BALTIMORE COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
DIVISION OF CONSTRUCTION CONTRACTS ADMINISTRATION
111 WEST CHESAPEAKE AVENUE
TOWSON, MARYLAND 21204

Contract No. 25021 PO0
Project No.
Proj-107011880
Parkville Senior Center Parking Lot Configuration –
8601 Harford Road, Parkville, Maryland 21234
Parkville – District 14c6

ADDENDUM NO. 4

DATE: 8/29/2025

Contact: Anthony Crews, 410-887-3531, tcrews@baltimorecountymd.gov

To All Bidders

This addendum is hereby made a part of the Proposal and the Special Provisions, and is hereby incorporated into the Contract. Should this addendum conflict with any portion of the Special Provisions, the Proposal, or any prior addenda, this addendum shall supersede and control.

Please note the attached changes, corrections, and/or information in connection with the contract and submit bids and be otherwise governed accordingly.

For Your Information

Attached are questions and answers along with the geotechnical report.

Attachments – 35

Please sign below acknowledging receipt of this addendum and return with your bid.

_____ _____
Company Name **Signature**

Memo

Date:	August 27, 2025
To:	George Thomakos, Project Manager (Property Management)
From:	Steven A. McCurdy
Project Name:	Parkville Senior Center Parking Lot Reconfiguration
SRI Project No.:	21039

This memo provides responses for the questions submitted by the prospective bidders for the parking lot project.

A. Question and **Response**: Are we required to maintain a minimum number of parking spaces at any given time?
This is to be determined and confirmed by the BCPM Project Manager. Refer to the phasing plan

B. Question and **Response**: About half of the plans (C141, C401 through C531, E101 through L202) appear to be scanned in and not as clear as others. Is it possible to receive clear plans (vector files) for all sheets?
None of the other prospective bidders made this request, so apparently this is not a problem for all the bidders. Hard copies may be requested from the BCPM Project Manager and reproduction costs paid by the Contractor.

C. Question and **Response**: What are the work hours for the project?
Refer to General Conditions.

D. Question and **Response**: Sheet C122, legend C27 mentions an Add Alternate for installing benches, but there is no mention of this on the bid form. Please advise where the price for this Add Alternate should be listed on the bid form, or if they should be included in the base bid lump sum price and not considered an Add Alternate.
Refer to the updated Bid Form.

E. Question and **Response**: Page 37 in the Specifications, Article 42 Tests, states "Soils testing shall be performed by an independent testing firm arranged and paid for by the County." and "Materials testing shall be performed by an independent testing firm, paid for by the Contractor, which has previously been approved by the County and Architect/Engineer. Certified copies of all such test reports shall be submitted to the Engineer for approval." Please confirm that the County will be responsible for hiring and paying an independent testing firm for soil testing, or if in fact that Contractor will be responsible (as other parts of the specifications under Earthwork and Concrete mention).
All testing shall be in accordance with the requirements stipulated in each of the applicable Project Specifications including, but not limited to, soil compaction, testing and inspection of site improvements, and shall be arranged for and paid by the Contractor.

F. Question and **Response**: Page 40 of the Specifications, Article 52 Offices and Telephones, states "The Contractor shall erect and maintain upon the project site, and where directed by the Engineer,

suitable offices for his/her own use and that of the Engineer." Please confirm that the Contractor is required to provide an Engineer's Office Trailer on site for the project.
`Please refer to General Conditions.

G. Question and **Response**: Please confirm if the Contractor is to provide temporary 6' high chain-link fencing around the entire work area for the length of the project.
Yes, six foot (6') high temporary panel fencing is required around the work area without wind screens.

H. Question and **Response**: The asphalt court detail 7 on sheet C201 shows the asphalt base at 2" using 19mm and surface at 1" using 9.5mm - these are not ideal thicknesses with these mixes and not recommended. We recommend either two 1.5" lifts of 9.5mm (still total of 3"), or a 2" base lift with 12.5mm and 1.5" surface lift with 9.5mm (total of 3.5"). Please advise.
Comply with the details shown on the Contract Drawings.

I. Question and **Response**: The asphalt detail 2 on sheet C201 shows the asphalt surface at 1.5" using 12.5mm which is not ideal or recommended. We recommend a 1.5" lift using a 9.5mm mix, which is also what the full depth asphalt adjacent to this overlay is.
Comply with the details shown on the Contract Drawings.

J. Question and **Response**: The asphalt court detail 7 on sheet C201 shows a 12"x12" concrete band on the edge of the pickleball court surface. The detail reference on plan sheet C122 only shows this around a portion of the pickleball court and not the entire thing. Please confirm the detail reference plan sheet C122 location of this band is accurate, or if this band should be around the entire perimeter of the pickleball court.
Refer to Drawing C121, which clearly shows the limits of the concrete band and fencing along three (3) sides of the Pickleball Court area.

K. Question and **Response**: Retaining Wall 1 limits are provided but not Retaining Wall 2. Please indicate the Retaining Wall 2 limits on the detail reference plan.
Refer to Drawing C122 (Detail Reference Plan) and C141 (Grading Plan) showing the thicker linework limits for Retaining Wall #2.

L. Question and **Response**: The Landscape Plan L101 shows landscape plantings along the existing PVC fence line with existing signs, charging stations, and bollards near the Hiss Ave entrance. It appears these plantings will disturb these existing objects to remain. Please advise how we are to approach the landscaping in these areas, or if the landscape plan should be revised to show no proposed plantings in this area to avoid disturbance to the existing objects to remain.
Comply with the Landscape work shown on the Contract Drawings.

M. Question and **Response**: At the pre-bid meeting, it was stated that the bid was due on August 27, but the bid documents and the county website states that the bid due date and opening are August 28 at 10:30am. Please confirm that the bid due date in the documents of August 28 at 10:30am is correct.
Refer to the Bid documents for a revised Bid due date.

N. Question and **Response**: Is the Contractor allowed to stockpile materials on-site (ie. Existing topsoil stripped from the site to re-use for respreading at the end)? Or are materials not allowed to be stockpiled on-site, and all materials excavated to be considered hauled off and disposed of?
Careful coordination is required throughout the construction period for staging of all activities, stockpiling of materials, and the completion of the proposed Work. It is the Contractor's

responsibility to determine the proper timing, means and methods to accomplish the Work on this Project.

O. Question and **Response**: Are we allowed to do a site visit and take pictures on our own at our convenience, or will site visits need to be set up with someone directly?
Yes, Contractors can visit site at their convenience for pictures without prior arrangement.

P. Question and **Response**: Could you please provide a geotechnical report for this project?
The Geotechnical Report is available to prospective Bidders by contacting the BCPM Project Manager.

Q. Question and **Response**: Please confirm the maintenance period for the plantings and grass lawn to receive seed.
Refer to Project Specification Section 329200 - Turf and Grasses and Section 329300 - Plants.

R. Question and **Response**: Who is responsible for compaction testing?
All testing shall be in accordance with the requirements stipulated in each of the applicable Project Specifications including, but not limited to, soil compaction, testing and inspection of site improvements, and shall be arranged for and paid by the Contractor.

S. Question and **Response**: Who is responsible for any temporary bathrooms or porta pots?
The Contractor cannot use the restrooms inside the building. They must provide their own facilities.

T. Question and **Response**: Please confirm that caulking is required for the project**.**
Yes. Sealant for concrete joints is specified Project Specification Section 321314 - Concrete Paving and Retaining Walls.

U. Question and **Response**: Please confirm if the topsoil is to be screened.
Refer to Project Specification Section 329113 - Soil Preparation.

V. Question and **Response**: Please confirm if the topsoil is to be amended / composted.
Refer to Project Specification Section 329113 - Soil Preparation.

W. Question and **Response**: Please confirm the projected start date for this project.
The approximate beginning date is March 2026, and depends on how long it takes Baltimore County to prepare and execute the Contract.

X. Question and **Response**: Please confirm if a temporary fence will be required around the entire site. if so, driven or panel and will windscreen be required?
Yes, six foot (6') high temporary panel fencing is required around the work area without wind screen.

Y. Question and **Response**: Please see Sheet C203, does the heavy duty concrete pad for the dumpster pad get turndowns at the edges of the pad?
Yes, as indicated on Section A-A of Detail 3 on Drawing C203.

Z. Question and **Response**: Please confirm if the concrete retaining walls require waterproofing.
No. Refer to Details 3 and 4 on Drawing C204 for requirements.

AA. Question and **Response**: Please confirm if the concrete retaining walls require perforated drainage pipe behind the wall.
No, unless groundwater is encountered during excavation and underdrains are determined to be necessary by the Testing Agency in the field.

BB. Question and **Response**: Please confirm if the concrete switchback ramp requires perforated drainage pipe behind the footers and walls.
No, unless groundwater is encountered during excavation and underdrains are determined to be necessary by the Testing Agency in the field.

CC. Question and **Response**: Please confirm if any thermoplastic is required for the striping.
No, only painted line striping is required.

DD. Question and **Response**: See sheet C424 and ADA100, please confirm the locations and limits of temporary asphalt curb.
Refer to Drawing C401 for the locations of Temporary Asphalt Curb (TAC).

EE. Question and **Response**: See sheet ADA100, please confirm if the temporary lot is to remain and be surface paved, or removed completely and then new intermediate duty asphalt paving is required.
Careful coordination is required throughout the construction period to maintain ADA access to the existing building. Refer to Drawings C101 (Demolition Plan), C141 (Grading Plan) and ADA100 (Temporary Pedestrian Access Plan) for site demolition, mill and overlay areas, proposed grading and construction of new paving with associated site features. It is the Contractor's responsibility to determine the proper timing, means and methods to accomplish the Work indicated.

FF. Question and **Response**: See sheet C512, please confirm that the 45-mil liner is required for the sides and bottom of the pond.
Yes.

GG. Question and **Response**: See sheets C122, E-100, ED-100, please confirm that additional permanent asphalt patching will be required than what is shown on sheet C122 as mill and overlay.
Refer to the Response for #15 above. However, additional asphalt patching may be required due to field conditions, the timing and sequence of the Work.

HH. Question and **Response**: See sheets C122, E-100, ED-100, please confirm that if additional permanent asphalt patching will be required, than we should use detail & on sheet C202 for the paving restoration.
Refer to the Response for #15 above. However, additional asphalt patching (Detail 7 on Drawing C202) may be required due to field conditions, the timing and sequence of the Work.

II. Question and **Response**: Please confirm if the 6' Chain Link Fence will receive mow strip.
Yes, include the Mow Strip.

JJ. Question and **Response**: See L-101, please confirm the maintenance period of the sod.
Refer to Project Specification Section 329200 - Turf and Grasses.

KK. Question and **Response**: See sheet C122, please confirm if the ADD ALTERNATE is to install only or furnish and install the benches.
Furnish and install the Benches.

LL. Question and **Response**: Please confirm if there are any MBE subgoals for the project.
Refer to the Bid documents.

MM. Question and **Response**: Please confirm that surveying and As-Builts is a part of our contract and should be included in this bid.
Yes, preparation and processing of As-Builts are part of the Contract and should be included in the Bid. Refer to the Drawings and the individual Project Specification sections for additional information.

NN. Question and **Response**: Please confirm if a trailer will need to be provided. If so, by whom?
Refer to the Bid documents.

OO. Question and **Response**: Please confirm if we will need to provide a project identification and other temporary signs.
Refer to the Bid documents.

PP. Question and **Response**: Please confirm if an Arborist will be required for any tree removal.
Yes. Refer to Project Specification Section 31100 - Site Clearing.

GEOTECHNICAL ENGINEERING STUDY

Parkville Senior Center

8601 Harford Road
Baltimore, Maryland

D.W. KOZERA, INC

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MDOT DBE/MBE/SBE CERTIFIED (NO. 23-185)

Contract No.25021 PO0
Addendum No.4
August 29, 2025

D.W. KOZERA, INC

May 23, 2024

Site Resources, Inc.
14315 Jarrettsville Pike
Phoenix, Maryland 21131

Attn: Mr. Brian Shadrick, PLA
(bshadrick@stieresourcesinc.com)

Subject: Geotechnical Engineering Study, Parkville Senior Center, 8601 Harford Road, Baltimore, Maryland (DWK Contract Number 23012.D)

Dear Mr. Shadrick,

D.W. Kozera, Inc. is pleased to submit this report containing the results of the subsurface investigation and geotechnical engineering study for the Parkville Senior Center project located at 8601 Harford Road, Baltimore, Maryland. The scope of service referenced in this report was performed in accordance with our contract dated February 15, 2023. Soil samples recovered as part of this investigation will be retained in our office for 60 days from the issuance of this report.

We appreciate the opportunity to be of service to you. Please contact us if you have any questions related to this subsurface investigation report.

Very truly yours,
D.W. KOZERA, INC.

Shana Carroll, P.E.
President

STATE OF MARYLAND
NICOLE HONEGGER
61257
PROFESSIONAL ENGINEER

Nicole Honegger, P.E.
Project Engineer
State of Maryland No. 61257
Expiration Date: 07-05-2025

I hereby certify that this document was prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. 61275, and Expiration Date: 07-05-2025.

Geotechnical Engineering Study
Parkville Senior Center
8601 Harford Road, Baltimore, Maryland
(DWK Contract Number 23012.D)

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Appendix A: Subsurface Investigation Report
General Notes for Test Borings and Test Pits
Exploration Location Plan
Generalized Soil Profile
Test Boring Logs
Appendix B: Soil Laboratory Test Results

1.0 INTRODUCTION

This report contains the results of our geotechnical investigation and analysis for the Parkville Senior Center project located at 8601 Harford Road, Baltimore, Maryland. The report is based on the evaluation of three (3) Standard Penetration Test (SPT) borings performed on the project site, available geologic data, and our experience on nearby sites.

1.1 Purpose and Scope

This study was conducted to characterize the subsurface conditions and to establish engineering properties of the underlying materials in order to prepare geotechnical recommendations for the proposed project.

The geotechnical investigation was performed in accordance with our proposal dated February 15, 2023. The subsurface investigation was comprised of three (3) SPT test borings advanced to depths ranging from 10 to 15 feet below ground surface. Our scope of work included:

a) Review of our test procedures, results of all testing conducted, and available geotechnical and geological data from our previous studies.

b) Description of site geologic and groundwater conditions.

c) Presentation of subsurface soil stratigraphy with pertinent available physical properties.

d) Geotechnical recommendations for flexible and ridged pavement sections.

e) General recommendations for Stormwater Management (SWM) facilities.

f) Recommendations on monitoring construction procedures including construction control measures, as well as recommended installation, monitoring of validation tests or instrumentation.

1.2 Limitations

This geotechnical study has been prepared in accordance with generally accepted geotechnical engineering practices. It is intended for the exclusive use of Site Resources, Inc. for the design and construction of the proposed parking lot and stormwater management facility as described herein. This report includes both factual and interpreted information. Factual information is defined as objective data based on direct observations, such as soil samples and laboratory testing results. Interpreted information or geotechnical engineering interpretation is based on engineering judgment, correlation, or extrapolation from factual information.

This report is based on information for the proposed project that was made available to us at the time of the writing of this report. No warranties, express or implied, are intended or should be assumed. D.W. Kozera, Inc. should be allowed to review the project drawings and specifications as a continuation of our design recommendations and as a precursor to our providing geotechnical engineering services during construction. In the event that any changes to the proposed conditions as described in this report are planned, the conclusions and recommendations contained herein shall not be considered valid unless D.W. Kozera, Inc. reviews the changes, and either verifies or modifies the conclusions of this report in writing.

Information contained in this report is based on data obtained from limited subsurface exploration that represents the soil conditions only at the specific location and time investigated, and only to the depth penetrated. Subsurface conditions and groundwater levels at other locations or depths may differ from conditions occurring at the investigated locations. An attempt has been made to provide for normal contingencies, but the possibility remains that unexpected conditions may be encountered during construction.

D.W. Kozera, Inc. considers construction observations and testing of earthwork and pavement placement an integral part of the geotechnical design, and therefore, these services should be provided by the geotechnical engineer of record. This is necessary so that we may modify our assumptions and recommendations based on actual conditions that are exposed during construction and observed by us. We cannot assume responsibility or liability for the adequacy of our foundation recommendations if we do not observe the construction.

1.3 Site Description

The site is located at 8601 Harford Road, Baltimore, Maryland. The site is currently occupied by an existing asphalt parking lot with Parkville Senior Center located northeast of the parking lot. A playground and basketball court are also located next to the Senior Center. Hiss Ave, Harford Road, and Willoughby Road border the site on the north, west, and south sides, respectively. Residential properties border the site on the west side. The existing ground elevations for the parking lot slope down north to south from approximately EL 345± to EL 332± feet. There is a hill located on the southwest side of the parking lot that slopes down from approximate elevations EL 335± to EL 325± feet. A site Vicinity Map is shown in Figure 1.3-1

Figure 1.3-1: Site Vicinity Map

1.4 Proposed Construction

Based on the Civil Drawing dated December 2023, provided to us by Site Resources, we understand that the existing asphalt parking lot for Parkville Senior Center is proposed to be regraded and repaved. Overall grading of the parking lot will be minor, with up to approximately two feet of cut and fill proposed. A new SWM facility is proposed adjacent to the southwest side of the parking lot. The facility is located on top of a slope that will also be regraded. The proposed site and grading plan, provided by Site Resources, is shown in Figure 1.4-1.

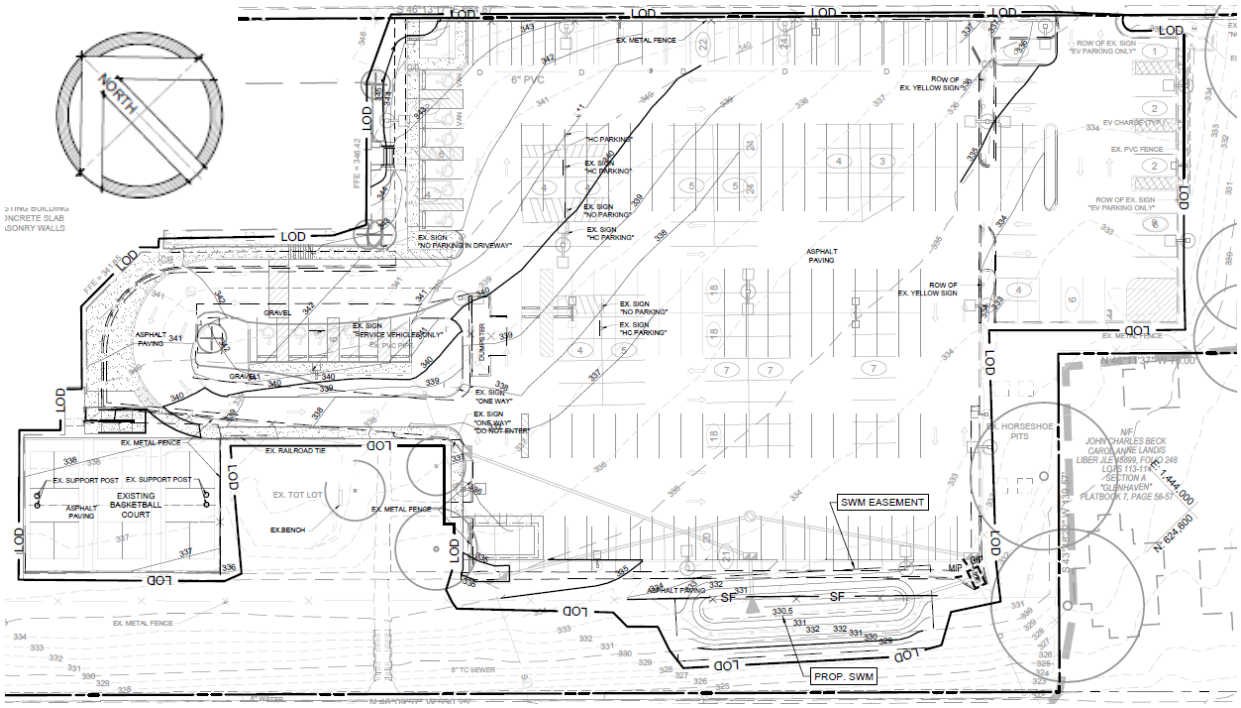


Figure 1.4-1: Proposed Construction

1.5 Regional Geology

The project is located within the Piedmont Physiographic Province characterized by a gently rolling to flat surface with a moderately to strongly deformed geologic structure. According to the Geologic map of the Towson quadrangle, Maryland, prepared by Crowley, W.P., and Cleaves, E.T. published by Maryland Geological Survey, 1974, the local geology is mapped as the Patuxent Formation (Kxs). The Patuxent Formation is part of the Potomac Group and contains sand and gravel facies; grey to white, some beds red, orange-brown, or yellowish brown. See Figure 1.5-1 below for an excerpt of the map.

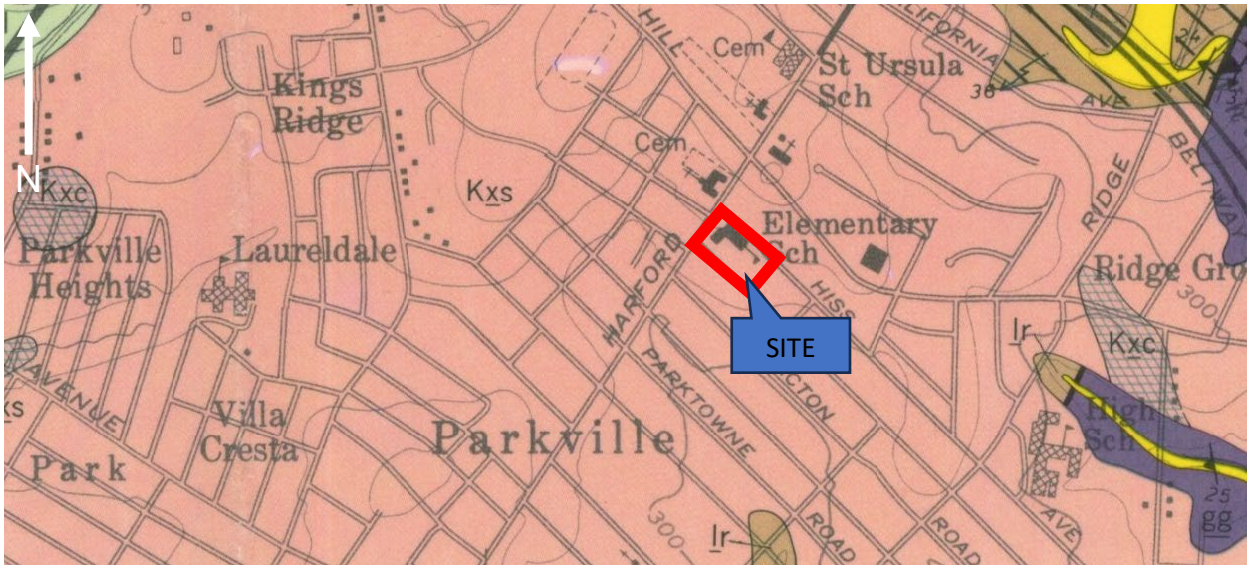


Figure 1.5-1: Local Geology

2.0 SUBSURFACE INVESTIGATION

2.1 Field Investigation

The subsurface investigation was performed on January 12, 2024. It included drilling a total of three (3) Standard Penetration Test (SPT) borings, DWK-P-1, DWK-P-2, and DWK-SWM-1, to depths ranging from 10 to 15 feet below existing ground surface. Test borings were monitored for groundwater levels during the drilling operations, when augers were removed, and prior to backfilling with drilling spoils. The locations of the soil test borings and descriptions of the soils and conditions encountered at test boring locations are presented on the exploration location plan and the boring logs included in Appendix A.

2.2 Soil Test Borings

Test borings were advanced using hollow-stem augers (HSA), and soil samples were recovered from the borings at selected intervals by driving a 1-3/8-inch ID (2-inch OD) split-spoon sampler in accordance with ASTM D-1586 specifications. SPTs were conducted at changes in strata or at intervals not exceeding five feet. Soils obtained from the sampling device were sealed in glass sample jars and transported to the soils testing laboratory. The recovered soil samples were inspected and classified by a Geotechnical Professional using the ASTM Soil Classification System (ASTM D 2488).

2.3 Soil Laboratory Testing

Soil samples recovered from the field explorations were transported to the laboratory and selected soil samples were tested to determine additional engineering characteristics of the existing on-site soils. Laboratory tests conducted on the selected soil samples include: Natural Moisture Content (ASTM D2216), Atterberg Limits (ASTM D4318), Sieve Analysis (ASTM D6913), Moisture v. Density Relations (ASTM D698), and California Bearing Ratio (ASTM D1883). Summary and details of the results of these laboratory tests are included in Appendix B.

3.0 SUBSURFACE CONDITIONS

3.1 Stratification

The boring logs included in Appendix A contain details related to the subsurface conditions encountered at the test boring locations. Stratification lines shown on the boring logs and the generalized subsurface profile in the Appendix represent approximate transitions between material types. Strata changes can occur gradually or at different levels than those shown on the boring logs that depict conditions at the specific indicated locations and depths at the time of our subsurface exploration program. Groundwater levels are variable and are influenced by the existing soil conditions, seasonal and climatic changes. The test boring data, visual and laboratory classification of the sampled soils, and our knowledge of local geology was used to separate the soils into two geologic strata below the near-surface materials, having the following generalized properties.

3.1.1 Stratum A: Existing Man-Placed Fill

Existing Man-placed fill was encountered in borings DWK-P-2 and DWK-SWM-1. The existing fill material was observed to consist of poorly graded sand, sandy lean clay, and clayey sand and extended to depths ranging from 2.5 to 7.0 feet below existing ground surface. The existing fill appears to have been placed during past construction and grading activities at the site. The standard penetration resistance (SPT) N-values generally ranged from Weight of Hammer (WOH) for 18 inches of penetration (N=0) to 15 blows per foot (bpf).

3.1.2 Stratum B: Potomac Group

Potomac Group soils consisting of Silty SAND (SM), Sandy Lean CLAY (CL), and Clayey SAND (SC) were encountered in the test borings below the Existing Man-Placed Fill or near surface material. Stratum B soils extended to the planned termination depth in all test borings. The SPT N-values ranged from 8 to 42 bpf.

3.2 Groundwater Conditions

The test borings were monitored for groundwater levels during the drilling operations, when augers were removed, and prior to backfilling with drilling spoils. Groundwater was encountered after drilling was completed in all borings at depths ranging from 8.5 to 13.0 feet below existing ground surface. Borings DWK-P-1 and DWK-P-2 were backfilled with drilling spoils upon completion due to their location in the right of way of an active parking lot. Boring DWK-SWM-1 was left open and 24-hour water readings were recorded before backfilling the boring with drilling spoils. Groundwater was encountered at a depth of 2.1 feet below ground surface in DWK-SWM-1 during the 24-hour water reading.

It should be noted that groundwater levels will fluctuate due to seasonal changes, precipitation, construction activities, etc. Note also that the highest groundwater observations are normally encountered in late winter and early spring.

4.0 PAVEMENT DESIGN

The pavement sections presented here are for light-duty (automobile only) and medium-duty sections. Detailed traffic data was not available for this project. However, it is expected that the traffic will consist of passenger vehicles, buses, and light trucks. The Maryland Asphalt Association Hot Mix Asphalt Pavement Design Guide 10th Edition dated 2008 guidance on assumed traffic conditions and the AASHTO guide for Design of Pavement Structures, 1993 design methodology were used to generate the pavement sections provided. Please advise our office if the pavement design is required to be based on other traffic data or design guidance.

The pavement design assumes that a continual maintenance program will be implemented during the service life of the project. This should include crack and surface sealing and patching of deteriorated areas.

4.1 Compacted Structural Fill

Newly placed compacted structural fill beneath pavements should consist of satisfactory soils classified as SM or coarser in per the Unified Soil Classification System, ASTM D2487. Soils meeting this requirement are classified as SM, SP, SW, GM, GP, and GW. Unsatisfactory soils are those classified as ML, CL, OL, OH, MH, and CH. The majority of the on-site soils are not expected to meet this requirement and the use of off-site borrow soil should be anticipated for new structural fill placement.

Soils used for compacted fill should be free of unsuitable materials such as topsoil, other organics, rubble, and rocks larger than three inches in diameter. The in-place moisture content of the satisfactory soil's material shall be adjusted by the contractor through wetting or drying, to within three percent of the optimum moisture content.

Compacted fill should be placed on subgrades that have first been stripped of vegetation, existing asphalt, topsoil, and unsuitable soft areas. Compacted structural fill should be placed in approximately horizontal layers, each layer having a loose thickness of not more than eight inches. All structural fill in pavement areas should be compacted to 95 percent of the maximum dry density in accordance with ASTM D698, Standard Proctor. Compacted fill-in lawns and unpaved areas may be compacted to 90 percent of the same standard when placed as indicated above. The contractor should select appropriate compaction equipment to achieve the required compaction.

4.2 Pavement Subgrade Preparation

All existing vegetation, asphalt, and topsoil should be removed from the subgrade prior to filling. Careful preparation of fill subgrades as well as proper placement and compaction of structural fill are both necessary to prepare a suitable site for the support of the proposed pavements.

All subgrades should be proofrolled prior to placement of any compacted structural fill or the pavement section. Proofrolling should be performed using a fully loaded 20-ton triaxle dump truck or equivalent under the observation of the Geotechnical Engineer of Record (GER). If the subgrade is found to be unstable, undercuts should be performed under the direction of the GER. Any unsuitable soft or loose areas detected should be removed and replaced with a satisfactory compacted fill or stone base course. Upon achieving a stable subgrade, the contractor should replace undercut soils with compacted structural fill in accordance with Section 4.1. The pavement subgrades should be inspected carefully to determine if the soils meet the soil classification that is used in our analysis.

Existing man placed fill was encountered to a depth of 2.5 feet below existing ground surface in boring DWK-P-2 and is expected to be encountered in other areas of the parking lot. Allowing existing fills to remain below the pavement section carries a risk of undesirable settlement, due to the unknown nature of the existing fill. Based on the conditions encountered in the test borings, we have assumed that the existing man placed fill is relatively free of organics. Therefore, we have recommended proofrolling the site prior to

the placement of pavement sections or compacted structural fill necessary to reach proposed grades and removing and replacing select areas of soft and unsuitable soils, as necessary.

We believe it is likely that the site will not pass a proofroll in all areas without some select undercut and replacement. We recommend the contractor carry an allowance for one foot of undercut and replacement during the proofroll effort.

The on-site soils may become unstable in wet weather and under construction traffic. Undercutting of pavement subgrades should be expected if the subgrades are exposed to the above events. The Project Specifications should require the contractor be responsible for protecting the subgrades from weather and equipment damage.

4.3 Flexible Pavement Design/Analysis

We assume parking areas and driveways will be used to support automobiles, buses, and light delivery trucks. A light-duty pavement section may be used in areas that will be restricted to being used solely by automobiles. Parking lot access roads and entrances that may be used by heavier vehicles, such as buses and delivery trucks, should be designed as a medium-duty section.

Soil laboratory testing for the on-site soils indicated a CBR value of 7.1 for the FILL consisting of poorly graded sand encountered in boring DWK-P-2. However, natural soils encountered on site mostly consisted of Clayey Sand (SC) and Sandy Lean Clay (CL). Due to the variable soils and the presence of clay material at subgrade level, we have used a CBR value of 3 for our analysis. Minimum flexible pavement sections are provided below.

Table 4.3-1: Recommended Minimum Flexible Pavement Section

Layers	Light-Duty Pavement 50,000 ESAL	Medium-Duty Pavement 400,000 ESAL
Asphalt Surface Course	1.5” thick	1.5” thick
Asphalt Base Course	3.0” thick	4.0” thick
Stone Base Course	6.0” thick	10.0” thick
Subgrade	Compacted and Approved by the Geotechnical Engineer of Record	

The bituminous concrete surface and base course material should be selected by the civil engineer to provide a stable and relatively impervious pavement section. However, we recommend the asphalt surface course be MDOT Superpave 9.5-mm, minimum, and the base course be MDOT Superpave 19.5-mm., minimum (see State Highway Administration Standard Specifications for Construction and Materials dated July 2008 including revisions and additions for Superpave standards). The pavement gradation should be reviewed by the Geotechnical Engineer of Record prior to installation.

The stone base course should meet the specifications of MDOT Graded Aggregate (GA) Base and be compacted to at least 97 percent of the maximum dry density per AASHTO T180.

Approved subgrade consists of a firm and unyielding soil subgrade prepared in accordance with this Section.

4.4 Rigid Pavement Design/Analysis

A rigid concrete pavement should be used in areas of concentrated, repeated, heavy wheel loads such as in front of dumpsters, and in areas of tight turning radii and braking, where excessive wheel shearing forces

could damage a flexible pavement. Traffic category A-1 with a maximum of one truck (vehicle with at least six wheels) per day was used for this analysis per American Concrete Institute Committee 330 for a 20-year design life. The recommended minimum rigid pavement section is provided in Table 4.4-1.

Table 4.4-1: Recommended Minimum Rigid Pavement Section

Layer	Thickness
Reinforced Portland Cement Concrete (RPCC)	5-in.
Dense Graded Aggregate	6-in.
Subgrade	Compacted and Approved by the Geotechnical Engineer of Record

The concrete should be suitably air entrained with a compressive strength of 5,000 psi. Construction and expansion joints should be based on the final site configuration but should not exceed 15 feet in any horizontal direction.

4.5 Pavements During Construction

Pavements should be placed and compacted under the direction of the Geotechnical Engineer of Record in accordance with the project specifications. If specifications are not provided, the Baltimore County Department of Public Works Standard Specifications for Construction and Materials Category (500) Paving, dated January 2000, should be followed.

Rollers should be self-propelled, reversible, steel wheeled, or pneumatic tired and operated in a manner that does not damage the pavement. The asphalt should be rolled immediately after placement and compacted to the proper in-place density. Rolling should be performed in a manner such that roller marks shall not be visible after rolling operations.

Delivery and placement of the asphalt should be continuous and delivered materials should be placed while the temperature is at least 225 F, or as specified by the manufacturer. No traffic should be permitted on the pavement after rolling until it has cooled to less than 140 F.

In areas where access is limited such as near sidewalks and curbs, the Contractor should expect that handwork needs to be performed to accomplish adequate compaction of pavements. In general, finer aggregate mixes are easier to place in areas where handwork is required and should be considered in these areas.

It is recommended asphalt construction consider the following weather restrictions:

- Final surface asphalt materials should be placed when the ambient air and surface temperatures are at least 40 F.
- Intermediate and base layers should be placed when ambient air and surface temperatures are at least 32 F.
- Polymer-modified surface mixes (if utilized) should be installed when ambient air and surface temperatures are at least 50 F.
- Do not place asphalt on frozen graded aggregate base, regardless of ambient air and surface temperatures.

Typically, the allowable maximum and minimum lift thickness will be governed by the asphalt gradation and nominal aggregate size. Lift thicknesses should be placed in accordance with MDSHA and/or County guidelines, whichever governs.

A tack coat of asphalt should be applied between the asphalt base course and the asphalt surface course to promote bonding between the two courses. Prior to application of the tack coat, the contractor should ensure the surface is dry and clear of all loose and foreign materials. The tack coat should be applied in accordance with the Maryland Asphalt Association, Inc., Hot Mix Asphalt Pavement Design Guide, 10th Edition, dated 2008.

The recommended flexible pavement section is for light duty pavement and is not designed to accommodate construction traffic. It should be expected that damage will occur due to overloading of the pavement sections if they are subjected to construction traffic. This will be prevalent especially if water is allowed to collect on, or in, the pavement subgrades, and if only the base course is placed prior to the completion of the construction.

Provisions should be made to minimize damage to the pavements during construction including the use of subdrainage, temporary swales or berms, the limitation of construction traffic to certain areas, and/or an increased thickness of stone or base asphalt. An allowance should be reserved for the cost of repairs to the base paving prior to completion of the final surface-course of asphalt.

Final acceptance of pavement installation should be based on the analysis of pavement cores collected after the pavement has been allowed to cool, but prior to significant traffic. Nuclear density gauge testing can be utilized for thin-lift installation, however, should only be used as guidance during primary pavement section construction. Regardless of indirect testing results, final acceptance should be based on the testing of collected core samples.

5.0 STORMWATER MANAGEMENT RECOMMENDATIONS

5.1 Proposed Stormwater Management Facilities

Plans prepared by Site Resources Inc. dated May 16, 2024, show a proposed micro-bioretention facility on the southern edge of the parking lot, in close proximity to the completed DWK-SWM-1 boring. The structure will have bottom dimensions of 8 feet by 83 feet; with the long axis parallel with the edge of the pavement. The top of the filter bed elevation is proposed at EL 330.50 feet with the lowest invert of the structure at elevation EL 326.0 feet.

5.2 Investigation Completed

One (1) SWM boring was performed at the location requested by Site Resources, Inc., the project civil engineer. Groundwater was encountered in the stormwater boring during the 24-hour water reading. Auger refusal was not encountered in any of the test borings. Table 5.2-1 below presents a summary of the stormwater boring observations.

Table 5.2-1: Summary of Stormwater Borings

Boring	Ground Surface Elevation (ft)	Stabilized Water Level	
		Elevation (ft)	Depth (ft)
DWK-SWM-1	333.0	330.9	2.1

5.3 Stormwater Analysis

The Maryland Stormwater Design Manual (MSDM) provides guidance and requirements for stormwater facilities. The MSDM includes parameters related to soil textures, depth of limiting zone, geology, and natural resources considerations. This report addresses geotechnical factors for design of stormwater facilities and provides related geotechnical recommendations.

5.4 Terrain Factors

Figure 4.1 of the MSDM indicates areas that have constraints related to terrain. Specifically, siting and design of stormwater facilities in areas of Low Relief, Karst, or Mountainous terrain will require special considerations and additional testing requirements.

This project does not fall within any of these Terrain Factor areas.

5.5 Physical Factors

Section 4.4 of the MSDM addresses the physical factors in siting and designing stormwater management facilities, including soil and water table parameters, which are addressed in this report.

5.5.1 General Soil Properties

The site is underlain by Urban Land soils according to the USDA Natural Resources Conservation Service's Web Soil Survey. This refers to soils within areas of high population density in a largely built environment. These soils can be significantly changed human-transported materials, human-altered materials, or minimally altered or intact "native" soils. Soils in urban areas exhibit a wide variety of conditions and properties. There are no published properties for these soils.

Soils mapped nearby include the Croom Series soils, whose descriptions and properties are very similar to those encountered in the borings performed during our investigation. These series soils are classified in

USDA TR-55 (Appendix A) as Hydrologic Soil Group C and are considered suitable for implementing a bioretention facility.

5.5.2 Depth to Limiting Zones

The MSDM guidelines require a 2-foot distance be provided between the bottom of the bioretention facility and any limiting zones. Limiting zones include seasonal high-water table, bedrock, and man-placed fill.

Seasonal high-water characteristics are not reported in this soil series; although, the typical soil boring profile indicates moist soils throughout the depth of the boring, indicative of a deep water table on site.

Groundwater was not encountered during the initial completion of the test boring DWK-SWM-1 and drilling tools did not show signs of free water. The 24-hour reading does indicate a water depth at elevation EL 331 feet, located 2.1 feet below the existing ground surface. With a high degree of Engineering certainty, we have concluded that this reading does not represent a limiting zone, for the following reasons:

- The 24 hour water reading coincides with the bore hole caving depth, impacting the accuracy of the reading.
- There was a substantial rain event on January 10th and a smaller rain event on the 13th that resulted in ±3.1 inches of rain over the course of the initial drilling and the 24-hour reading. These rain events significantly contributed to the potential infiltration of stormwater into the top of the borehole, impacting the groundwater reading.
- The site is at the upper watershed boundary of the Stemmers Run watershed, where it is expected that groundwater will be at a substantial depth below the existing ground surface.
- The slope immediately adjacent to the boring, facing Willoughby Road, does not have any indications or observations of seepage along the entire length and depth of the slope, extending to elevation EL 322 feet.
- The USDA Official Series Description (OSD) indicates that the seasonal high-water table is expected to be deeper than 84 inches below the ground surface.

Therefore, with a high degree of Engineering certainty, the observed water in the DWK-SWM-1 borehole does not represent regional or seasonal high groundwater.

5.5.3 Acidic/Sulfate Soils

Acid/Sulfate soils are a unique soil condition that can occur throughout the world. Acidic/sulfate soils occur in most oxygen-free saturated conditions and contain microscopic crystals of iron sulfide minerals (commonly pyrite). These soil deposits are safe and harmless when not disturbed. When exposed to air by excavation or draining saturated conditions, the iron sulfide minerals oxidize into sulfuric acid. This acid production can cause damage to the environment, buildings, roads, and other structures. It also can strip additional minerals from the soils, like aluminum and iron, resulting in further environmental impacts. Should these soils be encountered during construction special construction techniques, handling, disposal, and specifics would be required for the project. The intent related to stormwater facilities would be to avoid these deposits.

The USDA soils mapped under and near the site do not exhibit acid/sulfate conditions.

5.6 Summary

In accordance with Table 4.4 of MSDM and the encountered conditions, the proposed micro-bioretention facility is considered suitable for the observed site conditions. Furthermore, the proposed facility invert at EL 326.0 feet will provide the required minimum 2.0 feet of separation from the seasonal high water table.

6.0 CONSTRUCTION CONSIDERATIONS

Specific recommendations for construction are given below:

6.1 Earthwork

The work areas should be stripped of existing topsoil, asphalt, concrete, and soft surface soils, and the resulting subgrades proofrolled under the observation of our representative. Any soft or unsuitable soils encountered should be removed and replaced with compacted fill. Abandoned underground utilities must be removed and replaced with compacted structural fill. Where excavations are made for utility abandonment, demolition, or where new utility installation trenches will intersect new footing subgrades, the excavation shall be replaced with lean concrete or compacted structural fill. Placement of all structural fill should be documented and approved by the Geotechnical Engineer of Record (GER).

6.2 Stormwater Facility

Construction of the micro-bioretention facility should commence after the contributing area of the facility has been fully stabilized. If the facility is utilized as a temporary sediment basin during construction, all sediment accumulated shall be removed prior to commencing the construction of the final configuration. Further, sediment control measures may be required within the footprint of the facility.

It is important to minimize the compaction of the subsoils and the bio-retention plating media. No equipment should be operated in the base of the facility. Equipment able to reach into the facility for all aspects of construction should be utilized. The bio-retention facility area should be dewatered prior to and during final construction activities.

6.3 Review of Construction Documents

Any deviation to the project design subsequent to the date of this report, such as changes in floor grades, building loads and building location, should be brought to our attention to determine if our recommendations contained herein remain valid. We should be allowed to review the project drawings and specifications, as a follow-up to our design recommendations and as a precursor to our providing the geotechnical engineering services during construction.

6.4 Construction Observation and Testing

Regardless of the thoroughness of a geotechnical engineering exploration, there is always a possibility that conditions will vary from those encountered in the test borings, that conditions are not as anticipated by the designers, or that the construction process has altered the soil conditions. D.W. Kozera, Inc. considers construction observation and testing of the foundations and earthwork an integral part of the geotechnical design, and therefore these services should be provided by the geotechnical engineer of record. As the actual subsurface conditions are exposed and observed by us during construction, modifications to our report recommendations can be made promptly and efficiently as needed. Note that we cannot assume liability or responsibility for the adequacy of our foundation recommendations if we do not observe the foundation construction.

Observations and testing should at minimum include full-time observations of the excavation of footing, fill, floor subgrades, field density testing of compacted structural fill, and stormwater facilities. Other services, including materials testing (concrete, reinforcing steel, bituminous concrete, masonry, etc.) can be provided upon request.

APPENDIX A

Subsurface Investigation Report

APPENDIX A

GENERAL NOTES FOR TEST BORINGS AND TEST PITS
Geotechnical Engineering Study, Parkville Senior Center
8601 Harford Rd, Baltimore, Maryland
(DWK Contract Number 23012.D)

1. Test Borings

Test borings are advanced by turning an auger with a center opening of 2-1/2 or 3-1/4 inches. Cuttings are brought to the surface by the auger flights. Sampling is performed through the center opening in the hollow stem auger by standard methods. No water was introduced into the borings using this procedure.

1.1. Standard Penetration Tests

Testing is performed by driving a two-inch O.D., 1-3/8 inch I.D. sampling spoon through three, six-inch intervals or as indicated, using a 140 pound hammer falling 30 inches according to ASTM D1586. The number given as the 'N' value is the sum of the blows required to drive the samples for the second and third intervals.

2. Test Pits

Test pits are logged to provide a record for geotechnical evaluation, construction inspection, or other specialized purpose such as building damage investigations, subgrade inspections, etc.

2.1. Test Procedures

PP, when indicated, denotes the results of tests performed with a Pocket Penetrometer. The numbers indicate the unconfined compressive strength of the undisturbed soils in tsf. DCP, when indicated, denotes the results of tests performed with a Dynamic Cone Penetrometer at an initial seating increment of two-inches, and 1-3/4-inch increments thereafter. The penetrometer is driven by a 15-pound hammer falling 20-inches, and the number of hammer blows per increment is recorded.

3. General

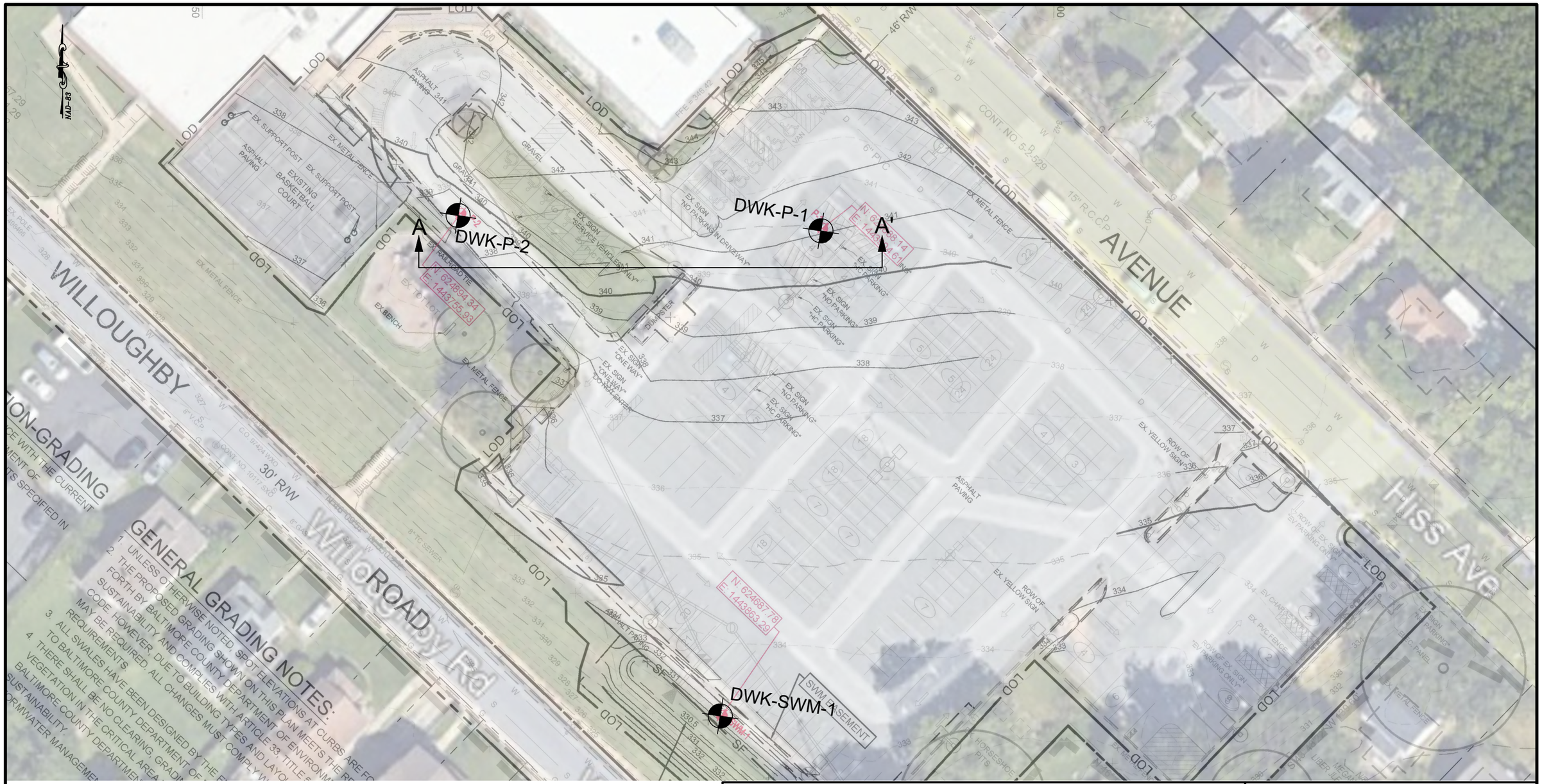
The test pits and test boring logs represent subsurface conditions only at the specified location and at the particular time excavated. The passage of time may result in changes in these conditions. Conditions at other locations on the site may differ from conditions occurring at the test pit or test boring location.

The stratification lines represent the approximate boundary line between soil and rock types as observed in the test pit and test boring. The soil profile, foundation dimensions, water level observations, and test results presented on the log have been made with reasonable care and accuracy, but must be considered only an approximate representation of the subsurface conditions to be encountered at that particular location.

The observed water levels are considered a reliable indication of the groundwater table levels at the time indicated. The groundwater table may be completely dependent on the amount of precipitation at the site during a particular period of time. Fluctuations in the water table should be expected with variations in precipitation, surface run-off, evaporation, construction activity, etc.

4. Locations and Grades

The test borings were located in the field by D.W. Kozera, Inc. based on drawings provided to us. The ground surface elevations were estimated from the drawings provided by Site Resources, dated December 2023.



LEGEND:

DWK- # — APPROXIMATE DWK TEST BORING LOCATION

A A — APPROXIMATE SUBSURFACE CROSS SECTION

40 0 40 80 120

Scale 1" = 40'

D.W. KOZERA, INC
PROFESSIONAL ENGINEERS AND GEOLOGISTS

EXPLORATION LOCATION PLAN

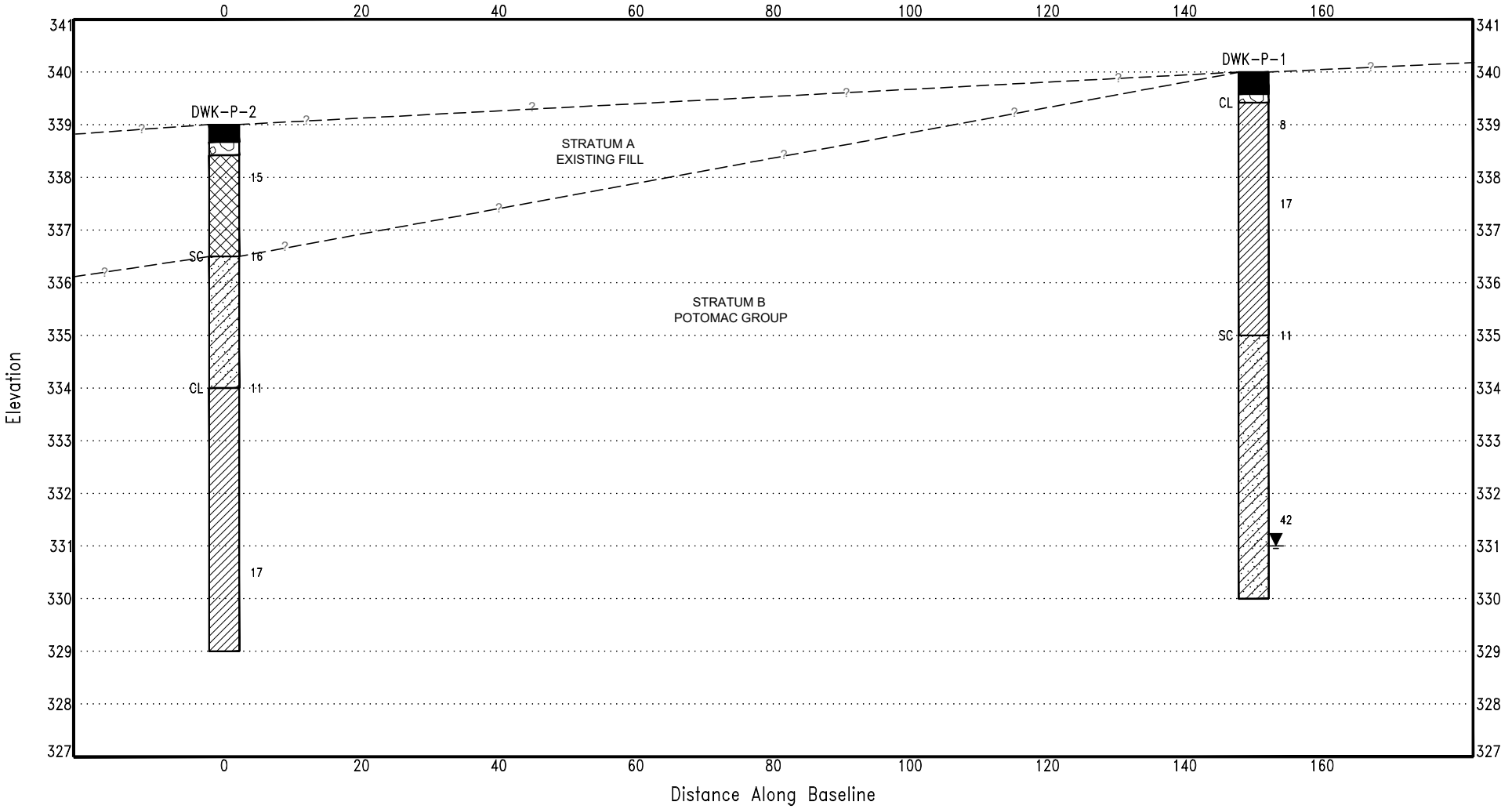
PREPARED FOR:
Site Resources, Inc.

PROJECT:
Parkville Senior Center
8601 Harford Road
Baltimore, Maryland

DATE:	2-24-24
PROJECT:	23012.D
DRAWN BY:	N. HONEGGER
REVIEW BY:	A. MACLEOD

SHEET 1 OF 1

Contract No.25021 PO0
Addendum No.4
August 29, 2025



D.W. KOZERA, INC
PROFESSIONAL ENGINEERS AND GEOLOGISTS

SUBSURFACE SECTION A-A'

PREPARED FOR:	Site Resources, Inc.
PROJECT:	Parkville Senior Center 8601 Harford Road Baltimore, Maryland
DATE:	2-24-24
PROJECT:	23012.D
DRAWN BY:	C. GREEN
REVIEW BY:	N. HONEGGER
SHEET	1 OF 1

Contract No.25021 PO0
Addendum No.4
August 29, 2025

D. W. KOZERA, INC.
Baltimore, Maryland
PROFESSIONAL ENGINEERS & GEOLOGISTS

TEST BORING LOG

Boring No.: DWK-P-1
Contract No.: 23012.D
Page: 1 of 1

Project: Parkville Senior Center
Location: 8601 Harford Rd
Parkville, Maryland

Ground Surf. El. (±)	: 340.0
Date Started	: 1-12-24
Date Completed	: 1-12-24
Contractor	: KIM Engineering
Driller	: John
Rig	: Geoprobe 7720DT
Drill Method	: HSA
Inspector	: C. Green

	GROUNDWATER OBSERVATIONS				
	Date	Time	Depth	Casing	Caved
Encountered	1-12	08:55	9.0	---	---
Completion	1-12	08:57	8.5	---	---
Casing Pulled	1-12	09:02	8.5	---	6.3
24-Hr Reading	1-12	09:15	Backfilled	Upon	Completion

Depth (ft)	Surf. Elev. 340.0	Samples	Blow Counts	"N" Value	Water Level	Graphic	USCS	Description	Formation	Stratum	Remarks
0	340							Asphalt 5"			
								Base 2"		B	
								SANDY LEAN CLAY, moist, gray			
		1	2-4-4	8							
		2	5-8-9	17			CL	trace gravel @ 2.5'			
5	335							CLAYEY SAND, moist, brown/gray/purple	POTOMAC		
		3	3-6-5	11							
							SC				
		4	15-27-15	42	▽			with gravel @ 9.0'			
10	330							End of Test Boring @ 10 feet			

D. W. KOZERA, INC.
Baltimore, Maryland
PROFESSIONAL ENGINEERS & GEOLOGISTS

TEST BORING LOG

Boring No.: DWK-P-2
Contract No.: 23012.D
Page: 1 of 1

Project: Parkville Senior Center
Location: 8601 Harford Rd
Parkville, Maryland

Ground Surf. El. (±)	: 339.0
Date Started	: 1-12-24
Date Completed	: 1-12-24
Contractor	: KIM Engineering
Driller	: John
Rig	: Geoprobe 7720DT
Drill Method	: HSA
Inspector	: C. Green

	GROUNDWATER OBSERVATIONS				
	Date	Time	Depth	Casing	Caved
Encountered	1-12	08:00	Dry	---	---
Completion	1-12	08:04	8.5	---	---
Casing Pulled	1-12	08:07	8.5	---	6.7
24-Hr Reading	1-12	08:15	Backfilled	Upon	Completion

Depth (ft)	Surf. Elev. 339.0	Samples	Blow Counts	"N" Value	Water Level	Graphic	USCS	Description	Formation	Stratum	Remarks
0								Asphalt 4"			
								Base 3"			
		1	14-10-5	15				FILL, poorly graded sand, with gravel and silt, moist, white	FILL	A	
		2	8-7-9	16			SC	CLAYEY SAND, trace gravel, moist, brown	POTOMAC	B	
	335										
5		3	3-5-6	11			CL	SANDY LEAN CLAY, moist, reddish brown and gray			
	330	4	6-8-11	17							
10								End of Test Boring @ 10 feet			

D. W. KOZERA, INC.
Baltimore, Maryland
PROFESSIONAL ENGINEERS & GEOLOGISTS

TEST BORING LOG

Boring No.: DWK-SWM-1
Contract No.: 23012.D
Page: 1 of 1

Project: Parkville Senior Center
Location: 8601 Harford Rd
Parkville, Maryland

Ground Surf. El. (±)	: 333.0
Date Started	: 1-12-24
Date Completed	: 1-12-24
Contractor	: KIM Engineering
Driller	: John
Rig	: Geoprobe 7720DT
Drill Method	: HSA
Inspector	: C. Green

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Casing	Caved
Encountered	1-12	10:10	Dry	---	---
Completion	1-12	10:11	13.0	---	---
Casing Pulled	1-12	10:17	13.0	---	10.8
24-Hr Reading	1-15	12:00	2.1	---	2.3

Depth (ft)	Surf. Elev. 333.0	Samples	Blow Counts	"N" Value	Water Level	Graphic	USCS	Description	Formation	Stratum	Remarks
0								Gravel 7"			
		1	WOH/18-1	WOH	▼			FILL, sandy lean clay, trace gravel, moist, reddish brown	FILL	A	
	330	2	2-2-3-4	5				FILL, clayey sand, moist, reddish brown			
5		3	2-4-4-6	8				FILL, sandy lean clay, trace gravel, moist, reddish brown			
		4	5-12-8-10	20			CL	SANDY LEAN CLAY, moist, reddish brown		B	
	325	5	6-10-11-13	21				SILTY SAND, with gravel, moist, grayish brown	POTOMAC		
10		6	5-10-11-12	21			SM				
	320	7	3-6-7-10	13							
15								End of Test Boring @ 15 feet			

APPENDIX B

Soil Laboratory Test Results

Parkville Senior Center

Project Number: 23012.D

Location: Parkville, Baltimore County, MD

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-C)	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)
DWK-P2	Bulk	0	5	8.8	-	24	14	10	-	128.2	9.8	A-4	-	46.4	SC
DWK-SWM-1	S-3	5	7	14.4	-	35	16	19	-	-	-	A-6	-	69.0	CL
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Parkville Senior Center

Project Number: 23012.D

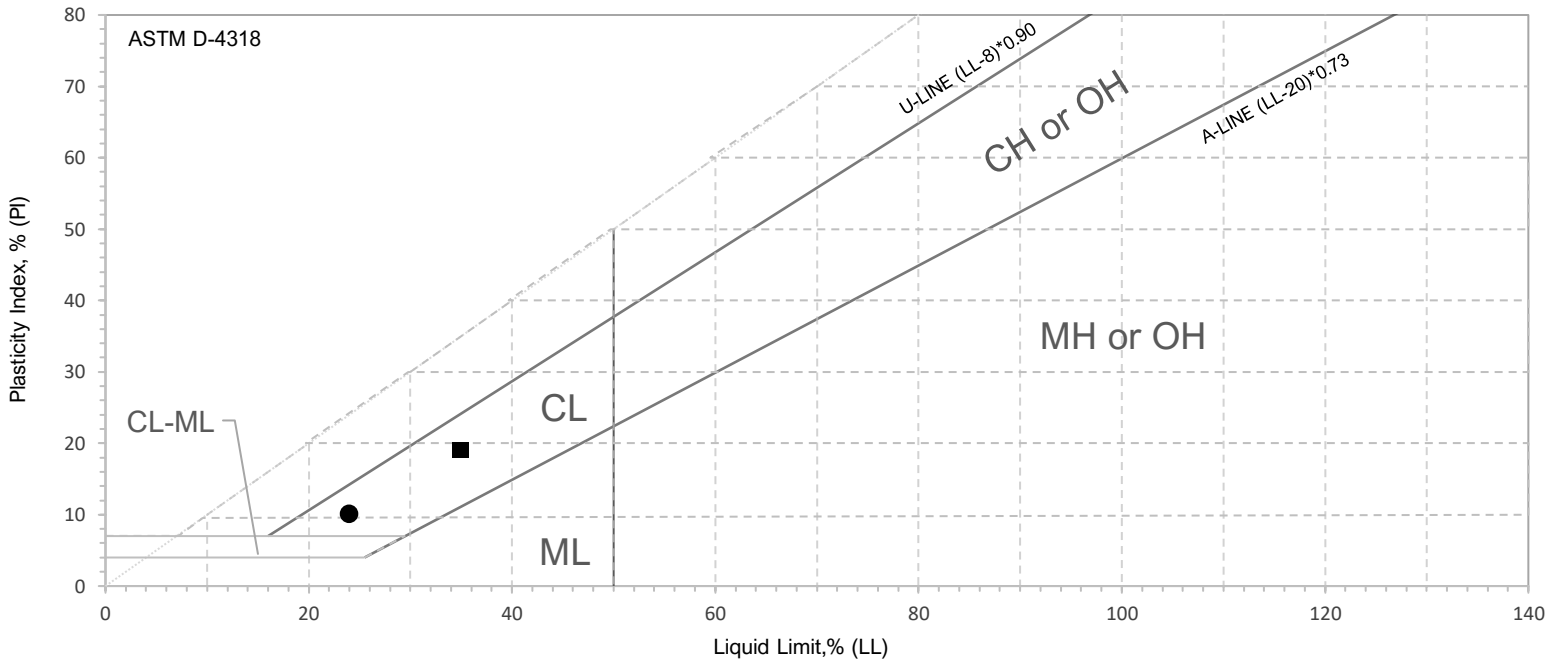
Location: Parkville, Baltimore County, MD

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
●	DWK-P2	Bulk	0	5	24	14	10								
■	DWK-SWM-1	S-3	5	7	35	16	19								

Parkville Senior Center

Project Number: 23012.D

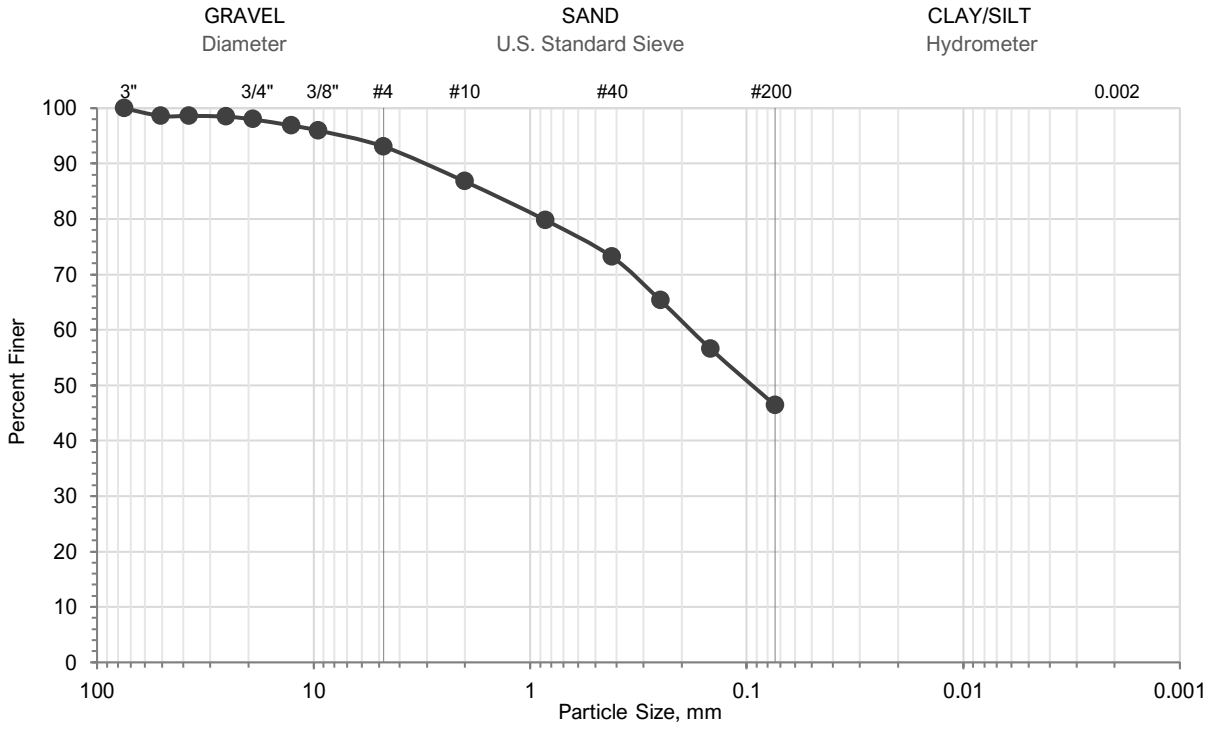
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
DWK-P2	Bulk	0'	5'

Location: Parkville, Baltimore County, MD

Sample Date: -

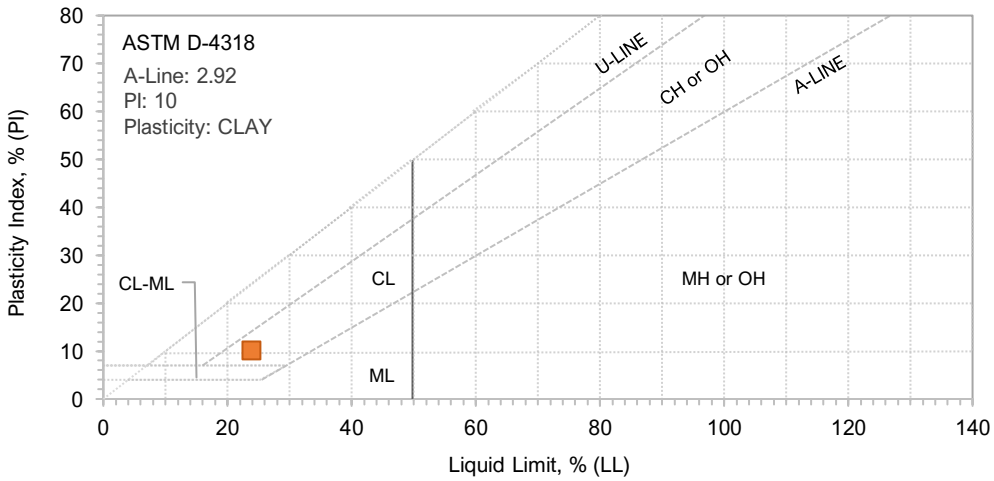
ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	100.0
2"	50.8	98.6
1.5"	37.5	98.6
1"	25.4	98.5
3/4"	19.0	98.0
1/2"	12.7	96.9
3/8"	9.51	96.0
#4	4.75	93.1
#10	2.00	86.8
#20	0.85	79.8
#40	0.42	73.2
#60	0.25	65.3
#100	0.147	56.6
#200	0.074	46.4

% Gravel				% Sand				
Coarse	Fine		Total	Coarse	Medium	Fine		Total
2.0	4.9	=	6.9	6.3	13.6	26.8	=	46.7

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	24
Plastic Limit, %	14
Plasticity Index, %	10

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

Soil Description (D-2487)

Brown clayey SAND

NMC	8.8%		Sample Type*	-	Data 4	-
OM	-		Data 2	-	Data 5	-
			Data 3	-	Data 6	-
+ 3/8"	4.0%					

01/23/24

Contract No.25021 PO0
Addendum No.4
August 29, 2025

Tested by: ST/JT

Reviewed by: AM/NH

Jay Kay Testing

Parkville Senior Center

Project Number: 23012.D

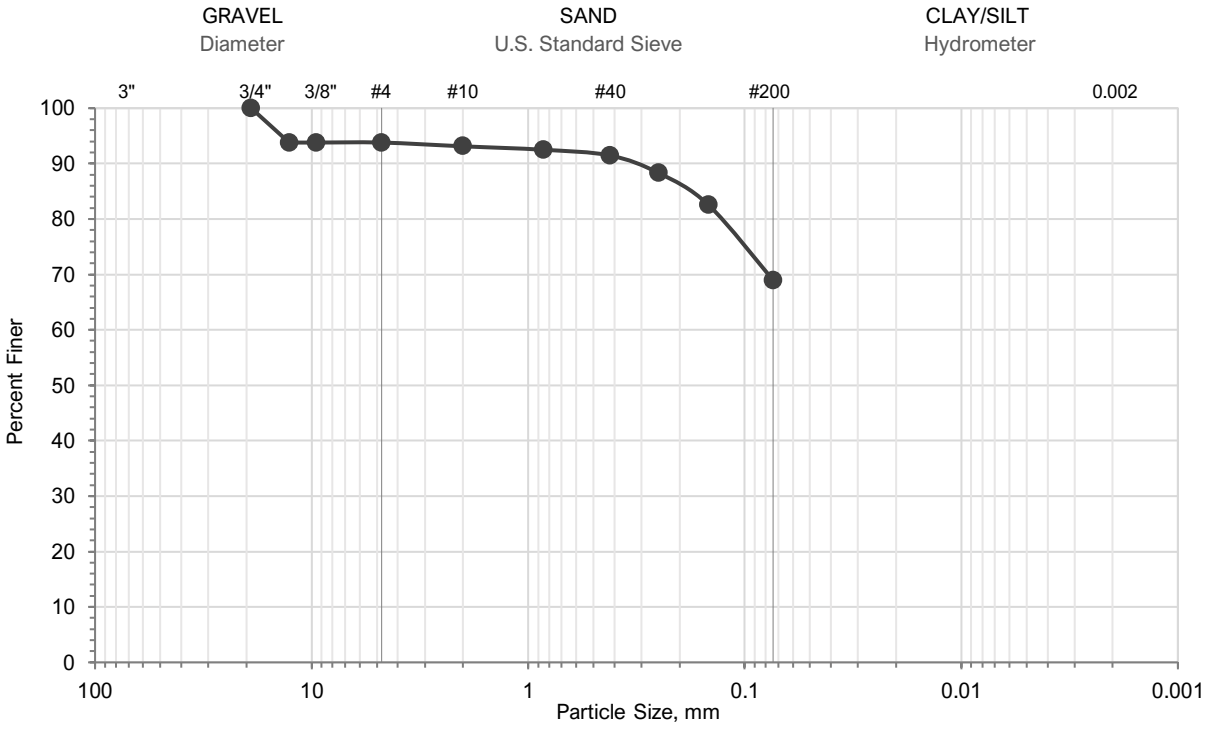
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
DWK-SWM-1	S-3	5'	7'

Location: Parkville, Baltimore County, MD

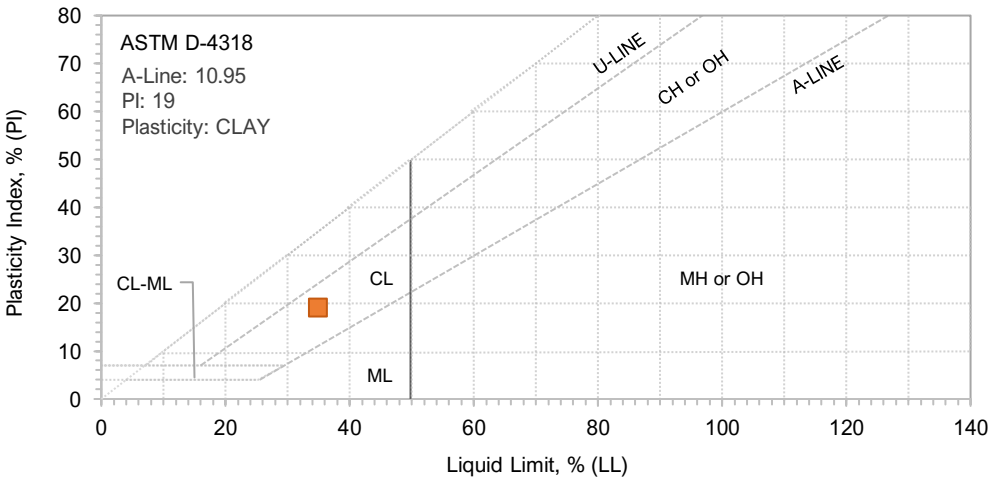
Sample Date: -

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	100.0
1/2"	12.7	93.8
3/8"	9.51	93.8
#4	4.75	93.8
#10	2.00	93.1
#20	0.85	92.5
#40	0.42	91.5
#60	0.25	88.3
#100	0.147	82.5
#200	0.074	69.0

% Gravel			% Sand				D10	-		
Coarse	Fine	Total	Coarse	Medium	Fine	Total	D30	-	CC	-
0.0	6.2 =	6.2	0.7	1.6	22.5	= 24.8	D60	-	CU	-



Liquid Limit, %	35
Plastic Limit, %	16
Plasticity Index, %	19

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

Soil Description (D-2487)

Brown sandy lean CLAY

NMC	14.4%	Sample Type*	-	Data 4	-
OM	-	Data 2	-	Data 5	-
		Data 3	-	Data 6	-
+ 3/8"	6.2%				

01/23/24

Contract No.25021 PO0
Addendum No.4
August 29, 2025

Tested by: ST/JT

Reviewed by: AM/NH

Jay Kay Testing

Parkville Senior Center

Project Number: 23012.D

Jay Kay Testing

Boring ID	Sample ID	Top	Btm
DWK-P2	Bulk	0'	5'

Location: Parkville, Baltimore County, MD

Sample Date: -

Moisture-Density Relationship of Soils

STANDARD PROCTOR

Test Method: ASTM D-698 (B)

Percent oversize particles: 4.0%

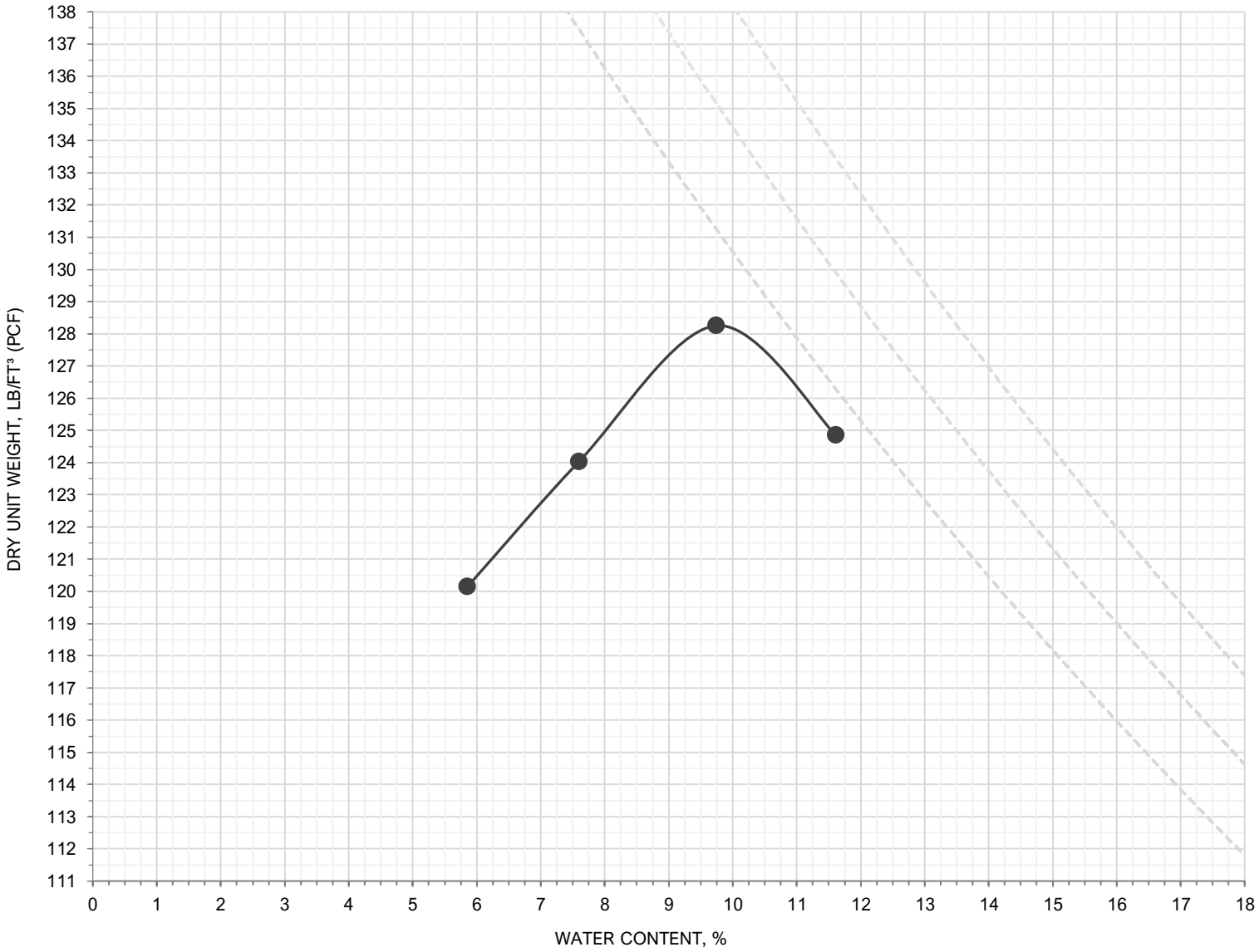
Oversized particles sieve: 3/8-in.

Threshold for correction: > 5.0%

	Uncorrected	Corrected*
Maximum dry unit weight, lb/ft³	128.2	-
Optimum water content	9.8%	-

*Threshold not met for oversized particle correction.

Maximum Dry Unit Weight	Optimum Water Content
128.2	9.8%
lb/ft³ (PCF)	



Zero Air Voids (100% Saturation)

Zero air voids curves: 2.65, 2.75, 2.85

NMC	LL	PL	PI	% Fines	USCS	AASHTO	Soil Description (D-2487)
8.8%	24%	14%	10%	46.4	SC	A-4	Brown clayey SAND

01/23/24

Contract No.25021 PO0
Addendum No.4
August 29, 2025

Tested by: ST/JT

Reviewed by: AM/NH

Jay Kay Testing

Parkville Senior Center

Project Number: 23012.D

Jay Kay Testing

Boring ID	Sample ID	Top	Btm
DWK-P2	Bulk	0'	5'

Location: Parkville, Baltimore County, MD

Sample Date: -

California Bearing Ratio of Laboratory-Compacted Soils (CBR)

Test Method: ASTM D-1883, Compaction Method: ASTM D-698 (B)

	Uncorrected	Corrected
Soaked (± 96 hours) CBR at 0.1"	7.1%	-
Soaked (± 96 hours) CBR at 0.2"	8.9%	-

Surcharge, lb/ft²	50
Target MDD, lb/ft³	128.2
Target OMC, %	9.8%

CBR at 0.1"	CBR at 0.2"
7.1%	8.9%

Specimen Swell	0.11%

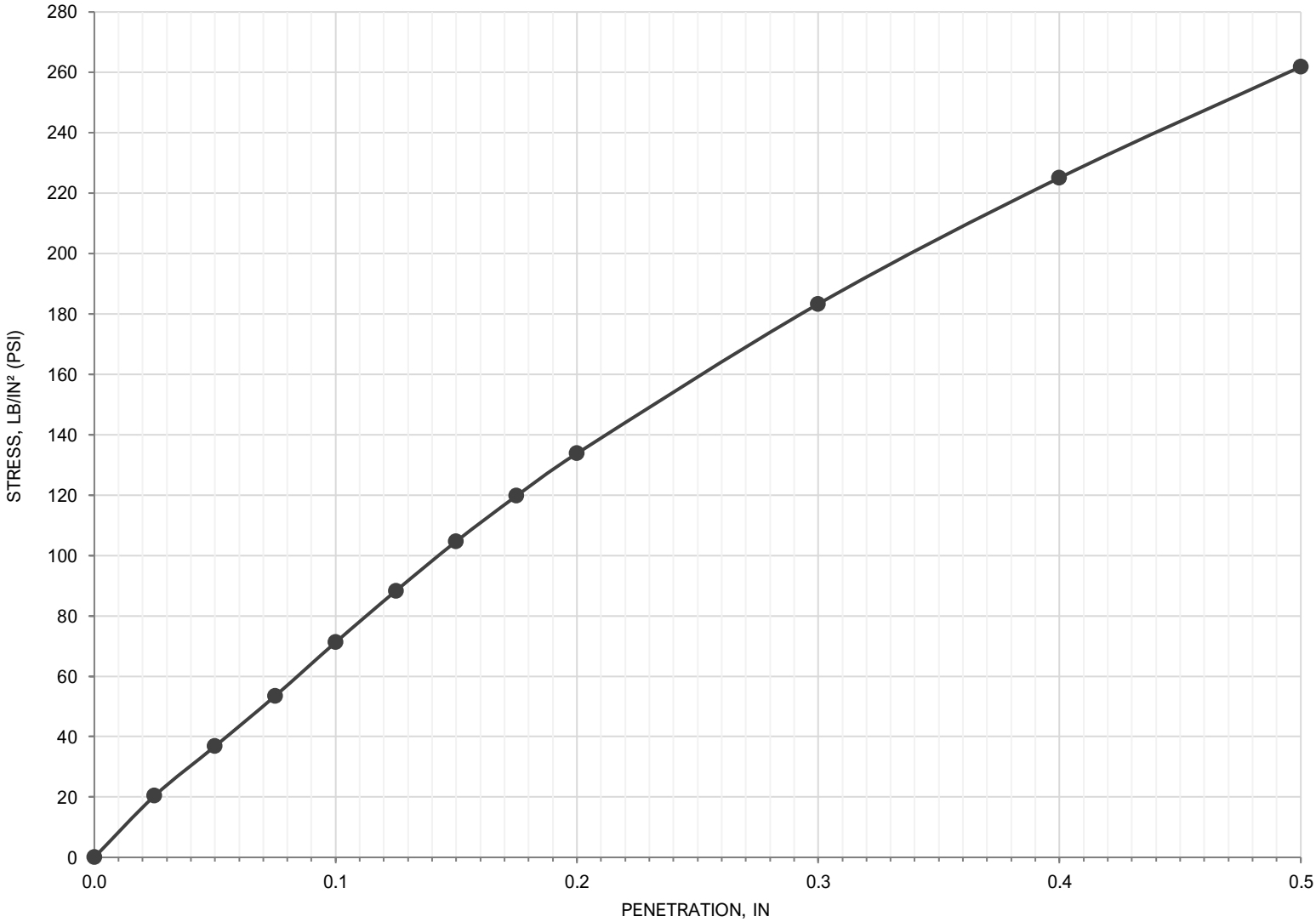
Specimen Data

AS-MOLDED

Dry unit weight, lb/ft³	124.9	Blows per layer, #	30
Water content	9.9%	Achieved compaction	97.4%

AFTER-SOAK

Water content of top 1" layer -



NMC	LL	PL	PI	% Fines	USCS	AASHTO	Soil Description (D-2487)
8.8%	24%	14%	10%	46.4	SC	A-4	Brown clayey SAND