (mg/kg) (3:1)	Sulfates, % Dry Weight (3:1)	Sulfides Ion Presence (1:1)	Remarks
B-2	Bag	40	50	-	4.28	19.9	219	2,790	-	3,140	9	9,000	93	0.0093	negative	-
B-3	Bag	10	20	-	7.40	20.0	161	3,480	-	3,240	26	26,000	107	0.0107	negative	-
B-3	Bag	60	70	-	6.99	19.9	136	2,690	-	1,950	10	10,000	55	0.0055	negative	-

All dilutions are 1:1 except sulfate 3:1 (per method). Material screened on the #10 sieve.

[1] pH verified with second pH meter. [2] ORP electrode. Verified with separate ORP meter. [3] Four-electrode Miller Box. [4] Verified with separate mercurimetric titration method.
[5] Turbidimetric photometer method. Verified with separate turbidimetric titration method. [6] Pomeroy methylene blue method (titration). Verified with auto-dilution ampoules for colorimetric analysis.

Client:	DMY Engineering Consultants				
Project:	MLS Soccer Stadium				
Location:	Baltimore Peninsula, MD			Project No:	GTX-320002
Boring ID:	B-04	Sample Type:	Tube	Tested By:	ajl
Sample ID:	---	Test Date:	10/30/24	Checked By:	ank
Depth :	30-32	Test Id:	790245		
Test Comment:	---				
Visual Description:	Moist, brownish gray clay				
Sample Comment:	---				

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
B-04	- --	30-32	Moist, brownish gray clay	41.3

Notes: Temperature of Drying : 110º Celsius

Client:	DMY Engineering Consultants				
Project:	MLS Soccer Stadium				
Location:	Baltimore Peninsula, MD			Project No:	GTX-320002
Boring ID:	B-04	Sample Type:	Tube	Tested By:	ajl
Sample ID:	---	Test Date:	11/04/24	Checked By:	ank
Depth :	30-32	Test Id:	790244		
Test Comment:	---				
Visual Description:	Moist, brownish gray clay				
Sample Comment:	---				

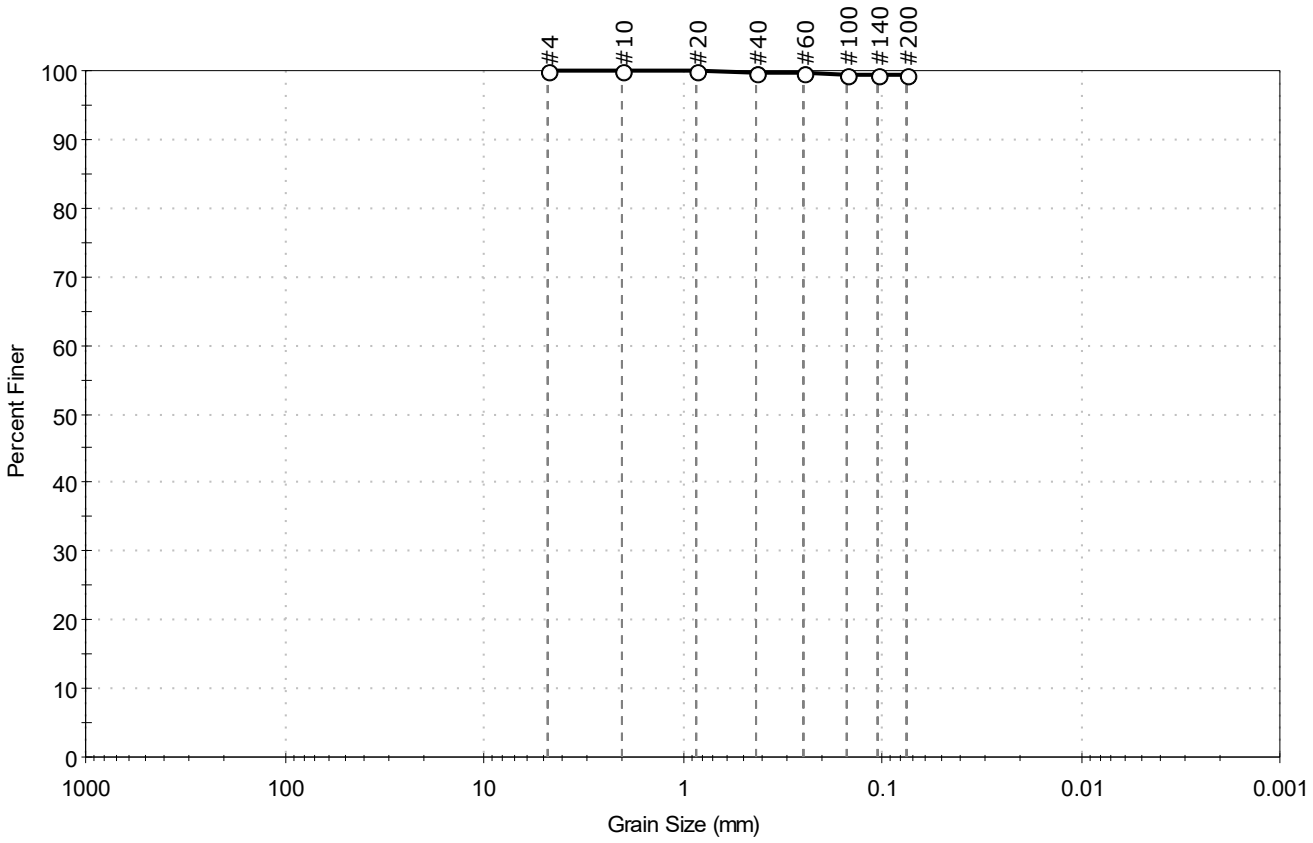
USCS Classification - ASTM D2487

Boring ID	Sample ID	Depth	Group Name	Group Symbol	Gravel, %	Sand, %	Fines, %
B-04	---	30-32	Fat CLAY	CH	0.0	0.7	99.3

Remarks: Grain Size analysis performed by ASTM D 6913 results enclosed
Atterberg Limits performed by ASTM D4318, results enclosed

Client:	DMY Engineering Consultants				
Project:	MLS Soccer Stadium				
Location:	Baltimore Peninsula, MD			Project No:	GTX-320002
Boring ID:	B-04	Sample Type:	Tube	Tested By:	ajl
Sample ID:	---	Test Date:	10/30/24	Checked By:	ank
Depth :	30-32	Test Id:	790280		
Test Comment:	---				
Visual Description:	Moist, brownish gray clay				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	0.7	99.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	100		
#140	0.11	99		
#200	0.075	99		

Coefficients

D_{85} = N/A	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Fat CLAY (CH)

AASHTO Clayey Soils (A-7-6 (48))

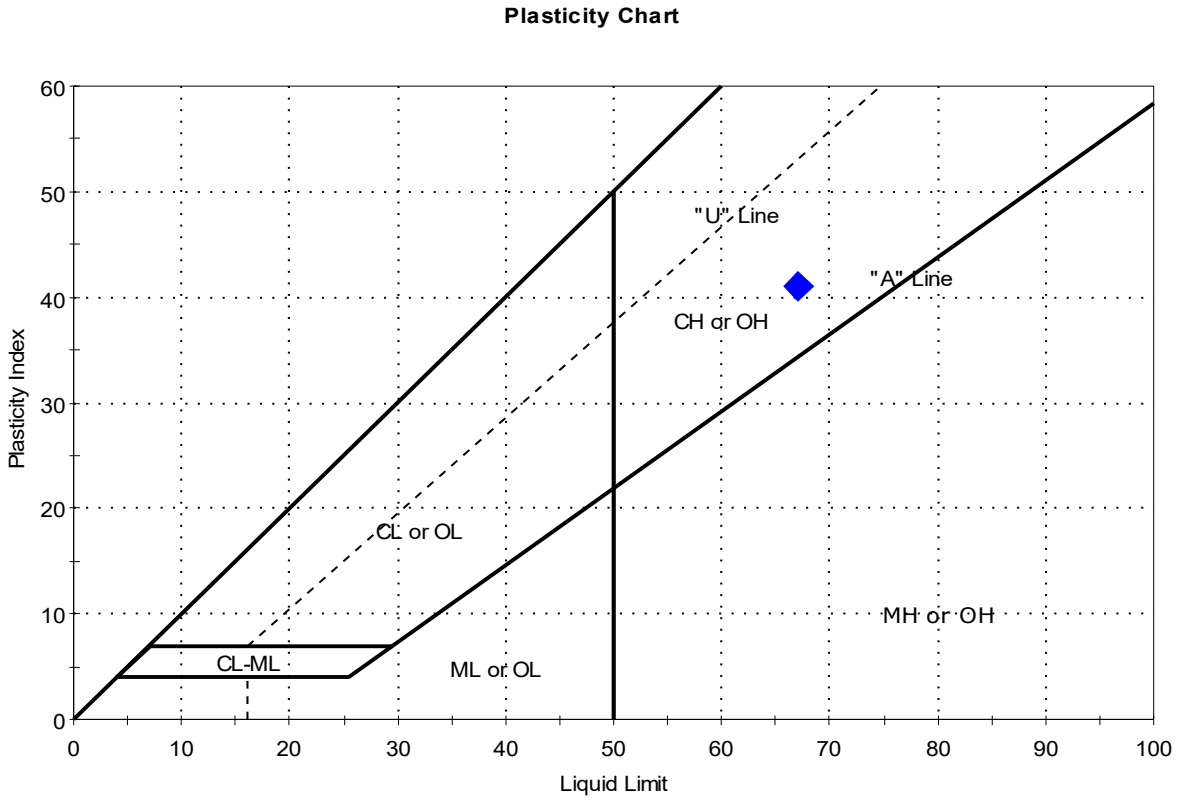
Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	DMY Engineering Consultants				
Project:	MLS Soccer Stadium				
Location:	Baltimore Peninsula, MD			Project No:	GTX-320002
Boring ID:	B-04	Sample Type:	Tube	Tested By:	cam
Sample ID:	---	Test Date:	11/04/24	Checked By:	ank
Depth :	30-32	Test Id:	790243		
Test Comment:	---				
Visual Description:	Moist, brownish gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	---	B-04	30-32	41	67	26	41	0.4	Fat CLAY (CH)

Sample Prepared using the WET method

0% Retained on #40 Sieve

Dry Strength: VERY HIGH

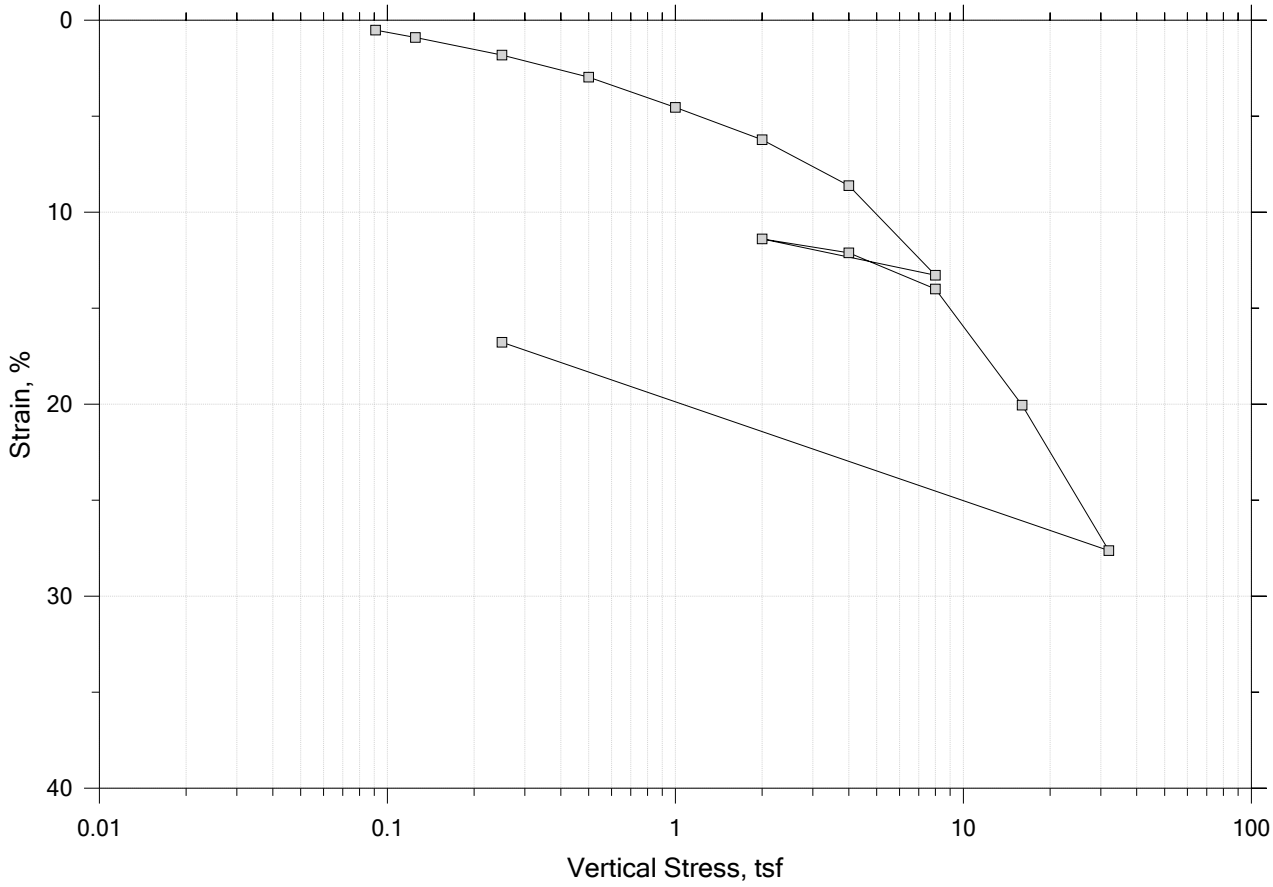
Dilatancy: SLOW

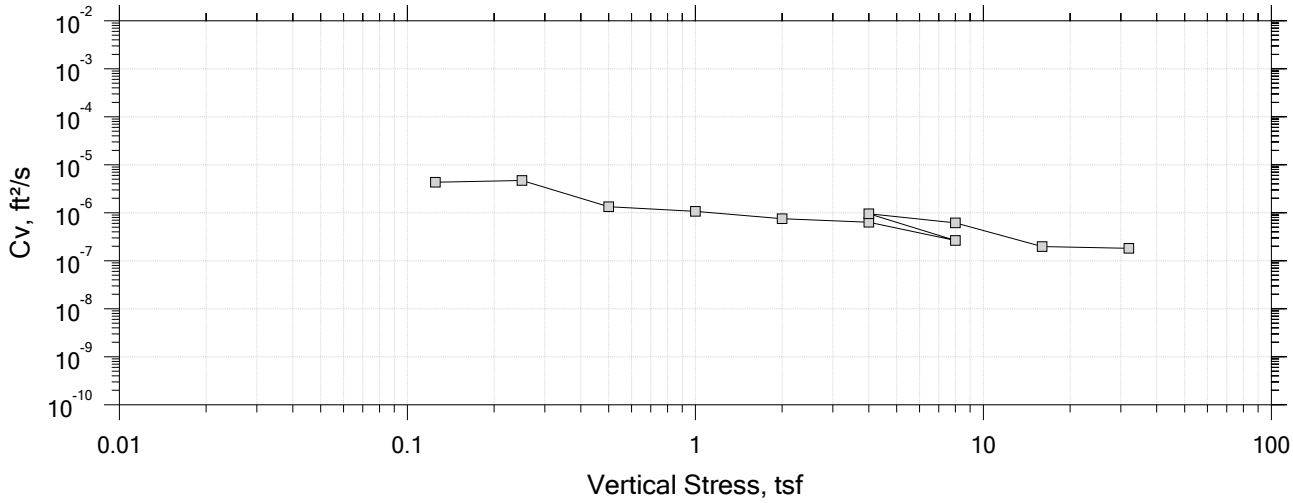
Toughness: LOW

In order to properly describe the soil an Oven Dried Liquid Limit test was performed.
The Oven Dried Liquid Limit was 50

One-Dimensional Consolidation by ASTM D2435 - Method B

Summary Report

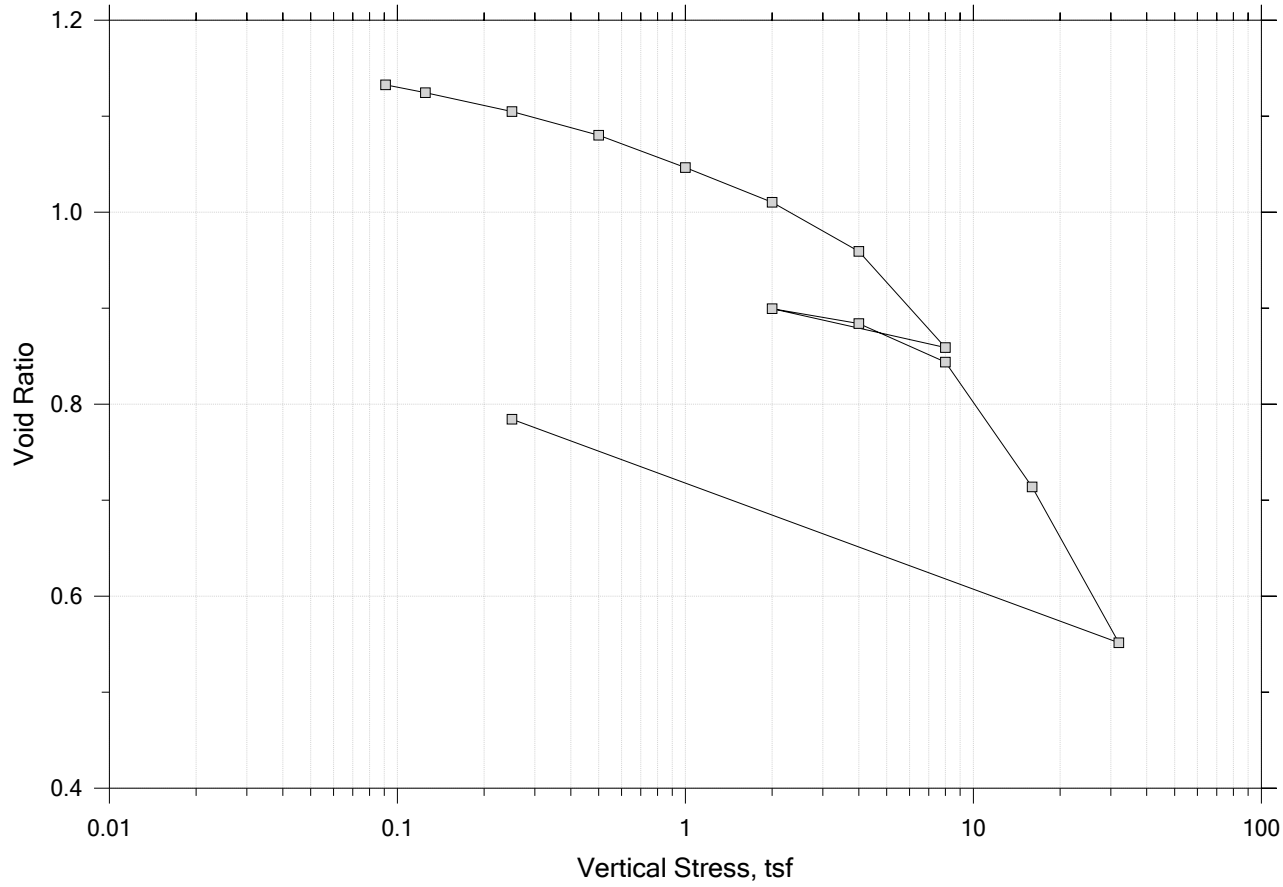


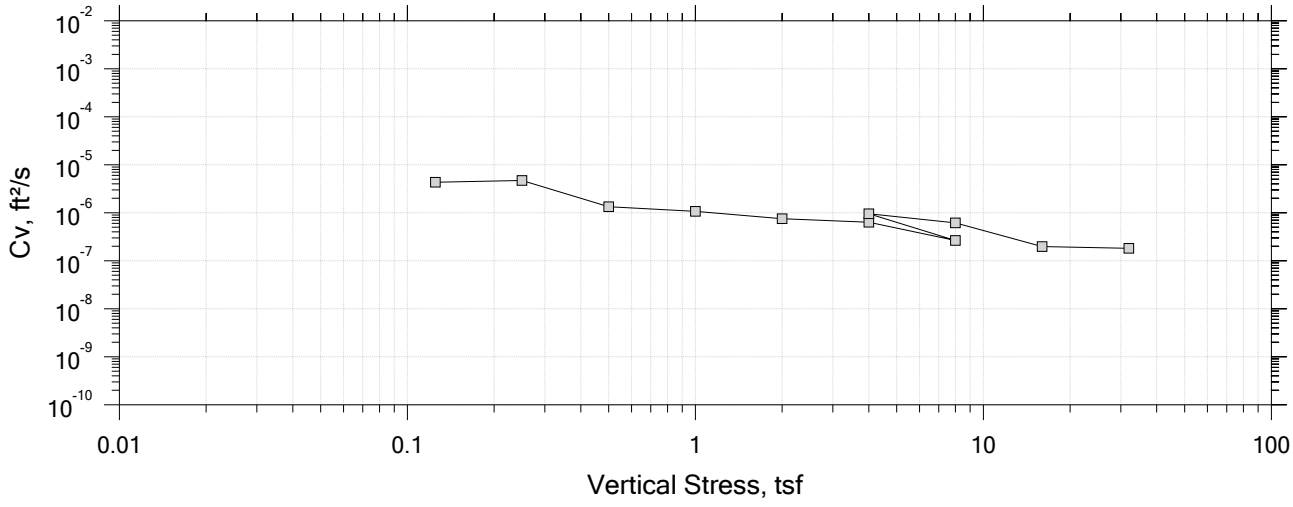


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		
	Displacement at 4 hr		

One-Dimensional Consolidation by ASTM D2435 - Method B

Summary Report

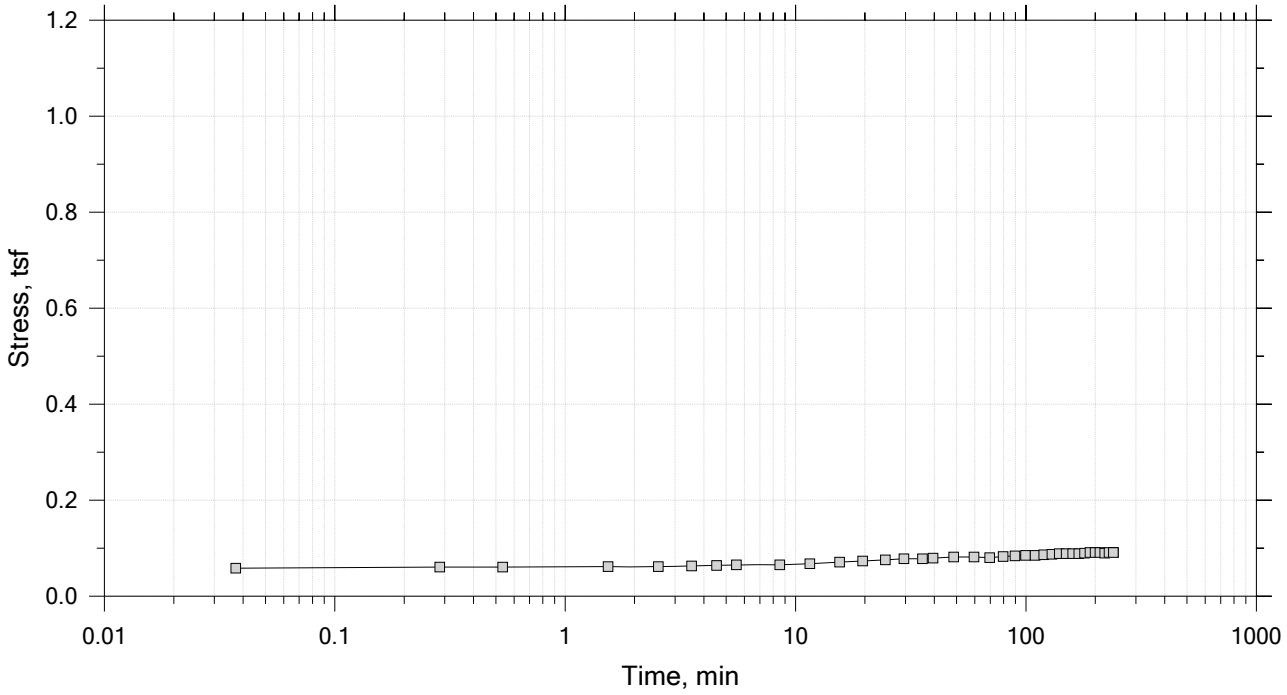


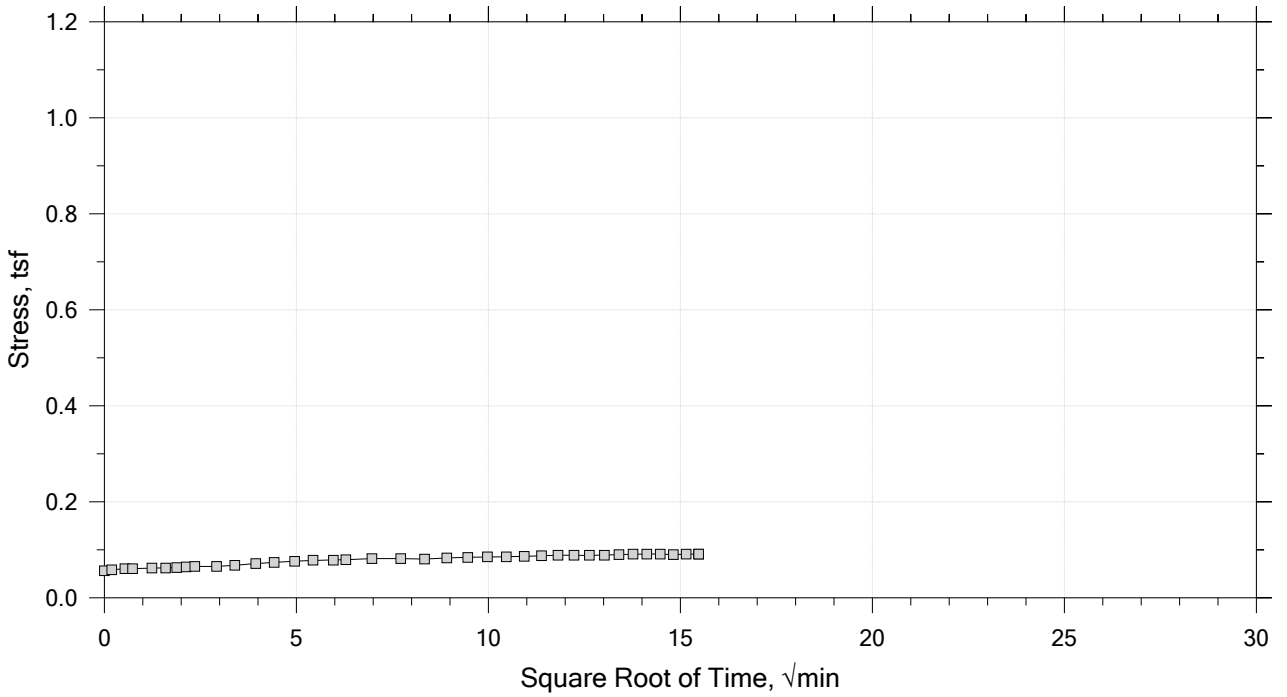


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		
	Displacement at 4 hr		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 1 of 14
Constant Volume Step
Stress: 0.0909 tsf





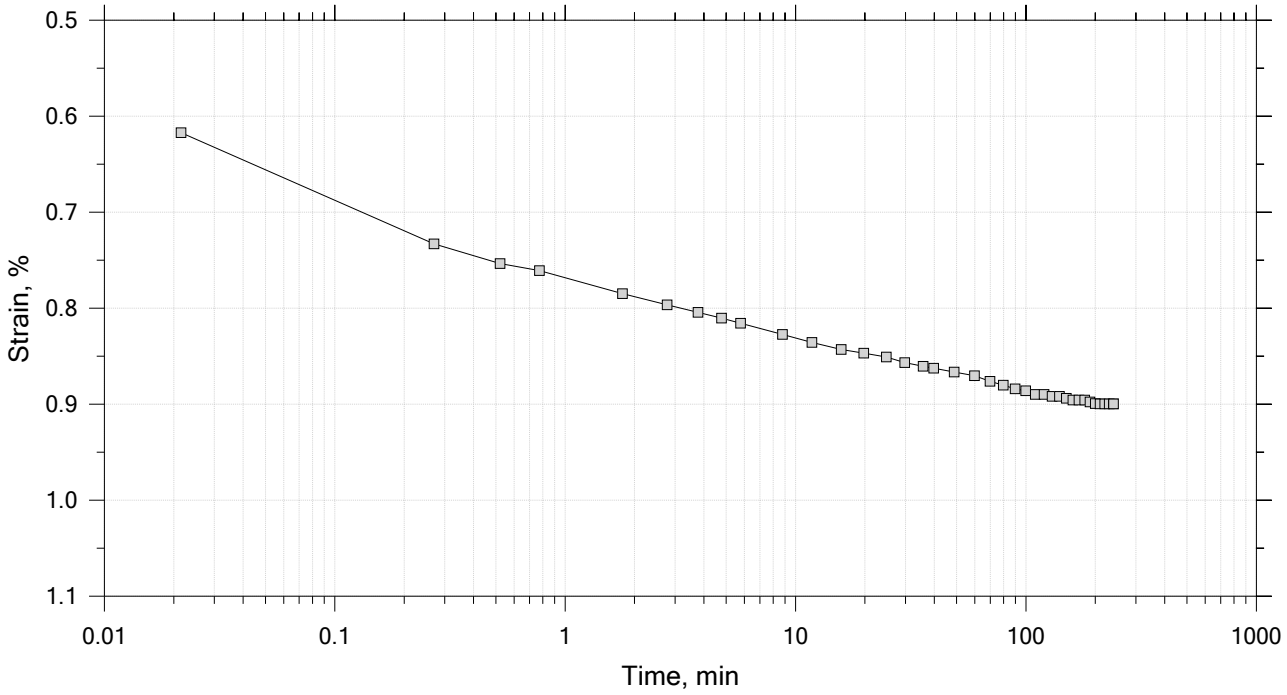
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

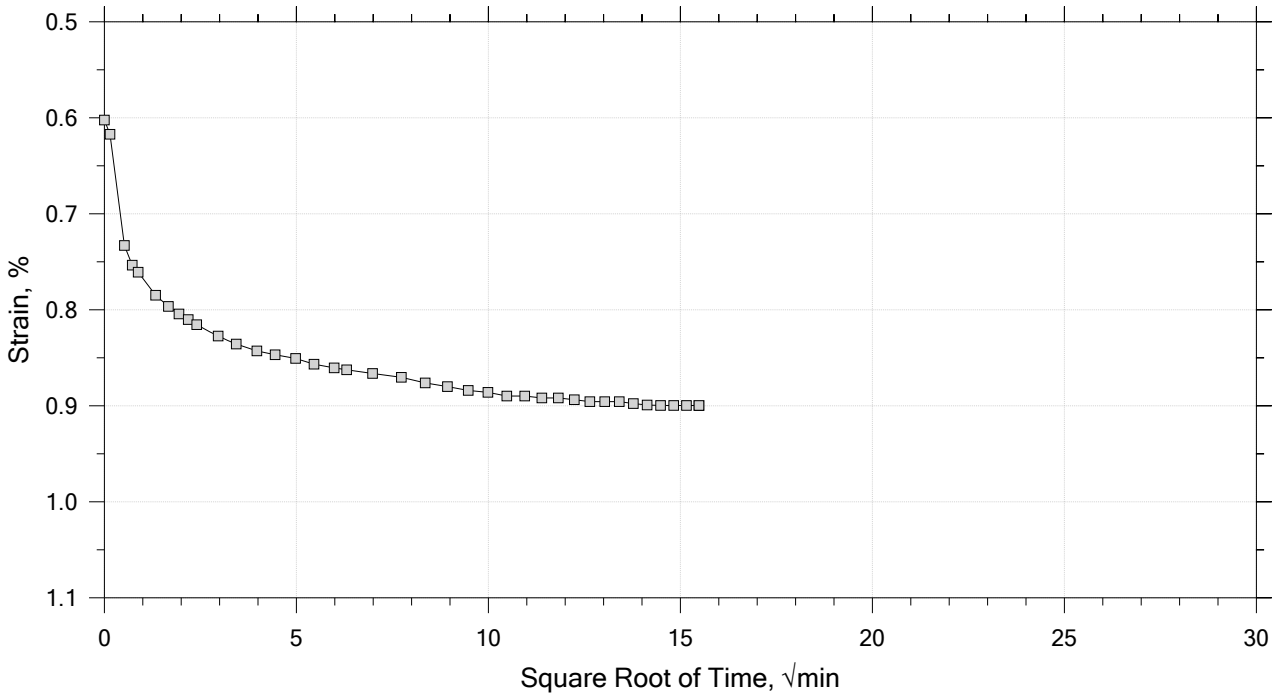
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 2 of 14

Constant Load Step

Stress: 0.125 tsf





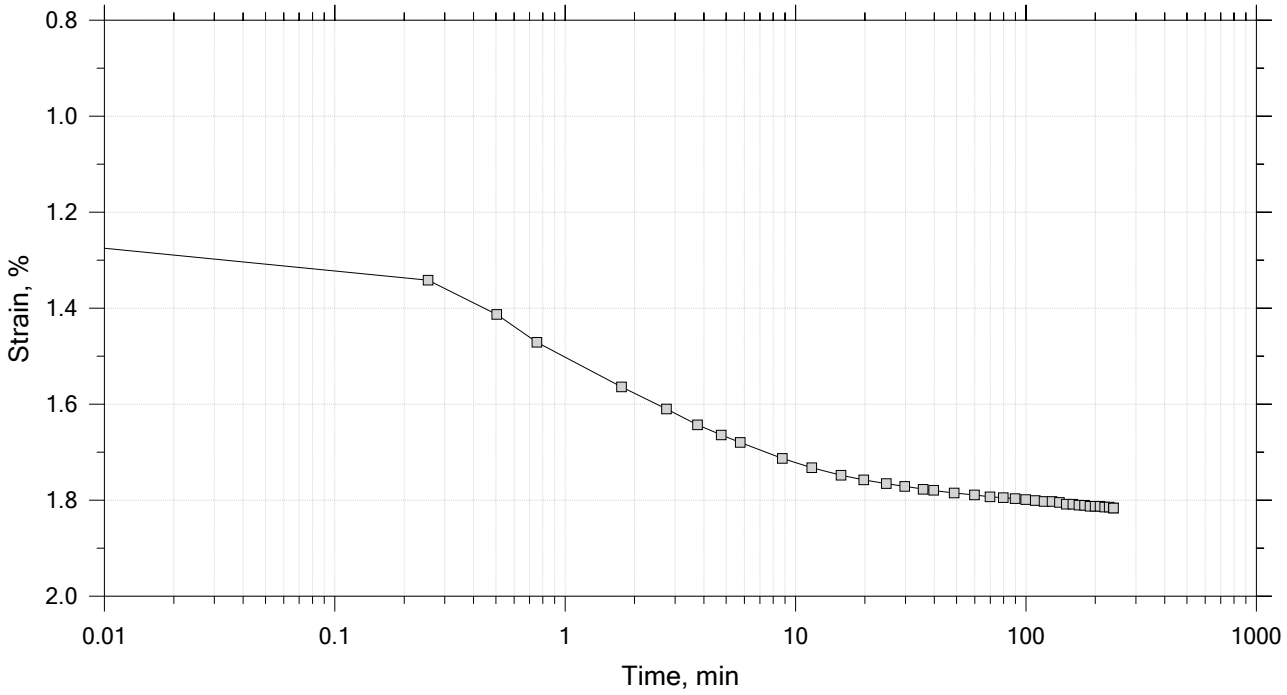
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

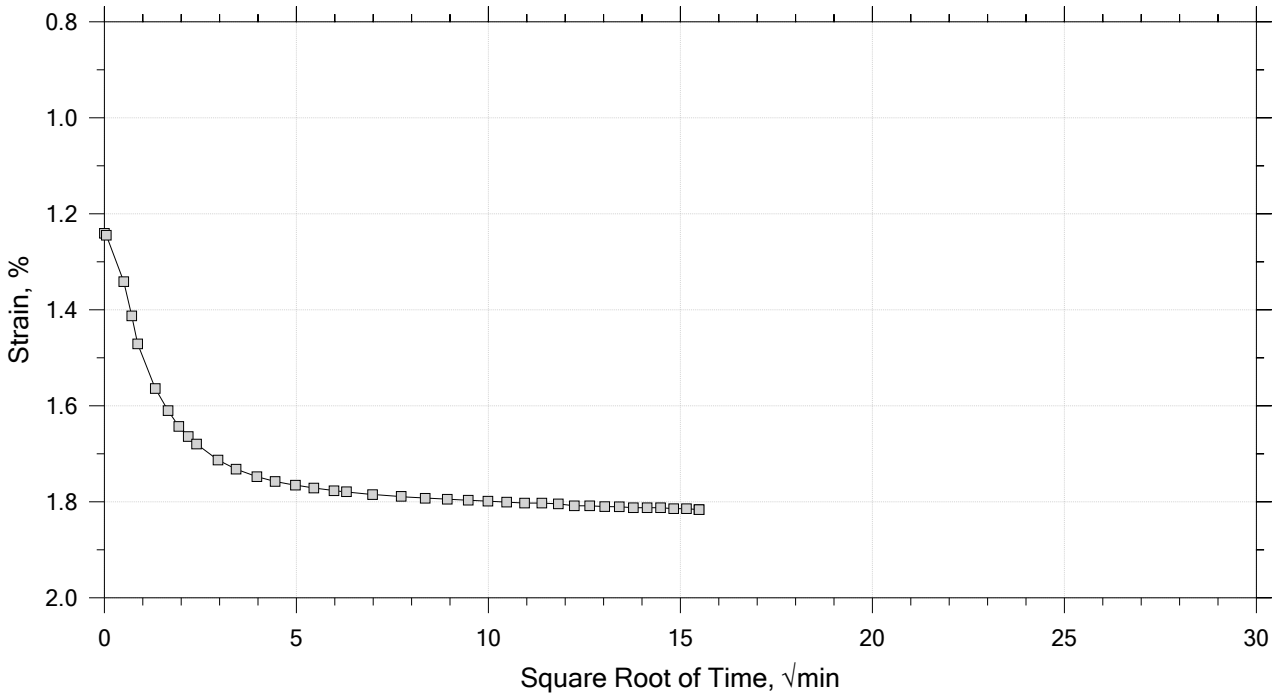
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 3 of 14

Constant Load Step

Stress: 0.25 tsf





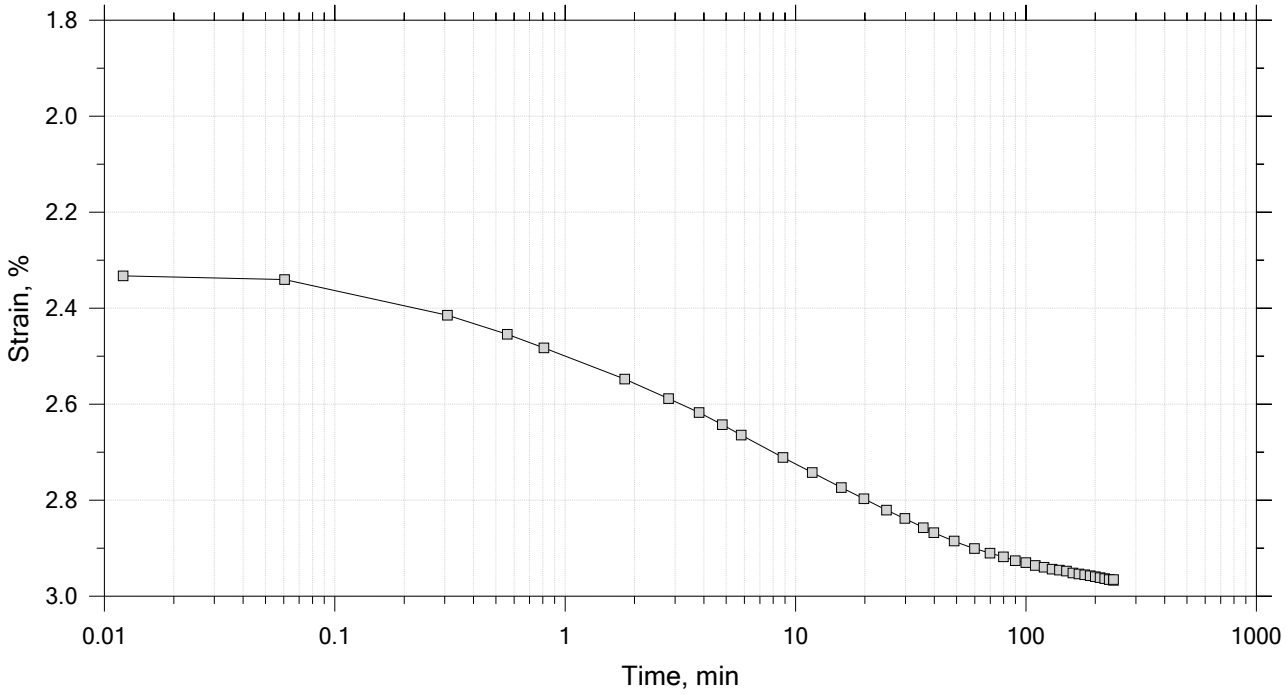
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

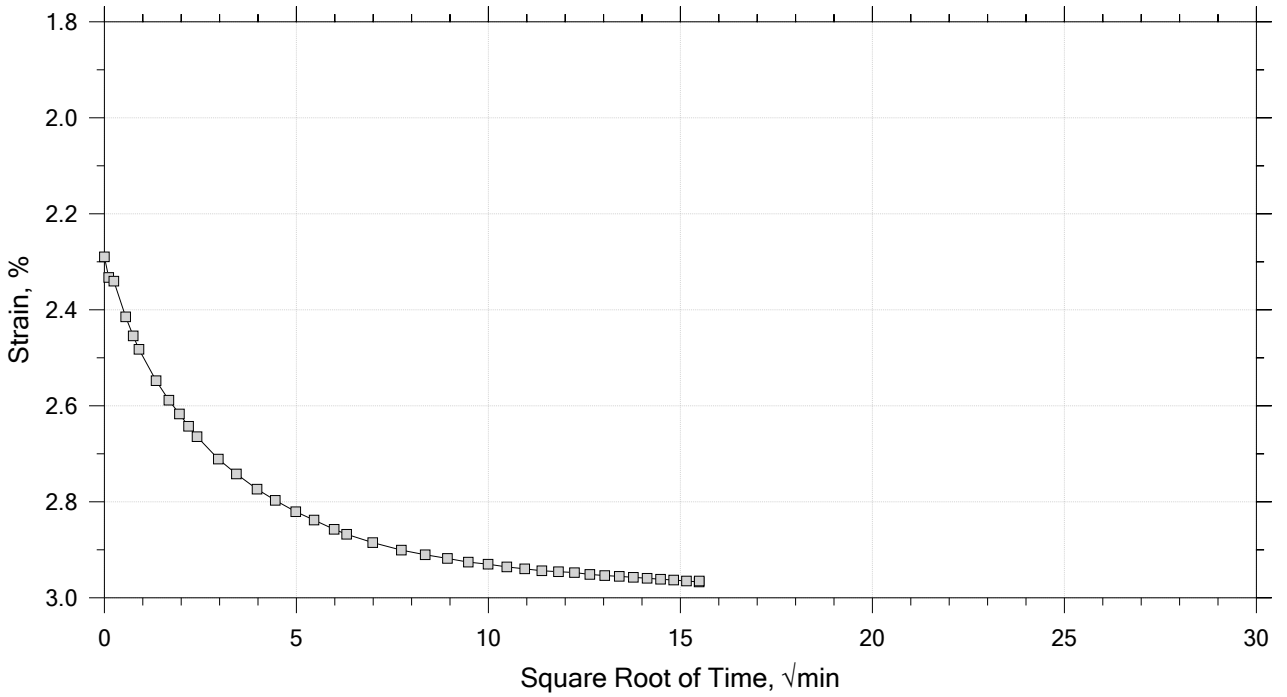
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 4 of 14

Constant Load Step

Stress: 0.5 tsf





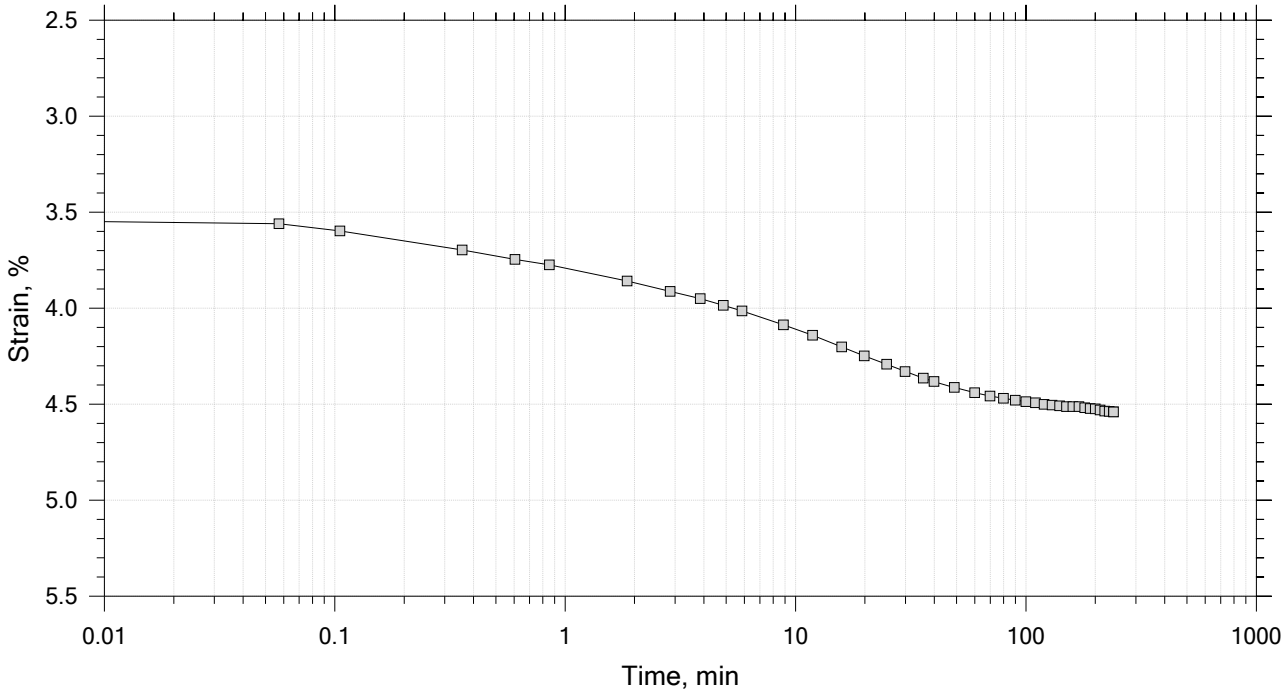
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

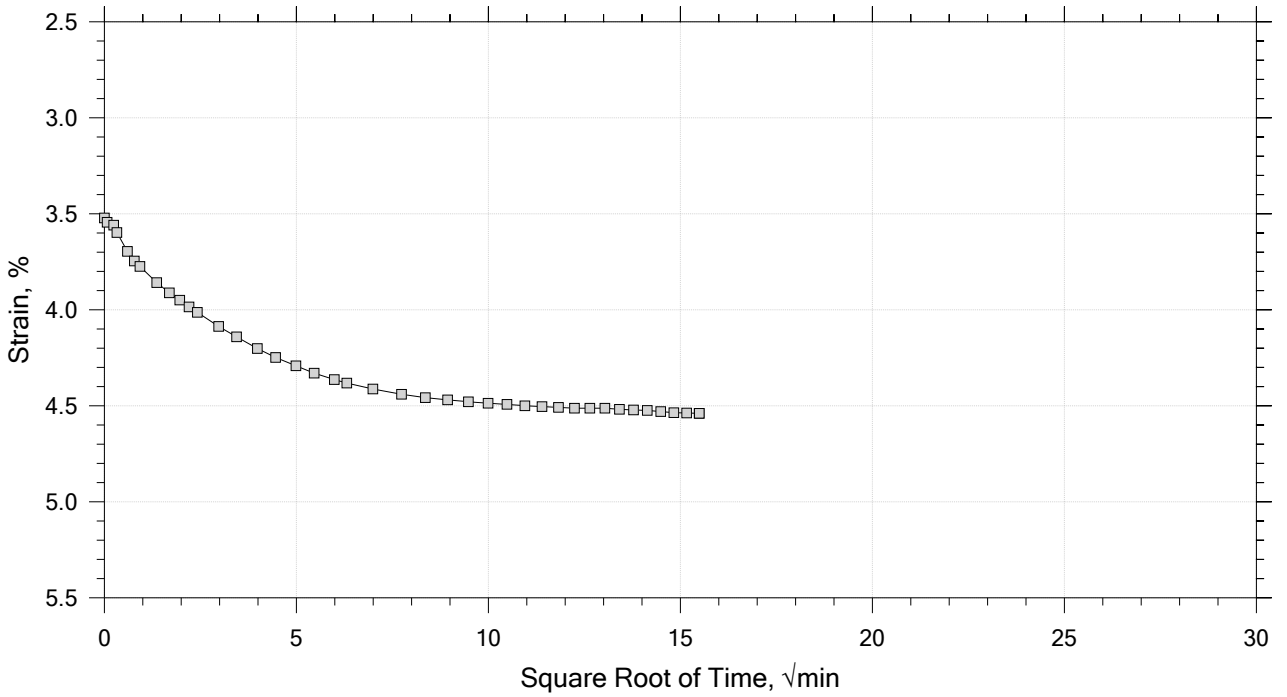
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 5 of 14

Constant Load Step

Stress: 1 tsf





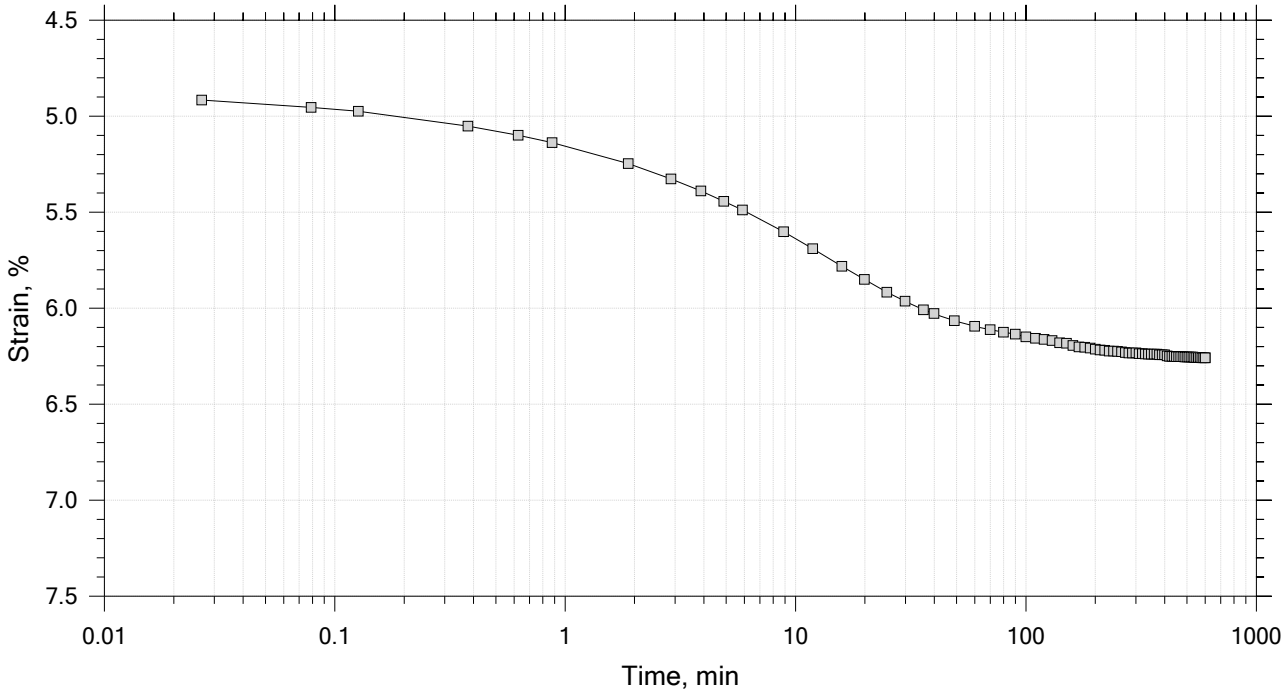
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

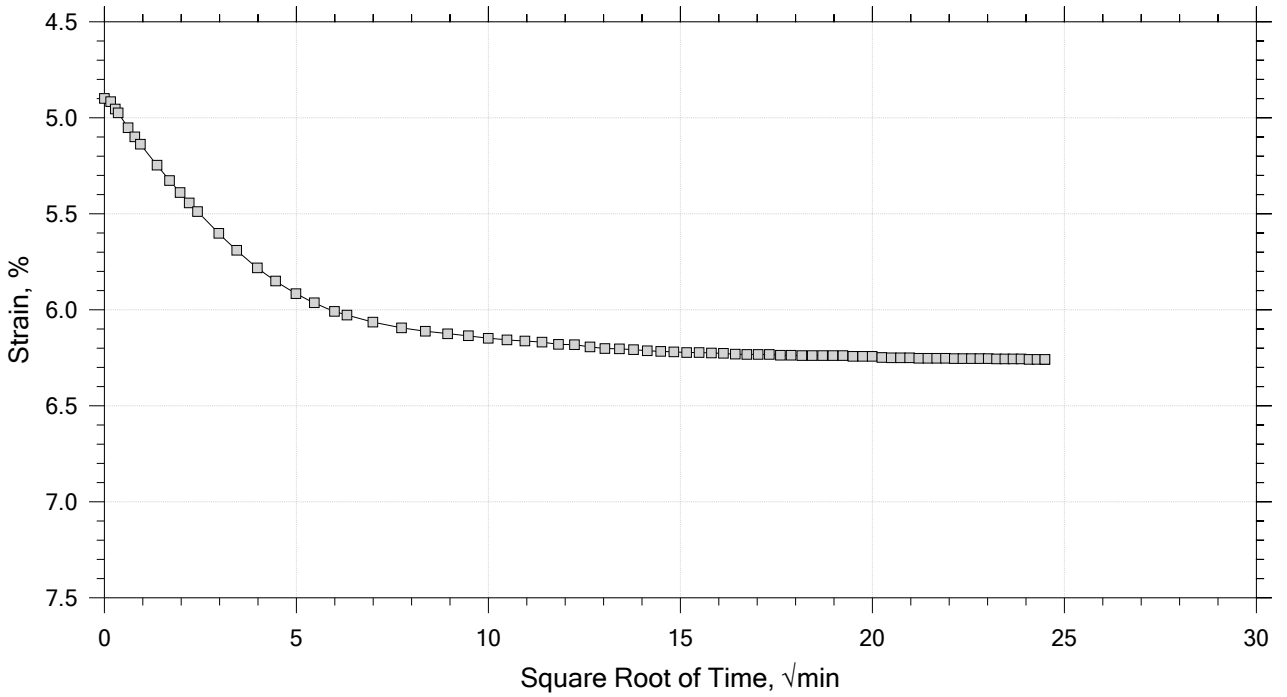
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 6 of 14

Constant Load Step

Stress: 2 tsf





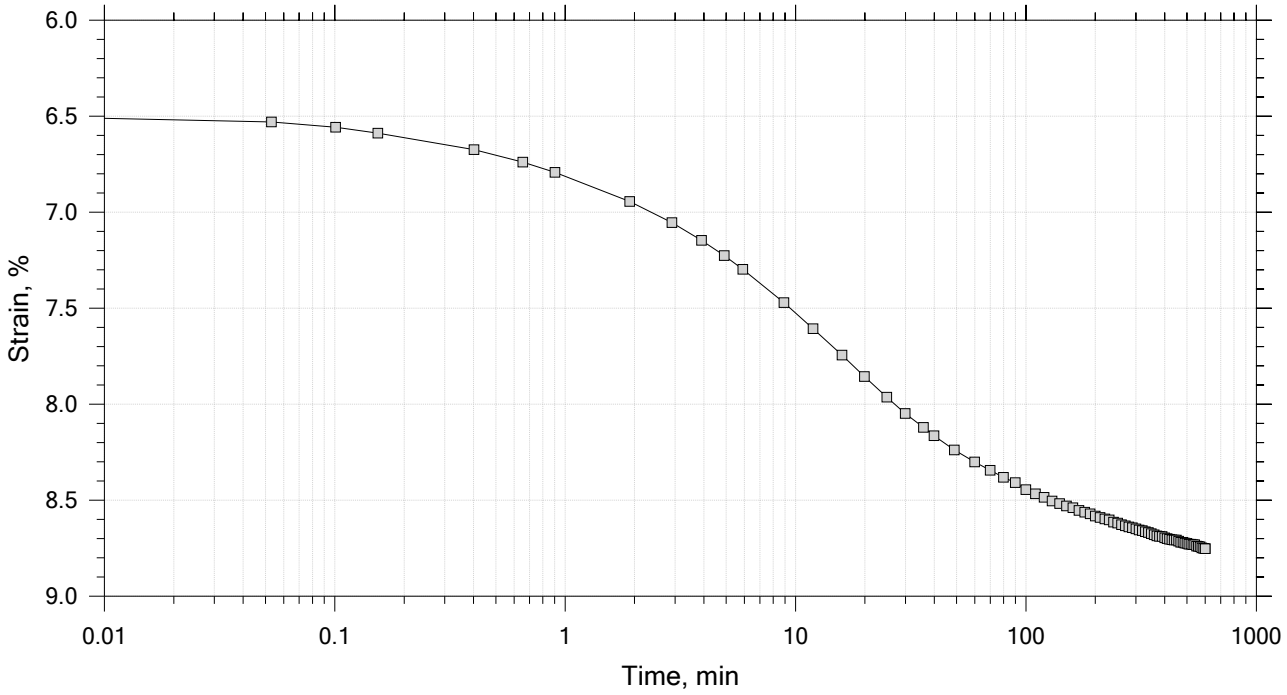
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

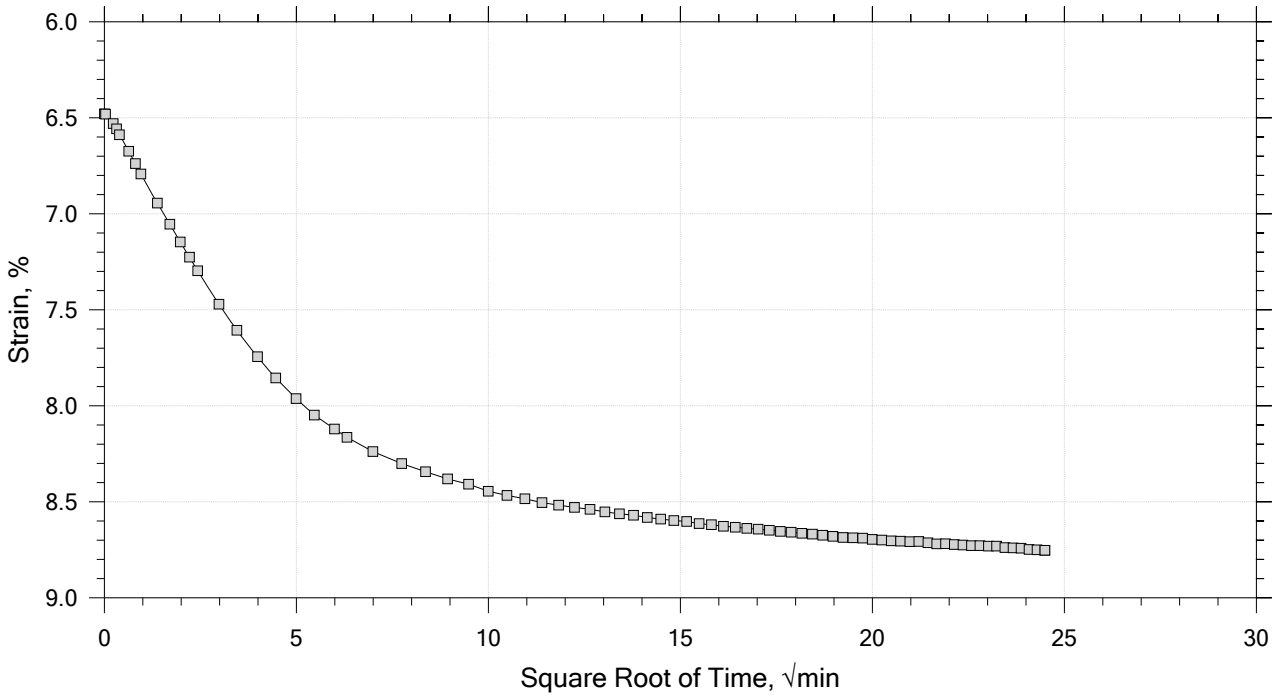
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 7 of 14

Constant Load Step

Stress: 4 tsf





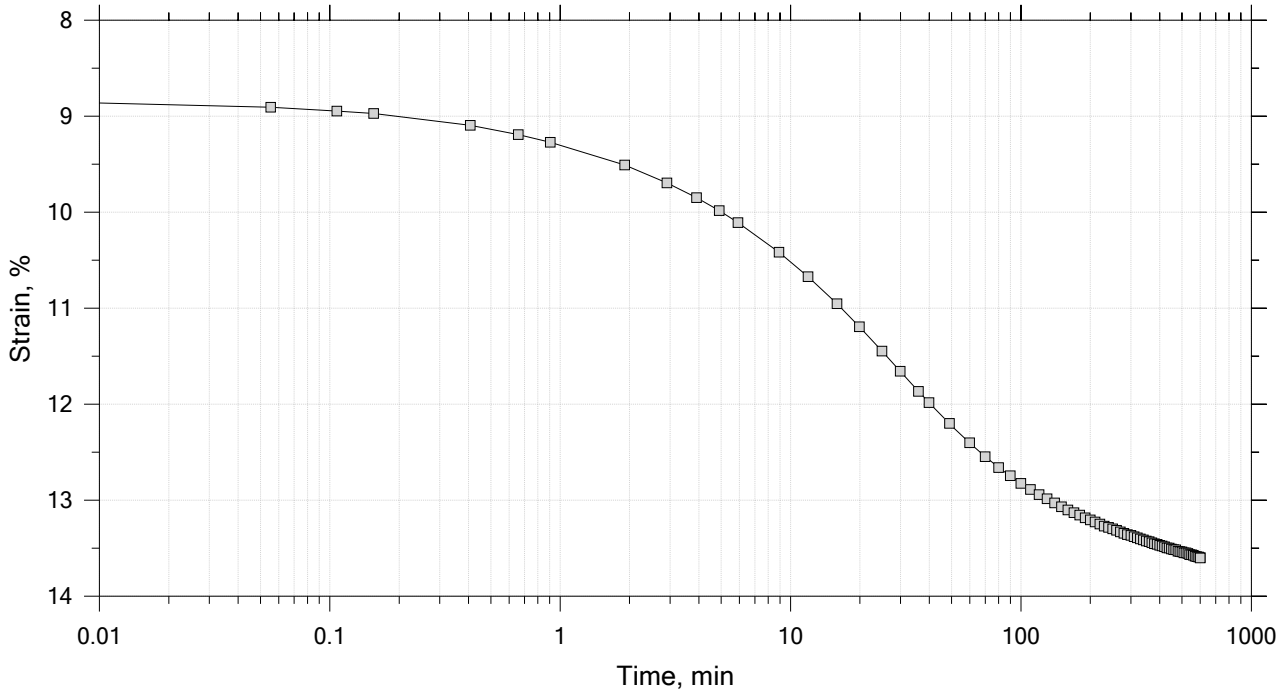
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

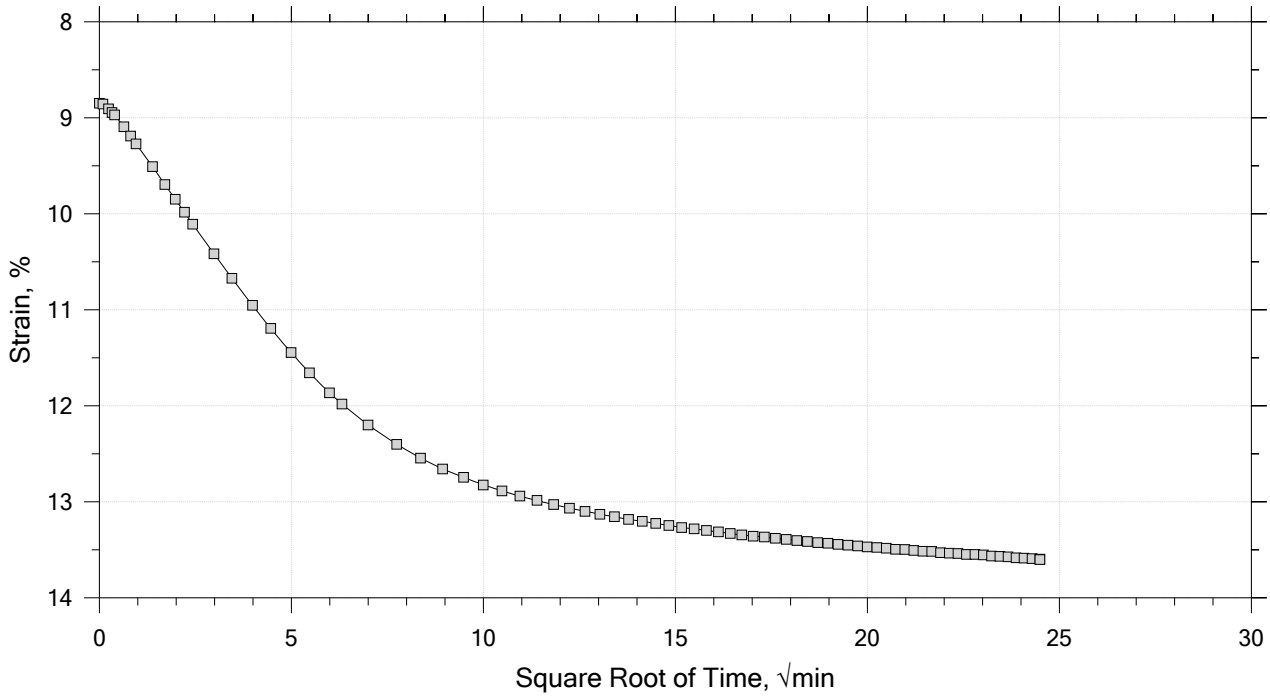
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 8 of 14

Constant Load Step

Stress: 8 tsf





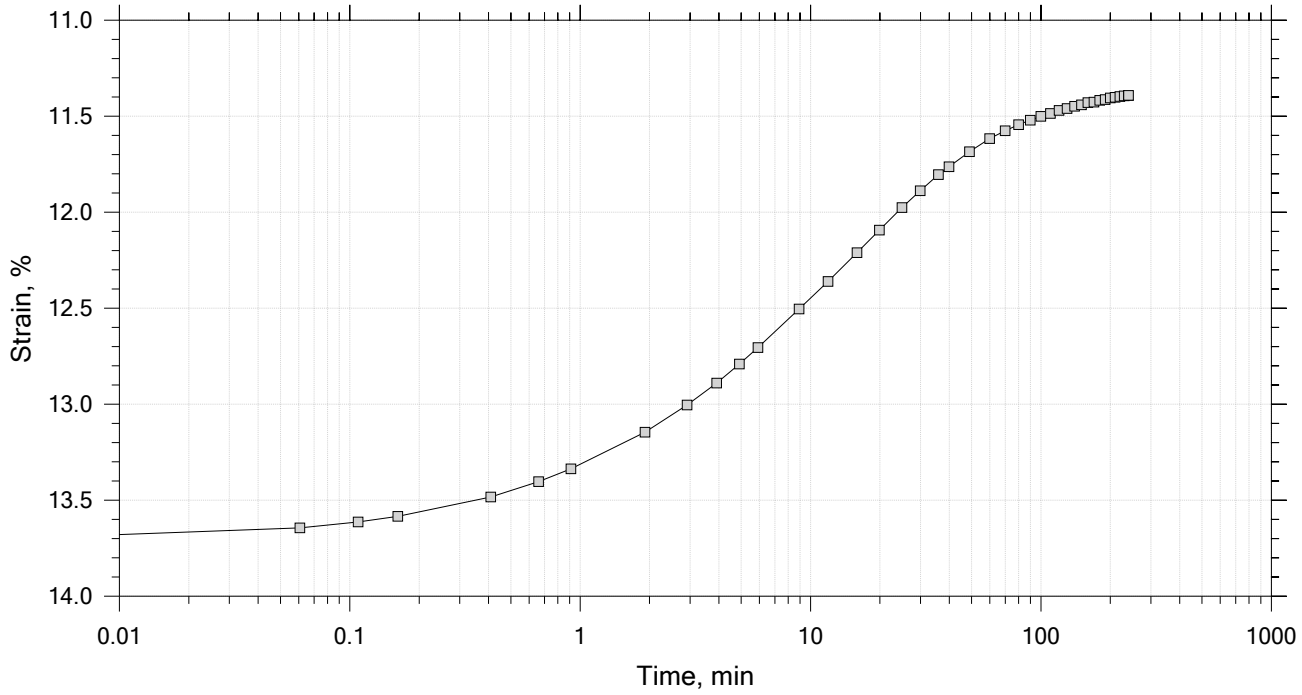
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

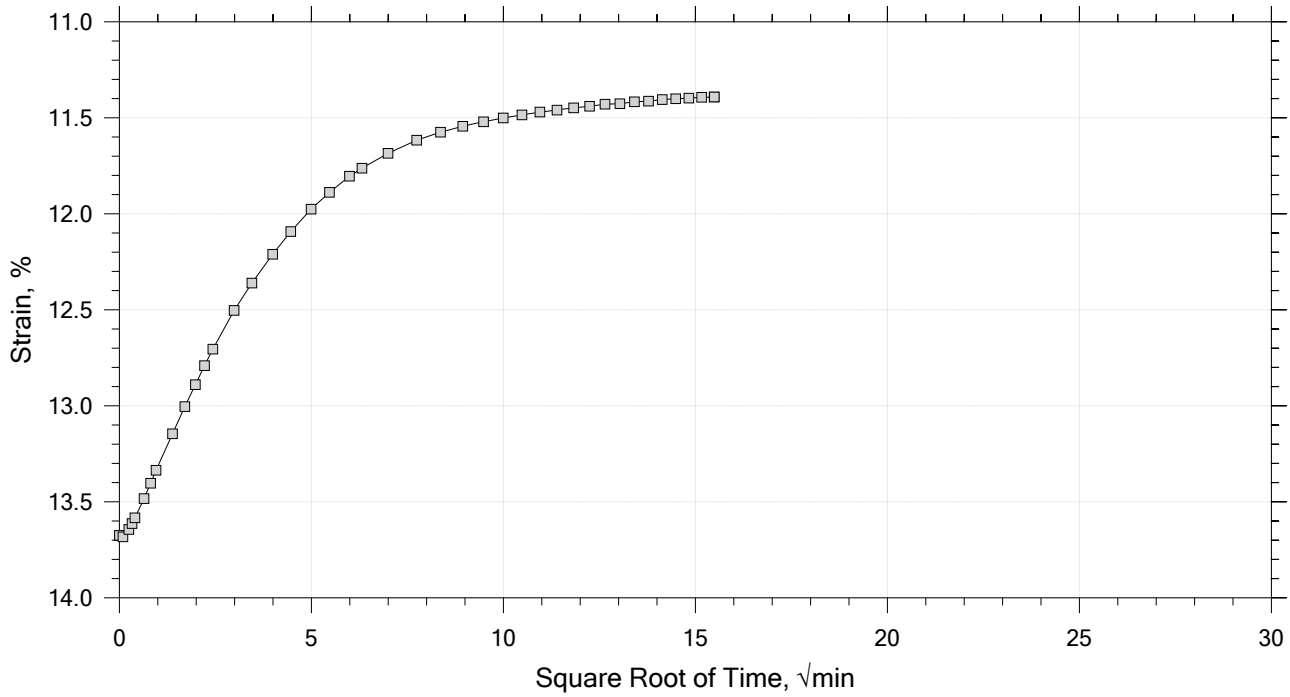
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 9 of 14

Constant Load Step

Stress: 2 tsf

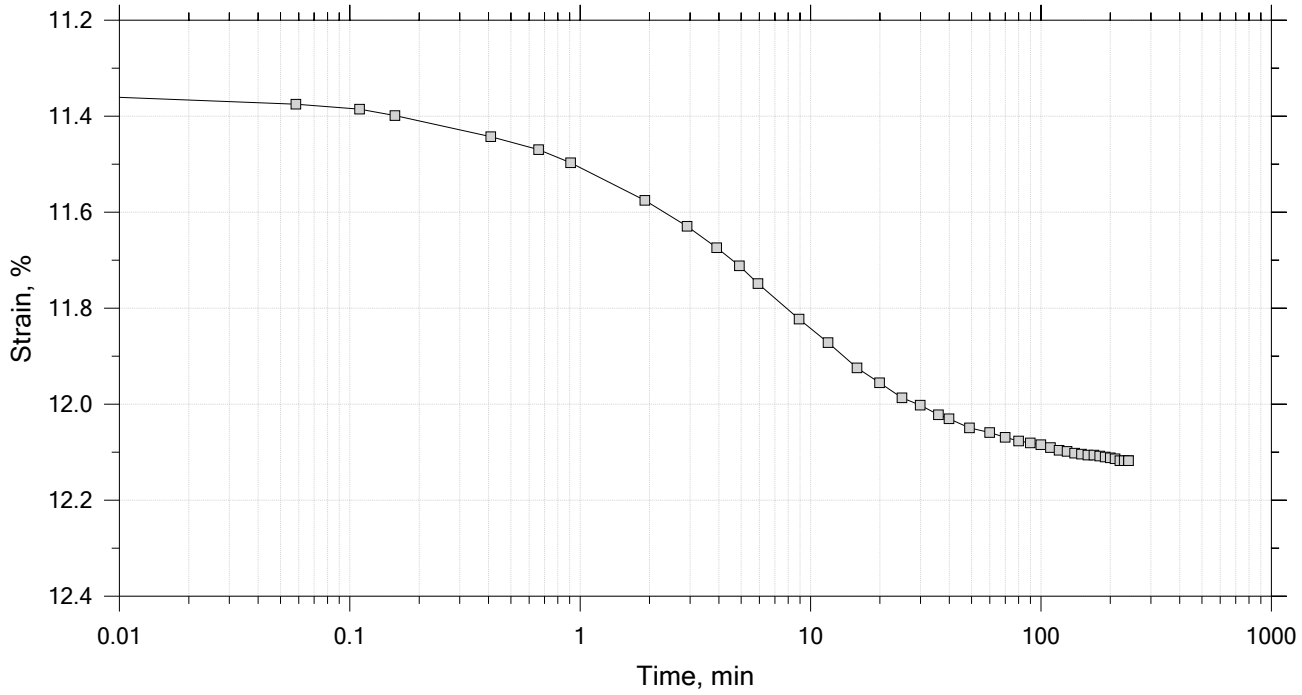


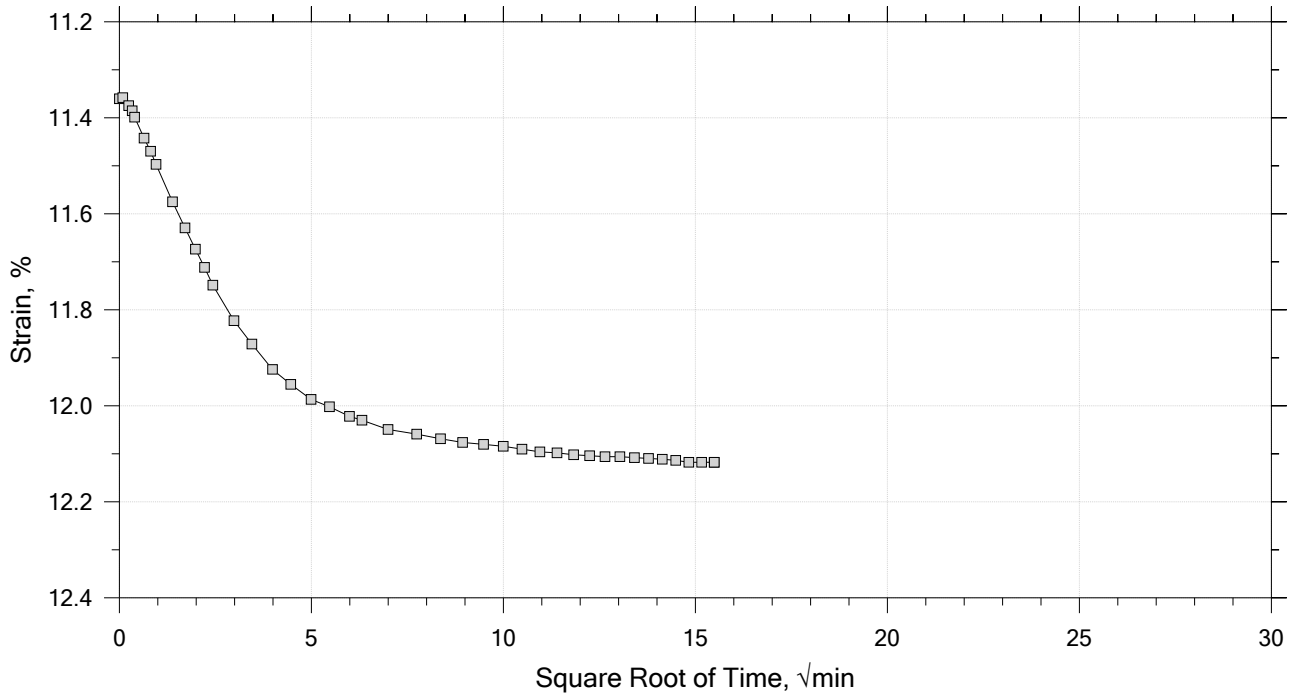


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 10 of 14
Constant Load Step
Stress: 4 tsf

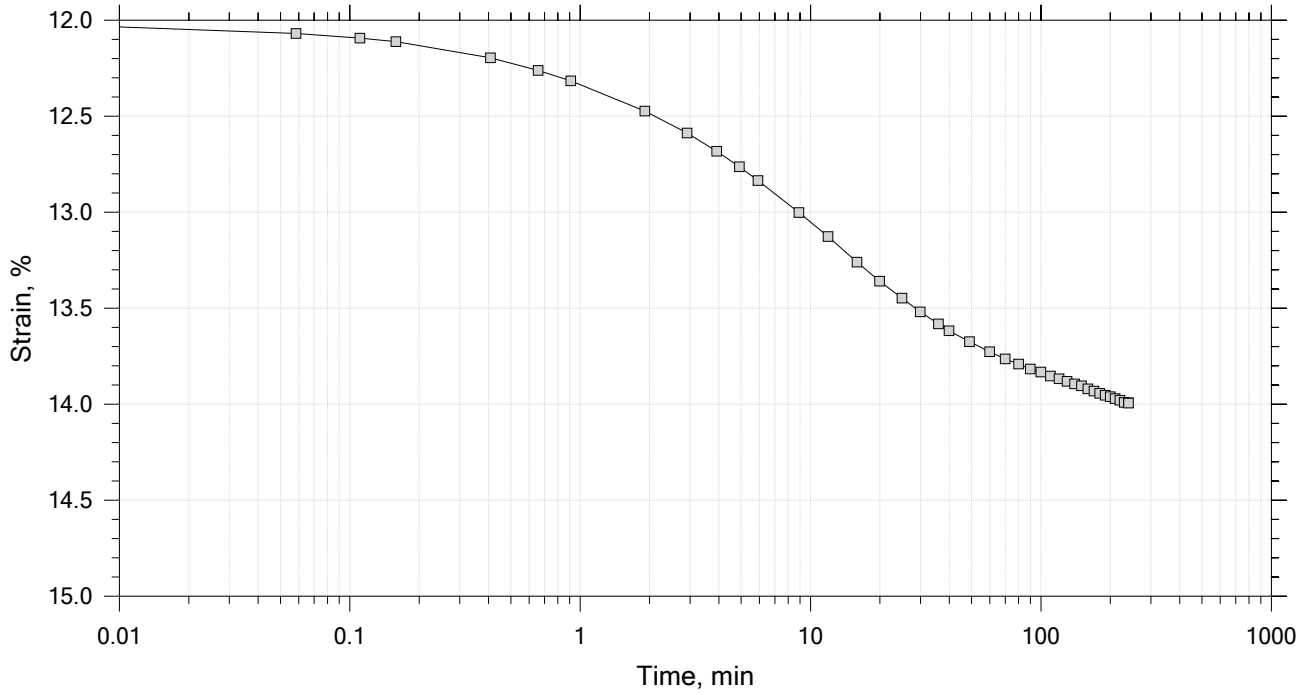


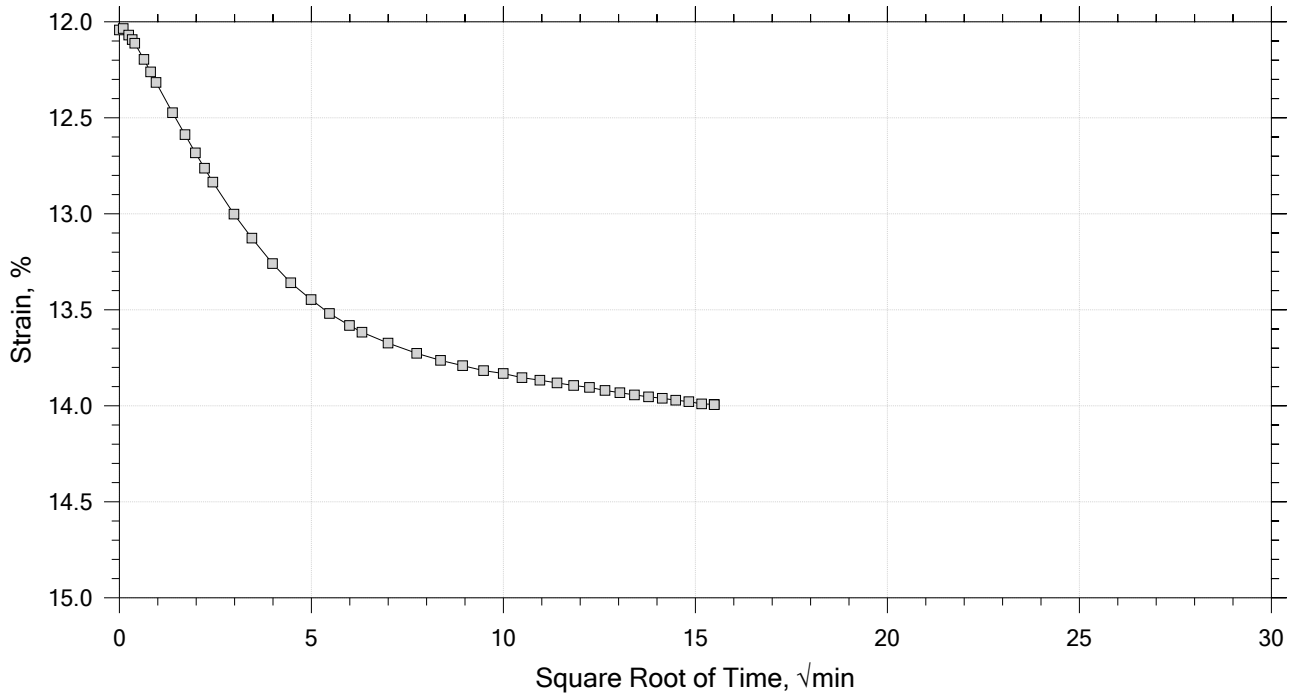


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 11 of 14
Constant Load Step
Stress: 8 tsf

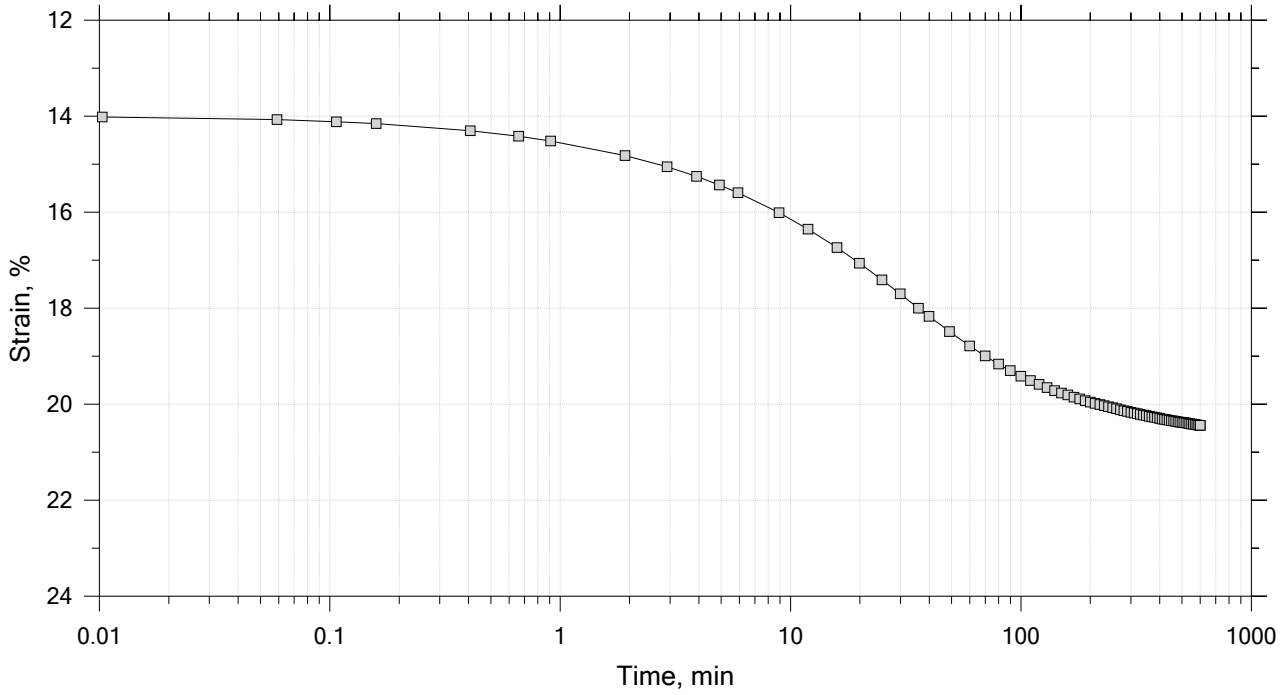


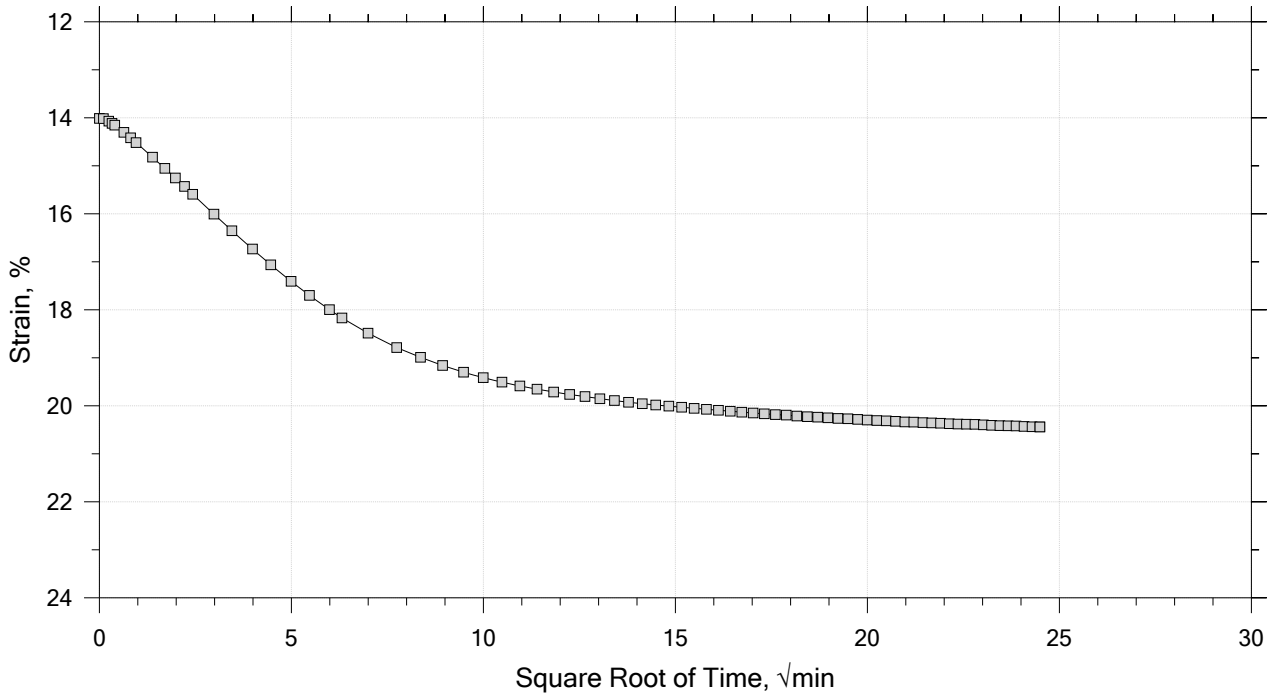


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 12 of 14
Constant Load Step
Stress: 16 tsf

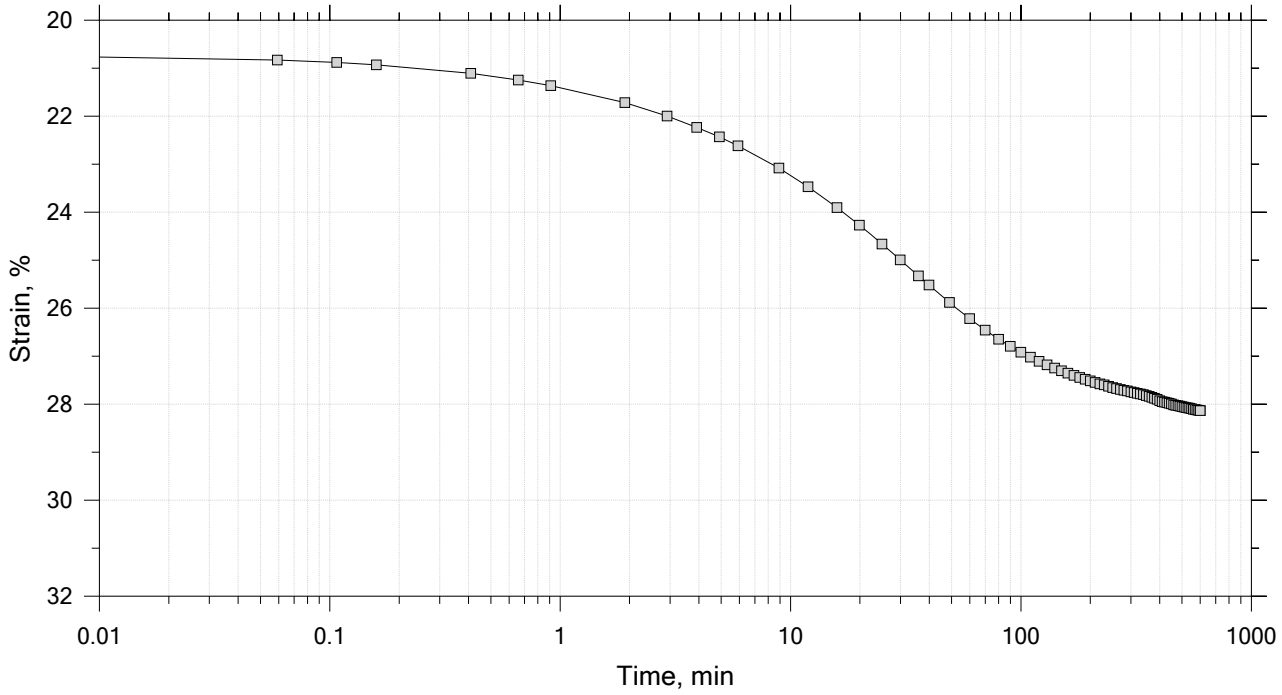


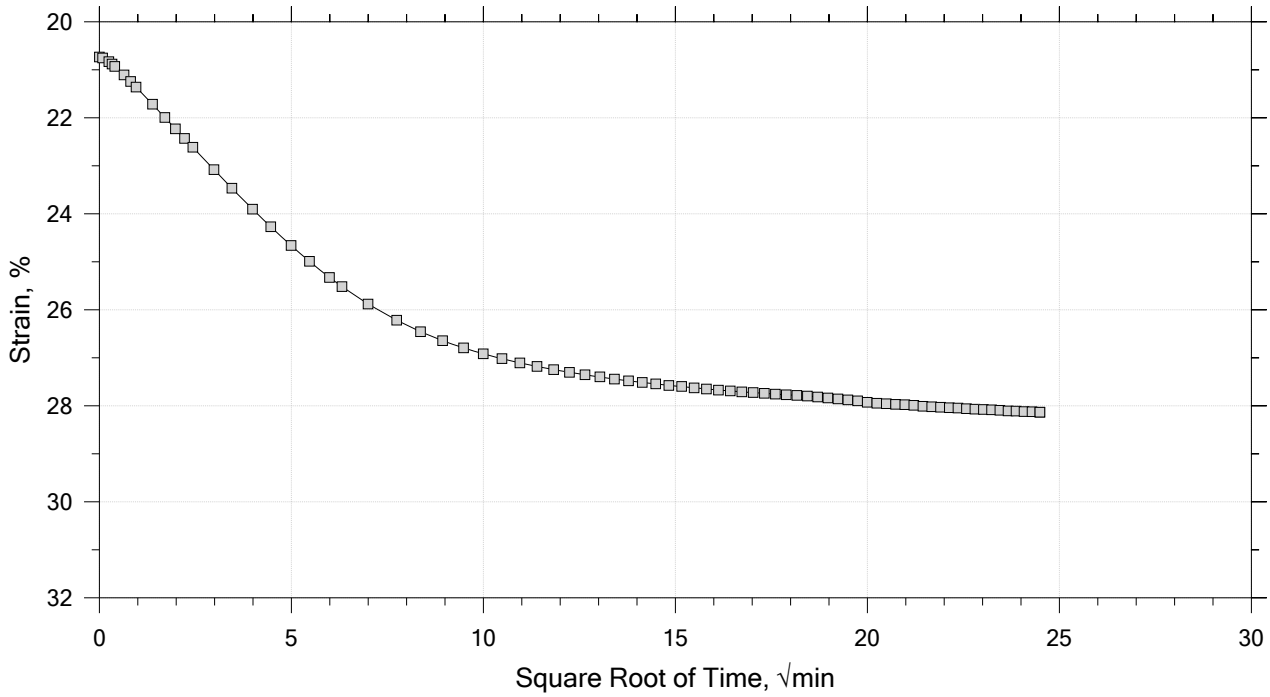


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 13 of 14
Constant Load Step
Stress: 32 tsf

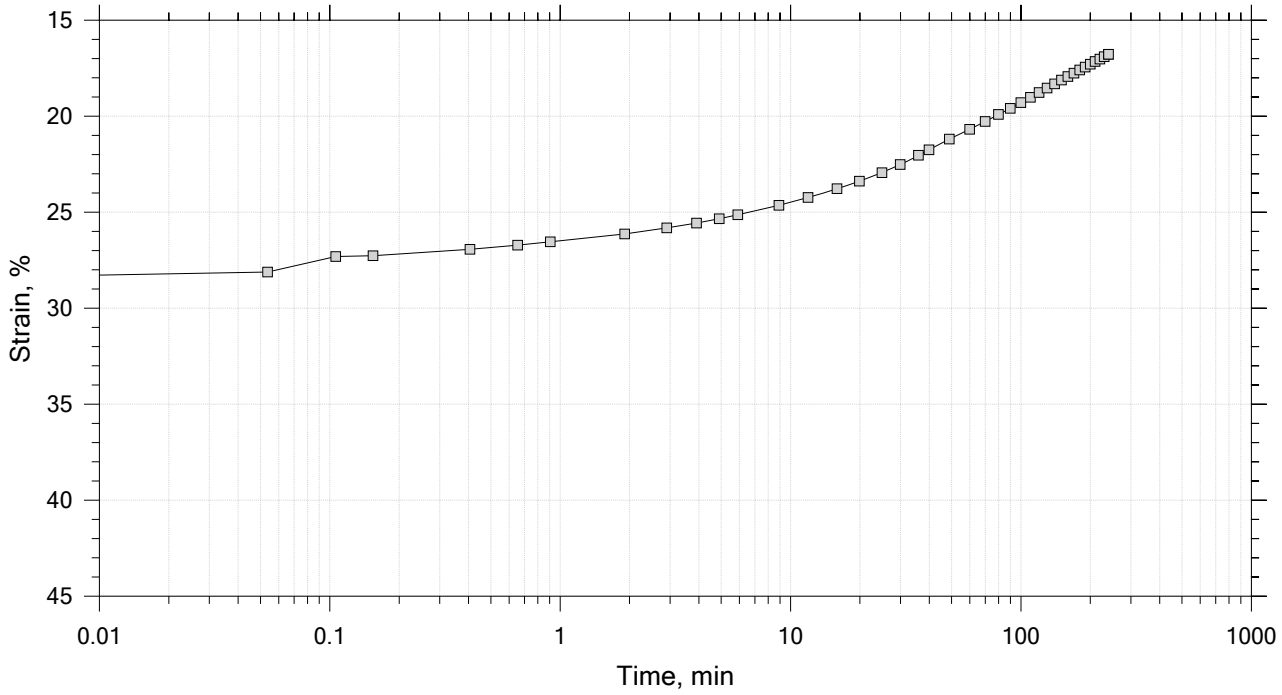


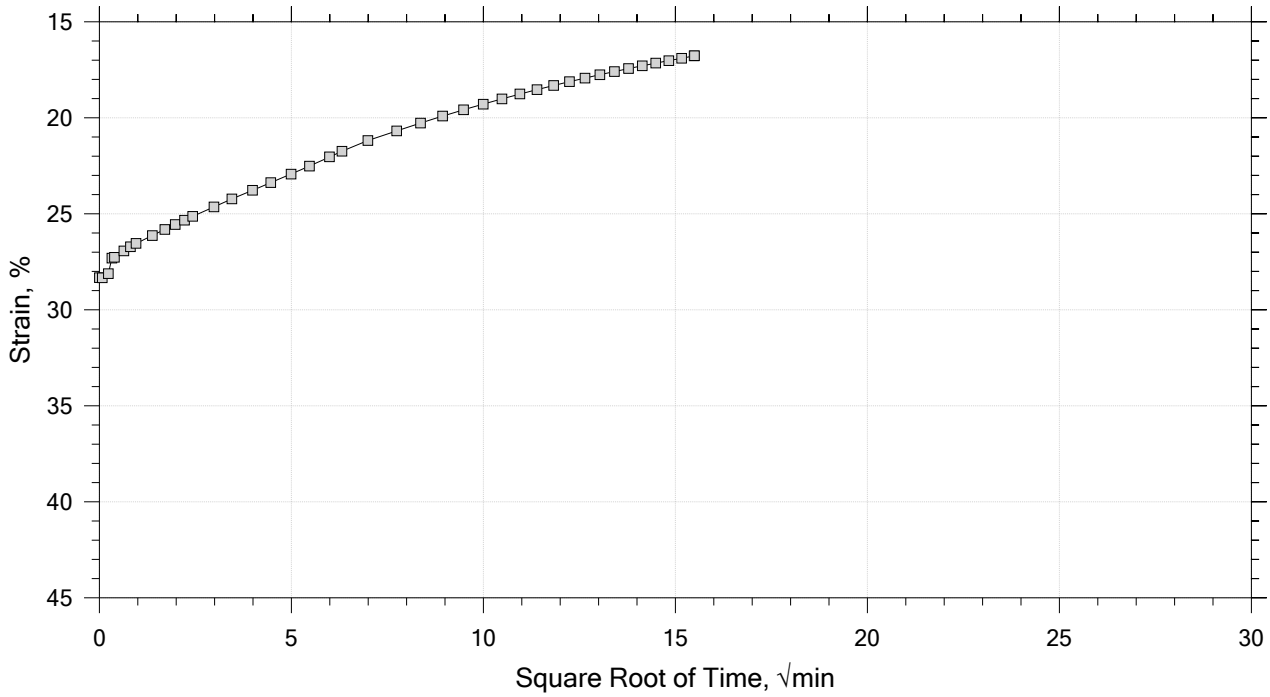


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 14 of 14
Constant Load Step
Stress: 0.25 tsf





GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Specimen Diameter: 2.50 in	Estimated Specific Gravity: 2.71	Liquid Limit: 67
Initial Height: 1.00 in	Initial Void Ratio: 1.14	Plastic Limit: 26
Final Height: 0.85 in	Final Void Ratio: 0.822	Plasticity Index: 41

	Before Test Trimmings	Before Test Specimen	After Test Specimen	After Test Trimmings
Container ID	E12226	RING		E8042
Mass Container, gm	8.66	110.86	110.86	8.61
Mass Container + Wet Soil, gm	274.03	255.03	243.36	140.07
Mass Container + Dry Soil, gm	196.83	212.51	212.51	109.46
Mass Dry Soil, gm	188.17	101.65	101.65	100.85
Water Content, %	41.03	41.83	30.35	30.35
Void Ratio	---	1.14	0.82	---
Degree of Saturation, %	---	99.08	100.00	---
Dry Unit Weight, pcf	---	78.887	92.808	---

Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.

GeoTesting EXPRESS A BERGEL COMPANY	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

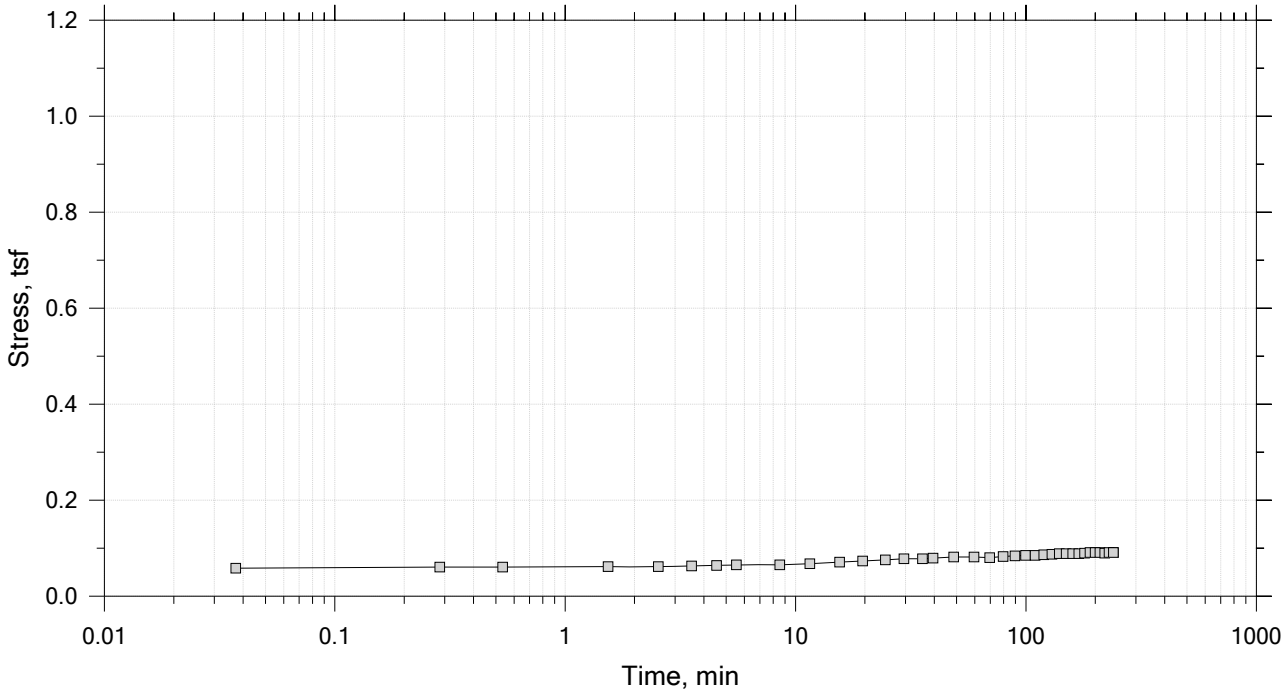
Square Root of Time Coefficients

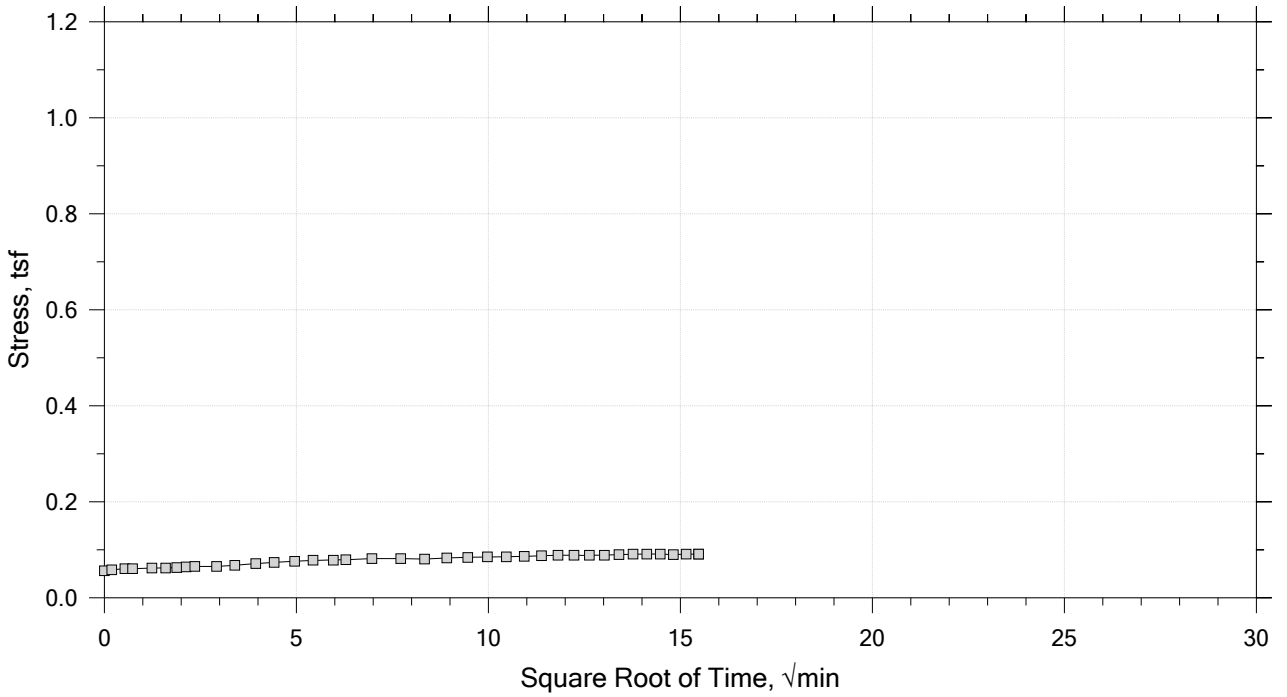
Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Sq.Rt. T90 min	Cv ft²/s	Mv 1/tsf	k ft/day
1	0.0909	0.005165	1.13	0.516	0.000	0.00e+00	5.68e-02	0.00e+00
2	0.125	0.008997	1.12	0.900	5.580	4.33e-06	1.12e-01	1.32e-03
3	0.250	0.01816	1.10	1.82	5.065	4.71e-06	7.33e-02	9.32e-04
4	0.500	0.02965	1.08	2.97	17.442	1.34e-06	4.60e-02	1.66e-04
5	1.00	0.04540	1.05	4.54	21.240	1.07e-06	3.15e-02	9.09e-05
6	2.00	0.06223	1.01	6.22	29.296	7.50e-07	1.68e-02	3.40e-05
7	4.00	0.08614	0.959	8.61	33.102	6.35e-07	1.20e-02	2.05e-05
8	8.00	0.1328	0.859	13.3	73.694	2.64e-07	1.17e-02	8.31e-06
9	2.00	0.1139	0.900	11.4	30.489	6.18e-07	3.15e-03	5.26e-06
10	4.00	0.1212	0.884	12.1	19.988	9.56e-07	3.63e-03	9.36e-06
11	8.00	0.1399	0.844	14.0	30.026	6.18e-07	4.69e-03	7.82e-06
12	16.0	0.2005	0.714	20.1	85.737	1.97e-07	7.57e-03	4.02e-06
13	32.0	0.2763	0.552	27.6	78.278	1.82e-07	4.73e-03	2.32e-06
14	0.250	0.1677	0.784	16.8	74.667	1.99e-07	3.42e-03	1.83e-06

GeoTesting EXPRESS A BERGEL COMPANY	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		
	Displacement at 4 hr		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 1 of 14
Constant Volume Step
Stress: 0.0909 tsf





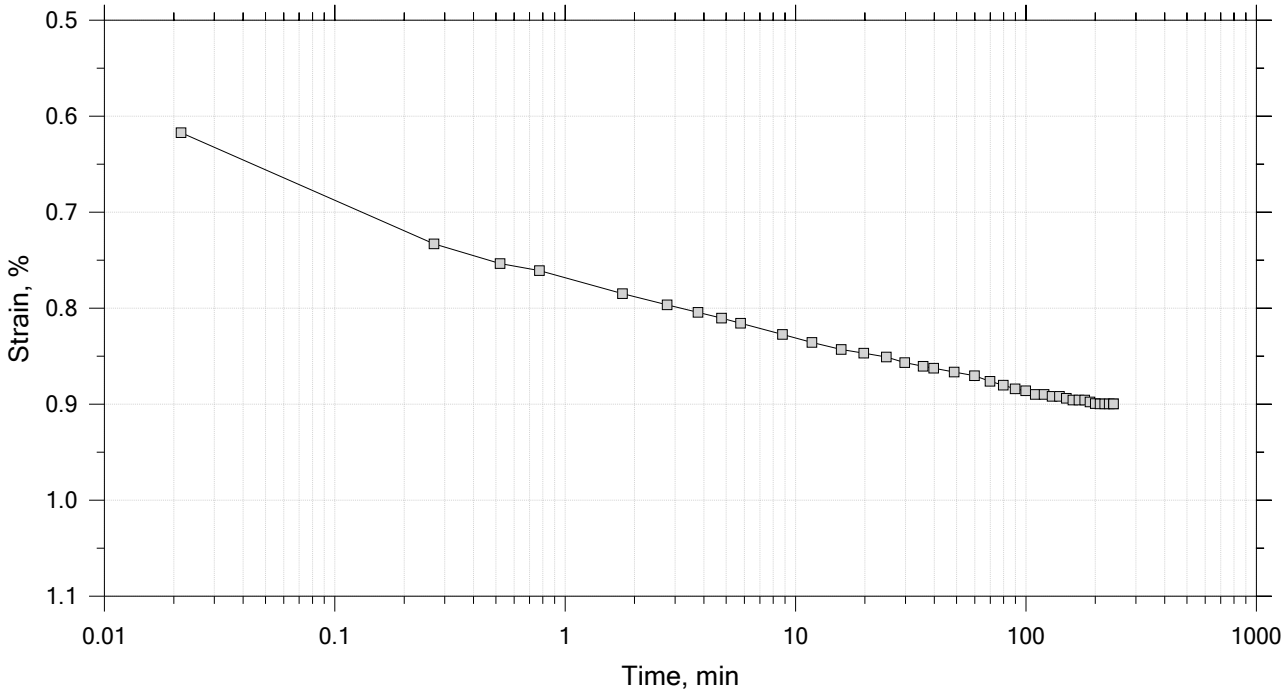
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

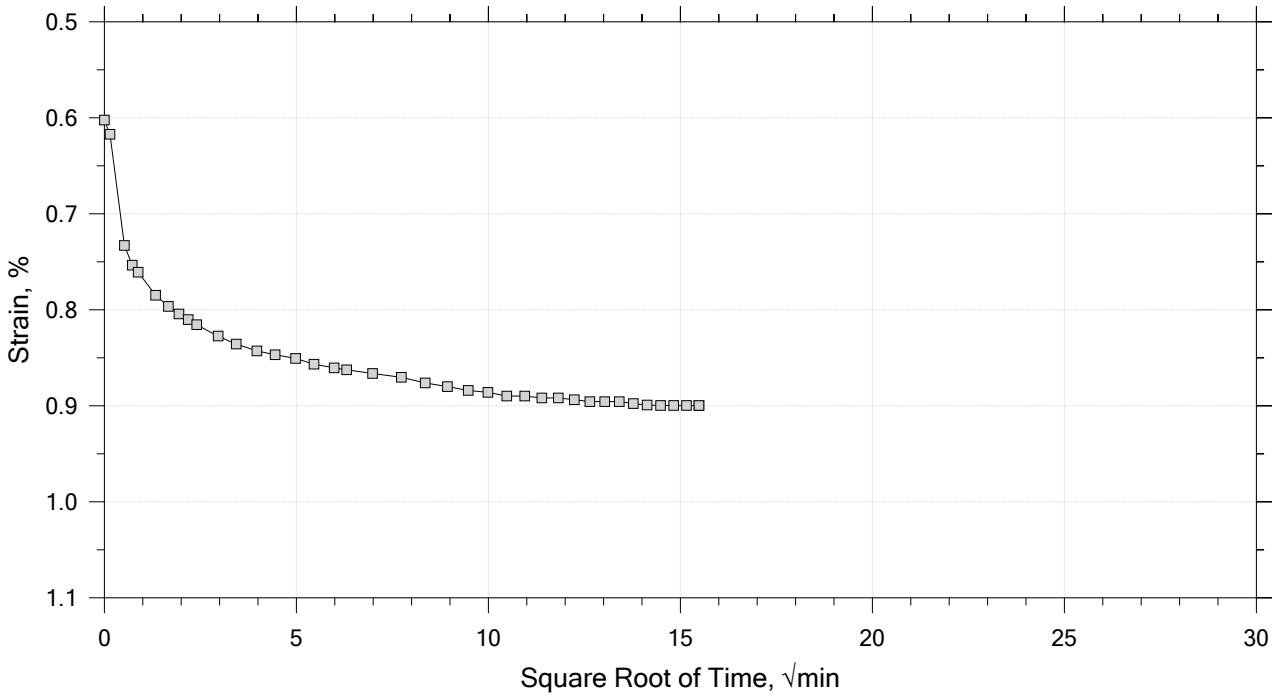
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 2 of 14

Constant Load Step

Stress: 0.125 tsf





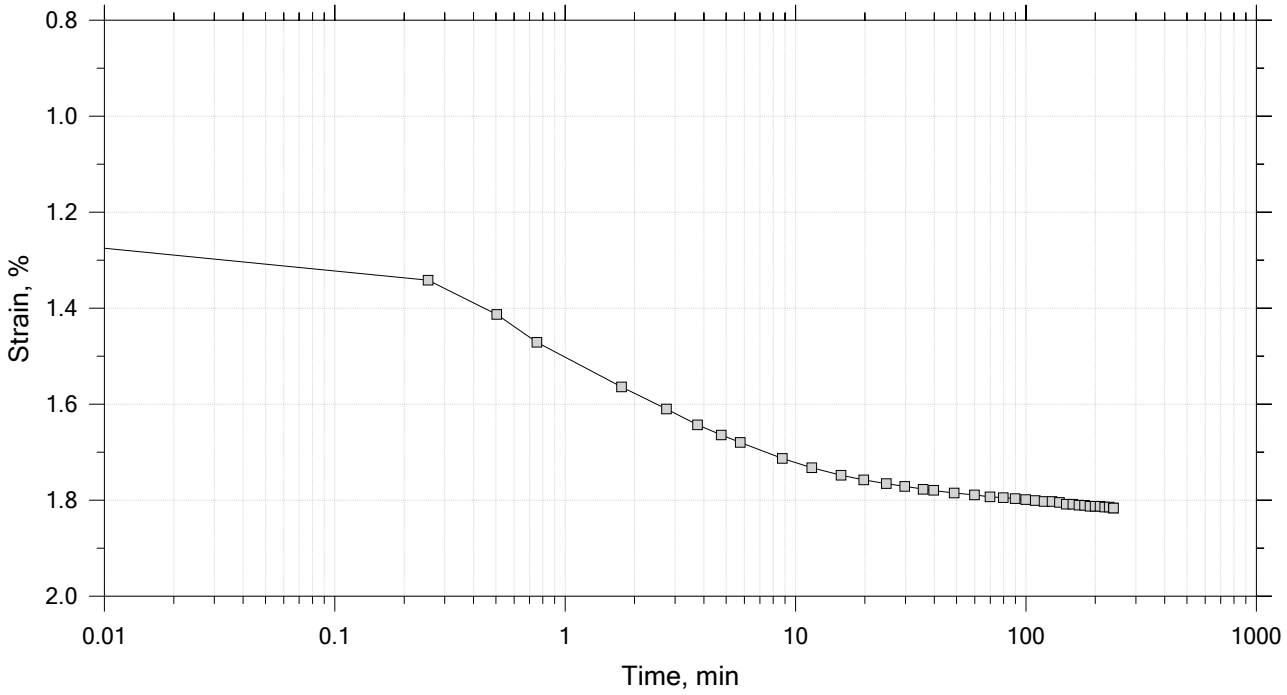
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

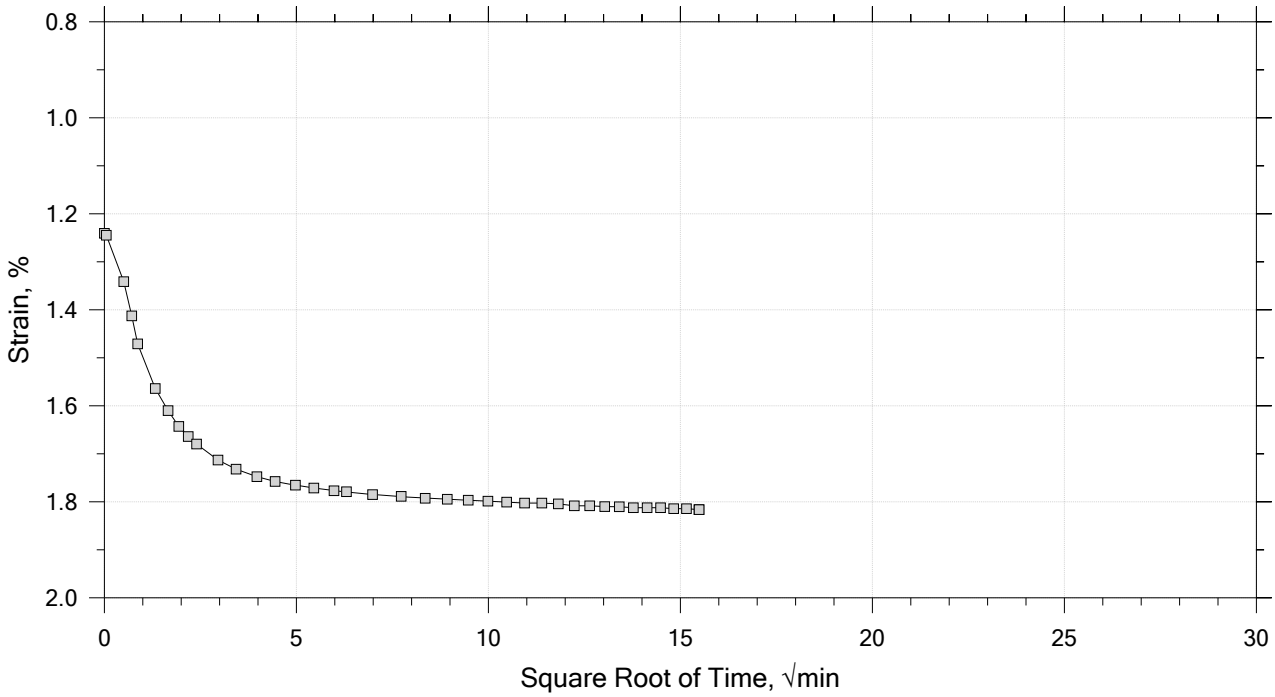
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 3 of 14

Constant Load Step

Stress: 0.25 tsf





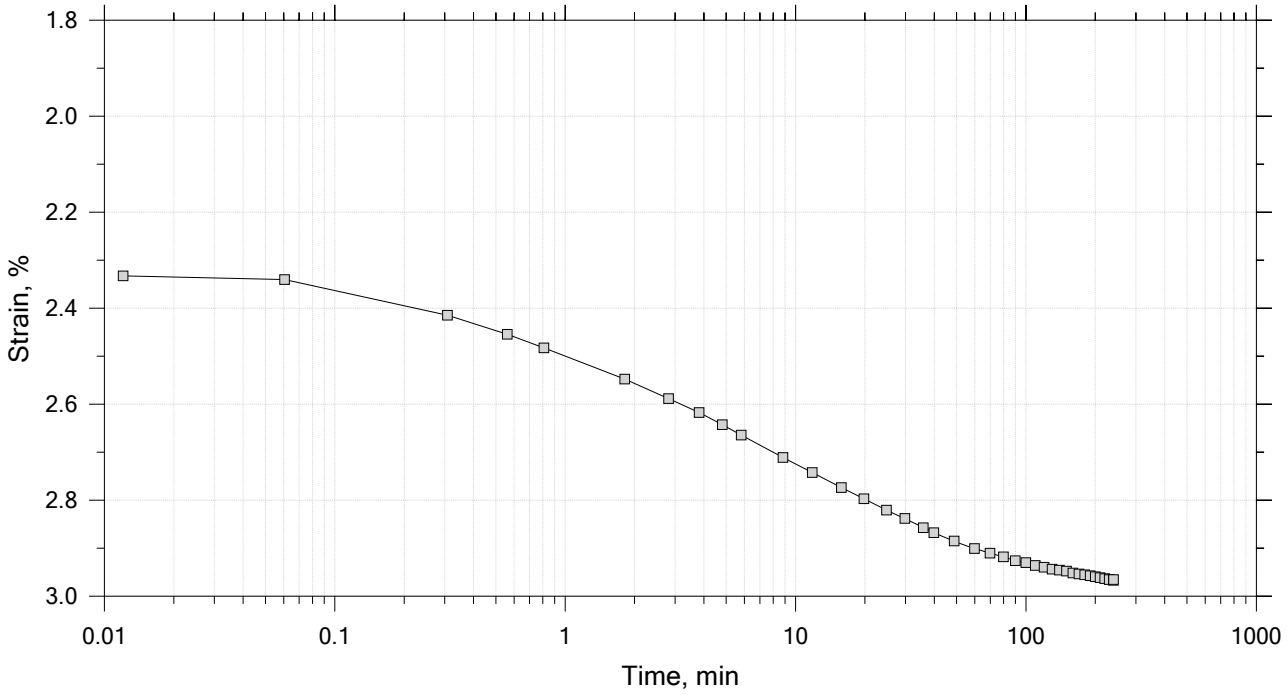
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

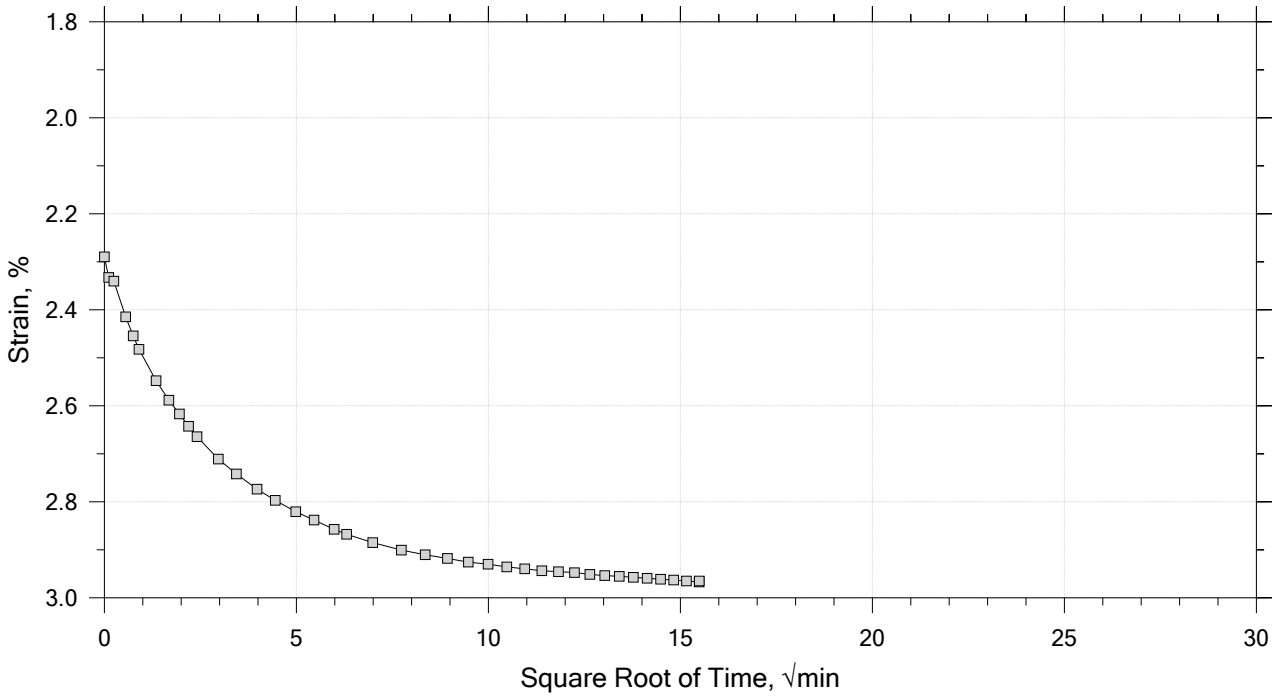
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 4 of 14

Constant Load Step

Stress: 0.5 tsf





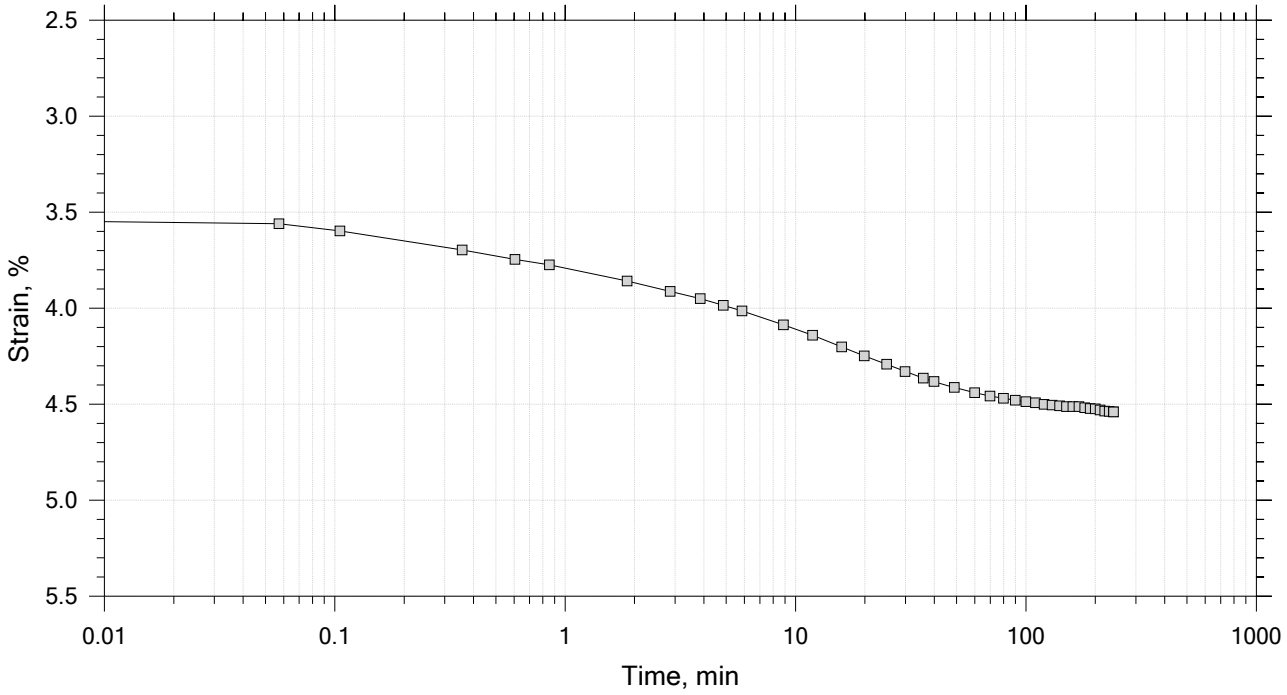
GeoTesting EXPRESS A BERGEL COMPANY	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

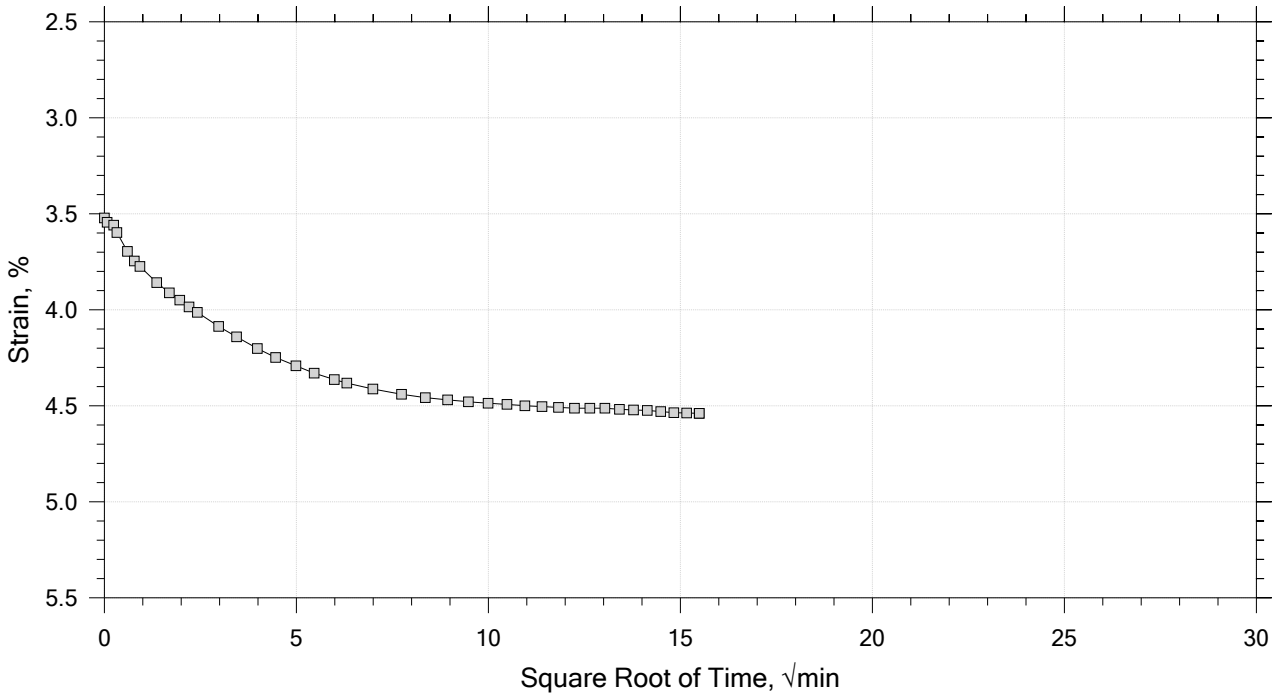
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 5 of 14

Constant Load Step

Stress: 1 tsf





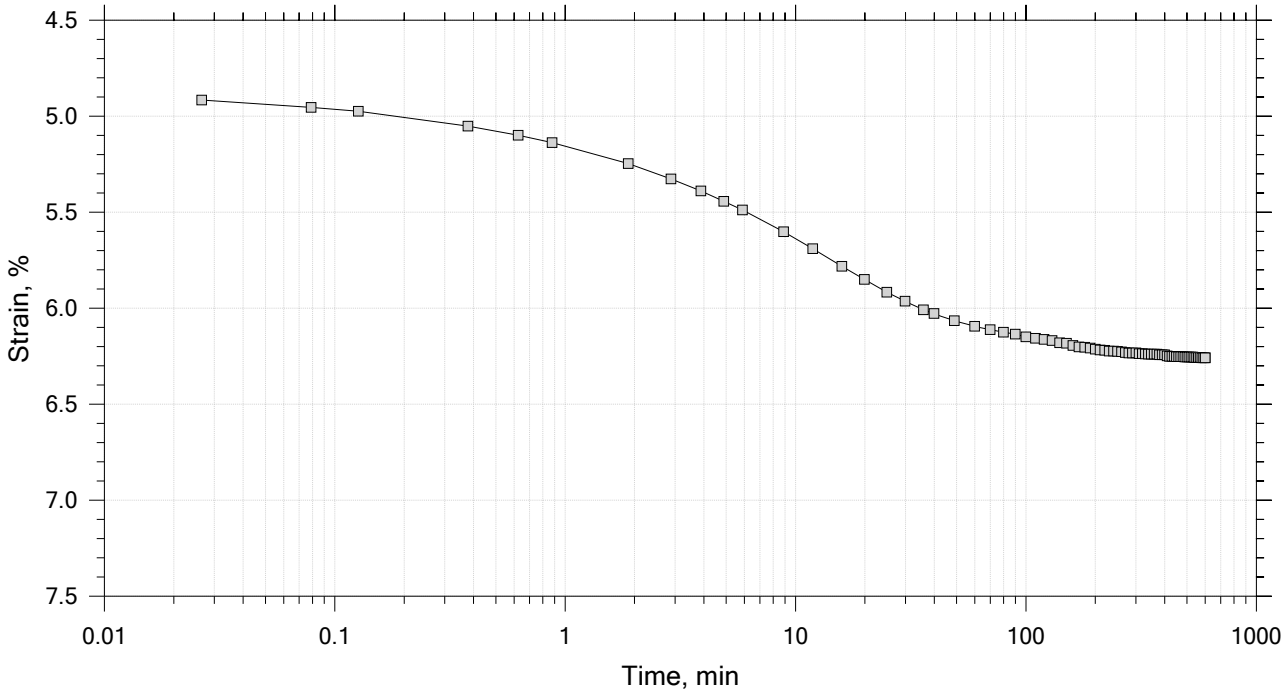
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

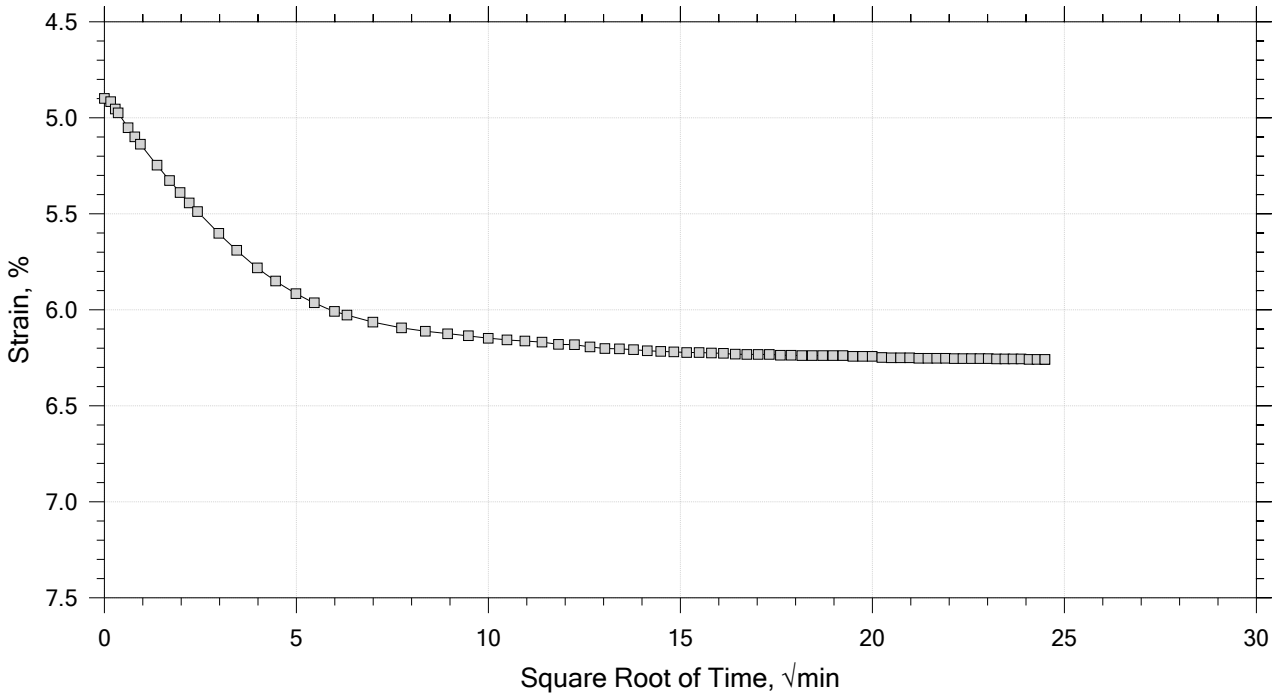
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 6 of 14

Constant Load Step

Stress: 2 tsf





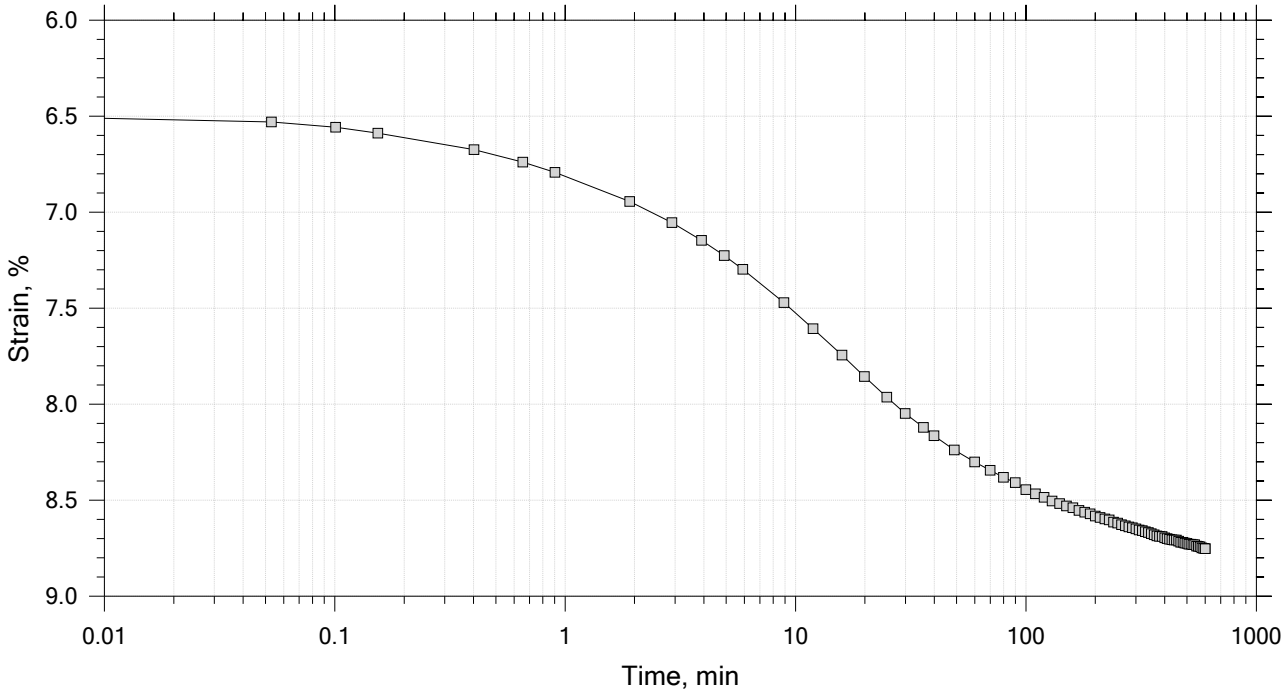
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

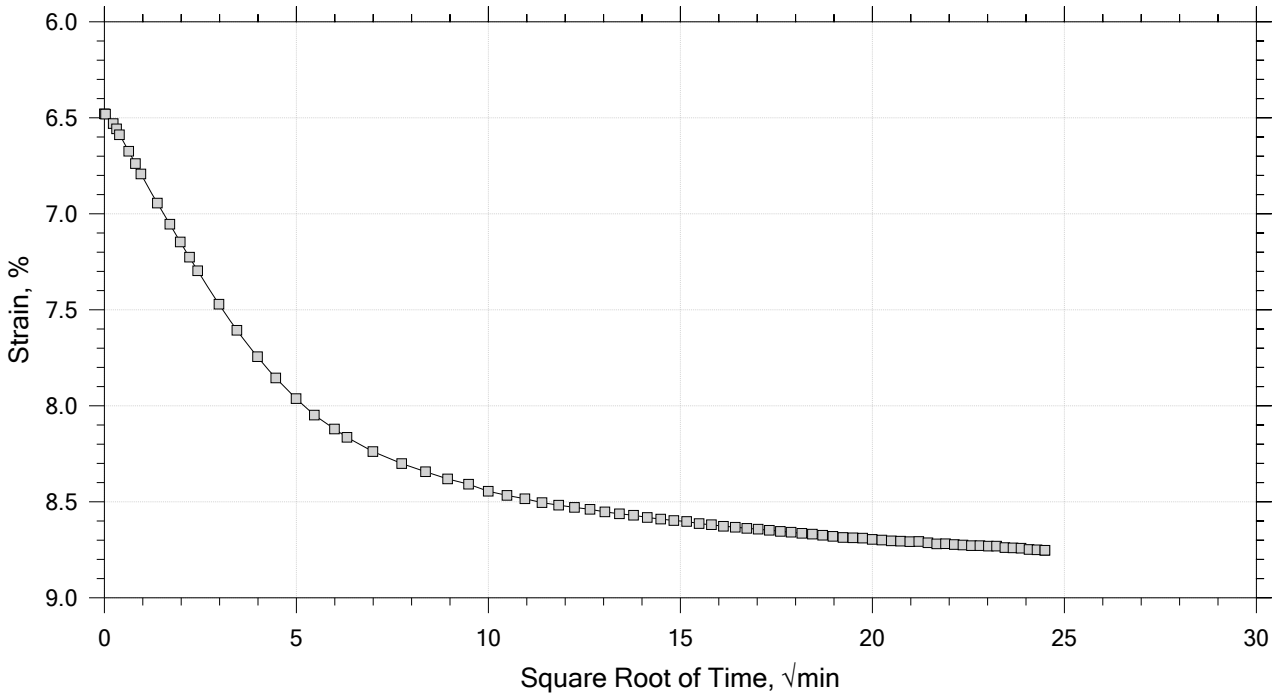
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 7 of 14

Constant Load Step

Stress: 4 tsf





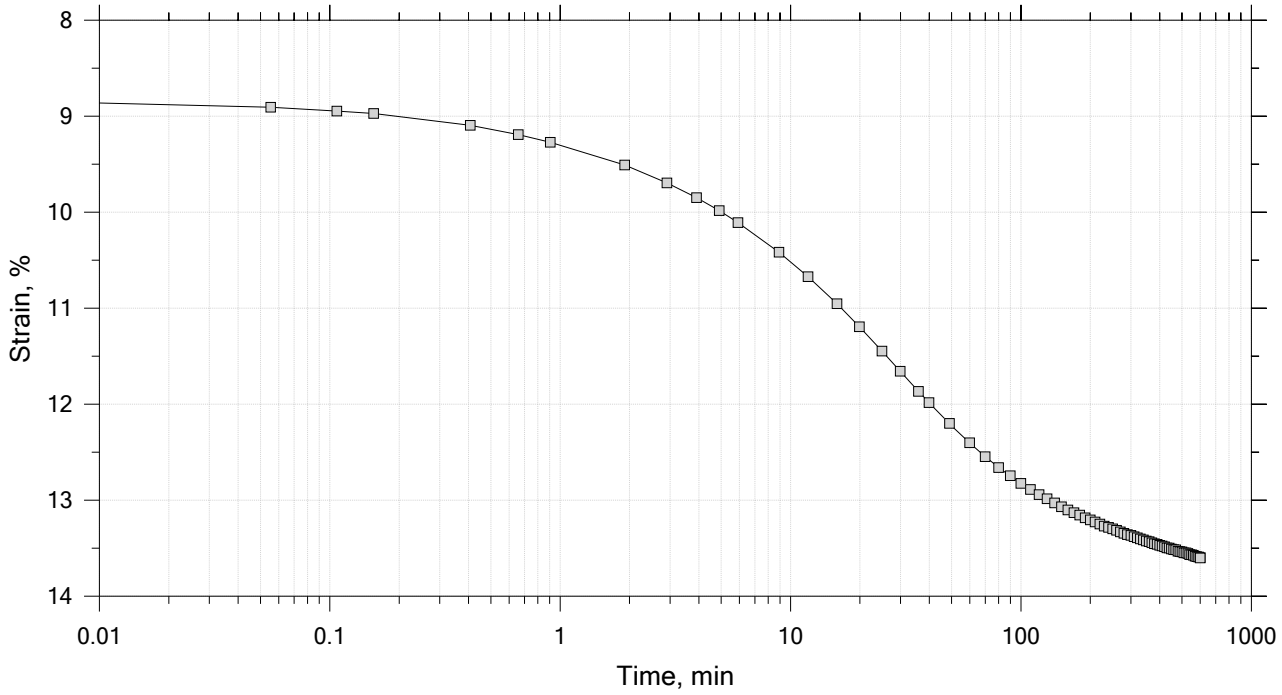
GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

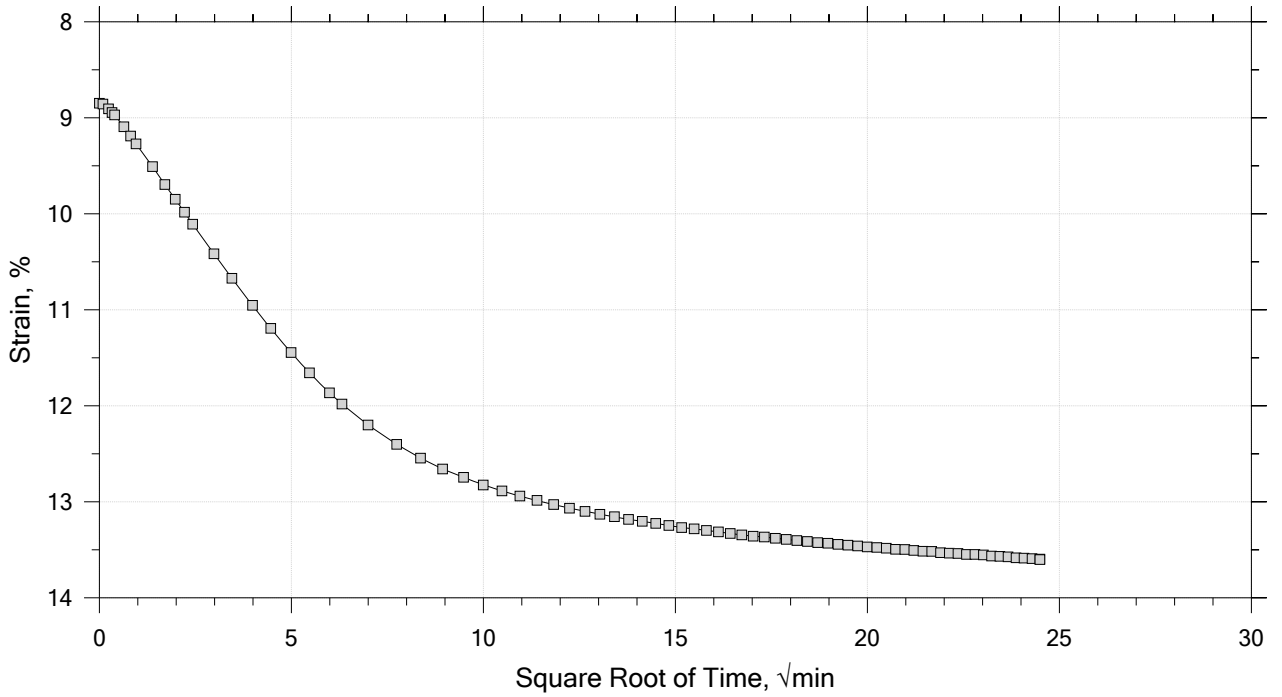
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 8 of 14

Constant Load Step

Stress: 8 tsf

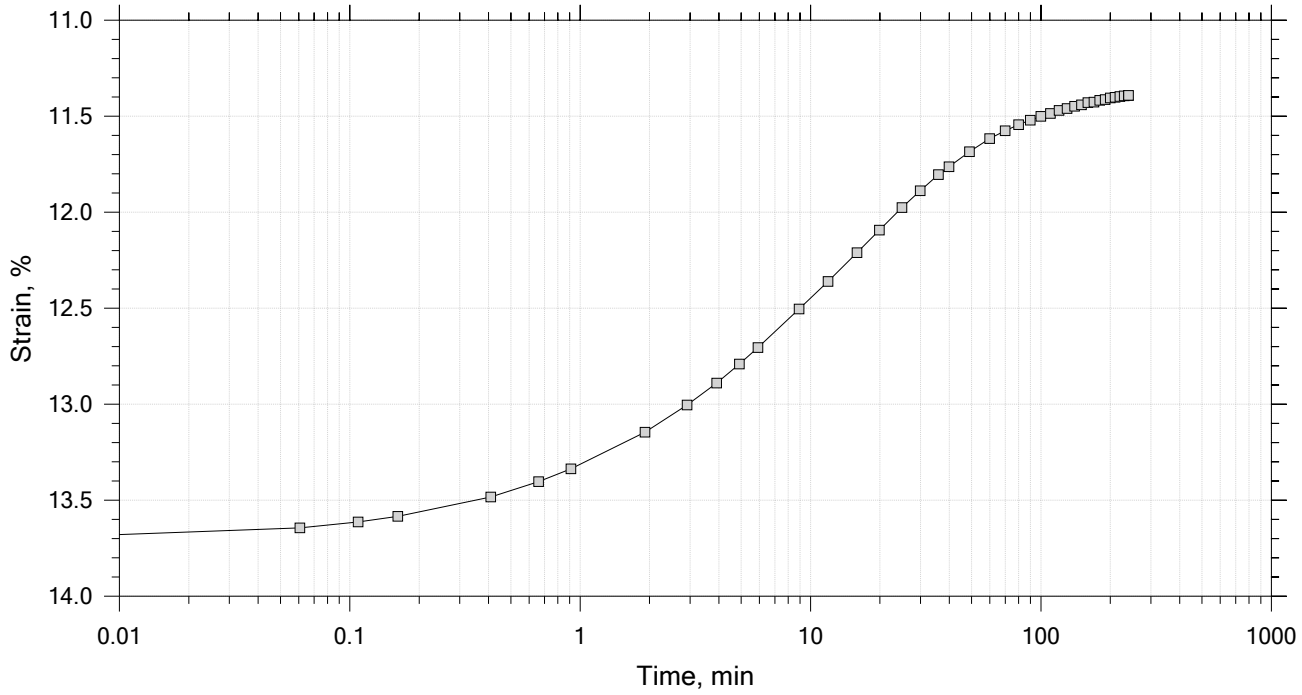


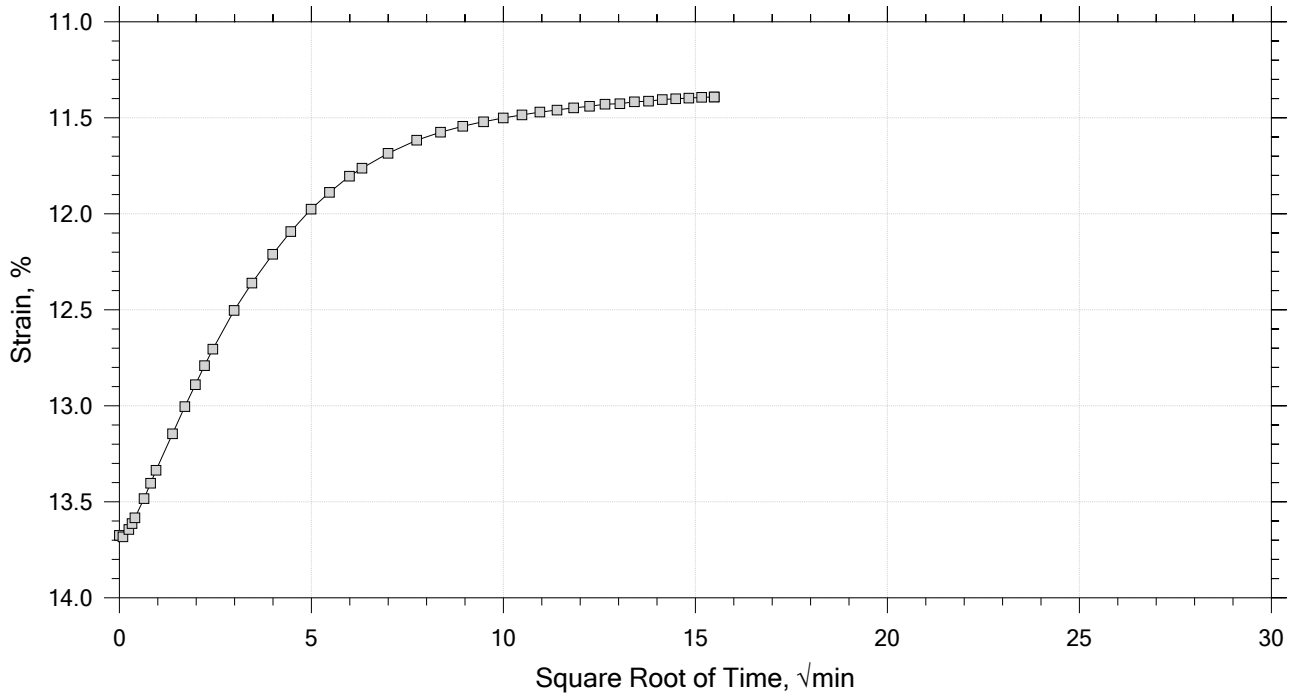


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 9 of 14
Constant Load Step
Stress: 2 tsf

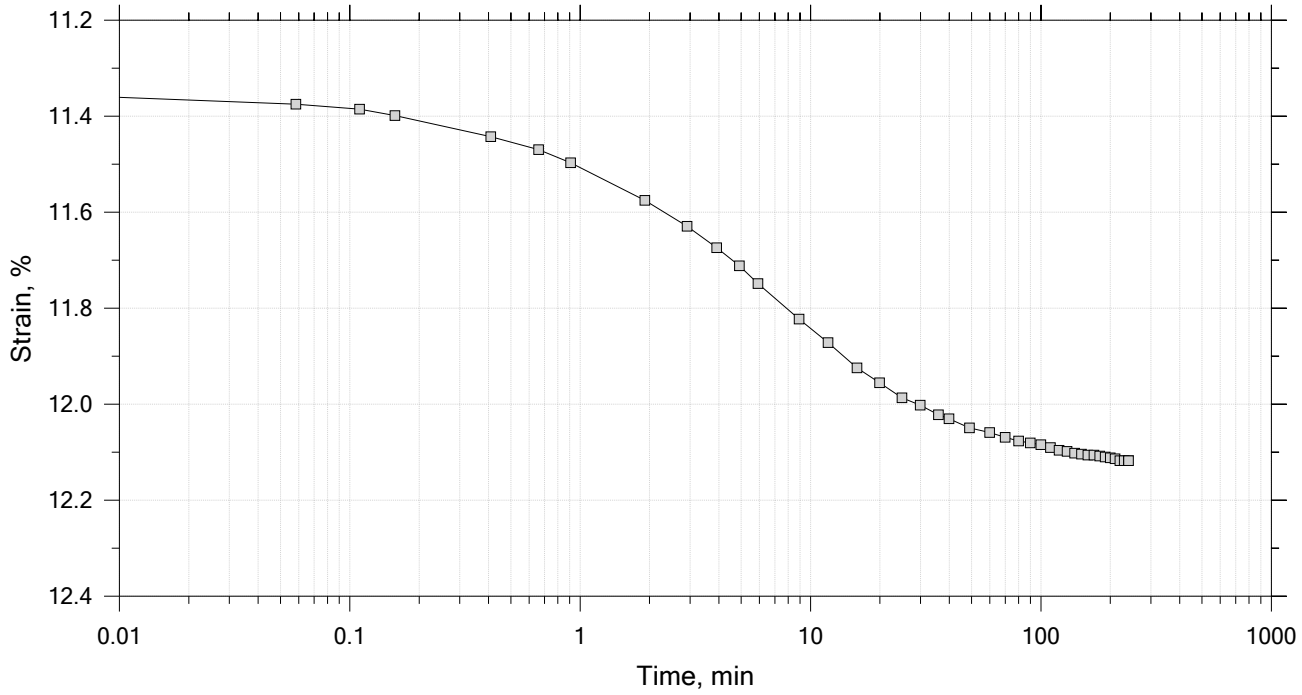


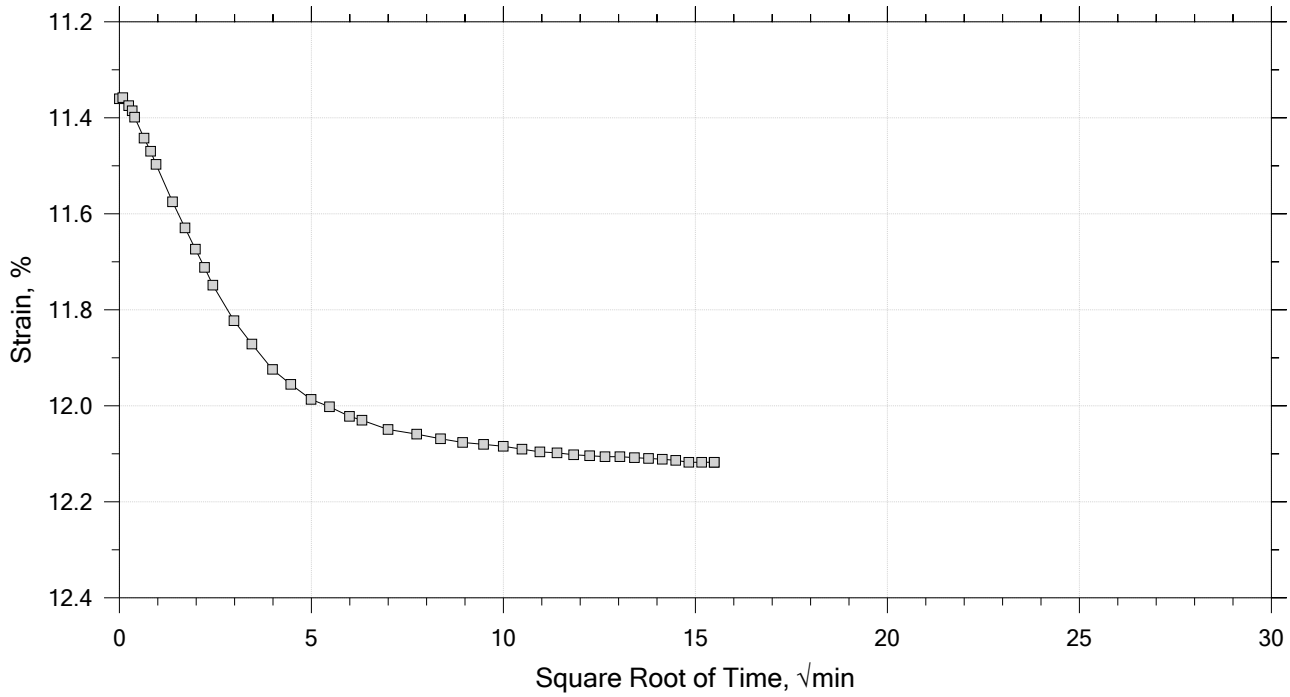


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 10 of 14
Constant Load Step
Stress: 4 tsf

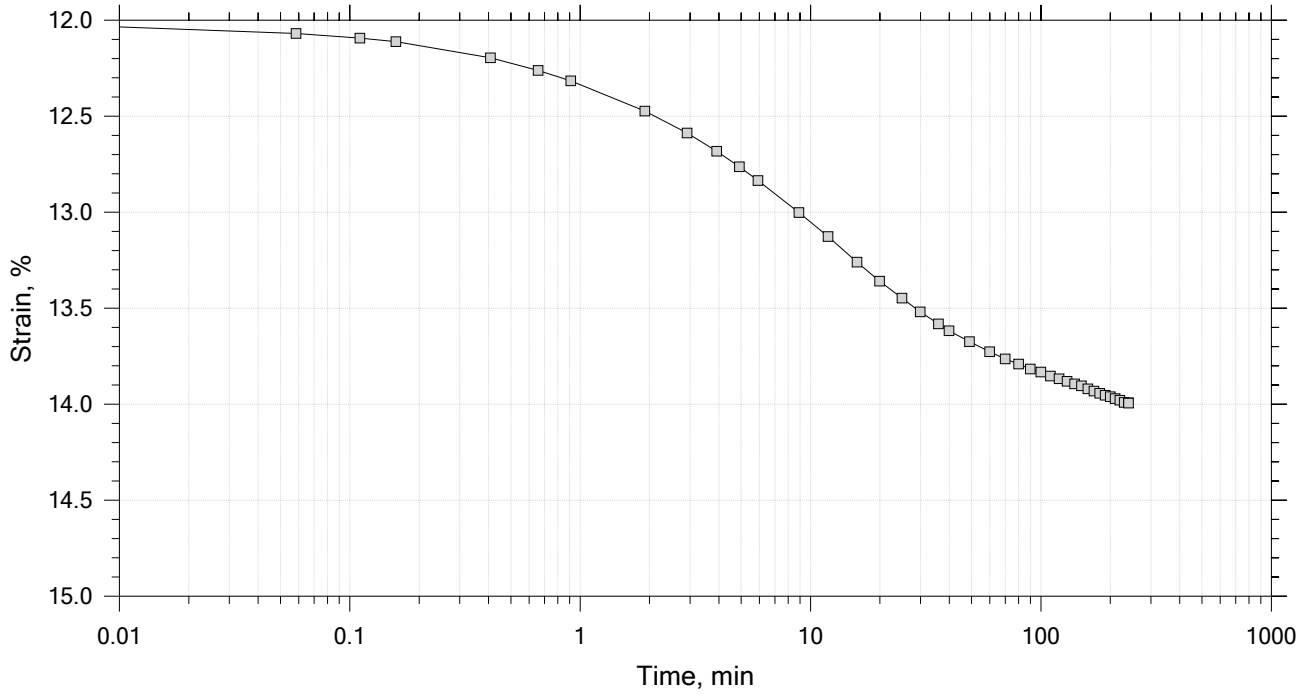


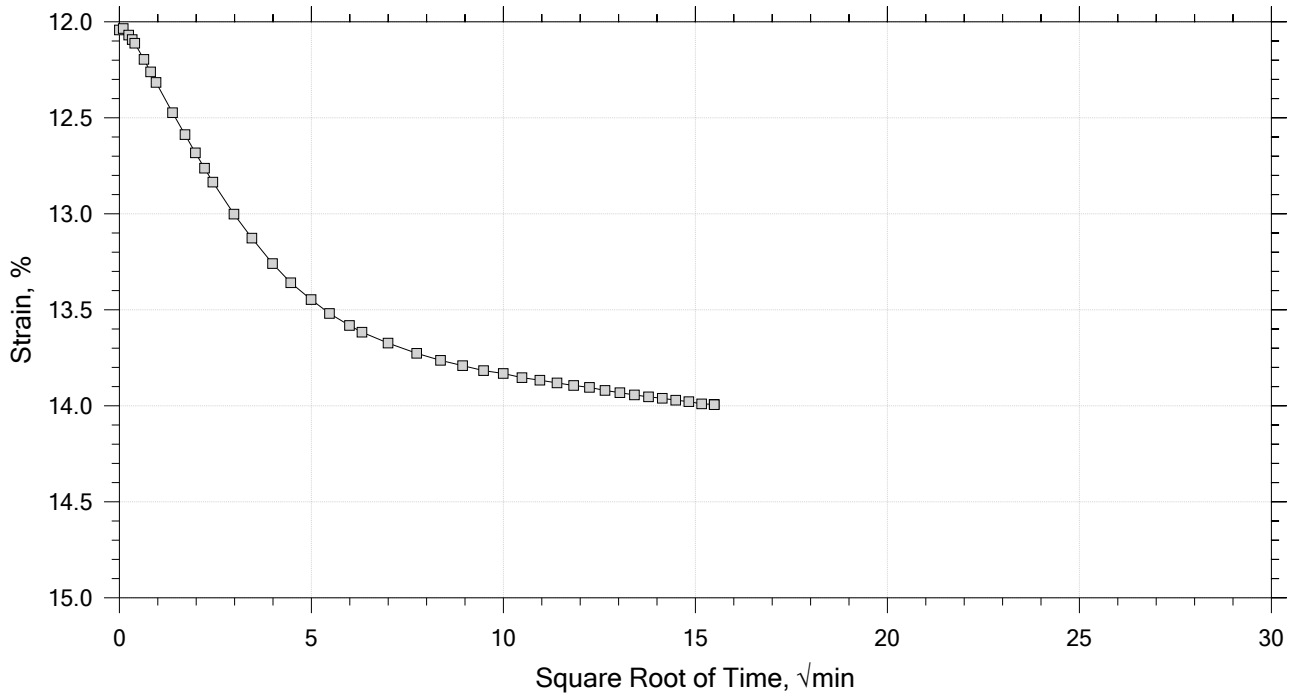


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 11 of 14
Constant Load Step
Stress: 8 tsf

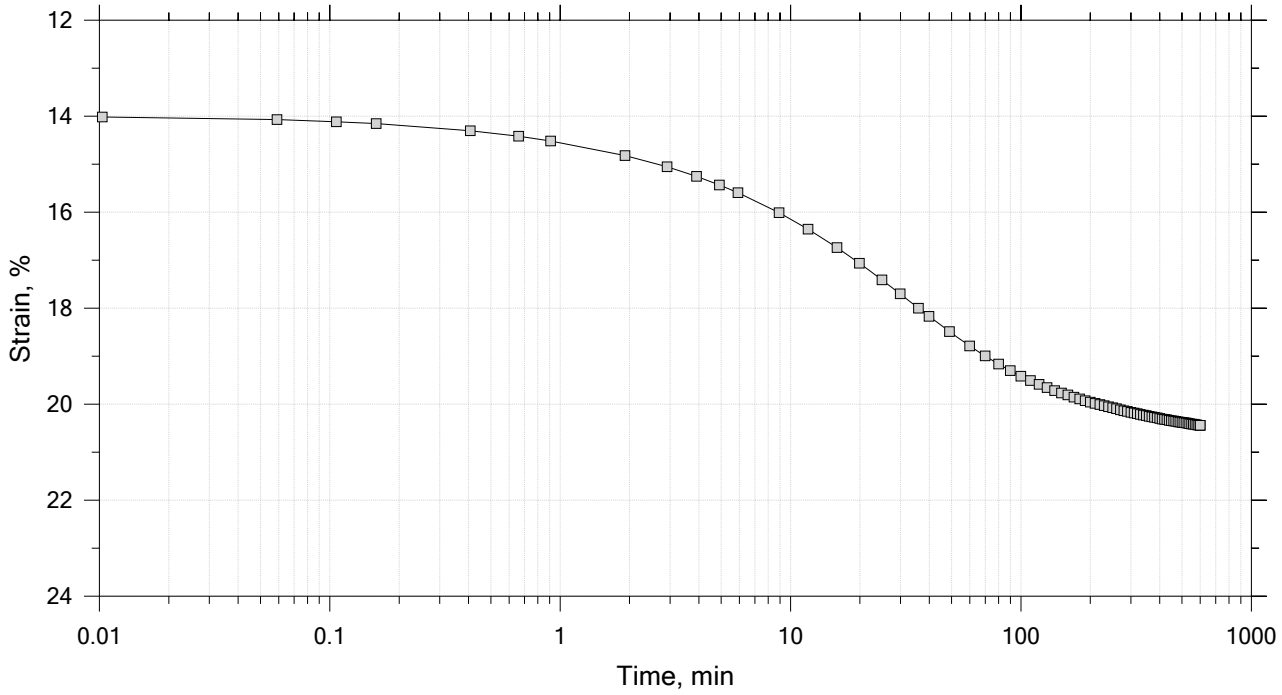


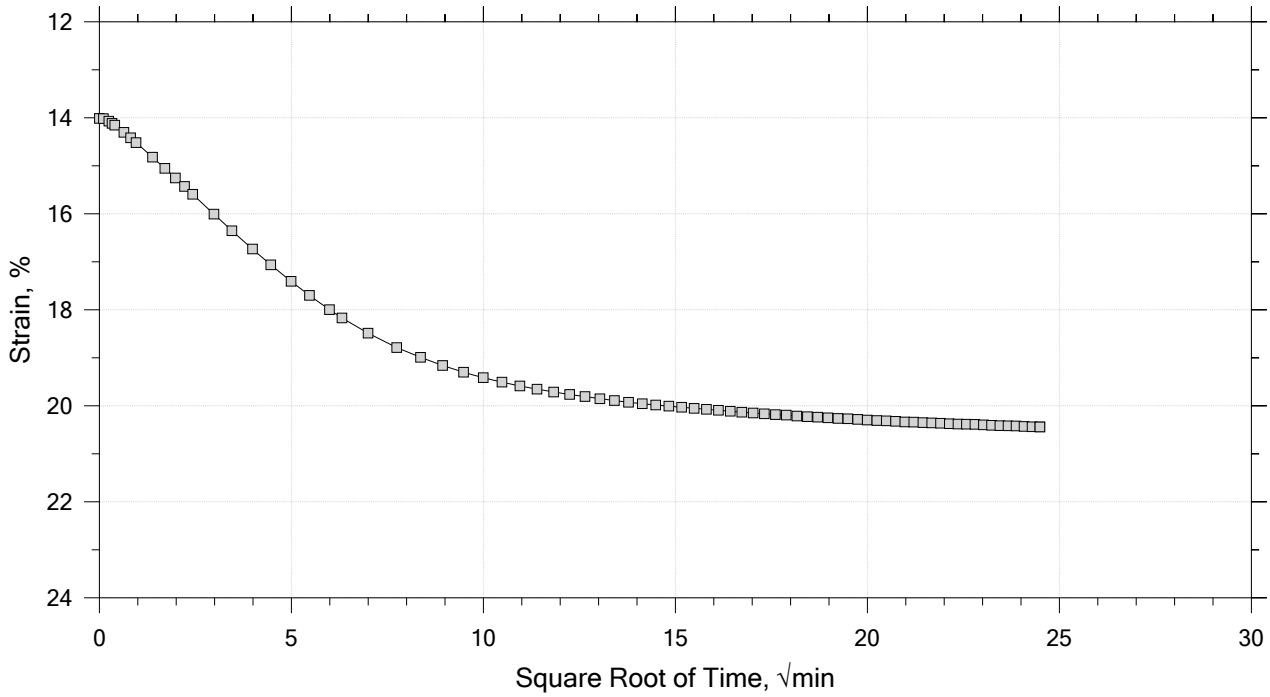


Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
Boring No.: B-04	Tested By: sjt	Checked By: trm
Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
Test No.: IP-1	Sample Type: intact	Elevation: ---
Description: Moist, brownish gray clay		
Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 12 of 14
Constant Load Step
Stress: 16 tsf

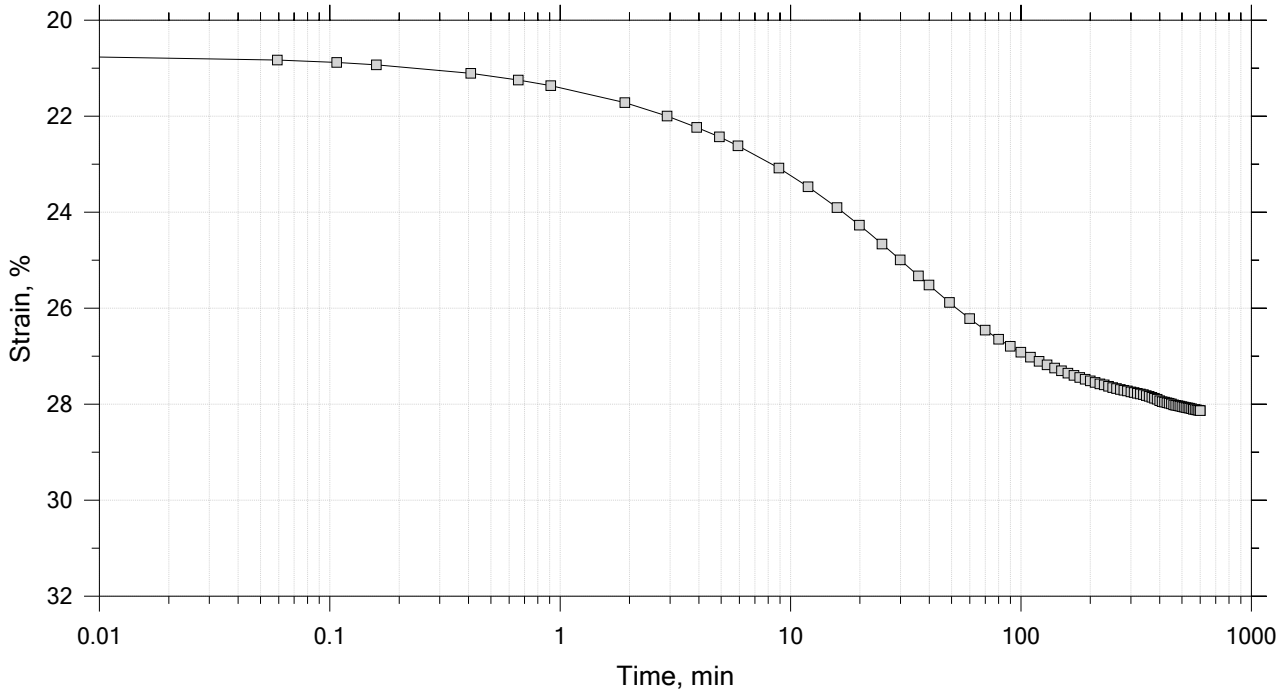


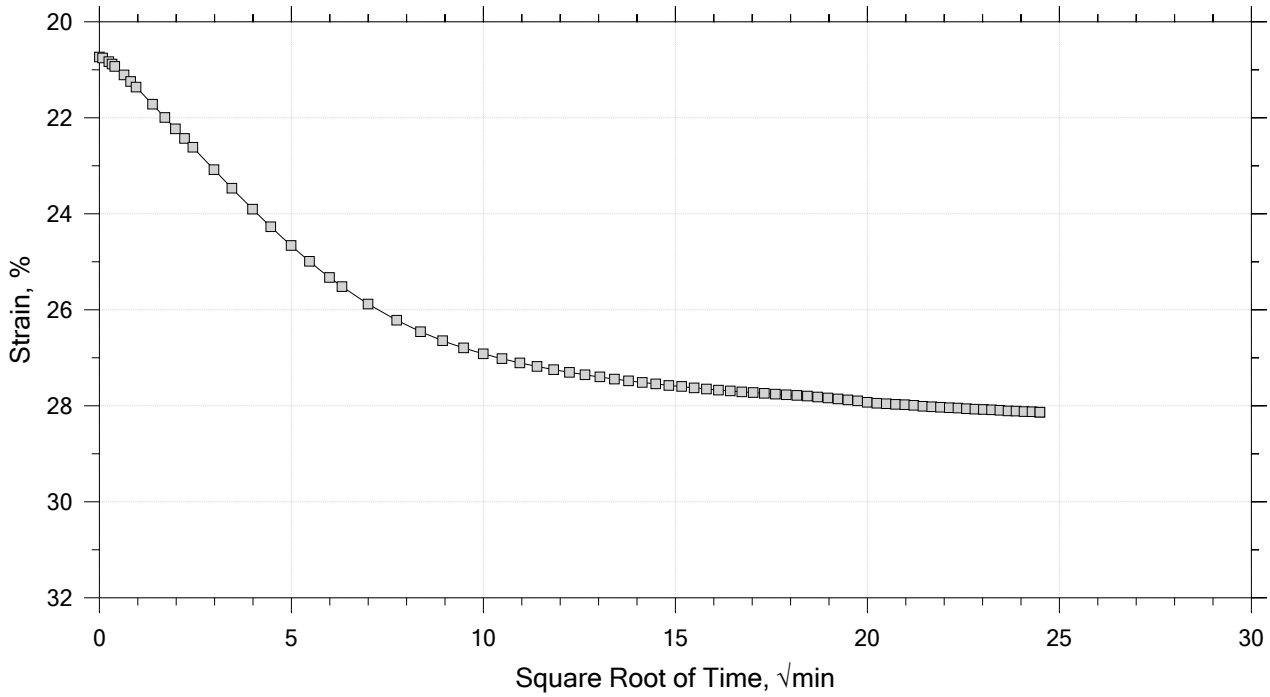


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 13 of 14
Constant Load Step
Stress: 32 tsf

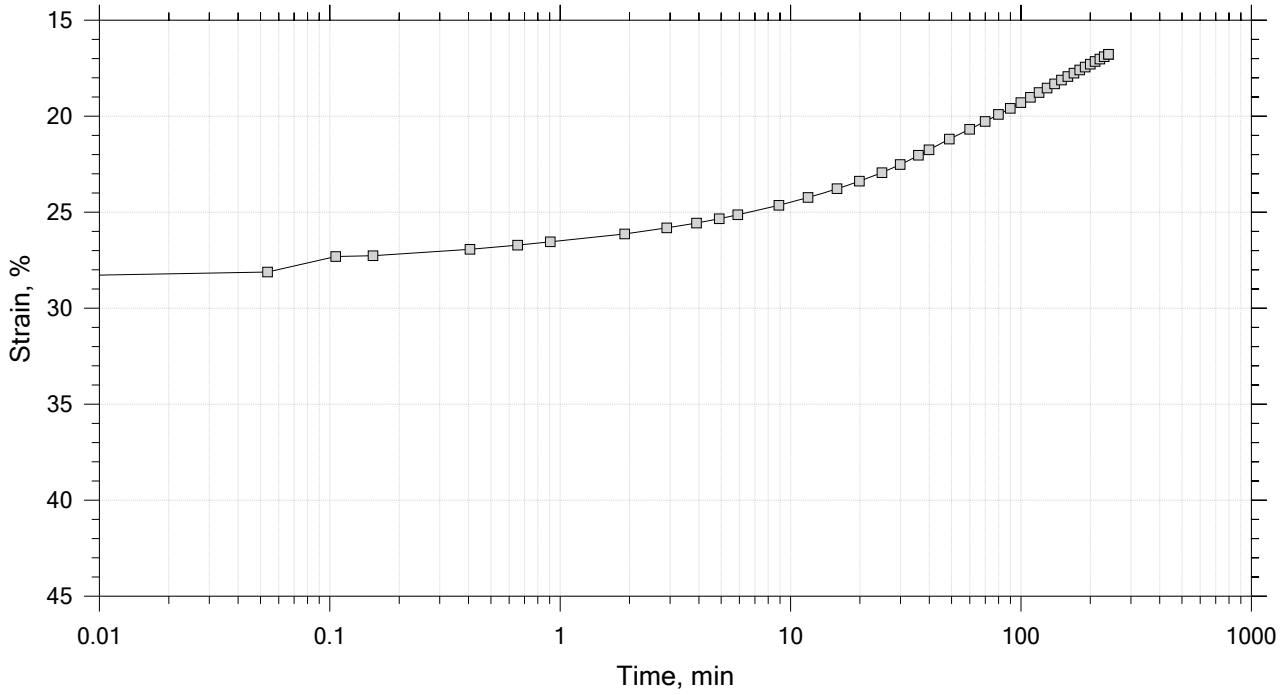


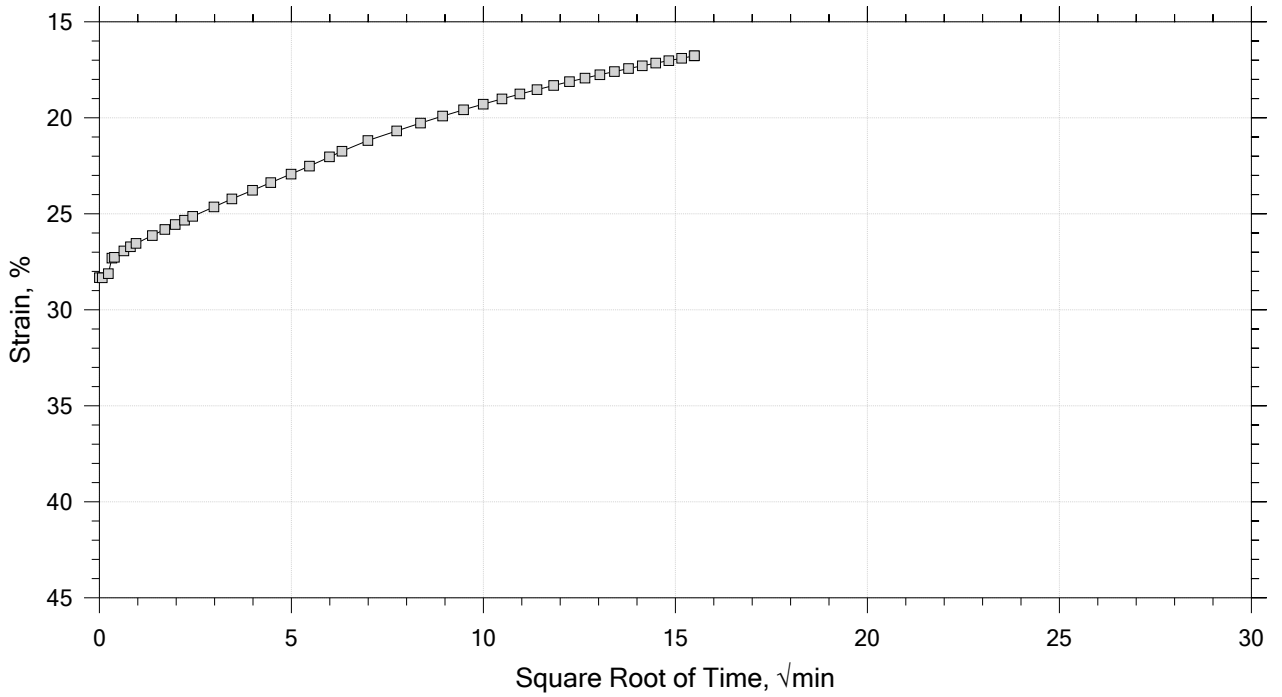


GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 14 of 14
Constant Load Step
Stress: 0.25 tsf





GeoTesting EXPRESS	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Specimen Diameter: 2.50 in	Estimated Specific Gravity: 2.71	Liquid Limit: 67
Initial Height: 1.00 in	Initial Void Ratio: 1.14	Plastic Limit: 26
Final Height: 0.85 in	Final Void Ratio: 0.822	Plasticity Index: 41

	Before Test Trimmings	Before Test Specimen	After Test Specimen	After Test Trimmings
Container ID	E12226	RING		E8042
Mass Container, gm	8.66	110.86	110.86	8.61
Mass Container + Wet Soil, gm	274.03	255.03	243.36	140.07
Mass Container + Dry Soil, gm	196.83	212.51	212.51	109.46
Mass Dry Soil, gm	188.17	101.65	101.65	100.85
Water Content, %	41.03	41.83	30.35	30.35
Void Ratio	---	1.14	0.82	---
Degree of Saturation, %	---	99.08	100.00	---
Dry Unit Weight, pcf	---	78.887	92.808	---

Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.

GeoTesting EXPRESS A BERGEL COMPANY	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

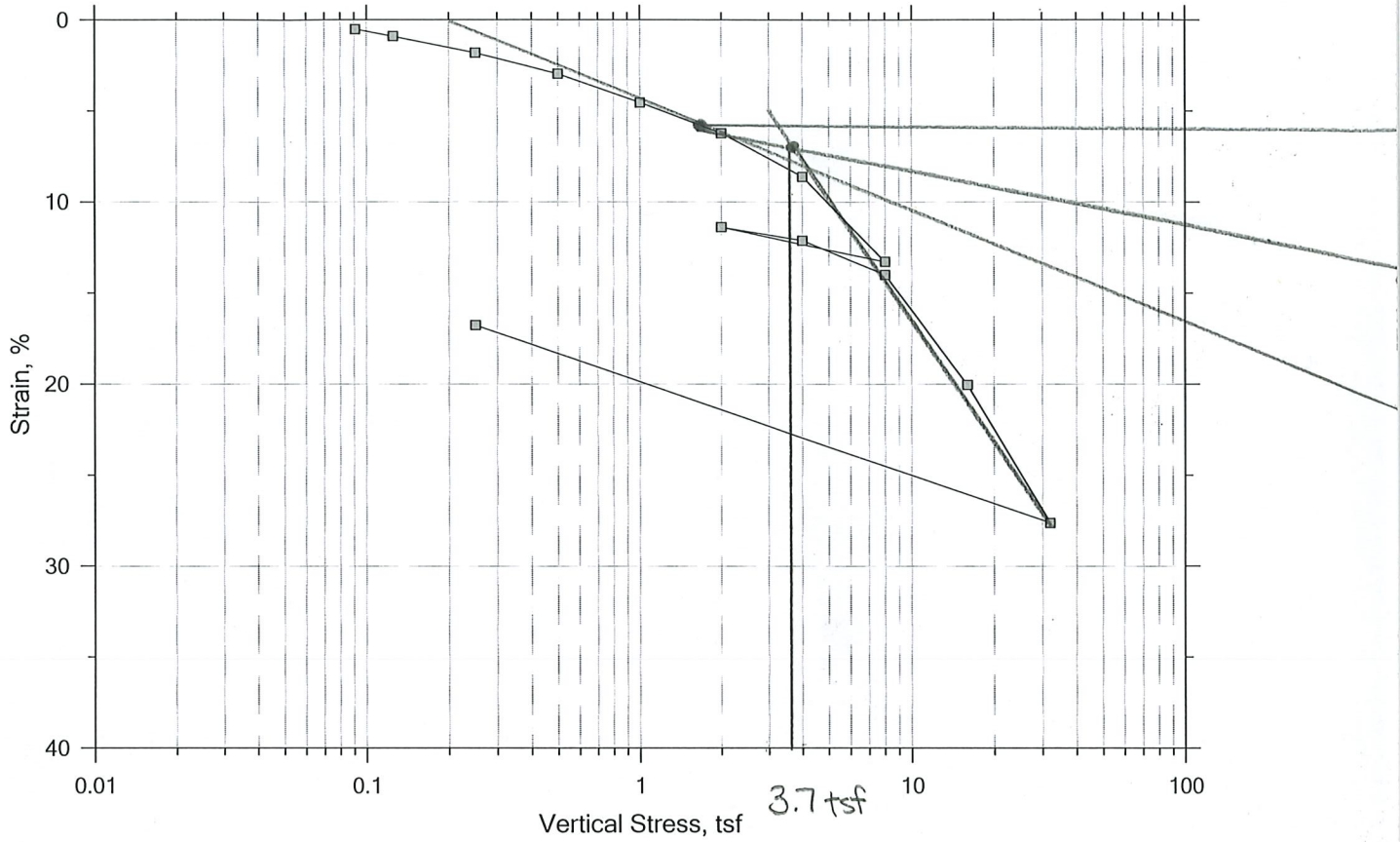
Square Root of Time Coefficients

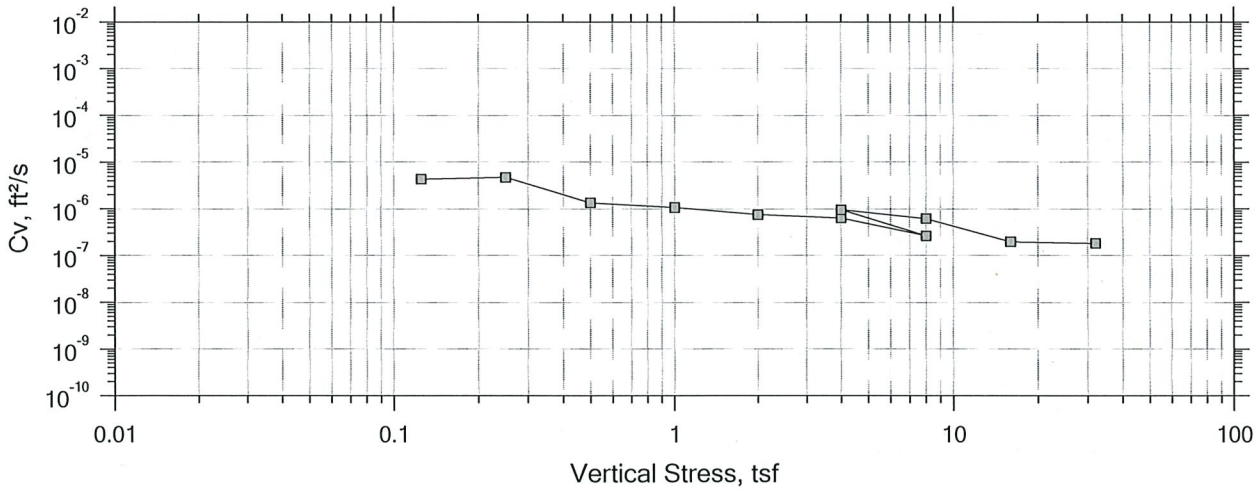
Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Sq.Rt. T90 min	Cv ft²/s	Mv 1/tsf	k ft/day
1	0.0909	0.005165	1.13	0.516	---	---	---	---
2	0.125	0.008997	1.12	0.900	5.580	4.33e-06	1.12e-01	1.32e-03
3	0.250	0.01816	1.10	1.82	5.065	4.71e-06	7.33e-02	9.32e-04
4	0.500	0.02965	1.08	2.97	17.442	1.34e-06	4.60e-02	1.66e-04
5	1.00	0.04540	1.05	4.54	21.240	1.07e-06	3.15e-02	9.09e-05
6	2.00	0.06223	1.01	6.22	29.296	7.50e-07	1.68e-02	3.40e-05
7	4.00	0.08614	0.959	8.61	33.102	6.35e-07	1.20e-02	2.05e-05
8	8.00	0.1328	0.859	13.3	73.694	2.64e-07	1.17e-02	8.31e-06
9	2.00	0.1139	0.900	11.4	30.489	6.18e-07	3.15e-03	5.26e-06
10	4.00	0.1212	0.884	12.1	19.988	9.56e-07	3.63e-03	9.36e-06
11	8.00	0.1399	0.844	14.0	30.026	6.18e-07	4.69e-03	7.82e-06
12	16.0	0.2005	0.714	20.1	85.737	1.97e-07	7.57e-03	4.02e-06
13	32.0	0.2763	0.552	27.6	78.278	1.82e-07	4.73e-03	2.32e-06
14	0.250	0.1677	0.784	16.8	74.667	1.99e-07	3.42e-03	1.83e-06

GeoTesting EXPRESS A BERGEL COMPANY	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		
	Displacement at 4 hr		

One-Dimensional Consolidation by ASTM D2435 - Method B

Summary Report





GeoTesting EXPRESS A SERCEL COMPANY	Project: MLS Soccer Stadium	Location: Baltimore Peninsula, MD	Project No.: GTX-320002
	Boring No.: B-04	Tested By: sjt	Checked By: trm
	Sample No.: ---	Test Date: 10/28/24	Depth: 30-32
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, brownish gray clay		
	Remarks: LTIII-E, Swell Pressure = 0.0909 tsf		
	Displacement at 4 hr		