July 16, 2026

Hillpointe, LLC
631 West Morse Boulevard, Suite 200
Winter Park, Florida 32789

Attention: Mr. Kyle Webb
KWebb@Hillpointe.com

Subject: **Revised Report of Geotechnical Exploration**
Proposed Apartment Development
Cimarron Hills Southeast Mixed Use File No. 1
East Highway 24 at Peterson Road
Colorado Springs, Colorado 80915
ValleyShore Project No. 231348R1

Dear Mr. Webb,

We are submitting the results of the geotechnical exploration performed for the subject project. The geotechnical exploration was performed in accordance with our email and phone correspondence with you. The following report presents our findings and recommendations for the proposed construction. Should you have any questions, please contact us at your convenience.

Sincerely,
ValleyShore Engineering, LLC

Saul Moslehy, PhD
Geotechnical Department Manager

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Revised Report of Geotechnical Exploration

Pointe Grand Development

725 Peterson Road
Colorado Springs, Colorado 80915
ValleyShore Engineering Project No. 231348R1

Submitted to:

Hillpointe, LLC
631 West Morse Boulevard, Suite 200
Winter Park, Florida 32789

Submitted by:

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of our geotechnical exploration was to explore the subsurface conditions for the proposed apartment development to be located off East Highway 24 in Colorado Springs, Colorado, and provide geotechnical recommendations for site preparation and grading and for the design and construction of the foundation system. Additionally, recommendations for light and heavy-duty pavements are included.

1.2 PROJECT AND SITE DESCRIPTION

Project information was provided during email correspondence with Mr. Kyle Webb, of Hillpointe, in July of 2025. The provided information included a conceptual site plan dated March 21, 2025, as prepared by Godden Sudik Architects. Based on the provided information, we understand the project will include the construction of ten (10) three-story apartment buildings, an office and fitness center building with associated amenities, and paved driving and parking areas.

Although structural loading information has not been provided, we anticipate the apartment buildings will be three stories in height and will be constructed of wood framing with a conventional concrete slab on grade. We have assumed maximum loads of 75 kips (for columns) and 3 kips per foot (for walls). We have assumed that the loads associated with the amenity buildings will be less than 25 kips (for columns) and 2 kips per foot (for walls).

At this time, we were not provided with detailed information regarding the existing and proposed grades. Therefore, we have assumed that less than 10 feet of cut and fill will be required to facilitate the proposed construction.

The site is bordered by East Highway 24 to the south, residential properties to the east, the proposed expansion of Meadowbrook Parkway to the north, and the remainder of the subject parcels not incorporated into the proposed development at this time to the west. The approximate location of the site and the approximate site boundaries are shown in Figures 1 and 2 of Appendix A of this report, respectively.

At the time of our exploration, the site was predominantly an open field with some woods, along with abandoned concrete pads in the southern portion of the site. Based on our review of available historical aerial imagery (Google Earth), the northern portion of the site was historically used as baseball fields, which were decommissioned sometime between 2006 and 2011. Additionally, the southern portion of the site was cleared sometime in 2023 during the development of the adjacent apartment complex to the east. The has remained relatively unchanged since then.

1.3 SCOPE OF STUDY

This geotechnical exploration involved a site reconnaissance, field drilling, laboratory testing, and engineering analysis. The following sections of this report present discussions of the field exploration, site conditions, and conclusions. Following the text of this report, Appendix A presents figures and test boring records.

The scope of our geotechnical services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, groundwater, or air, on, or below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

2.0 EXPLORATION AND TESTING PROGRAMS

2.1 FIELD EXPLORATION

Our field exploration consisted of drilling thirty-eight (38) soil test borings within the proposed development. The borings were located in the field using a handheld GPS unit. The borings were drilled between September 8 and 10, 2025. Each location was advanced using 4-inch hollow stem augers and a truck-mounted drill rig. The approximate locations of the soil test borings are shown in Figure 3 of Appendix A of this report. The depths in this report reference the ground surface that existed at the time of this exploration. Detailed logs for soil test borings can also be found in Appendix A.

Standard Penetration Tests (SPT) and split-spoon sampling were performed at approximately 2½-foot intervals in the upper 10 feet and 5-foot intervals thereafter. The drill crew worked in general accordance with ASTM D6151 for Hollow Stem Auger (HSA) drilling. SPT and split-spoon sampling were performed in accordance with ASTM D1586.

In split-spoon sampling, a standard 2-inch O.D. split-spoon sampler is driven into the bottom of the boring with a 140-pound hammer falling a distance of 30 inches. The number of blows required to advance the sampler the last 12 inches of the standard 18 inches of total penetration (or second and third 6-inch increments when sampling 24 inches) is recorded as the SPT resistance (N-value). These N-values are indicated on the boring logs at the test depth and provide an indication of the consistency or relative density of the soil. Additionally, bulk samples of the existing materials were also obtained from selected locations for laboratory testing.

2.2 LABORATORY TESTING PROGRAM

After completion of the field drilling and sampling phase of this project, the soil samples were returned to our laboratory, where they were visually-manually classified in general accordance with the Unified Soil Classification System (USCS – ASTM D2487) by a geotechnical professional. Select samples were then tested for moisture content (ASTM D2216), Atterberg limits (ASTM D4318), gradation and sieve analysis (ASTM D6913), soluble sulfates (CP-L 2103), soil resistivity (ASTM G187), pH testing (ASTM D4972), swell potential (ASTM D4546), and standard Proctor compaction testing (AASHTO T 99-22/ASTM D698).

3.0 SUBSURFACE CONDITIONS

3.1 SITE GEOLOGY

Based on the United States Geological Survey (USGS) and Colorado Geological Survey (CGS) Databases, the northern portion of the site is underlain by Middle alluvium deposits (late Pleistocene), while the southern portion of the site is underlain by the Old alluvium deposits (middle Pleistocene). Middle alluvium deposits are chiefly composed of light-brownish-gray, pale-brown, light-yellowish-brown, and grayish-brown, poorly sorted sand and subordinate amounts of gravel. The middle alluvium deposits' estimated thickness is 20-50 ft. Old alluvium deposits mainly consist of pale-brown to strong-brown, extremely poorly sorted, fine to very coarse sand, silty and clayey sand, and gravel. The old alluvium deposits' thickness is about 3-30 ft.

Also, according to the soil survey from the United States Department of Agriculture's (USDA) soil conservation services, the predominant soil type at the site is Blakeland Loamy Sand, while the secondary soil type at the site is Blendon Sandy Loam. Soil drainage on the property ranges from "somewhat excessively drained to well-drained. Table 1 tabulates the soil survey information, and Figure 4 of Appendix A includes a map of soil types.

Table 1-Summary of Soil Survey Information

Soil Type	Constituents		Hydrologic Group	Natural Drainage
Blakeland Loamy Sand	0-27" 27-60"	Loamy Sand Sand	A	Somewhat Excessively Drained
Blendon Sandy Loam	0-36" 36-60"	Sandy Loam Gravelly Sandy Loam	B	Well Drained

3.2 SITE STRATIGRAPHY

The following subsurface description is of a generalized nature to highlight the subsurface stratification features and material characteristics at the boring locations. The soil test boring logs included in the attachments of this report should be reviewed for specific information at each boring location. Information on actual subsurface conditions exists only at the specific test locations and is relevant only to the time that this exploration was performed. Variations may occur and should be expected at the site.

Surficial Materials

Initially, each boring location encountered surficial topsoil varying in thickness from approximately 3 to 12 inches. We anticipate that the actual depth of surficial materials may vary significantly across the site and between our widely spaced borings. As such, we recommend the contractor evaluate the surficial material depths for bidding purposes.

Alluvial Materials

Underlying the surficial materials, each boring location encountered alluvial deposits extending to the termination depths. Alluvial deposits are usually brought to their current location by water. The alluvial deposits were predominantly classified as light to dark brown, reddish brown, orangish brown, light to dark gray, tan, white, and black sands with varying amounts of silt, clay, pebbles, iron staining, and traces of roots (generally in the upper 3 to 5 feet). Additionally, four boring locations (B-8, B-9, B-21, and P-12) encountered isolated pockets of light brown, brown, reddish brown, dark gray, gray, and white lean (low plasticity) and fat (high plasticity) clays with varying amounts of silt, sand, gypsum, and iron staining.

The SPT N-values with the alluvial deposits generally ranged from 5 to 40 blows per foot (bpf), indicating loose to dense relative densities in the coarse-grained materials and firm to stiff consistencies in the fine-grained materials. The exceptions were isolated pockets of very loose materials encountered in five boring locations (B-6, B-8, B-17, B-22, and P-9), generally in the upper 5 feet.

Auger Refusal

Auger refusal was not encountered in the boring locations, and each boring location was extended to predetermined termination depths ranging from approximately 10 to 20 feet below the existing grade without encountering refusal materials. Auger refusal is a designation applied to materials that cannot be penetrated by the power auger. Auger refusal may indicate hard materials within the fill, rock boulders, ledges or pinnacles, or the top of continuous bedrock.

Groundwater

Groundwater was not encountered in the boring locations at the time of drilling. We note that stabilized water levels can sometimes be difficult to obtain. In addition, each boring was backfilled upon completion in consideration of safety, so delayed water levels were not recorded.

It is possible for groundwater to exist within the depths explored during other times of the year, depending upon climatic and rainfall conditions. Additionally, discontinuous zones of perched water may exist within the overburden materials. The groundwater information presented in this report is the information that was collected at the time of our field activities.

3.3 LABORATORY TESTING RESULTS

As mentioned previously, select SPT and bulk soils samples were subjected to a laboratory program consisting of moisture content, Atterberg limits, gradation and sieve analysis, swell testing, water soluble sulfates, electrical resistivity, pH, and proctor testing. The moisture contents of the tested bulk and SPT samples typically ranged from 4 to 8 percent and from 8 to 35 percent, respectively. Atterberg limits testing was performed on four bulk and five SPTS samples from selected boring locations. The testing of the selected samples indicated liquid limits between 17 and 52, with plasticity indices between 2 and 30. A summary of testing results, as well as individual testing reports, is presented in Appendix B. Table 2 below provides the results of the testing on the bulk samples obtained from approximately 1 to 4 feet below the existing grade.

Table 2 – Bulk Sample Soil Laboratory Results

Boring	Natural Moisture Content (%)	Optimum Moisture Content (%)	Max Dry Density (pcf)	Passing No. 200 Sieve (%)	Liquid Limit	Plasticity Index	Sulfates (%)	Resistivity (ohm-cm)	pH	Swell (%)
B-3	7.4	9.5	121.0	14	21	3	0.00	5710	6.73	0.0
B-5	4.2	11.0	115.1	8	NP	NP	0.00	3530	7.11	0.0
B-8	8.2	9.9	121.9	21	18	4	0.00	6560	6.97	0.1
B-10	6.9	10.4	119.9	23	17	2	0.00	6980	7.12	0.0
B-13	5.9	10.0	121.1	15	NP	NP	0.00	8820	6.68	0.2
B-16	5.2	10.1	120.2	16	NP	NP	0.00	9100	6.92	0.0
B-18	5.3	11.9	110.8	10	18	18	0.01	13800	7.06	0.0
B-20	4.8	12.2	117.3	7	NP	NP	0.00	13900	7.03	0.3

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 GEOTECHNICAL CONSIDERATIONS

Based on the results of our geotechnical exploration, it is our opinion that the site is generally adaptable for the proposed construction. However, certain geotechnical challenges will likely present themselves during site development, which we have outlined herein.

While we anticipate that most of the existing soils will be suitable for subgrade support, lower consistency and density materials were encountered in twenty-four out of the thirty-eight borings at various depths. These materials are defined as firm or worse fine-grained materials or loose or worse coarse-grained materials. Some remediation of the lower consistency and density materials should be anticipated where these materials are not removed during grading.

We recommend performing close construction observations during earthwork and foundation excavation activities to observe the consistency and suitability to support the proposed construction. Any areas observed to be unsuitable for use as foundation support should be remediated accordingly. Typical remediation would consist of undercutting and replacing with properly compacted structural soil fill or compacted aggregate base course. The depth of undercutting should be determined based on observations and tests performed at the time of construction.

Subgrades for lightly loaded slabs and/or pavement areas can typically be supported on materials that proofroll successfully. Proofrolling should be observed by a geotechnical engineer or by a qualified representative in order to help identify areas requiring subgrade support correction. Where the subgrade does not pass proofrolling, measures to improve the subgrade support conditions will be required.

In addition, boring B-21 encountered an isolated pocket of high plasticity (fat) clays at a depth of approximately 8 to 12 feet below the existing grade. Moreover, we anticipate that additional pockets of fat clays may be encountered at even shallower depths between our widely spaced boring locations. Therefore, we anticipate that these materials will likely be encountered during construction activities. Typically, these materials are not suitable for foundation or slab support and may impede site grading activities as they are susceptible to moisture changes. We have provided recommendations pertaining to the fat clayey soils in this report.

As previously mentioned, we anticipate that most of the existing soils will be suitable for reuse as structural soil fill; however, the client should understand that some variation should be expected between our widely spaced borings, and selective undercut and replacement may be necessary during construction activities. This may include the lower consistency materials, free of deleterious materials, if the soils are scarified (or undercut) and recompacted. The existing onsite fat clays may also be mixed with lower plasticity materials during earthwork grading to produce a material that meets the recommended criteria.

The swell/collapse potential for the tested existing soils on-site varied from 0 to 0.3 percent, which shows a relatively low risk of swell at this site. Thus, based on our exploration, testing, and experience in the area, we do not anticipate excessive displacement, especially differential heave, caused by the swelling of expansive soils at the site to be a major concern.

We recommend close construction observations to ensure that any fat clays encountered during the construction are undercut to a minimum of 4 feet below the foundation bearing elevations and replaced with properly placed structural soil fill or compacted aggregate base course. The onsite soils can be reused as fill, but will require moisture conditioning (wetting) given the in-situ moisture content. Additionally, pavement subgrade should consist of at least 24 inches of non-expansive, low-plasticity soil.

We encourage the client to confer with the design team and a contractor with regard to the recommendations contained in this report, in an effort to assess potential costs and schedule. Additional onsite testing during construction can further classify the existing materials' suitability for reuse as structural soil fill.

4.2 EARTHWORK RECOMMENDATIONS

4.2.1 Site Preparation

Site stripping within the proposed construction areas (building and pavement) should include the removal of abandoned slabs, vegetation, topsoil, organic soils, rock fragments greater than 6 inches, gravel, and debris. The stripping operations should extend a minimum of 5 feet beyond the limits of proposed pavement areas and 10 feet beyond building footprints. The vegetation should be removed from the site and not utilized as fill material. However, the topsoil can be utilized in non-structural/ non-slope areas (i.e., green spaces). These areas should be observed by a geotechnical engineer upon grading to confirm that the recommendations in this report are followed.

The site also contains some large mature trees. Along with the tree, the respective root system should also be removed. Removal of trees and their root system upturns and loosens the surrounding soils. If the disturbed soils are suitable and are to remain, then they will require additional compactive effort and testing prior to proof-roll testing and fill placement. The client should budget for additional removal of these root systems and replacement with structural soil fill.

After the completion of stripping operations and excavation to reach the planned subgrade elevation, we recommend that the subgrade be proofrolled with a fully-loaded, tandem-axle dump truck or other pneumatic-tired construction equipment of similar weight. The geotechnical engineer or his representative should observe proofrolling. Areas judged to perform unsatisfactorily (e.g., pumping and/or rutting) by the engineer should be undercut and replaced with structural soil fill or remediated at the geotechnical engineer's recommendation. Areas to receive structural soil fill should also be proofrolled prior to the placement of new fill. Proofrolling operations shall be extended to a distance of 10 feet beyond the edge of the building and 5 feet beyond the edge of pavement areas.

At this time, ValleyShore is not aware of any proposed detention facilities or large embankments on the subject site (Lot 1). However, a pond is planned for Tract C, which is located adjacent to the subject site. Based on our review of proposed grading, we expect minimal to no on site impacts from the offsite pond. If the plans change to include detention facilities or any site improvement requiring embankments, ValleyShore must be allowed to perform stability analyses for the embankments.

4.2.2 Excavations

Auger refusal was not encountered at the boring locations prior to reaching the predetermined termination depths ranging from approximately 10 to 20 feet below the existing grade. Auger refusal conditions generally correspond to materials that require hoe-ramming and/or blasting for removal. Typically, soils penetrated by augers can be removed with conventional earthmoving equipment. However, excavation equipment varies, and field refusal conditions may vary. Generally, the weathering process is erratic, and variations in the rock profile can occur over small lateral distances.

Although detailed grading information has not been provided, we have assumed that less than 10 feet of cut and fill will be required to facilitate the proposed construction. At this time, we do not anticipate that difficult excavation techniques will be necessary during the grading activities for the majority of the construction activities and foundation excavations.

Temporary excavations will be required for utility construction. Typically, cohesive soils can stand vertically for a short period of time. However, the longer the excavation stays unprotected and begins to dry or is exposed to rain, the stability of the excavation could become compromised. Excavations should be sloped or shored in accordance with local, state, and federal regulations, including OSHA (29 CFR Part 1926) excavation trench safety standards. The contractor is usually solely responsible for site safety. This information is provided only as a service, and under no circumstances should ValleyShore be assumed responsible for construction site safety.

4.2.3 Structural Soil Fill

Material considered suitable for use as structural fill should be clean soil free of organics and other deleterious material, containing no rock fragments greater than 6 inches in dimension. Preferably, structural soil fill material should have a PI value of 25 percent or less. All material to be used as structural fill should be tested by the geotechnical engineer to confirm that it meets the project requirements before being placed.

Based on the data from this exploration, we expect that the existing on-site soils, excluding the high plasticity fat clays (free of deleterious materials), may be reused as structural fill. Further assessment of the onsite materials can be made during observation of the undercut and earthwork activities performed on-site or prior to construction using test pits. The higher plasticity materials may be mixed with lower plasticity

materials during earthwork grading to produce a material that meets the recommended criteria, or the material may be treated using lime or cement to lower the soil plasticity.

Structural fill should be placed in loose, horizontal lifts not exceeding 8 inches in thickness. Each lift should be compacted to at least 95 percent of the soil's maximum dry density per the standard Proctor method (ASTM D 698) and within the range of minus 0 percent to plus (+) 3 percent of the optimum moisture content. Each lift should be tested by geotechnical personnel to confirm that the contractor's method is capable of achieving the project requirements before placing subsequent lifts. Areas that have become soft or frozen should be removed before any additional structural fill is placed.

4.2.4 Aggregate Base Course

Aggregate Base Course (ABC) may be used as a backfill in undercut excavations and in utility trench excavations. The ABC used for this section should be equivalent to a Class 6 aggregate in accordance with Section 703.03 of the Colorado Department of Transportation specifications. The ABC fill should be placed in loose, horizontal lifts not exceeding 8 inches in loose thickness. Each lift should be compacted to at least 98 percent of maximum dry density per the standard Proctor method (ASTM D698). Each lift should be compacted, tested by geotechnical personnel, and approved before placing subsequent lifts.

4.2.5 Moisture-Sensitive Soils

The fine-grained soils encountered at this site will be sensitive to disturbances caused by construction traffic and changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause a significant reduction in the soil's strength and support capabilities. In addition, plastic soils that become wet may be slow to dry and thus significantly retard the progress of grading.

We caution that if site grading is performed during the wet weather season, methods such as discing and allowing the material to dry will be required to meet the required compaction recommendations. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather. If grading operations are performed during the wet weather season, the owner should anticipate difficulties in achieving the proper compaction of the soil fill, as well as some remediation (undercut and replacement) of subgrade soils if exposed to inclement weather conditions.

4.2.6 High Plasticity Soil Considerations

Based on our experience in this area, soils with plasticity indices (PI) less than 30 percent have a slight potential for volume changes with changes in moisture content, and soils with a PI greater than 50 percent are highly susceptible to volume changes. Between these values, we consider the soil to be moderately susceptible to volume changes.

Plastic soils have the potential to shrink or swell with significant changes in moisture content. At sites that have high-plasticity soils, certain precautions should be considered to minimize or eliminate the potential for volume changes. The most effective way to eliminate the potential for volume changes is to remove highly plastic soils and replace them with compacted fill of non-expansive material. Testing and recommendations for the required depth of removal can be provided if needed. If removal of the highly plastic soils is not desirable, then measures should be taken to protect the soils from excessive amounts of wetting or drying. In addition, modification of the soils by lime or cement treatment can be utilized to reduce the soil plasticity.

Several construction considerations may reduce the potential for volume changes in the subgrade soils. Foundations should be excavated, checked, and concreted on the same day to prevent excessive wetting or drying of the foundation soils. The floor subgrade should be protected from excessive drying and wetting by covering the subgrade prior to slab construction. The site should be graded in order to drain surface water away from the building, both during and after construction.

Installing moisture barriers around the perimeter of the slab helps limit the moisture variation of the soil and reduce the potential for shrinking or swelling. Moreover, roof drains should discharge water away from the building area and foundations. Heat sources should be isolated from foundation soils to minimize drying of the foundation soils. Trees and large shrubs can draw large amounts of moisture from the soil during dry weather and should be kept well away from the building to prevent excessive drying of the foundation soils. Lawns or landscaped areas should be watered to maintain moisture levels during dry weather.

Structural details to make the building flexible should be considered to accommodate potential volume changes in the subgrade. Floor slabs should be liberally jointed to control cracking, and the floor slab should not be structurally connected to the walls. Walls should incorporate sufficient expansion/contraction joints to allow for differential movement.

4.2.7 Drainage and Surface Water Concerns

To reduce the potential for additional undercut, water should not be allowed to collect in the foundation excavations, on floor slab areas, or on prepared subgrades of the construction area, either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate the removal of collected rainwater, subsurface water, or surface runoff. Positive site surface drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slab. The grades should be sloped away from the building, and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill and floor slab areas of the building.

Significant construction dewatering is not anticipated across the majority of the site, based on our understanding of the proposed grading. However, it is possible that water will be encountered in cut areas, near existing water features, and along the soil/rock interface or within rock seams. Therefore, the contractor should anticipate some water to be encountered in deeper cut areas or where rock is encountered. Additionally, soft bearing conditions may be encountered in this area. Therefore, it may be necessary to over-excavate the subgrade soils in this area and replace them with a compacted aggregate base course.

In addition, seasonal fluctuations and runoff from adjacent properties may occur once construction begins. If seepage or runoff is encountered at shallow depths, it is anticipated that it can be controlled by simple means such as pumping from sumps or the use of perimeter trenches to collect and discharge the water away from the work area. We recommend that all excavations where groundwater is encountered be observed on an individual basis to determine if interior drain systems are required.

4.3 FOUNDATION RECOMMENDATIONS

4.3.1 Shallow Foundations

Upon completion of site preparation, as previously recommended, it is our opinion that the proposed buildings can be supported on conventional spread footing foundations bearing on approved, properly compacted structural soil fill or suitable existing materials in accordance with the recommendations of this report. We recommend that if lower consistency or unstable soils are encountered during footing excavations, they be undercut and backfilled with structural soil fill in the building area. Spread and continuous footings supported on properly placed and compacted structural soil fill or suitable existing soils can be designed for an allowable soil bearing capacity of 2,000 psf.

We recommend that continuous foundations be a minimum of 18 inches wide and isolated spread footings be a minimum of 24 inches wide to reduce the possibility of a localized punching shear failure. Exterior foundations should be designed to bear at least 30 inches below the finished exterior grade to develop the design bearing pressure and to protect against frost heave.

The available lateral capacity of shallow foundations includes a soil lateral pressure and coefficient of friction as described in the IBC, Section 1806. Footings will be embedded in a material similar to those described as Class 4 in Table 1806.2. Where footings are cast neat against the sides of excavations, an allowable lateral bearing pressure of 150 psf per foot depth below natural grade may be used in computations. Resistance to lateral sliding, represented by a coefficient of friction of 0.25, may be used for sands similar to those described as soil Class 4. An increase of one-third in the allowable lateral capacity may be considered for transient load combinations, including wind or earthquake, unless otherwise restricted by design code provisions.

A geotechnical representative should be retained to perform foundation subgrade tests to confirm that the recommendations provided in this report are consistent with the site conditions encountered. Some undercutting of lower-consistency fill soils, where encountered in foundation excavations, should be anticipated. A dynamic cone penetrometer (DCP) is commonly utilized to provide information that is compared to the data obtained in the geotechnical report. Where unacceptable materials are encountered, the material should be excavated to stiff, suitable soils or remediated at the geotechnical engineer's direction.

We recommend that if lower consistency or unstable soils are encountered during footing excavations, they be undercut and backfilled with compacted structural soil fill in the building area. We anticipate the majority of the additional undercut will be in areas of minimal grading where these materials will not be removed. Areas to receive more than 5 feet of structural soil fill should be stripped and proof-rolled to determine if additional undercutting may be necessary. The undercut areas should be backfilled using structural soil fill and extend at least 10 feet laterally beyond the building footprint in areas where over-excavation is necessary. Where undercut and replacement are performed, we recommend that excavations be backfilled the same day to reduce the risk of sidewall collapse.

Foundation excavations should be opened, the subgrade evaluated, remedial work performed (if required), and concrete placed in an expeditious manner. Exposure to weather often reduces foundation support capabilities, thus necessitating remedial measures prior to concrete placement. It is also important that proper surface drainage be maintained both during construction (especially in terms of maintaining dry footing trenches) and after construction. Soil backfill for footings should be placed in accordance with the recommendations for structural fill presented herein. We note that the onsite soils could be highly susceptible to moisture changes. Therefore, if foundation excavations are to be left open for an extended period of time (i.e., overnight), we recommend that a 2-inch layer of lean concrete be placed as a mud mat in the excavation to reduce the potential for the determination of the foundation subgrade soils

Based on the known subsurface conditions, geology, and past experience, we estimate that foundations supported on recommended structural soil fill or other approved soils should experience maximum total and differential displacements of 1 inch and ¾ inch, respectively. The displacement information provided was with maximum column and continuous foundation loads on the order of 75 kips and 3 kips per linear foot (kpf), respectively, and an allowable bearing pressure of 2,000 psf. Additionally, this information assumes that the site is prepared in accordance with our recommendations provided in this report, including allowing the proposed fill time to consolidate under its own weight. If these parameters are determined to be incorrect, we should be notified to reevaluate the settlements for the building.

4.3.2 Slabs-on-Grade

Following the recommended site preparation activities, it is our opinion that the floor slab can be grade-supported on structural soil fill materials or suitable existing soils. Observing proofrolling of the subgrade, as discussed earlier in this report, should be accomplished to identify loose or unstable soils, which should be removed from the floor slab area prior to the fill placement and/or floor slab construction. Based on our exploration, the client should anticipate and budget for some remediation of the existing materials at the foundation subgrade.

We recommend that a minimum 4-inch-thick granular mat be placed beneath the floor slab to enhance drainage and provide a capillary break. The subgrade should be proofrolled and approved prior to the placement of the crushed stone. Based on the conditions encountered on this site, we recommend that the floor slabs be designed using a subgrade modulus of 150 pounds per cubic inch (pci). This modulus is appropriate for small diameter loads (i.e., a 1ft x 1ft plate) and should be adjusted for wider loads.

4.4 GEOLOGIC HAZARDS & CONSTRAINTS

4.4.1 Faulting and Seismicity

Historically, there have been several medium-sized earthquakes reported in the Colorado Springs area. Based on a review of available public information, Colorado Earthquake and Fault Map Server, there are no known faults in the immediate area of the project site. The closest mapped faults, the Rampart Range Fault, are located approximately 9 miles west of the property near the Canon Park mountains. Given the minimal seismic activity within the last 30,000 to 50,000 years, the risk of a significant seismic event impacting the project during its design life is relatively low.

In accordance with the Pikes Peak Regional Building Code (PPRBC) 2023 and the International Building Code (IBC) 2021, we are providing the following seismic design information. After evaluating the SPT N-value data from the soil test borings and considering the changes to the site and foundation types, it was determined that the subsurface conditions at the site most closely matched the description for “Seismic Site Class D” or “Stiff Soil Profile”. Table 3 provides the spectral response accelerations for both short and 1-second periods, which may be used for design.

Table 3 – Seismic Design Parameters ASCE 7-16

Structure	S_s g	S_1 g	S_{DS} g	S_{D1} g	PGA_M g
Proposed Apartment Development – Colorado Springs, CO	0.191	0.057	0.204	0.091	0.165

The short and 1-second period values indicate the structure should be assigned a Seismic Design Category "B" using the published information. The provided values are based on the results of our field exploration and the assumption that the structure will be designed utilizing Risk Category I, II, or III. If these assumptions are incorrect, we should be contacted to reevaluate the seismic design information.

4.4.2 Liquefaction Potential

Liquefaction occurs when soil, primarily saturated cohesionless soils, undergoes a loss in strength due to monotonic, transient, or repeated disturbance that commonly occurs during a seismic event (Kramer 1996). This loss of strength occurs due to increased pore water pressures caused by an undrained condition. The increase in pore water pressure decreases the effective stress in the soil, thus reducing the soil's ability to support any applied loads. For liquefaction to occur, there must be an increase in pore pressure, meaning the soil must be saturated and be able to behave in an undrained condition. According to the NHI 2011 Reference Manual on LRFD Seismic Analysis and Design of Transportation Geotechnical Features and Structural Foundations, if any of the following criteria are satisfied, then a significant liquefaction hazard does not exist:

- The geologic materials underlying the site are either bedrock or have very low liquefaction susceptibility according to the relative susceptibility ratings shown in the Estimated Susceptibility of Sedimentary Deposits to Liquefaction During Strong Ground Motion table presented by Youd and Perkins in 1978.
- The soils below the groundwater table at the site are one of the following:
    - Clayey soils which have a clay content greater than 15%, a liquid limit greater than 35%, or natural water content less than 90% of the liquid limit.
    - Sand with a minimum corrected SPT $(N_1)_{60}$ value of 30 blows/foot.
    - The water table is deeper than 50 feet below the ground surface or proposed finished grade at the site.

We note that the borings encountered plastic soils having clay contents above 15 percent. Additionally, based on experience in this geologic region and the immediate vicinity of the site, it is our opinion that a liquefaction hazard does not exist for the subject development. As such, we do not expect significant additional total and differential settlement, lateral soil movement, reduction in bearing capacity or lateral soil reaction, permanent increase in soil lateral pressure, or flotation of buried structures in accordance with Sections 1803.5.11 and 1803.5.12 of the IBC 2021.

4.4.3 Landslides, Unstable Slopes, Rockfalls, and Avalanches

Our review of the Colorado Landslide Inventory and the Landslide Inventory of El Paso County databases yielded no evidence of landslide susceptibility at the site. At this time, the site is mildly sloped with some flat areas, and we are not aware of any relatively taller and steeper existing or proposed slopes at the site. Generally, slopes of 3 horizontal to 1 vertical that are placed and graded properly are stable. If steeper slopes are proposed, ValleyShore should be allowed to assess the stability of the proposed slopes. Due to the mentioned topography and general location of the site, the site is not considered susceptible to rockfall and avalanche hazards.

4.4.4 Flooding, Mudflows, and Debris Flows

Based on the Colorado Water Conservation Board's Colorado Hazard Mapping & Risk MAP Portal and FEMA Flood Map Panel 08041C0754G, the site is not located within a floodplain. The project civil engineer must verify these boundaries to ensure adequate surface drainage design.

The site shows no susceptibility to debris flow per the Debris-flow Susceptibility Mapping of Select Colorado Counties database and CGS Open-File Report 18-11 "Debris Flow Susceptibility Map of El Paso County, Colorado" (2018) by Kevin M. McCoy, Matthew L. Morgan, and Karen A. Berry. Moreover, prior site disturbances have likely obscured surficial evidence of mudflows and debris flows. The potential for sheetwash and surface drainage design should be performed separately by the Civil Engineer.

4.4.5 Subsidence and Abandoned Mines or Landfills

The project location was not included in the April 1985 "Colorado Springs Subsidence Investigation" by Dames & Moore for the State of Colorado's Division of Mine Reclamation, which mapped areas potentially impacted by mine-related subsidence. Additionally, during our review of the Colorado Historic Coal Mines database, we found no indications of subsurface mining or historical surface mining at the site. Lastly, our

analysis of the site's historical aerial photography and the materials recovered from our test borings showed no evidence of past landfill operations.

4.4.6 Expansive, Collapsible, and Compressible Soils and Rock

Based on the results of the testing performed, the existing near-surface soils exhibit low expansive potential with swell potentials of less than 0.3% under a pressure of 200 psf. During our exploration, only an isolated zone of highly plastic soils was encountered in boring B-21 at a depth of approximately 8 to 12 feet below the existing grade; however, additional and shallower zones of high-plasticity soils exhibiting moderate to high expansive potential may be encountered between our widely spaced boring locations.

Compressible soils are generally described as those that undergo consolidation when exposed to new loads. Alternatively, collapsible soils are those that significantly decrease in volume with an increase in moisture. Buildings, structures, and other improvements may be subject to excessive settlement-related distress when compressible soils or collapsible soils are present. Based on the results of our subsurface exploration, the near-surface soils that are anticipated to be exposed would have low collapse potential. Based on the Collapsible Soils of Colorado database, the site may be underlain by Dune and sheet sand deposits, which are generally susceptible to collapse.

4.4.7 Shallow (Elevated) Groundwater Table and Bedrock

As previously mentioned, groundwater was not encountered in the boring locations at the time of drilling. Generally, seasonal fluctuations of 3 to 5 feet are typical, with peak levels generally occurring in late September or October. Based on our understanding of the project and the site’s existing grades, we do not anticipate significant cuts resulting in shallow groundwater conditions. Moreover, no natural springs or seeps were observed during our limited investigation.

As previously mentioned, auger refusal, indicative of bedrock, was not encountered in the boring locations extending to predetermined termination depths ranging from approximately 10 to 20 feet below the existing grade. Additionally, per CGS mapping (Himmelreich and Noe, 1999), the property is not situated within zones of steeply dipping, differentially heaving bedrock.

4.4.8 Radioactivity and Radon Exposure

While naturally occurring radioactivity is not expected to pose an unusual hazard at the site, the site's geology is conducive to radon gas accumulation. Implementing standard mitigation measures, such as sealing and/or venting foundations and slabs, can further reduce the radon gas exposure. The client may elect to perform radon concentration testing upon the completion of construction to further examine the radon exposure risks.

Figure 5 in Appendix A of this report provides a map of the investigated geological hazards and constraints. Based on the information provided in this section, our professional opinion is that the project site is not subject to any geologic hazards that preclude or significantly hinder the proposed development. Any existing geological hazards or constraints at the site can be mitigated with common engineering designs and construction methods.

4.5 PAVEMENT DESIGN RECOMMENDATIONS

Following site preparation as previously recommended, the pavements can be grade supported on approved existing soils or properly placed structural soil fill that has been approved by the geotechnical engineer. We have provided recommendations for both flexible and rigid pavement types for your consideration.

4.5.1 Flexible Pavement Design

El Paso County's Engineering Criteria Manual (ECM) minimum acceptable pavement sections and AASHTO flexible pavement design methods have been utilized for pavement recommendations. Our recommendations are based on the assumption that the subgrade has been properly prepared as described previously, which will require subgrade stabilization to improve support conditions at this site. Based on our experience with similar developments, we recommend the following pavement sections for the private roads managed by the owner and aprons connecting to public roads:

Table 4 - Flexible Pavement Recommendations

Pavement Materials	Private Development Roads (inches)	Aprons (inches)
Bituminous Asphalt Surface Mix (Asphalt mix Grading SX / Binder PG 64-22)	1.5	4.0
Bituminous Asphalt Base Mix (Asphalt mix Grading S / Binder PG 58-28)	2.0	-
Aggregate Base Course (ABC)	6.0	8.0

We recommend an aggregate base course equivalent to a Class 6 aggregate in accordance with El Paso County Engineering Criteria Manual (ECM), Table D-6, Aggregate Base Course Materials. The bituminous asphalt pavement surface mix and binder mix thickness should comply with all of the El Paso County and Pikes Peak Region Asphalt Paving Specifications. Compaction requirements for the crushed aggregate base and the bituminous asphalt pavement should generally follow the El Paso County ECM.

4.5.2 Rigid Pavement Design

El Paso County's ECM minimum acceptable pavement sections and AASHTO rigid pavement design methods have been utilized for the rigid pavement recommendations. In areas of trash dumpster pads or areas where large trucks will traverse, we recommend the use of a concrete pavement section. Our recommendations are based on the assumption that the subgrade has been properly prepared. Based on our experience with similar developments, we recommend the following rigid pavement sections:

Table 5 - Rigid Pavement Recommendations

Pavement Materials	Private Development Roads – Heavy Load Areas (inches)	Aprons (inches)
4,000 psi Type I Concrete	8.0	6.0
Compacted Crushed Aggregate Base	6.0	8.0

Concrete should be reinforced with welded wire fabric or reinforcing bars to assist in controlling cracking from drying shrinkage and thermal changes. Sawed or formed control joints should be included for every 225 square feet of area or less (15 feet by 15 feet). Saw cuts should not cut through the welded wire fabric or reinforcing steel, and dowels should be utilized at formed and/or cold joints.

4.5.3 General

Our recommendations are based upon the assumption that the subgrade has been properly prepared as described in previous sections and that if used, off-site soil borrow to be used to backfill to the final subgrade meets the requirements of the structural fill section.

The paved areas should be constructed with positive drainage to direct water off-site and to minimize surface water seeping into the pavement subgrade. The subgrade should have a minimum slope of 1 percent. In downgrade areas, the basestone should extend through the slope to allow water entering the basestone to exit.

We understand that budgetary considerations sometimes warrant thinner pavement sections than those presented. However, the client, owner, and project designers should be aware that thinner pavement sections may result in increased maintenance costs and lower-than-anticipated pavement life. If thinner pavement sections are warranted, alternate reinforced pavement sections can be considered, including the use of geogrid reinforcement.

4.6 LATERAL EARTH PRESSURES

For the design of cast-in-place concrete retaining walls, we have provided equivalent fluid pressures for two backfill conditions for cantilever-type walls. These are 1) active earth pressure for granular backfill (clean sand or gravel) and 2) at-rest earth pressure for granular backfill. The equivalent fluid pressures provided have assumed a level backfill and a wall with a vertical face. The designer should confirm other aspects of the retaining wall design, including an evaluation of local and global stability with respect to the proposed walls and site design.

The provided parameters should not be used for the design of other wall types, such as walls that will retain in-situ materials. Alternative wall types, such as mechanically stabilized earth (MSE), soldier pile, or others, should be designed by a specialty contractor or proprietary wall manufacturer. No other information has been provided at this time regarding the use of retaining walls.

Condition 1 - The active earth pressure for granular backfill will result in an equivalent fluid pressure of 35 pounds per cubic foot (pcf). If the granular backfill is to develop active earth pressure conditions, walls must be flexible and/or free to rotate or translate at the top approximately one inch laterally for every 20 feet of wall height.

Condition 2 - The at-rest earth pressure for granular backfill will result in an equivalent fluid pressure of 55 pcf. For retaining walls that will not rotate or translate, such as building walls or other walls rigidly connected to structures, at-rest conditions will develop.

In each case, forces from surcharge loading, including sloping backfill, should be added to the equivalent fluid pressures. The walls should be properly drained to remove water, or hydrostatic pressure should be added to the design pressure.

The wedge of clean aggregate backfill should have a minimum width of 1 foot at the base of the wall or the width of the footing heel, whichever is greater, and increase in width a minimum of 0.6 feet per foot of wall height. The aggregate should be fully encapsulated with a properly designed geotextile (filter fabric) to prevent the migration of the adjacent soils into the aggregate. Aggregate placed behind the retaining wall should be placed in accordance with the compaction recommendations of this report. However, we caution that operating compaction equipment directly behind the wall can create lateral earth pressures far in excess of those recommended for the design. Therefore, we recommend using hand-operated, smaller compaction equipment in non-vibratory modes within 5 feet of the front of the wall.

For rigid, cast-in-place concrete walls, an ultimate friction factor of 0.35 between foundation concrete and the bearing soils may be used when evaluating friction. Also, an ultimate passive earth pressure resistance of well-compacted soil fill can be approximated by a uniformly acting resistance of 1,000 psf. However, to limit deformation when relying on passive strength, we recommend using a minimum safety factor of 3.0 applied to the ultimate passive resistance value.

4.7 CORROSION POTENTIAL

The water-soluble sulfate content of the soil samples selected for laboratory testing ranged from approximately 0.00 to 0.01, which indicates low (S0) sulfate exposure. Based on the results of our laboratory testing, a review of the Design and Control of Concrete Mixtures published by the Portland Cement Association (PCA), and our experience, Cement type I, general-use Portland cement, may be used for concrete embedded in soils similar to those tested at this site.

Resistivity testing performed on the selected samples obtained from select borings across the site resulted in values ranging between 3530 and 13900 ohm-cm. Additionally, pH values ranged between 6.68 and 7.12. Soil resistivity values below 2,000 ohm-cm generally indicate corrosive soils, while soils with resistivity values over 10,000 ohm-cm are considered non-corrosive. The soils with resistivity values between the two mentioned thresholds are generally considered mild to moderately corrosive. Non-metallic pipes (e.g., PVC or HDPE) are generally recommended for use in soils with mild to moderate corrosivity. If metallic pipes are required, an AWWA coating should be applied, and a cathodic protection system should be designed per AMPP/NACE practice. Ductile iron pipes must be encased in polyethylene encasement protection per AWWA C105, evaluated using DIPRA's DDM, and tested, including dielectric isolation and holiday testing. Moreover, pH values below 5 or above 9 indicate an acidic or alkaline environment, where generally properly coated ductile iron pipes are recommended. Additionally, non-corrosive backfill shall be used in contact with all metallic appurtenances.

5.0 LIMITATIONS

This report has been prepared in accordance with generally accepted geotechnical engineering practice for the specific application to this project. This report is for our geotechnical work only, and no environmental assessment efforts have been performed. The conclusions and preliminary recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, express or implied, is made. At this time, it will be necessary to submit supplementary recommendations and perform additional explorations to provide design-level recommendations.

The analyses and recommendations submitted herein are based, in part, upon the data obtained from the exploration. The nature and extent of variations between the borings will not become evident until construction. If variations appear evident, then we will re-evaluate the recommendations of this report. In the event that any changes in the nature, design, or location of the structures are planned, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and the conclusions modified or verified in writing.

Appendices

VALLEYSHORE ENGINEERING



Appendices

Appendix A

Figures, General Notes, & Boring Logs



VALLEYSHORE ENGINEERING

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865-900-3286

N

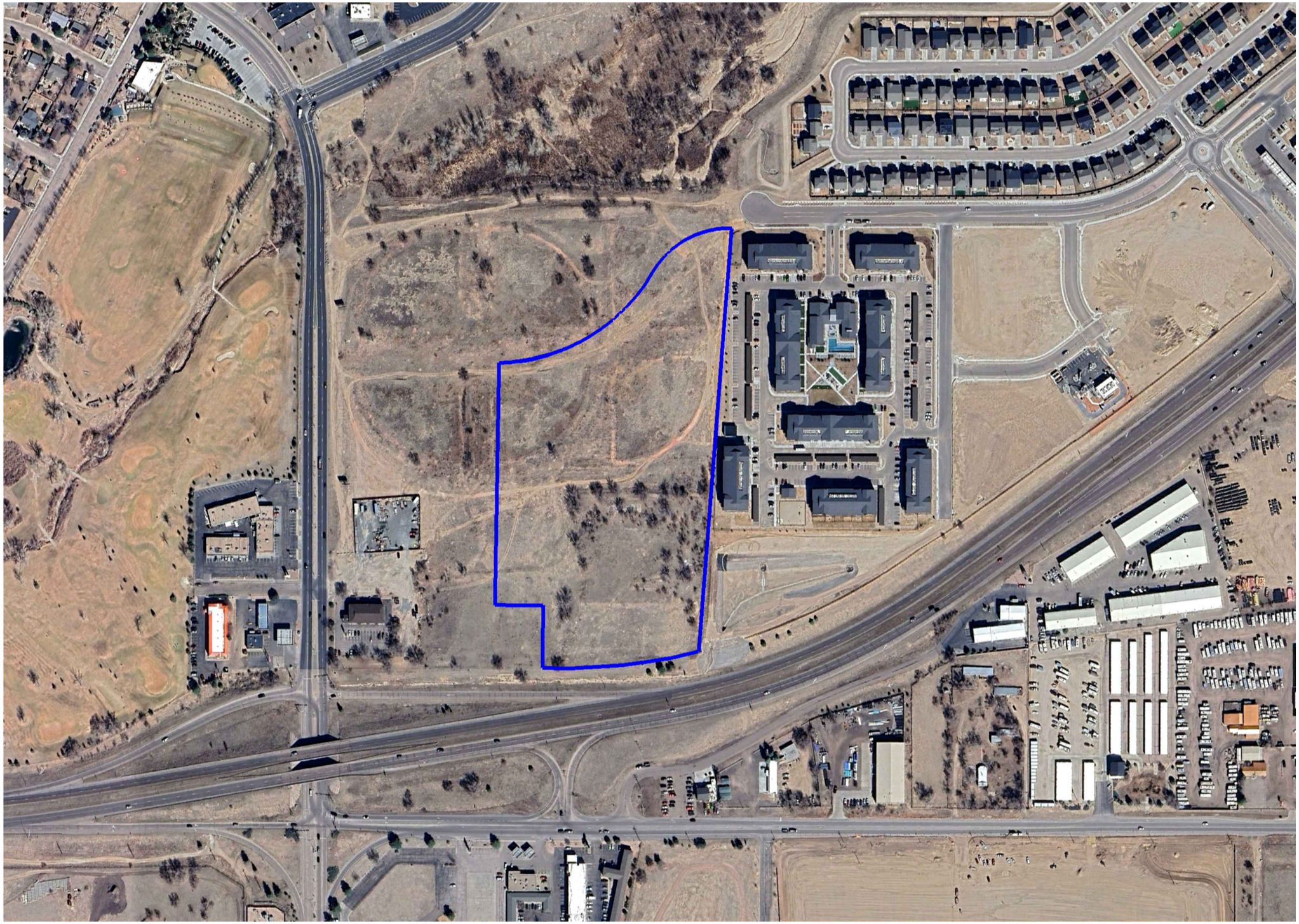
SITE LOCATION PLAN

PROJECT:
HILLPOINTE DEVELOPMENT
PETERSON ROAD
COLORADO SPRINGS, CO

NOTES:
1.) BASE MAP: USGS QUADRANGLE – 2022 ELSMERE, CO

PROJECT NO.:	231348
DRAWN BY:	JPA
APPROVED BY:	TBW
SCALE:	NTS
DATE:	10/1/2025

FIGURE NO.: 1



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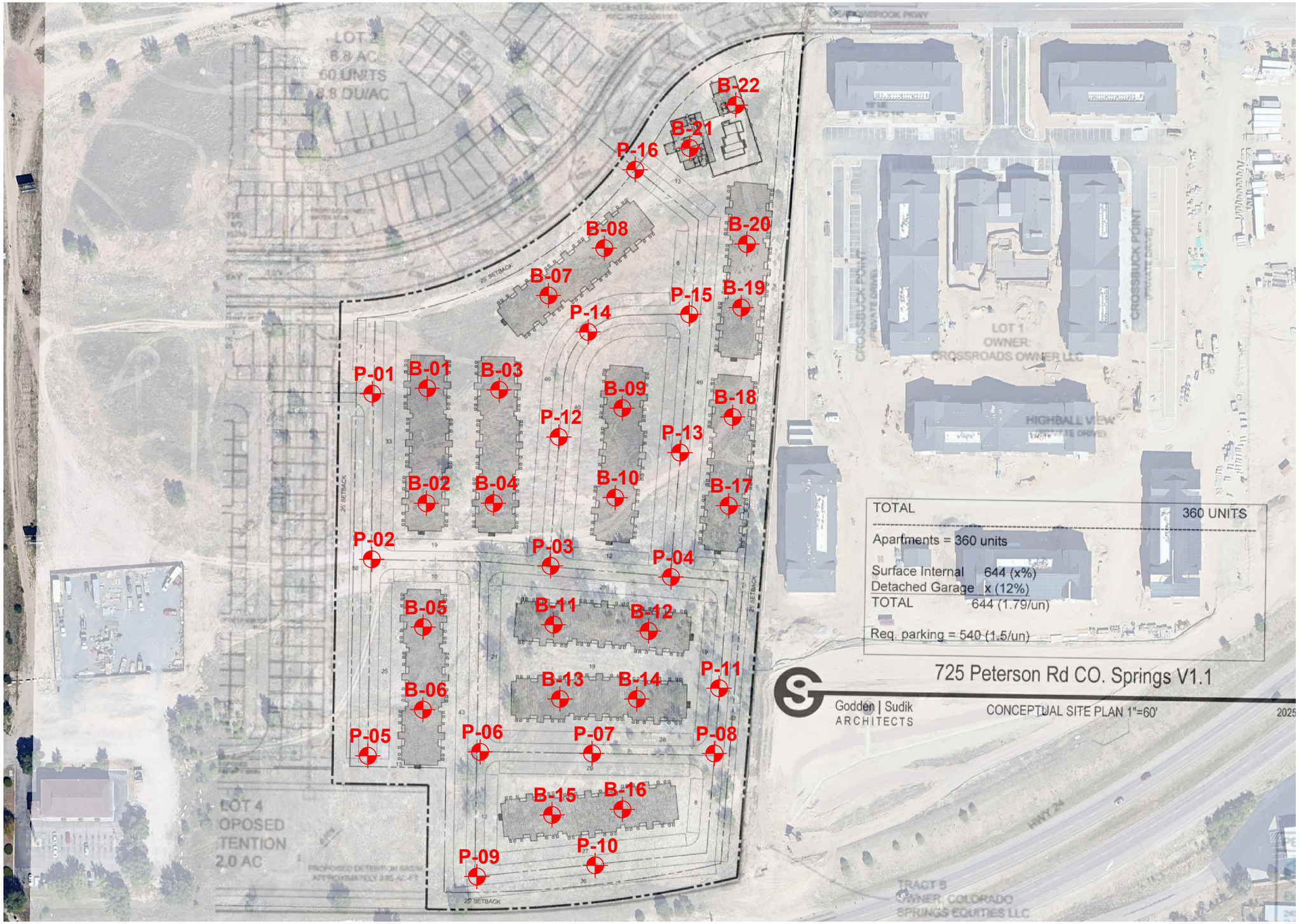
AERIAL SITE BOUNDARY MAP

PROJECT:
HILLPOINTE DEVELOPMENT
PETERSON ROAD
COLORADO SPRINGS, CO

NOTES:
1.) BASE MAP GOOGLE EARTH: IMAGE CIRCA 2025

PROJECT NO.:	231348
DRAWN BY:	JPA
APPROVED BY:	TBW
SCALE:	NTS
DATE:	10/1/2025

FIGURE NO.: 2



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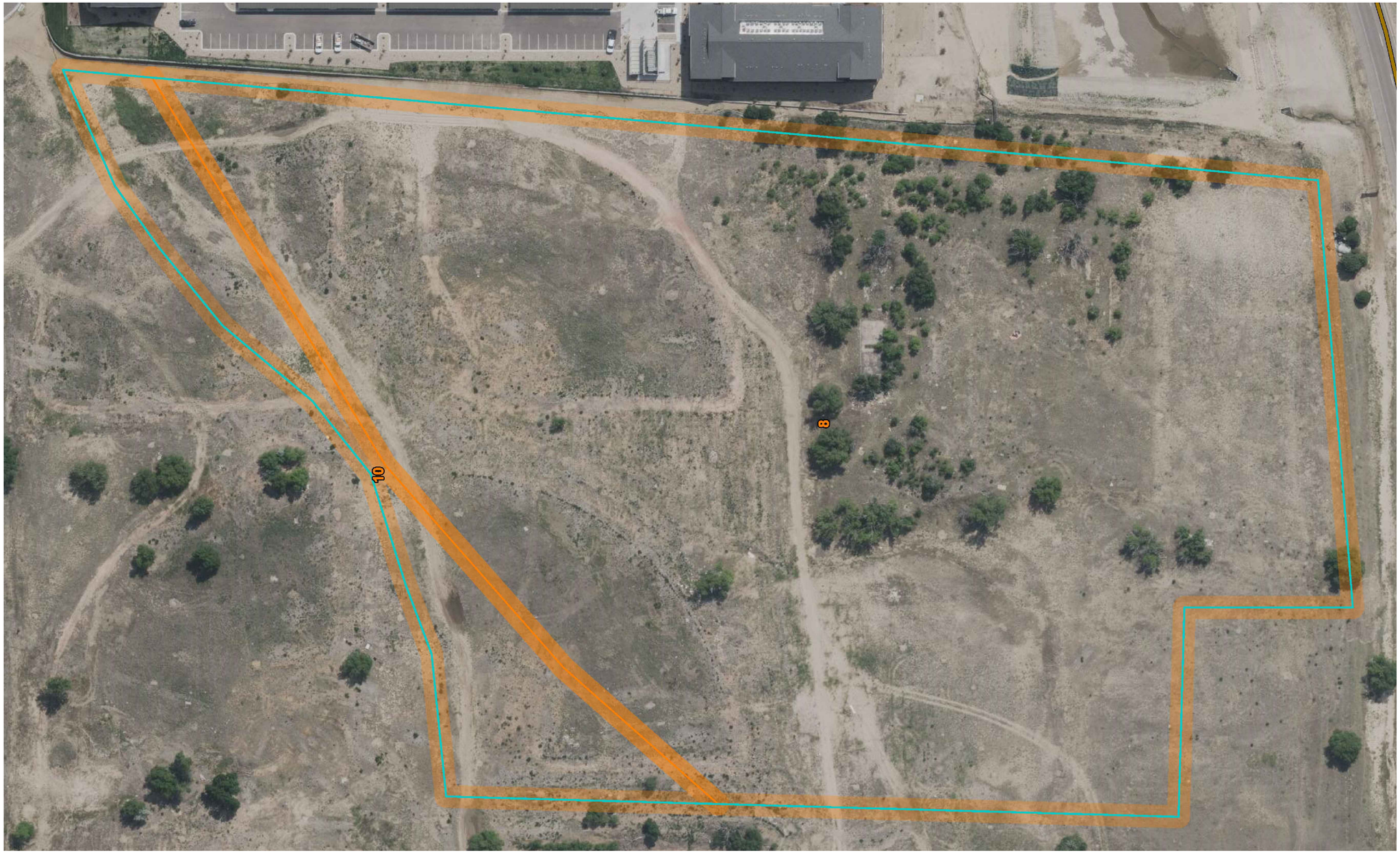
BORING LOCATION PLAN

PROJECT:
HILLPOINTE DEVELOPMENT
PETERSON ROAD
COLORADO SPRINGS, CO

NOTES:
1.) BORING LOCATIONS ARE SHOWN IN GENERAL ARRANGEMENT.
2.) DO NOT USE BORING LOCATIONS FOR DETERMINATIONS OF DISTANCES OR QUANTITIES.
3.) BASE MAP PROVIDED BY: GODDEN–SUDIK ARCHITECTS
◆ LOCATION OF SOIL TEST BORINGS

PROJECT NO.:	231348
DRAWN BY:	JPA
APPROVED BY:	TBW
SCALE:	NTS
DATE:	10/1/2025

FIGURE NO.: 3



Map Unit Symbol	Soil Type	Natural Drainage	Hydrologic Rating	Stratigraphy (in.)	Stratigraphy
8	Blakeland Loamy Sand	Somewhat Excessively Drained	A	0-27, 27-60	Loamy Sand, Sand
10	Blendon Sandy Loam	Well Drained	B	0-36, 36-60	Sandy Loam, Gravelly Sandy Loam

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SOIL TYPE DESCRIPTION MAP

PROJECT:
HILLPOINTE DEVELOPMENT
PETERSON ROAD
COLORADO SPRINGS, CO

NOTES:
1.) BASE MAP: NATURAL RESOURCES CONVERSATION SERVICE: IMAGE CIRCA 2023

PROJECT NO.:	231348
DRAWN BY:	JPA
APPROVED BY:	TBW
SCALE:	NTS
DATE:	10/1/2025

FIGURE NO.: 4



GEOLOGICAL HAZARDS DISCUSSION:

CLOSEST FAULT: RAMPART RANGE FAULT ~ 9 MILES WEST

LIQUEFACTION POTENTIAL: NOT PRESENT BASED ON THE RESULTS OF OUR EXPLORATION

LANDSLIDES, UNSTABLE SLOPES, ROCKFALLS, AND AVALANCHES: NONE NOTED ON THE COLORADO LANDSLIDE INVENTORY AND THE LANDSLIDE INVENTORY OF EL PASO COUNTY DATABASES. THE SITE IS NOT SUBJECT TO ROCKFALLS AND AVALANCHES DUE TO ITS DISTANCE FROM THE NEARBY MOUNTAINS.

FLOODING, MUDFLOWS, AND DEBRIS FLOWS: NOT IN FLOOD ZONE PER COLORADO WATER CONSERVATION BOARD'S COLORADO HAZARD MAPPING & RISK MAP PORTAL AND FEMA FLOOD MAP PANEL 08041C0754G (SHOWN HERE). NOT SUSCEPTIBLE TO DEBRIS FLOW OR MUDFLOW PER THE DEBRIS–FLOW SUSCEPTIBILITY MAPPING OF SELECT COLORADO COUNTIES DATABASE AND CGS OPEN–FILE REPORT 18–11 "DEBRIS FLOW SUSCEPTIBILITY MAP OF EL PASO COUNTY, COLORADO" (2018) BY KEVIN M. MCCOY, MATTHEW L. MORGAN, AND KAREN A. BERRY.

SUBSIDENCE AND ABANDONED MINES OR LANDFILLS: NONE FOUND BASED ON APRIL 1985 "COLORADO SPRINGS SUBSIDENCE INVESTIGATION" BY DAMES & MOORE FOR THE STATE OF COLORADO'S DIVISION OF MINE RECLAMATION, COLORADO HISTORIC COAL MINES DATABASE, AND THE SITE'S HISTORICAL AERIAL PHOTOGRAPHY.

EXPANSIVE, COLLAPSIBLE, AND COMPRESSIBLE SOILS AND ROCK: SITE MAY BE SUSCEPTIBLE TO COLLAPSE POTENTIAL PER THE COLLAPSIBLE SOILS OF COLORADO DATABASE. DUNE AND SHEET SAND DEPOSITS.

SHALLOW GROUNDWATER TABLE AND BEDROCK: NOT ENCOUNTERED. NOT IN STEEPLY DIPPING BEDROCK PER CGS MAPPING (HIMMELREICH AND NOE, 1999).

RADIOACTIVITY AND RADON EXPOSURE: SIMILAR TO NEARBY SITES WITH POSSIBLE EXPOSURE TO RADON.

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GEOLOGICAL HAZARDS MAP

PROJECT:
HILLPOINTE DEVELOPMENT
PETERSON ROAD
COLORADO SPRINGS, CO

NOTES:

PROJECT NO.:	231348
DRAWN BY:	SAM
APPROVED BY:	TBW
SCALE:	NTS
DATE:	07/16/2026

FIGURE NO.: 5

GENERAL NOTES

FINE AND COARSE GRAINED SOIL PROPERTIES

PARTICLE SIZE

BOULDERS:	GREATER THAN 300 mm
COBBLES:	75 mm to 300 mm
GRAVEL:	4.74 mm to 75 mm
COARSE SAND:	2 mm to 4.74 mm
MEDIUM SAND:	0.425 mm to 2 mm
FINE SAND:	0.075 mm to 0.425 mm
SILTS & CLAYS:	LESS THAN 0.075 mm

COARSE GRAINED SOILS (SANDS & GRAVELS)

N-VALUE	RELATIVE DENSITY
0 - 4	VERY LOOSE
5 - 10	LOOSE
11 - 30	MEDIUM DENSE
31 - 50	DENSE
OVER 50	VERY DENSE

FINE GRAINED SOILS (SILTS & CLAYS)

N-VALUE	CONSISTENCY	Qu, PSF
0 - 2	VERY SOFT	0 - 500
3 - 4	SOFT	500 - 1000
5 - 8	FIRM	1000 - 2000
9 - 15	STIFF	2000 - 4000
16 - 30	VERY STIFF	4000 - 8000
OVER 31	HARD	8000 +

STANDARD PENETRATION TEST (ASTM D1586)

THE STANDARD PENETRATION TEST AS DEFINED BY ASTM D1586 IS A METHOD TO OBTAIN A DISTURBED SOIL SAMPLE FOR EXAMINATION AND TESTING AND TO OBTAIN RELATIVE DENSITY AND CONSISTENCY INFORMATON. THE 1.4 INCH I.D./2.0 INCH O.D. SAMPLER IS DRIVEN 3-SIX INCH INCREMENTS WITH A 140 LB. HAMMER FALLING 30 INCHES. THE BLOW COUNTS REQUIRED TO DRIVE THE SAMPLER THE FINAL 2 INCREMENTS ARE ADDED TOGETHER AND DESIGNATED THE N-VALUE. AT TIMES, THE SAMPLER CAN NOT BE DRIVEN THE FULL 18 INCHES. THE FOLLOWING REPRESENTS OUR INTERPRETATION OF THE STANDARD PENETRATION TEST WITH VARIATIONS.

BLOWS/FOOT (N-VALUE)	DESCRIPTION
25	25 BLOWS DROVE SAMPLER 12" AFTER INITIAL 6" SEATING
75/10"	75 BLOWS DROVE SAMPLER 10" AFTER INITIAL 6" SEATING
50/PR	PENETRATION REFUSAL OF SAMPLER AFTER INITIAL 6" SEATING

SAMPLING SYMBOLS

ST:	UNDISTURBED SAMPLE
SS:	SPLIT SPOON SAMPLE
CORE:	ROCK CORE SAMPLE
AU:	AUGER OR BAG SAMPLE

SOIL PROPERTY SYMBOLS

N:	STANDARD PENETRATION, BPF
M:	MOISTURE CONTENT %
LL:	LIQUID LIMIT %
PI:	PLASTICITY INDEX %
Qp:	POCKET PENETROMETER VALUE, TSF
Qu:	UNCONFINED COMPRESSIVE STRENGTH, TSF
DUW:	DRY UNIT WEIGHT, PCF

ROCK PROPERTIES

ROCK QUALITY DESIGNATION (RQD)

PERCENT	QUALITY
90 TO 100	EXCELLENT
75 TO 90	GOOD
50 TO 75	FAIR
25 TO 50	POOR
0 TO 25	VERY POOR

ROCK HARDNESS

VERY SOFT:	ROCK DISINTEGRATES OR EASILY COMPRESSES TO TOUCH: CAN BE HARD TO VERY HARD SOIL.
SOFT:	ROCK IS COHERANT BUT BREAKS EASILY TO THUMB PRESSURE AT SHARP EDGES AND CRUMBLES WITH FIRM HAND PRESSURE.
MODERATELY HARD:	SMALL PIECES CAN BE BROKEN OFF ALONG SHARP EDGES BY CONSIDERABLE HARD THUMB PRESSURE: CAN BE BROKEN BY LIGHT HAMMER BLOWS.
HARD:	ROCK CAN NOT BE BROKEN BY THUMB PRESSURE, BUT CAN BE BROKEN BY MODERATE HAMMER BLOWS.
VERY HARD:	ROCK CAN BE BROKEN BY HEAVY HAMMER BLOWS.

VALLEYSHORE ENGINEERING

Project: **HP Peterson Road**
Project Location: **Colorado Springs, Colorado**
Project Number: **231348**

VALLEYSHORE ENGINEERING

Boring Log Legend

Sheet 1 of 1

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8

COLUMN DESCRIPTIONS

1 Depth (feet): Depth in feet below the ground surface.
2 Graphic Log: Graphic depiction of the subsurface material encountered.
3 Soil Classification: Type of material encountered.
4 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
5 Sample Type: Type of soil sample collected at the depth interval shown.
6 Sample Number: Sample identification number.
7 Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
8 REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

ESHGWT: Estimated Seasonal High Groundwater Table
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

Fat CLAY, CLAY w/SAND, SANDY CLAY (CH)
Lean CLAY, CLAY w/SAND, SANDY CLAY (CL)
Clayey SAND (SC)
Silty SAND (SM)
Poorly graded SAND (SP)
Topsoil

TYPICAL SAMPLER GRAPHIC SYMBOLS

2-inch-OD unlined split spoon (SPT)

OTHER GRAPHIC SYMBOLS

Water level (at time of drilling, ATD)
Water level (after waiting, AW)
Minor change in material properties within a stratum
Inferred/gradational contact between strata
Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-01 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Silty Sand (SM) - with roots and clay - brown and dark brown - slightly moist - medium dense (ALLUVIAL)		1	6-10-9 (19)	
					2	8-8-9 (17)	
5					3	5-10-8 (18)	
		SP	Fine Sand (SP) - with silt and pebbles - light brown, tan, and brown - moist to very moist - medium dense to dense (ALLUVIAL)		4	8-6-11 (17)	
10							
					5	11-10-8 (18)	
15							
					6	14-16-19 (35)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-02 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Silty Sand (SM) - with roots and clay - dark brown - slightly moist - medium dense (ALLUVIAL)		1	7-10-9 (19)	
		SP	Fine Sand (SP) - with silt and pebbles - light brown and tan - dry - medium dense (ALLUVIAL)		2	7-13-15 (28)	
5					3	3-8-11 (19)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, light gray, dark brown, and reddish brown - slightly moist to moist - medium dense (ALLUVIAL)		4	5-10-10 (20)	
10							
					5	7-6-12 (18)	
15							
					6	9-10-12 (22)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-03 **Sheet 1 of 1**

Date(s) Drilled **9/8/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Silty Sand (SM) - with pebbles - brown and tan - dry - loose (ALLUVIAL)		1	5-4-4 (8)	
					2	5-5-5 (10)	
5		SC	Clayey Sand (SC) - with silt - light brown, light gray, and gray - dry - medium dense (ALLUVIAL)		3	4-5-9 (14)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, light gray, tan, and reddish brown - slightly moist to moist - medium dense to dense (ALLUVIAL)		4	12-12-14 (26)	
10							
					5	8-8-8 (16)	
15							
					6	14-15-16 (31)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-04 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Silty Sand (SM) - with roots and clay - dark brown - slightly moist - medium dense (ALLUVIAL)		1	5-7-8 (15)	
		SC	Clayey Sand (SC) - with silt - dark gray, dark brown, brown, and tan - dry - loose to medium dense (ALLUVIAL)		2	5-5-5 (10)	
5					3	6-12-18 (30)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, light gray, tan, and orangish brown - moist - medium dense to dense (ALLUVIAL)		4	10-13-15 (28)	
10							
					5	8-8-10 (18)	
15							
					6	9-16-18 (34)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-05 **Sheet 1 of 1**

Date(s) Drilled **9/8/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0	Topsoil	Topsoil - 3 inch				
	SP	Fine Sand (SP) - with silt and pebbles - brown and dark brown - slightly moist to moist - medium dense (ALLUVIAL)		1	5-7-8 (15)	
				2	3-4-7 (11)	
5				3	7-7-8 (15)	
	SP	Fine Sand (SP) - with silt and pebbles - light brown, tan, and brown - moist to very moist - medium dense to dense (ALLUVIAL)		4	8-11-13 (24)	
10						
				5	18-20-17 (37)	
15						
				6	9-10-9 (19)	
20		The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-06 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0	Topsoil	Topsoil - 5 inch				
	SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, and tan - slightly moist to moist - medium dense to very loose (ALLUVIAL)		1	6-7-8 (15)	
				2	0-0-1 (1)	
5				3	5-8-11 (19)	
	SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, orangish brown, tan, reddish brown, white, and gray - moist to very moist - loose to medium dense (ALLUVIAL)		4	4-4-6 (10)	
10						
				5	6-13-16 (29)	
15						
				6	7-12-13 (25)	
20		The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-07 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0	Topsoil	Topsoil - 8 inch				
	SM	Silty Sand (SM) - with clay and roots - dark brown - slightly moist - medium dense (ALLUVIAL)		1	7-5-8 (13)	
	SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, and tan - slightly moist to moist - loose to medium dense (ALLUVIAL)		2	3-6-3 (9)	
5				3	2-3-4 (7)	
				4	8-8-12 (20)	
10	SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, orangish brown, tan, reddish brown, and gray - moist - dense (ALLUVIAL)		5	12-14-19 (33)	
15				6	15-20-19 (39)	
20		The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-08 **Sheet 1 of 1**

Date(s) Drilled **9/8/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0	Topsoil	Topsoil - 7 inch				
	SM	Silty Sand (SM) - with roots and clay - dark brown - slightly moist - medium dense (ALLUVIAL)		1	5-7-6 (13)	
	SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, and tan - dry - very loose (ALLUVIAL)		2	1-2-1 (3)	
5	CL	Sandy Lean Clay (CL) - with silt - dark gray, gray, and brown - slightly moist - stiff (ALLUVIAL)		3	2-4-8 (12)	
	SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, light gray, and tan - moist - medium dense to dense (ALLUVIAL)		4	8-10-9 (19)	
10						
15				5	11-13-15 (28)	
				6	13-18-22 (40)	
20		The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-09 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 1 foot				
		SM	Silty Sand (SM) - with roots - dark brown - dry - medium dense (ALLUVIAL)		1	5-6-6 (12)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, light gray, and tan - slightly moist to moist - loose to medium dense (ALLUVIAL)		2	2-2-3 (5)	
5					3	3-4-7 (11)	
					4	6-10-13 (23)	
10							
					5	11-14-13 (27)	
15							
		CL	Lean Clay (CL) - with silt - gray, dark gray, and light brown - moist - firm (ALLUVIAL)		6	4-3-3 (6)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-10 **Sheet 1 of 1**

Date(s) Drilled **9/8/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0	Topsoil	Topsoil - 6 inch				
	SM	Silty Sand (SM) - with clay and roots - dark brown - slightly moist - medium dense (ALLUVIAL)		1	8-7-6 (13)	
	SP	Fine Sand (SP) - with silt and clay - brown - slightly moist - loose (ALLUVIAL)		2	3-4-5 (9)	
5	SP	Fine Sand (SP) - with silt and pebbles - brown and light brown - moist - loose (ALLUVIAL)		3	4-3-5 (8)	
	SM	Silty Sand (SM) - with clay, iron staining and pebbles - brown, dark brown, dark gray, and reddish brown - moist - medium dense (ALLUVIAL)		4	3-9-12 (21)	
10	SP	Fine Sand (SP) - with silt and pebbles - light brown - moist - medium dense (ALLUVIAL)		5	13-15-15 (30)	
15				6	11-11-14 (25)	
20		The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-11 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0	Topsoil	Topsoil - 7 inch				
	SM	Silty Sand (SM) - with roots - dark brown - slightly moist - loose (ALLUVIAL)		1	3-3-3 (6)	
	SP	Fine Sand (SP) - with silt and pebbles - dark brown and dark gray - slightly moist to moist - loose to dense (ALLUVIAL)		2	3-3-3 (6)	
5				3	4-7-11 (18)	
				4	14-15-16 (31)	
10						
	SP	Fine Sand (SP) - with silt and pebbles - light brown - moist - medium dense (ALLUVIAL)		5	10-11-13 (24)	
15						
				6	8-9-13 (22)	
20		The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-12 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Silty Sand (SM) - with roots - dark brown - slightly moist - loose (ALLUVIAL)		1	3-4-3 (7)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, tan, and light gray - slightly moist to moist - loose to medium dense (ALLUVIAL)		2	4-3-2 (5)	
5					3	7-10-11 (21)	
					4	14-12-11 (23)	
10							
					5	11-11-13 (24)	
15							
					6	11-14-15 (29)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-13 **Sheet 1 of 1**

Date(s) Drilled **9/8/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 6 inch				
		SM	Silty Sand (SM) - with roots - dark brown - slightly moist - loose (ALLUVIAL)		1	4-3-4 (7)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, tan, gray, and reddish brown - slightly moist to moist - medium dense (ALLUVIAL)		2	8-14-15 (29)	
5					3	1-13-17 (30)	
					4	10-10-14 (24)	
10							
					5	8-10-12 (22)	
15							
					6	11-14-15 (29)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-14 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 7 inch				
		SM	Silty Sand (SM) - with roots - dark brown - slightly moist - loose (ALLUVIAL)		1	3-3-4 (7)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, and tan - slightly moist to moist - loose to medium dense (ALLUVIAL)		2	3-2-5 (7)	
5					3	6-5-14 (19)	
					4	10-13-15 (28)	
10							
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, tan, and gray - moist - medium dense (ALLUVIAL)		5	12-13-14 (27)	
15							
					6	9-11-13 (24)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-15 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 6 inch				
		SM	Silty Sand (SM) - with clay and roots - dark brown, brown, and tan - slightly moist - medium dense (ALLUVIAL)		1	3-5-6 (11)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, reddish brown, and tan - slightly moist to moist - medium dense (ALLUVIAL)		2	4-5-12 (17)	
5					3	11-11-14 (25)	
					4	9-13-15 (28)	
10							
					5	11-12-12 (24)	
15							
					6	10-11-13 (24)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-16 **Sheet 1 of 1**

Date(s) Drilled **9/8/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Fine Sand (SP) - with silt and pebbles - brown, dark brown, tan, reddish brown, and gray - slightly moist - loose (ALLUVIAL)		1	3-3-3 (6)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, tan, reddish brown, and gray - slightly moist - loose to medium dense (ALLUVIAL)		2	3-3-4 (7)	
5					3	5-7-14 (21)	
		SP	Fine Sand (SP) - with clay, silt, and pebbles - brown, dark brown, orangish brown, tan, reddish brown, and gray - moist - medium dense (ALLUVIAL)		4	13-15-15 (30)	
10							
		SP	Fine Sand (SP) - with silt and pebbles - brown, tan, reddish brown, and gray - moist - dense to medium dense (ALLUVIAL)		5	12-15-16 (31)	
15							
					6	7-13-15 (28)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-17 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Silty Sand (SM) - with roots - dark brown - slightly moist - very loose (ALLUVIAL)		1	2-2-2 (4)	
		SM	Silty Sand (SM) - light brown - dry - loose (ALLUVIAL)		2	2-2-3 (5)	
5							
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, and tan - slightly moist to moist - medium dense (ALLUVIAL)		3	7-8-11 (19)	
					4	12-13-15 (28)	
10							
					5	9-12-14 (26)	
15							
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, tan, reddish brown, and gray - very moist - medium dense (ALLUVIAL)		6	10-12-14 (26)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-18 **Sheet 1 of 1**

Date(s) Drilled **9/8/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 7 inch				
		SM	Silty Sand (SM) - light brown and tan - dry - medium dense (ALLUVIAL)		1	5-6-7 (13)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, gray, and tan - slightly moist to moist - medium dense (ALLUVIAL)		2	5-12-15 (27)	
5					3	4-12-13 (25)	
					4	12-12-14 (26)	
10		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, orangish brown, tan, reddish brown, and gray - moist to very moist - medium dense to dense (ALLUVIAL)		5	11-12-12 (24)	
15					6	12-15-20 (35)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-19 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Silty Sand (SM) - with clay and roots - dark brown and brown - dry - medium dense (ALLUVIAL)		1	4-4-7 (11)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, and tan - slightly moist - medium dense (ALLUVIAL)		2	9-11-12 (23)	
5							
		SP	Fine Sand (SP) - with silt and pebbles - light brown, brown, and tan - slightly moist to moist - medium dense (ALLUVIAL)		3	3-15-15 (30)	
					4	13-13-15 (28)	
10							
					5	5-9-12 (21)	
15							
					6	10-14-14 (28)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-20 **Sheet 1 of 1**

Date(s) Drilled **9/8/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0	Topsoil	Topsoil - 5 inch				
	SM	Silty Sand (SM) - with clay and roots - dark brown and brown - dry - medium dense (ALLUVIAL)		1	4-6-7 (13)	
	SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, gray, reddish brown, and tan - slightly moist - medium dense (ALLUVIAL)		2	5-7-9 (16)	
5	SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, gray, reddish brown, and tan - moist - medium dense to dense (ALLUVIAL)		3	10-12-12 (24)	
				4	10-13-18 (31)	
10						
				5	11-12-14 (26)	
15						
				6	11-14-16 (30)	
20		The borehole was terminated at 20 feet.				

Project: **HP Peterson Road**	VALLEYSHORE ENGINEERING	Log of Boring B-21
Project Location: **Colorado Springs, Colorado**		**Sheet 1 of 1**
Project Number: **231348**		

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 3 inch				
		SM	Silty Sand (SM) - with clay and pebbles - dark brown - slightly moist - loose (ALLUVIAL)		1	2-6-4 (10)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, and tan - moist - loose to medium dense (ALLUVIAL)		2	6-4-5 (9)	
5					3	4-7-7 (14)	
		CH	Fat Clay (CH) - with silt - dark gray and brown - moist - stiff (ALLUVIAL)		4	3-4-5 (9)	
10							
		SP	Fine Sand (SP) - with silt, clay, and pebbles - dark brown, tan, and gray - very moist - medium dense (ALLUVIAL)		5	4-6-8 (14)	
15							
					6	5-7-10 (17)	
20			The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring B-22 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0	Topsoil	Topsoil - 10 inch				
	SM	Silty Sand (SM) - with roots - dark brown and dark gray - slightly moist - loose (ALLUVIAL)		1	3-3-6 (9)	
	SM	Silty Sand (SM) - light brown and brown - slightly moist - very loose (ALLUVIAL)		2	2-2-1 (3)	
5	SC	Clayey Sand (SC) - with silt - dark gray and light brown - moist - medium dense (ALLUVIAL)		3	3-5-8 (13)	
	SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, tan, reddish brown, and gray - moist - medium dense to dense (ALLUVIAL)		4	9-10-11 (21)	
10						
15				5	8-13-11 (24)	
				6	11-15-18 (33)	
20		The borehole was terminated at 20 feet.				

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-01 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 10 inch				
		SM	Silty Sand (SM) - with roots - dark brown and dark gray - slightly moist - medium dense (ALLUVIAL)		1	8-11-13 (24)	
5		SP	Fine Sand (SP) - with silt and pebbles - dark brown, dark gray, and tan - slightly moist - medium dense (ALLUVIAL)		2	7-6-7 (13)	
		SP	Fine Sand (SP) - with silt and pebbles - light brown, brown, and tan - moist - medium dense (ALLUVIAL)		3	6-6-7 (13)	
					4	2-8-5 (13)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-02 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 5 inch				
		SM	Silty Sand (SM) - with pebbles - dark brown - dry - loose (ALLUVIAL)		1	3-4-3 (7)	
		SP	Fine Sand (SP) - with silt and pebbles - brown and tan - slightly moist - medium dense (ALLUVIAL)		2	4-5-7 (12)	
5					3	7-8-9 (17)	
		SP	Fine Sand (SP) - with clay, silt, and pebbles - light brown and tan - moist - loose (ALLUVIAL)		4	2-2-3 (5)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-03 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 10 inch				
		SM	Silty Sand (SM) - with pebbles - dark brown - dry - loose (ALLUVIAL)		1	4-4-4 (8)	
		SP	Fine Sand (SP) - with silt and pebbles - light brown, light gray, and tan - slightly moist to moist - loose to medium dense (ALLUVIAL)		2	5-5-5 (10)	
5					3	9-8-6 (14)	
					4	11-12-16 (28)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-04 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Silty Sand (SM) - with roots - dark brown - dry - medium dense (ALLUVIAL)		1	5-6-6 (12)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, and tan - slightly moist - medium dense (ALLUVIAL)		2	4-6-8 (14)	
5					3	8-9-11 (20)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, orangish brown, tan, and reddish brown- moist - medium dense (ALLUVIAL)		4	10-11-14 (25)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-05 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 5 inch				
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, gray, and tan - slightly moist to moist - medium dense (ALLUVIAL)		1	5-8-8 (16)	
					2	8-10-10 (20)	
5					3	7-6-8 (14)	
					4	6-10-12 (22)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-06 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 6 inch				
		SM	Silty Sand (SM) - with roots and pebbles - dark brown, brown, and tan - slightly moist - medium dense (ALLUVIAL)		1	6-5-8 (13)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, reddish brown, gray, and tan - slightly moist to moist - medium dense (ALLUVIAL)		2	6-8-7 (15)	
5					3	7-8-6 (14)	
					4	8-6-5 (11)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-07 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 5 inch				
		SM	Silty Sand (SM) - with roots and pebbles - dark brown, brown, and tan - slightly moist - loose (ALLUVIAL)		1	3-3-3 (6)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, reddish brown, and tan - slightly moist to moist - loose to dense (ALLUVIAL)		2	1-3-3 (6)	
5					3	3-15-19 (34)	
					4	12-14-15 (29)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-08 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 3 inch				
		SM	Silty Sand (SM) - with roots - brown and light brown - dry - medium dense (ALLUVIAL)		1	4-7-6 (13)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, tan, gray, and reddish brown - slightly moist to moist - dense to medium dense (ALLUVIAL)		2	6-14-18 (32)	
5					3	4-13-14 (27)	
					4	9-13-12 (25)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-09 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 5 inch				
		SM	Silty Sand (SM) - with roots - dark brown - dry - very loose (ALLUVIAL)		1	4-2-2 (4)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, reddish brown, gray, and tan - slightly moist - loose to medium dense (ALLUVIAL)		2	3-5-5 (10)	
5					3	4-5-5 (10)	
					4	5-6-8 (14)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-10 **Sheet 1 of 1**

Date(s) Drilled **9/9/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 5 inch				
		SM	Silty Sand (SM) - with roots - dark brown - dry - medium dense (ALLUVIAL)		1	4-12-5 (17)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, gray, reddish brown, and tan - slightly moist to moist - medium dense to dense (ALLUVIAL)		2	5-10-15 (25)	
5					3	13-18-13 (31)	
					4	12-9-9 (18)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-11 **Sheet 1 of 1**

Date(s) Drilled **9/8/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 7 inch				
		SM	Silty Sand (SM) - with roots - dark brown - dry - medium dense (ALLUVIAL)		1	6-6-6 (12)	
		SM	Silty Sand (SM) - light brown and tan - dry - loose (ALLUVIAL)		2	3-3-4 (7)	
5		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, orangish brown, tan, reddish brown, and gray - slightly moist - medium dense (ALLUVIAL)		3	4-8-9 (17)	
					4	13-13-13 (26)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-12 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 6 inch				
		SM	Silty Sand (SM) - with clay and roots - dark brown - dry - medium dense (ALLUVIAL)		1	7-8-6 (14)	
		SM	Silty Sand (SM) - brown, dark brown, and tan - slightly moist - medium dense (ALLUVIAL)		2	4-6-7 (13)	
5		CL	Lean Clay (CL) - with silt, gypsum, and iron staining - gray, reddish brown, and white - slightly moist - stiff (ALLUVIAL)		3	6-4-5 (9)	
		SP	Fine Sand (SP) - with silt and pebbles - light brown, orangish brown, and tan - moist - medium dense (ALLUVIAL)		4	11-13-11 (24)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-13 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 6 inch				
		SM	Silty Sand (SM) - with clay and roots - dark brown and brown - dry - medium dense (ALLUVIAL)		1	5-10-10 (20)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, gray, reddish brown, and tan - slightly moist to moist - medium dense (ALLUVIAL)		2	7-9-9 (18)	
5					3	9-13-14 (27)	
					4	9-13-12 (25)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-14 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Silty Sand (SM) - with clay and roots - dark brown and black - dry - loose (ALLUVIAL)		1	3-4-4 (8)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, orangish brown, tan, reddish brown, and gray - slightly moist to moist - medium dense (ALLUVIAL)		2	5-6-8 (14)	
5					3	7-11-5 (16)	
					4	9-9-10 (19)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-15 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Silty Sand (SM) - with roots - dark brown - dry - medium dense (ALLUVIAL)		1	5-6-6 (12)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, gray, reddish brown, and tan - slightly moist - loose (ALLUVIAL)		2	2-3-3 (6)	
5					3	3-3-4 (7)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, light brown, orangish brown, tan, reddish brown, and gray - moist - medium dense (ALLUVIAL)		4	4-10-9 (19)	
10			The borehole was terminated at 10 feet.				
15							
20							

Project: **HP Peterson Road** Project Location: **Colorado Springs, Colorado** Project Number: **231348**	VALLEYSHORE ENGINEERING	Log of Boring P-16 **Sheet 1 of 1**

Date(s) Drilled **9/10/2025**	Logged By **JPA**	Checked By **TBW**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **4 in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **CME-45C**	Drilling Contractor **Elite Drilling Services**	Approximate Surface Elevation
Groundwater Level and Date Measured **Not encountered.**	Sampling Method(s) **SPT**	Hammer Data **30 in, 140 lbs**
Borehole Backfill **Backfilled with cuttings**	Location	

Depth (feet)	Graphic Log	Soil Classification	MATERIAL DESCRIPTION	Sample Type	Sample Number	Sampling Resistance, blows/ft	REMARKS AND OTHER TESTS
0		Topsoil	Topsoil - 8 inch				
		SM	Silty Sand (SM) - with roots - dark brown - dry - loose (ALLUVIAL)		1	7-5-3 (8)	
		SP	Fine Sand (SP) - with silt and pebbles - brown, dark brown, gray, reddish brown, and tan - slightly moist - loose (ALLUVIAL)		2	4-4-4 (8)	
5					3	3-3-4 (7)	
		SM	Silty Sand (SM) - with clay and pebbles - brown, dark brown, dark gray - moist - loose (ALLUVIAL)		4	2-3-4 (7)	
10			The borehole was terminated at 10 feet.				
15							
20							

Appendices

Appendix B

Laboratory Test Results

VALLEYSHORE ENGINEERING



SUMMARY OF LABORATORY TEST RESULTS

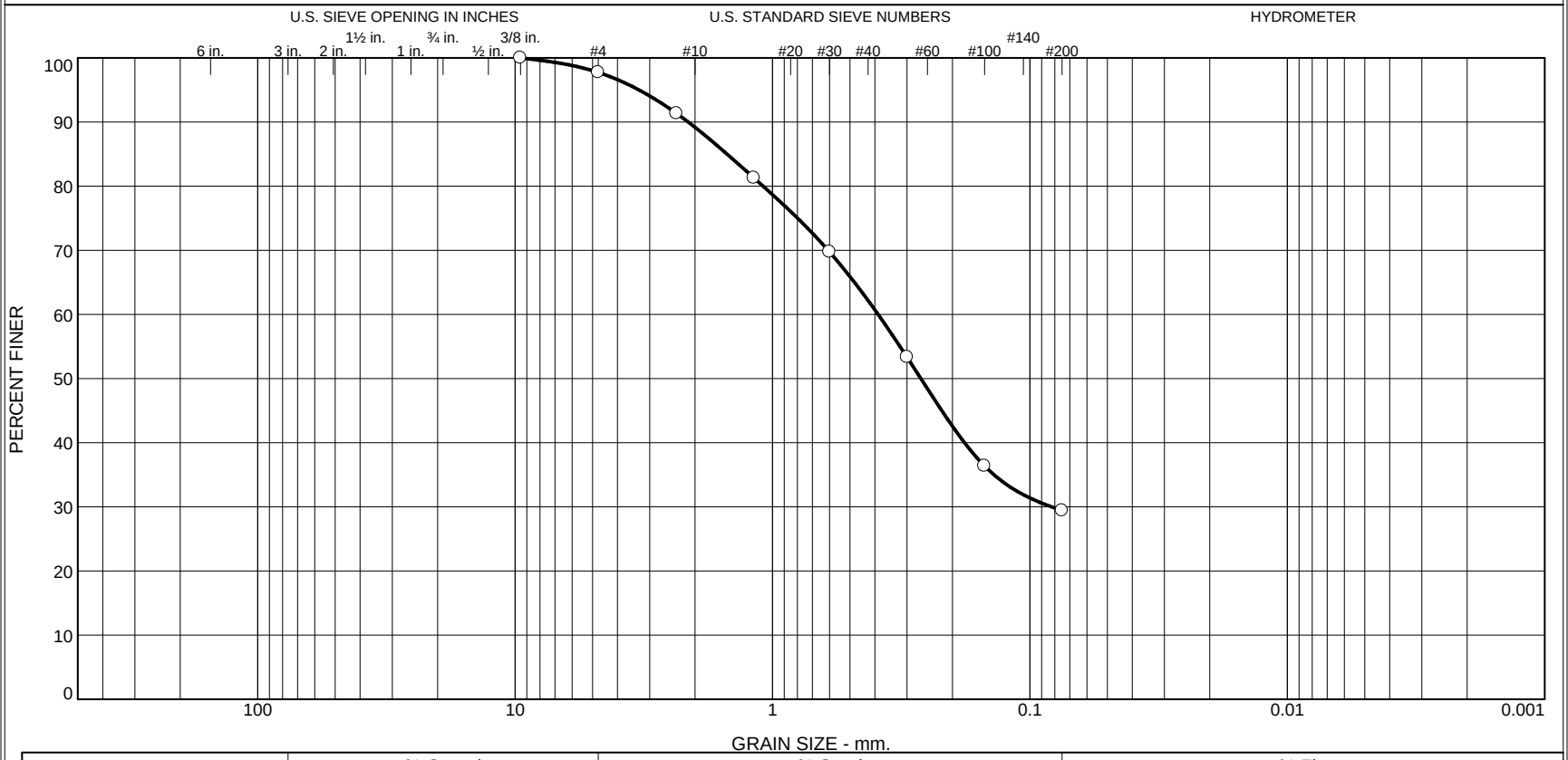
					ATTERBERG LIMITS				Project: HP Peterson Road Colorado Springs Project Number: 231348 Date: October 07, 2025
Sample Boring	**Sample Type***	**Depth (ft.)**	**Natural Moisture (%)**	**Dry Density (pcf)**	**Liquid Limit**	**Plasticity Index**	**USCS**	**Other Tests ****	**Soil Description**
B8	S1	1.0-2.5	10.3	--	nv	np	SM	S	Sand, brown
B8	S3	6.0-7.5	17.8	--	29	9	CL	S	Sandy Clay, grayish brown & brown
B9	S6	18.5-20.0	35.1	--	39	18	CL	S	Clay, silty, grayish brown
B10	S4	8.5-10.0	7.6	--	nv	np	SM	S	Sand, light brown
B21	S4	8.5-10.0	27.7	--	52	30	CH	S	Clay, grayish brown
B22	S3	6.0-7.5	15.4	--	28	9	SC	S	Sandy Clay, gray & brown
P2	S4	8.5-10.0	18.8	--	nv	np	SM	S	Sand, light brown & tan
P12	S3	6.0-7.5	24.3	--	45	25	CL	S	Clay, silty, light brown
P16	S4	8.5-10.0	13.6	--	nv	np	SM	S	Sand, gray & brown

***UD-SHELBY TUBE SAMPLE, S-SPLIT SPOON SAMPLE, B-BULK SAMPLE, J-JAR SAMPLE**
****TEST RESULTS REPORTED ON OTHER SHEETS**

SCHNABEL **Engineering**

T-TRIAXIAL
S-SIEVE OR GRAIN SIZE ANALYSIS
U-UNCONFINED COMPRESSION
P-PROCTOR TEST
K-PERMEABILITY
C-CONSOLIDATION

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	2.3	8.5	27.0	32.8	29.4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○		B8 S1	1.0-2.5	10/07/25	SM	Sand, brown	10.3	nv	np

Client Valleyshore Engineering

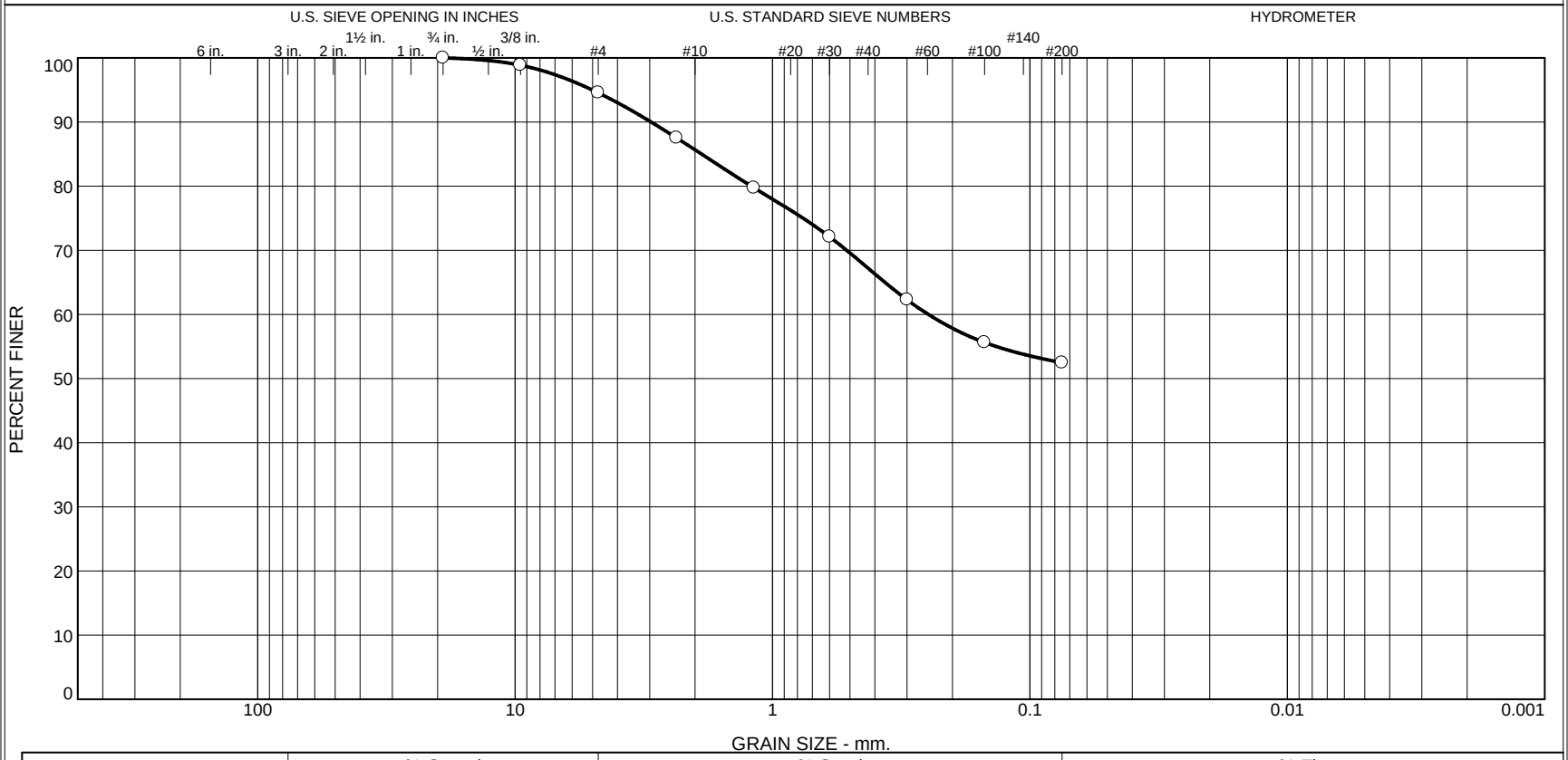
Project HP Peterson Road

Project No. 231348 | Figure

Schnabel Engineering, LLC

Knoxville, Tennessee

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.4	8.9	18.5	14.7	52.5	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
	B8 S3	6.0-7.5	10/07/25	CL	Sandy clay, grayish brown & brown	17.8	29	20

Client Valleyshore Engineering

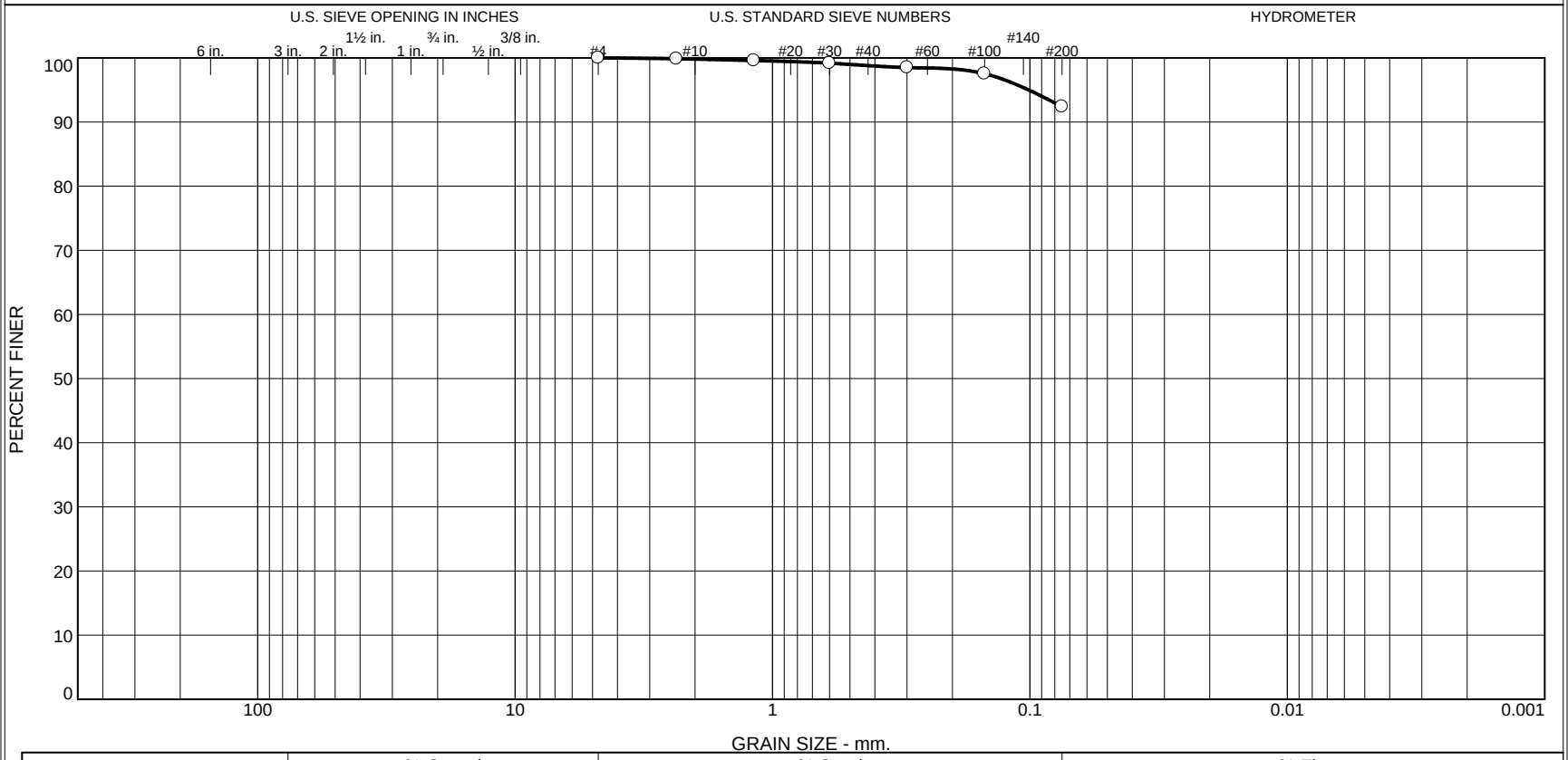
Project HP Peterson Road

Project No. 231348 | Figure

Schnabel Engineering, LLC

Knoxville, Tennessee

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.0	6.4	92.4	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
	B9 S6	18.5-20.0	10/07/25	CL	Clay, silty, grayish brown	35.1	39	21

Client Valleyshore Engineering

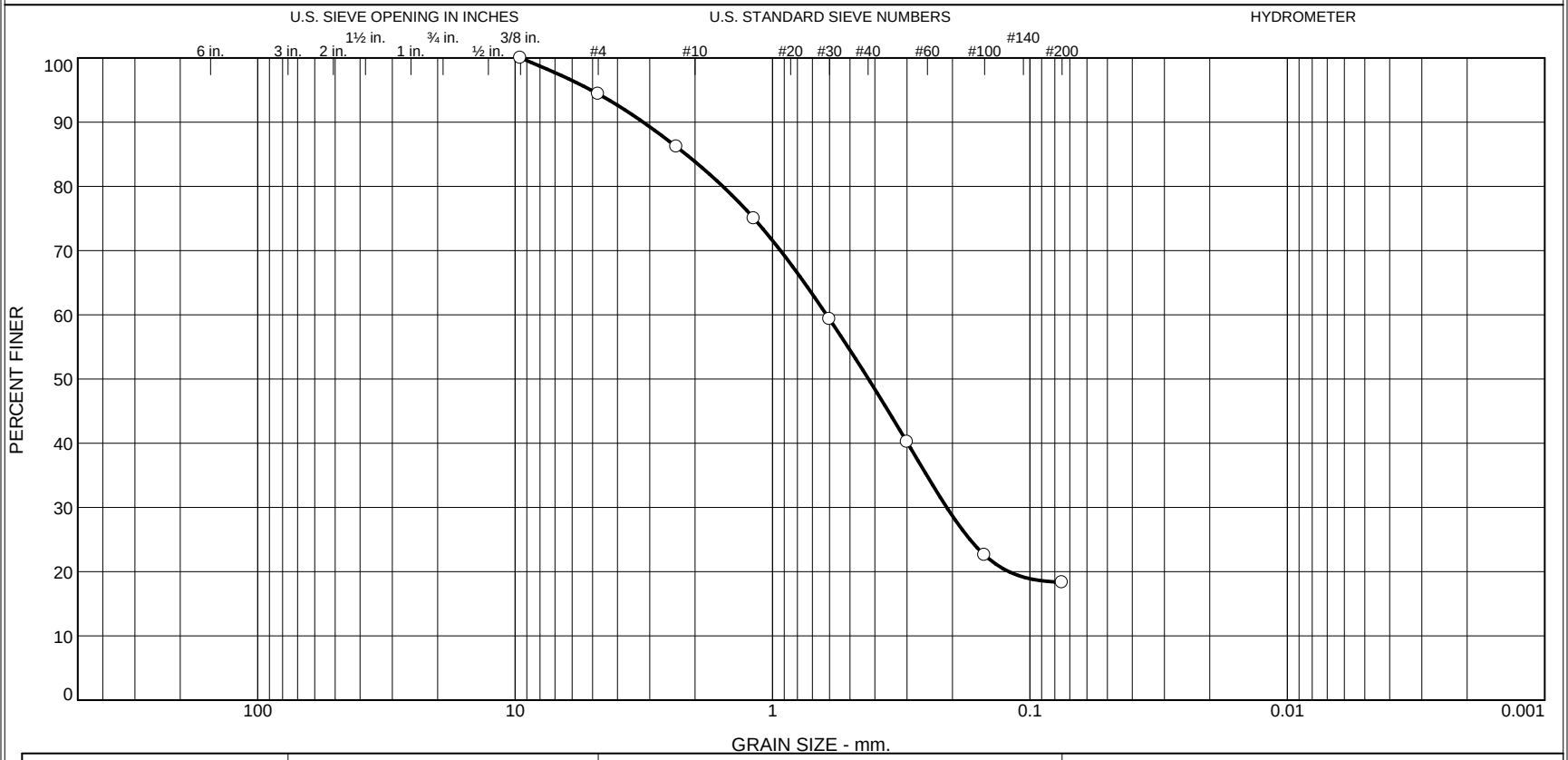
Project HP Peterson Road

Project No. 231348 | Figure

Schnabel Engineering, LLC

Knoxville, Tennessee

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	5.6	10.6	33.7	31.8	18.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○		B10 S4	8.5-10.0	10/07/25	SM	Sand, light brown	7.6	nv	np

Client Valleyshore Engineering

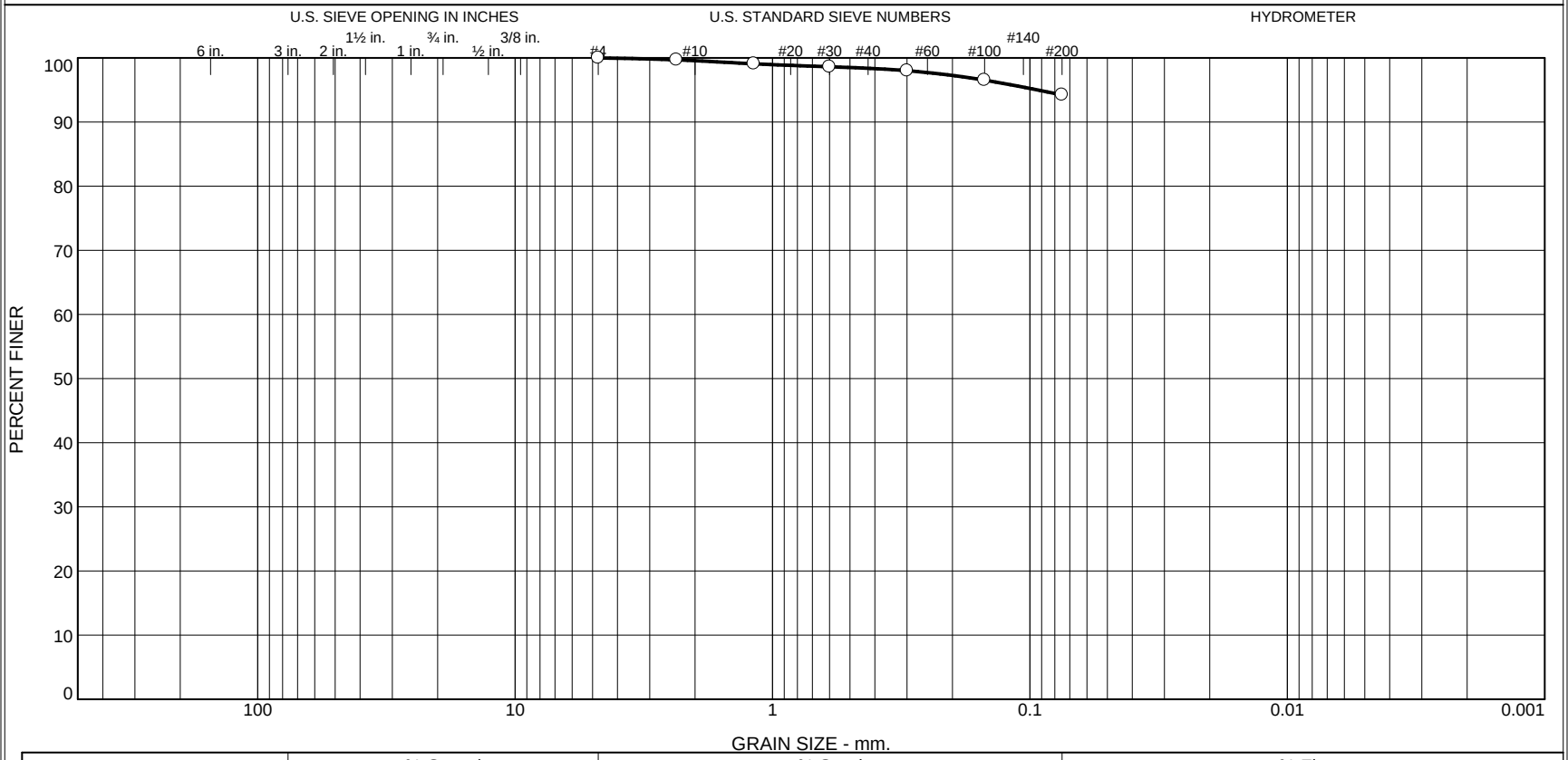
Project HP Peterson Road

Project No. 231348 | Figure

Schnabel Engineering, LLC

Knoxville, Tennessee

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.2	4.2	94.2	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
	B21 S4	8.5-10.0	10/07/25	CH	Clay, grayish brown	27.7	52	22

Client Valleyshore Engineering

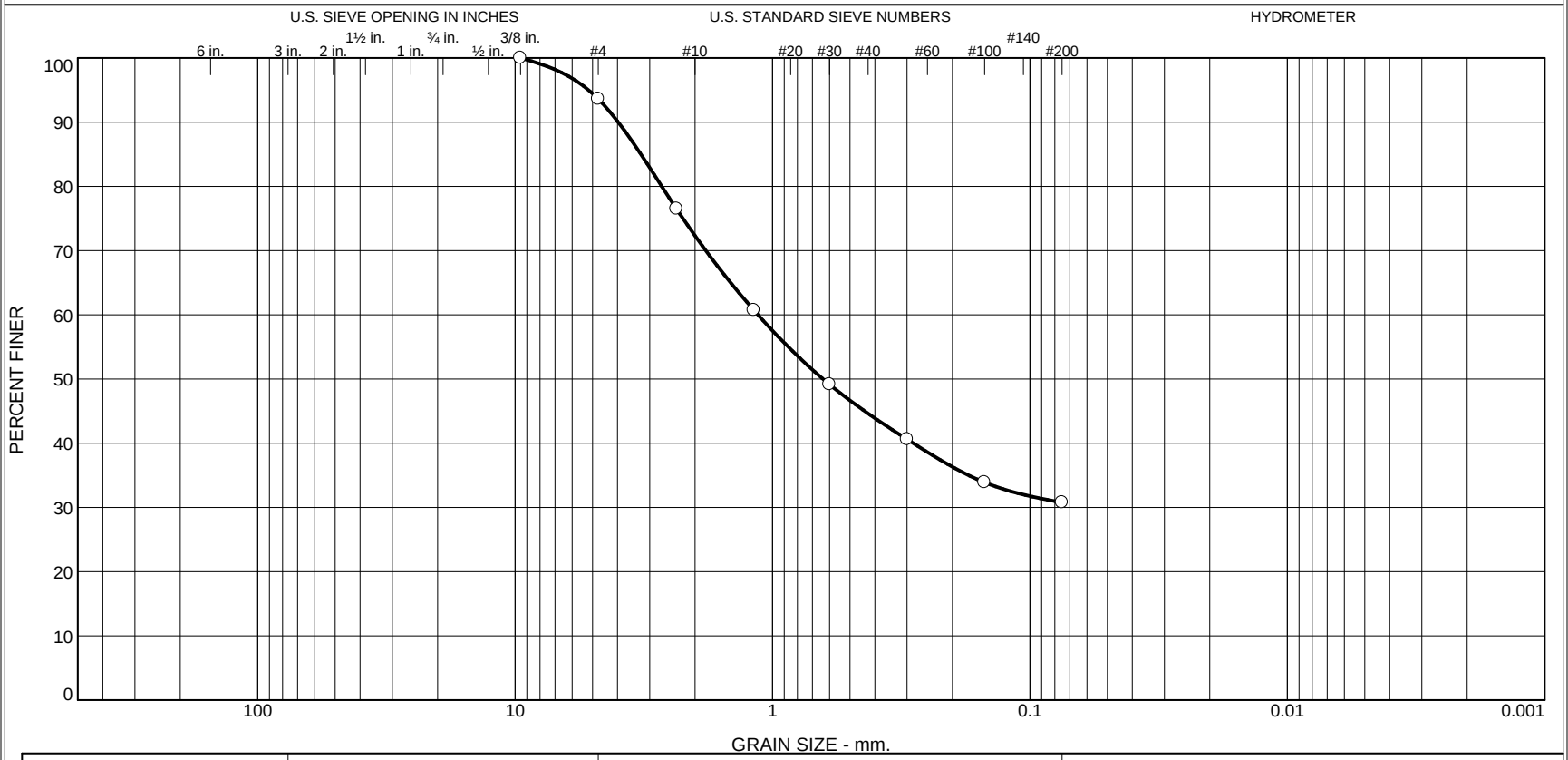
Project HP Peterson Road

Project No. 231348 | Figure

Schnabel Engineering, LLC

Knoxville, Tennessee

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	6.4	21.3	27.7	13.8	30.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○		B22 S3	6.0-7.5	10/07/25	SC	Sandy Clay, gray & brown	15.4	28	19

Client Valleyshore Engineering

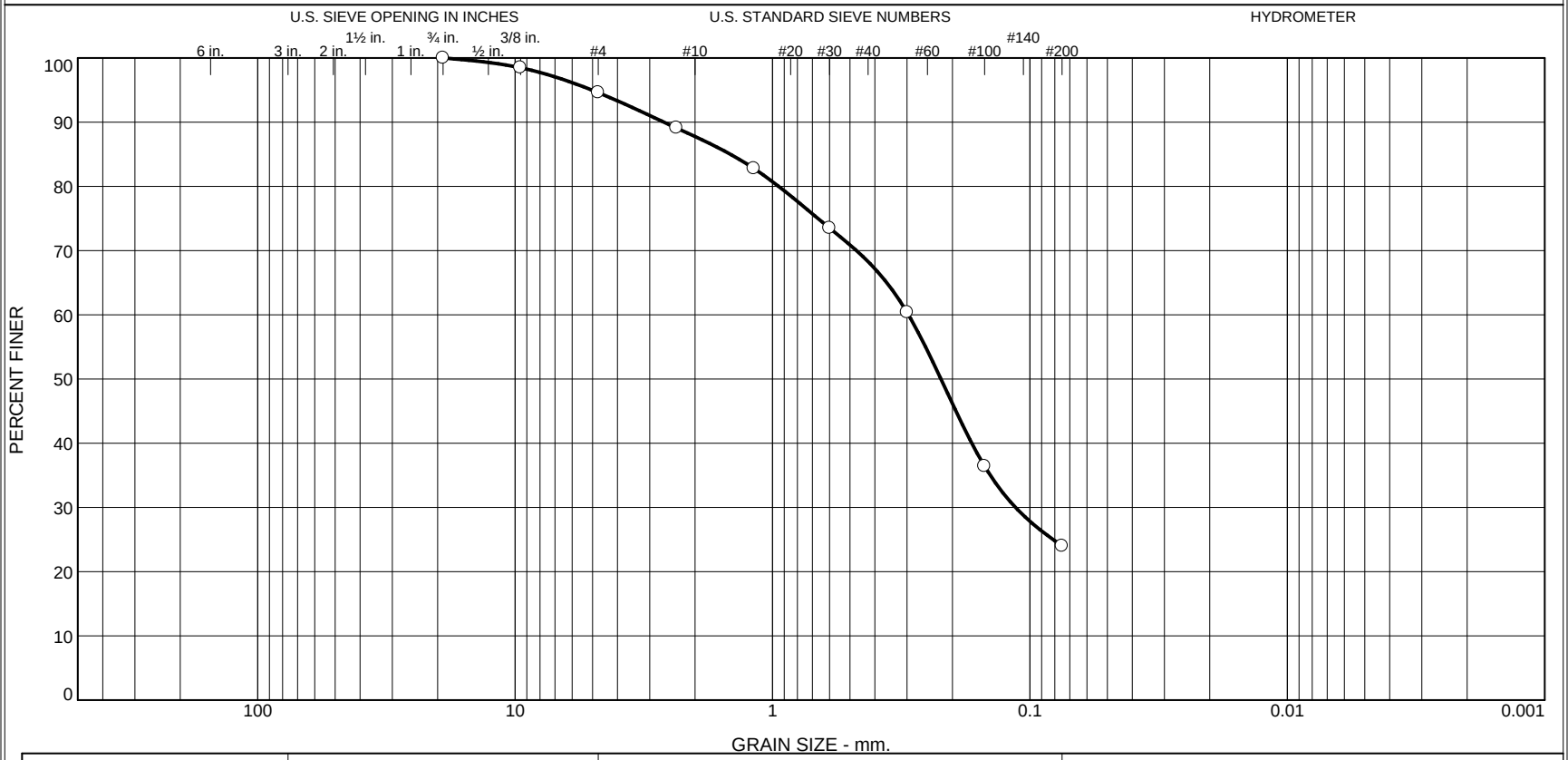
Project HP Peterson Road

Project No. 231348 | Figure

Schnabel Engineering, LLC

Knoxville, Tennessee

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.4	6.8	19.5	44.3	24.0	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
	P2 S4	8.5-10.0	10/07/25	SM	Sand, light brown & tan	20.7	nv	np

Client Valleyshore Engineering

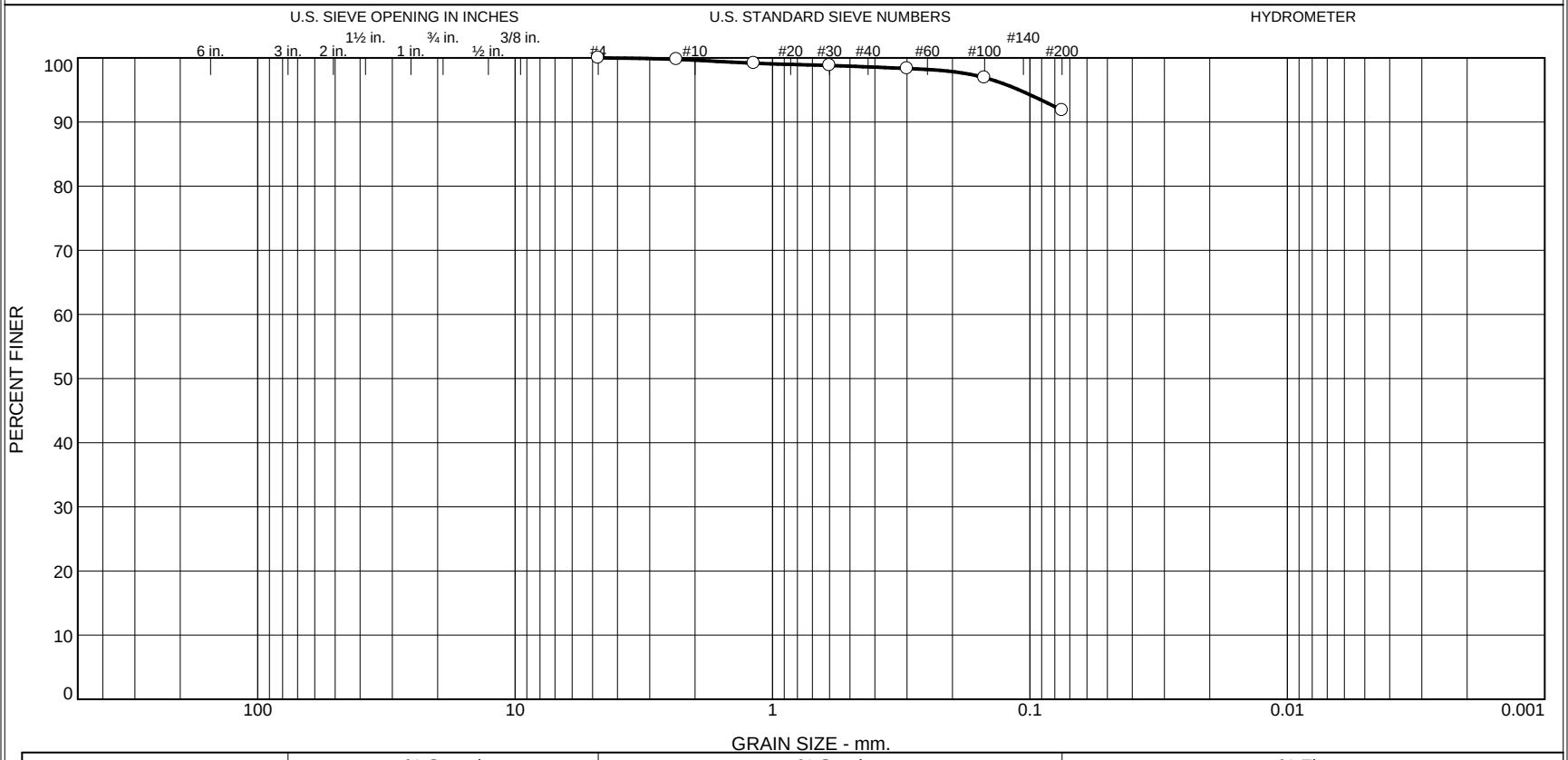
Project HP Peterson Road

Project No. 231348 | Figure

Schnabel Engineering, LLC

Knoxville, Tennessee

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.0	6.8	91.8	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
	P12 S3	6.0-7.5	10/07/25	CL	Clay, silty, light brown	24.3	45	20

Client Valleyshore Engineering

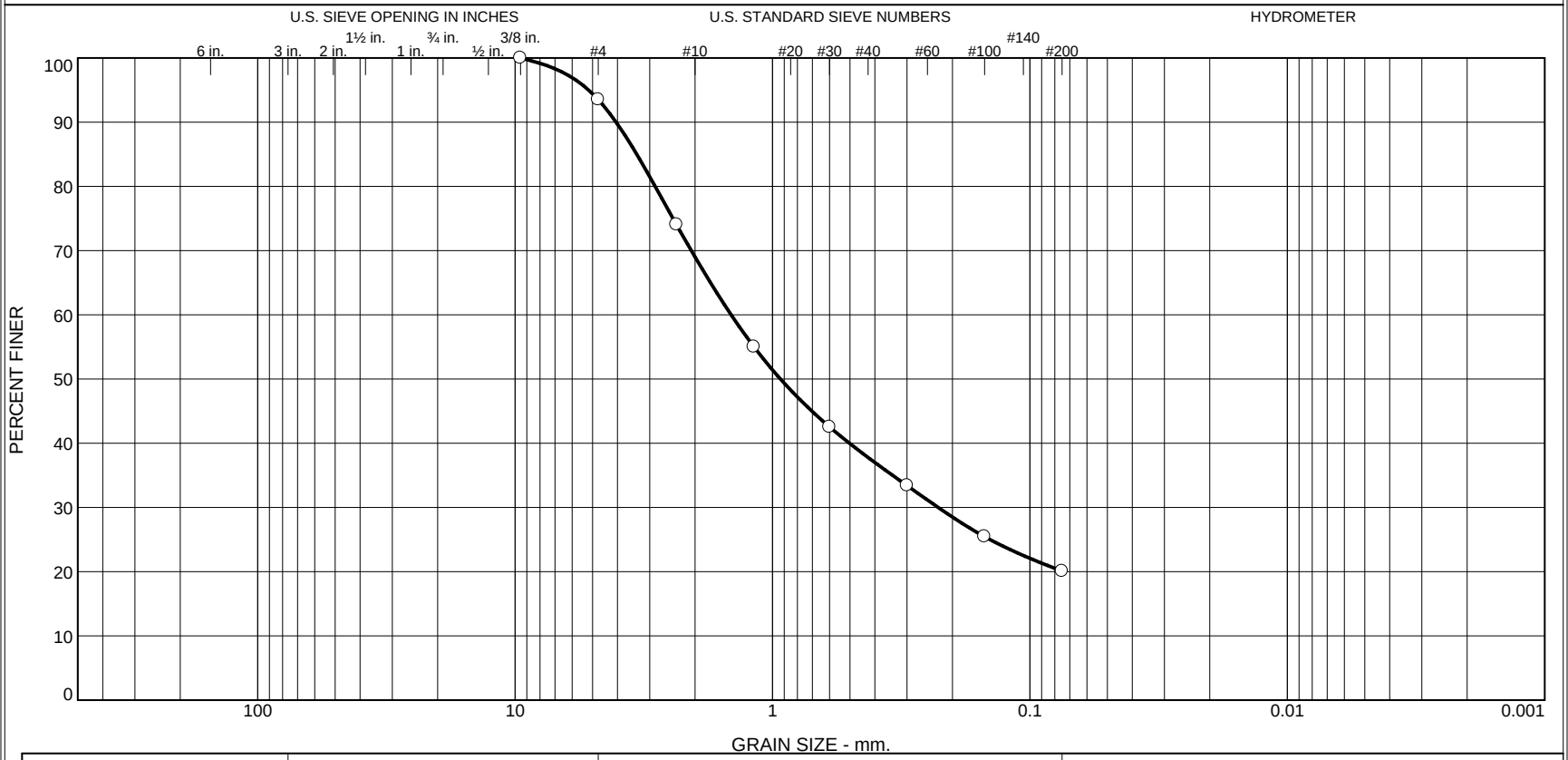
Project HP Peterson Road

Project No. 231348 | Figure

Schnabel Engineering, LLC

Knoxville, Tennessee

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.5	24.5	31.2	17.7	20.1	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
	P16 S4	8.5-10.0	10/047/25	SM	Sand, gray & brown	13.6	nv	np

Client Valleyshore Engineering

Project HP Peterson Road

Project No. 231348 | Figure

Schnabel Engineering, LLC

Knoxville, Tennessee

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TABLE 1
SUMMARY OF LABORATORY TEST RESULTS

PROJECT NO.: 25-1-302.C
PROJECT NAME: HP PETERSON ROAD - VALLEYSHORE ENG.
DATE SAMPLED: 9/9/25
DATE RECEIVED: 9/9/25

SAMPLE LOCATION			NATURAL MOISTURE CONTENT (%)	OPTIMUM MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	GRADATION		PERCENT PASSING No. 200 SIEVE	ATTERBERG LIMITS		WATER SOLUBLE SULFATES (%)	MINIMUM ELECTRICAL RESISTIVITY (ohm-cm)	pH	SWELL (%)	SOIL OR BEDROCK TYPE
LOCATION	DEPTH (ft)	DATE TESTED				GRAVEL (%)	SAND (%)		LIQUID LIMIT (%)	PLASTICITY INDEX (%)					
B-3	1-4	9/17/25	7.4	9.5	121.0	10	76	14	21	3	0.00	5,710	6.73	0.0	SILTY SAND (SM)
B-5	1-4	9/16/25	4.2	11.0	115.1	4	88	8	NV	NP	0.00	3,530	7.11	0.0	WELL-GRADED SAND WITH SILT (SW-SM)
B-8	1-4	9/18/25	8.2	9.9	121.9	4	75	21	18	4	0.00	6,560	6.97	0.1	SILTY, CLAYEY SAND (SC-SM)
B-10	1-4	9/17/25	6.9	10.4	119.9	5	72	23	17	2	0.00	6,980	7.12	0.0	SILTY SAND (SM)
B-13	1-4	9/17/25	5.9	10.0	121.1	4	81	15	NV	NP	0.00	8,820	6.68	0.2	SILTY SAND (SM)
B-16	1-4	9/16/25	5.2	10.1	120.2	5	79	16	NV	NP	0.00	9,100	6.92	0.0	SILTY SAND (SM)
B-18	1-4	9/16/25	5.3	11.9	110.8	1	89	10	32	18	0.01	13,800	7.06	0.0	WELL-GRADED SAND WITH CLAY (SW-SC)
B-20	1-4	9/18/25	4.8	12.2	117.3	3	90	7	NV	NP	0.00	13,900	7.03	0.3	WELL-GRADED SAND WITH SILT (SW-SM)

Particle Size Distribution Report

ASTM D6913



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	10	25	31	20	14	

Test Results (ASTM D6913)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/4"	100			
3/8"	99			
#4	90			
#8	70			77
#16	51			57
#30	39			43
#50	30			33
#100	20			23
#200	14			15

* (no specification provided)

Material Description

silty sand

Atterberg Limits

PL= 18 LL= 21 PI= 3

Classification

USCS= SM AASHTO= A-1-b

Test Remarks

Location: Boring B-3
Sample Number: 4345 Depth: 1'-4' Sample Date: 9/9/25

Kumar & Associates, Inc. Denver, Colorado	Client: ValleyShore Engineering, LLC Project: HP Peterson Rd - ValleyShore Eng. Project No: 25-1-302C Figure

Tested By: JF Checked By: JJM

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

Particle Size Distribution Report

ASTM D6913



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	14	40	34	8	

Test Results (ASTM D6913)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/4"	100			
3/8"	99			
#4	96			
#8	85			89
#16	69			72
#30	53			55
#50	32			33
#100	15			16
#200	8.0			8.4

* (no specification provided)

Material Description

well-graded sand with silt

Atterberg Limits

PL= NP LL= NV PI= NP

Classification

USCS= SW-SM AASHTO= A-1-b

Test Remarks

Location: Boring B-5
Sample Number: 4346 Depth: 1'-4' Sample Date: 9/9/25

Kumar & Associates, Inc.

Denver, Colorado

Client: ValleyShore Engineering, LLC
Project: HP Peterson Rd - ValleyShore Eng.

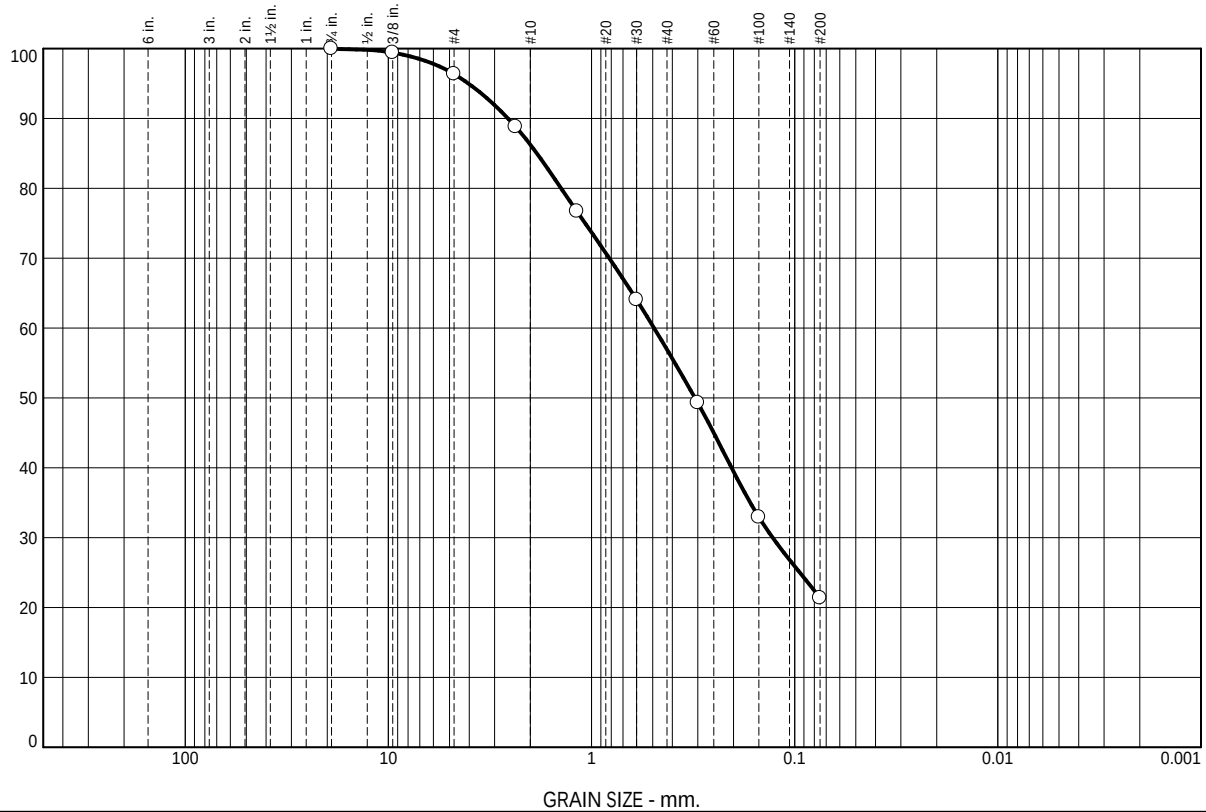
Project No: 25-1-302C Figure

Tested By: JF Checked By: JJM

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

Particle Size Distribution Report

ASTM D6913



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	10	29	36	21	

Test Results (ASTM D6913)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/4"	100			
3/8"	99			
#4	96			
#8	89			92
#16	77			80
#30	64			66
#50	49			51
#100	33			34
#200	21			22

* (no specification provided)

Material Description

silty, clayey sand

Atterberg Limits

PL= 14 LL= 18 PI= 4

Classification

USCS= SC-SM AASHTO= A-2-4(0)

Test Remarks

Location: Boring B-8
Sample Number: 4347 Depth: 1'-4' Sample Date: 9/9/25

Kumar & Associates, Inc.

Denver, Colorado

Client: ValleyShore Engineering, LLC
Project: HP Peterson Rd - ValleyShore Eng.

Project No: 25-1-302C Figure

Tested By: JF Checked By: JJM

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

Particle Size Distribution Report

ASTM D6913



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	11	22	39	23	

Test Results (ASTM D6913)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/4"	100			
3/8"	99			
#4	95			
#8	86			91
#16	76			80
#30	67			71
#50	55			58
#100	37			39
#200	23			24

* (no specification provided)

Material Description

silty sand

Atterberg Limits

PL= 15 LL= 17 PI= 2

Classification

USCS= SM AASHTO= A-2-4(0)

Test Remarks

Location: Boring B-10
Sample Number: 4348 Depth: 1'-4' Sample Date: 9/9/25

Kumar & Associates, Inc.

Denver, Colorado

Client: ValleyShore Engineering, LLC
Project: HP Peterson Rd - ValleyShore Eng.

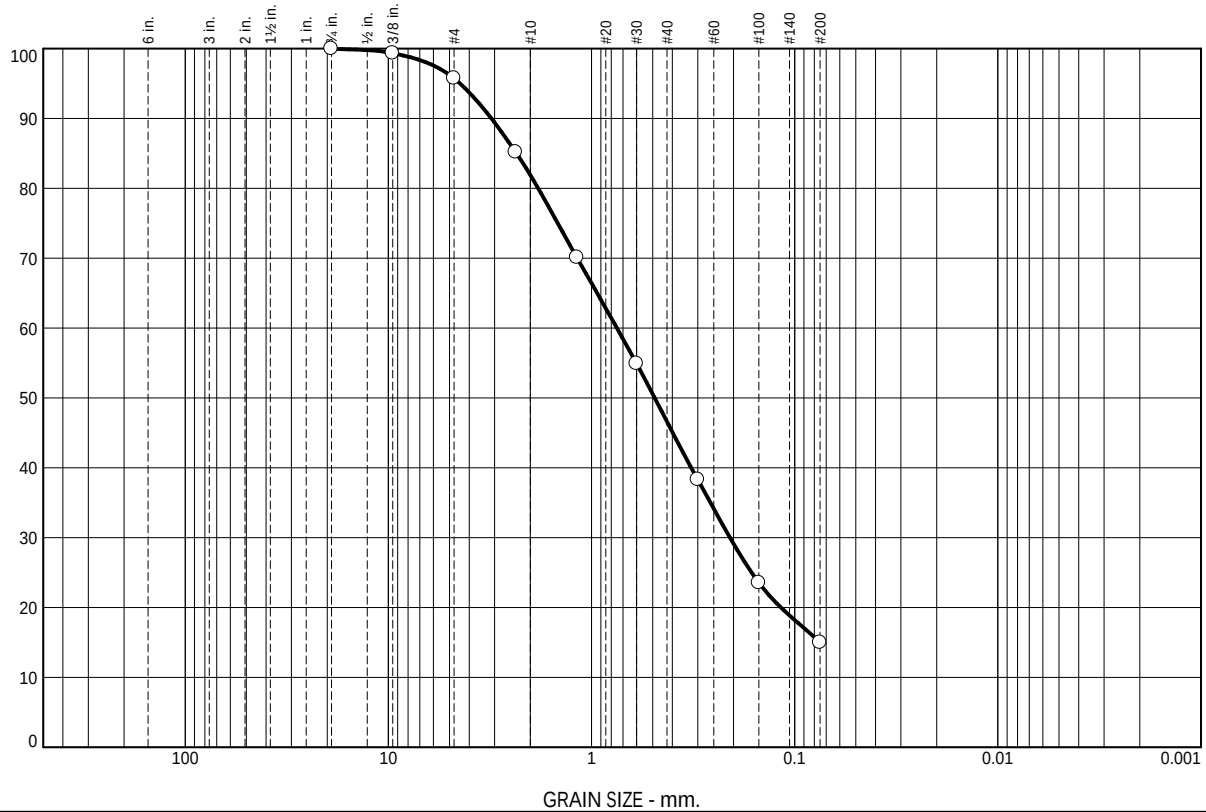
Project No: 25-1-302C Figure

Tested By: JF Checked By: JJM

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

Particle Size Distribution Report

ASTM D6913



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	14	35	32	15	

Test Results (ASTM D6913)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/4"	100			
3/8"	99			
#4	96			
#8	85			89
#16	70			73
#30	55			57
#50	38			40
#100	24			25
#200	15			16

* (no specification provided)

Material Description

silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Classification

USCS= SM AASHTO= A-1-b

Test Remarks

Location: Boring B-13
Sample Number: 4349 Depth: 1'-4' Sample Date: 9/9/25

Kumar & Associates, Inc.

Denver, Colorado

Client: ValleyShore Engineering, LLC
Project: HP Peterson Rd - ValleyShore Eng.

Project No: 25-1-302C Figure

Tested By: JF Checked By: JJM

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

Particle Size Distribution Report

ASTM D6913



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	10	34	35	16	

Test Results (ASTM D6913)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/4"	100			
3/8"	99			
#4	95			
#8	88			92
#16	75			78
#30	60			63
#50	42			44
#100	26			27
#200	16			17

* (no specification provided)

Material Description

silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Classification

USCS= SM AASHTO= A-2-4(0)

Test Remarks

Location: Boring B-16
Sample Number: 4350 Depth: 1'-4' Sample Date: 9/9/25

Kumar & Associates, Inc.

Denver, Colorado

Client: ValleyShore Engineering, LLC
Project: HP Peterson Rd - ValleyShore Eng.

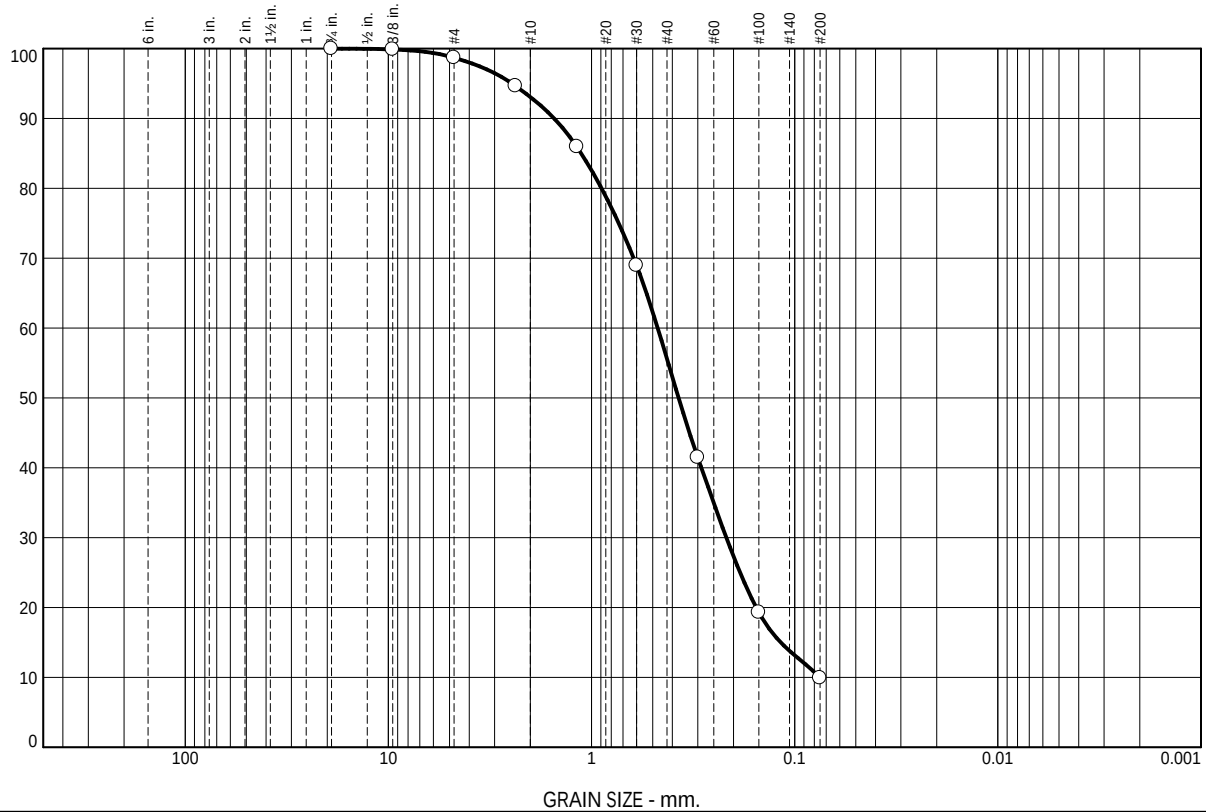
Project No: 25-1-302C Figure

Tested By: JF Checked By: JJM

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

Particle Size Distribution Report

ASTM D6913



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	6	37	46	10	

Test Results (ASTM D6913)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/4"	100			
3/8"	100			
#4	99			
#8	95			96
#16	86			87
#30	69			70
#50	41			42
#100	19			20
#200	9.9			10

* (no specification provided)

Material Description

well-graded sand with clay

Atterberg Limits

PL= 14 LL= 32 PI= 18

Classification

USCS= SW-SC AASHTO= A-2-6(0)

Test Remarks

Location: Boring B-18
Sample Number: 4351 Depth: 1'-4' Sample Date: 9/9/25

Kumar & Associates, Inc.

Denver, Colorado

Client: ValleyShore Engineering, LLC
Project: HP Peterson Rd - ValleyShore Eng.

Project No: 25-1-302C Figure

Tested By: JF Checked By: JJM

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

Particle Size Distribution Report

ASTM D6913



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	14	49	27	7	

Test Results (ASTM D6913)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/4"	100			
3/8"	99			
#4	97			
#8	87			90
#16	65			67
#30	44			45
#50	25			26
#100	13			13
#200	7.3			7.5

* (no specification provided)

Material Description

well-graded sand with silt

Atterberg Limits

PL= NP LL= NV PI= NP

Classification

USCS= SW-SM AASHTO= A-1-b

Test Remarks

Location: Boring B-20
Sample Number: 4352 Depth: 1'-4' Sample Date: 9/9/25

Kumar & Associates, Inc.

Denver, Colorado

Client: ValleyShore Engineering, LLC
Project: HP Peterson Rd - ValleyShore Eng.

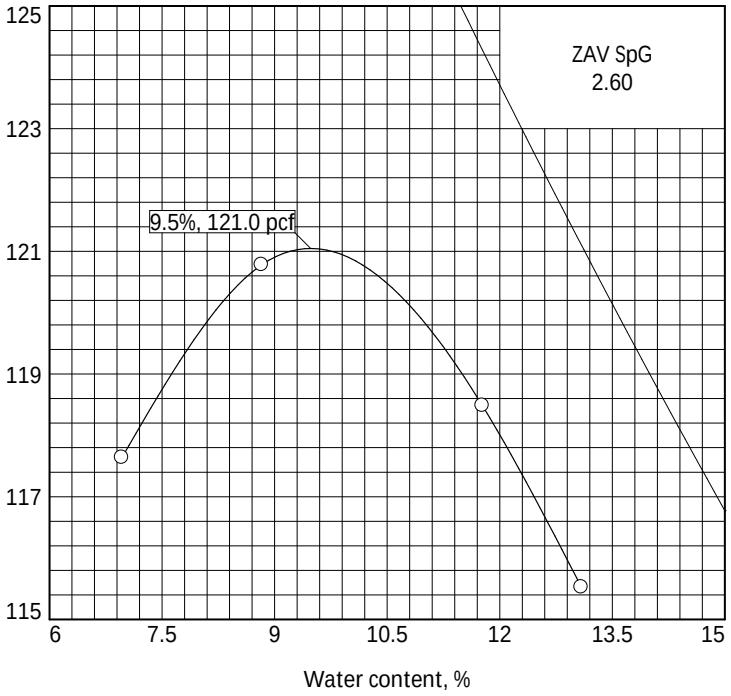
Project No: 25-1-302C Figure

Tested By: JF Checked By: JJM

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

COMPACTION TEST REPORT

Curve No. 4345



Preparation Method

Rammer: Wt. 5.5 lb. Drop 12 in.

Type Manual

Layers: No. three Blows per 25

Mold Size 0.03333 cu. ft.

Test Performed on Material

Passing #4 Sieve

%>#4 10 %<No.200 14

Atterberg (D 4318): LL 21 PI 3

NM (D 2216) Sp.G. (D 854) 2.6

USCS (D 2487) SM

AASHTO (M 145) A-1-b

Date: Sampled 9/9/25

Received 9/9/25

Tested 9/17/25

Tested By AS

COMPACTION TESTING DATA
AASHTO T 99-22 Method A Standard

	1	2	3	4	5	6
WM + WS	6253.0	6338.0	6353.0	6326.0		
WM	4346.7	4346.7	4346.7	4346.7		
WW + T #1	410.5	405.3	460.0	492.7		
WD + T #1	393.8	385.0	428.6	453.5		
TARE #1	154.0	155.0	161.8	154.0		
WW + T #2						
WD + T #2						
TARE #2						
MOIST.	7.0	8.8	11.8	13.1		
DRY DENS.	117.6	120.8	118.5	115.5		

SIEVE TEST RESULTS

Opening Size	% Passing	Specs.
3/4"	100	
3/8"	99	
#4	90	
#8	70	
#16	51	
#30	39	
#50	30	
#100	20	
#200	14	

TEST RESULTS

Maximum dry density = 121.0 pcf

Optimum moisture = 9.5 %

Material Description

silty sand

Remarks:

Project No. 25-1-302C Client: ValleyShore Engineering, LLC

Project: HP Peterson Rd - ValleyShore Eng.

○ Location: Boring B-3 Depth: 1'-4' Sample Number: 4345

Checked by: JJM

Title: Lab Manager

Kumar & Associates, Inc.

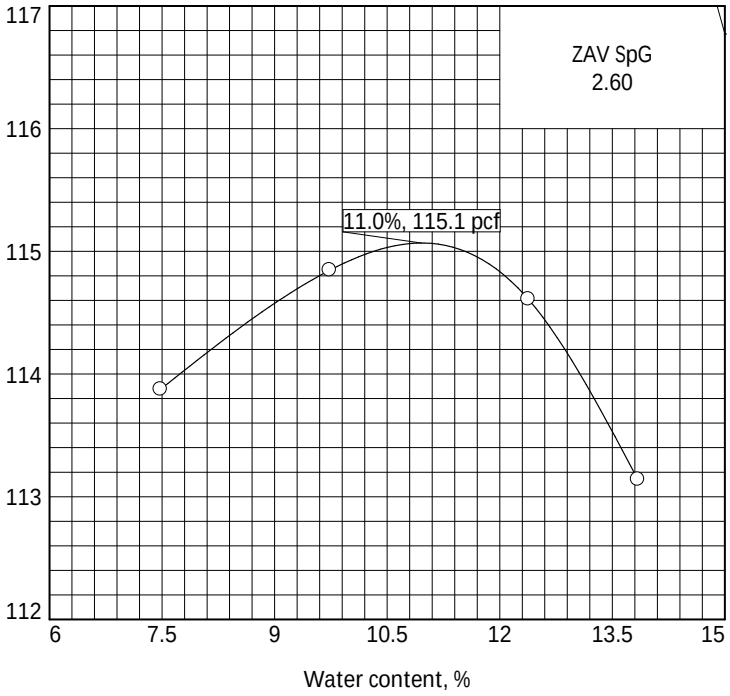
Denver, Colorado

Figure

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COMPACTION TEST REPORT

Curve No. 4346



Preparation Method

Rammer: Wt. 5.5 lb. Drop 12 in.

Type Manual

Layers: No. three Blows per 25

Mold Size 0.03333 cu. ft.

Test Performed on Material

Passing #4 Sieve

%>#4 4 %<No.200 8.0

Atterberg (D 4318): LL NV PI NP

NM (D 2216) Sp.G. (D 854) 2.6

USCS (D 2487) SW-SM

AASHTO (M 145) A-1-b

Date: Sampled 9/9/25

Received 9/9/25

Tested 9/16/25

Tested By AS

COMPACTION TESTING DATA
AASHTO T 99-22 Method A Standard

	1	2	3	4	5	6
WM + WS	6201.0	6256.0	6298.0	6298.0		
WM	4346.7	4346.7	4346.7	4346.7		
WW + T #1	372.3	550.5	538.1	733.5		
WD + T #1	357.0	521.1	495.8	681.6		
TARE #1	152.5	219.1	154.1	306.6		
WW + T #2						
WD + T #2						
TARE #2						
MOIST.	7.5	9.7	12.4	13.8		
DRY DENS.	113.9	114.8	114.6	113.1		

SIEVE TEST RESULTS

Opening Size	% Passing	Specs.
3/4"	100	
3/8"	99	
#4	96	
#8	85	
#16	69	
#30	53	
#50	32	
#100	15	
#200	8.0	

TEST RESULTS

Maximum dry density = 115.1 pcf

Optimum moisture = 11.0 %

Material Description

well-graded sand with silt

Remarks:

Project No. 25-1-302C Client: ValleyShore Engineering, LLC

Project: HP Peterson Rd - ValleyShore Eng.

○ Location: Boring B-5 Depth: 1'-4' Sample Number: 4346

Checked by: JJM

Title: Lab Manager

Kumar & Associates, Inc.

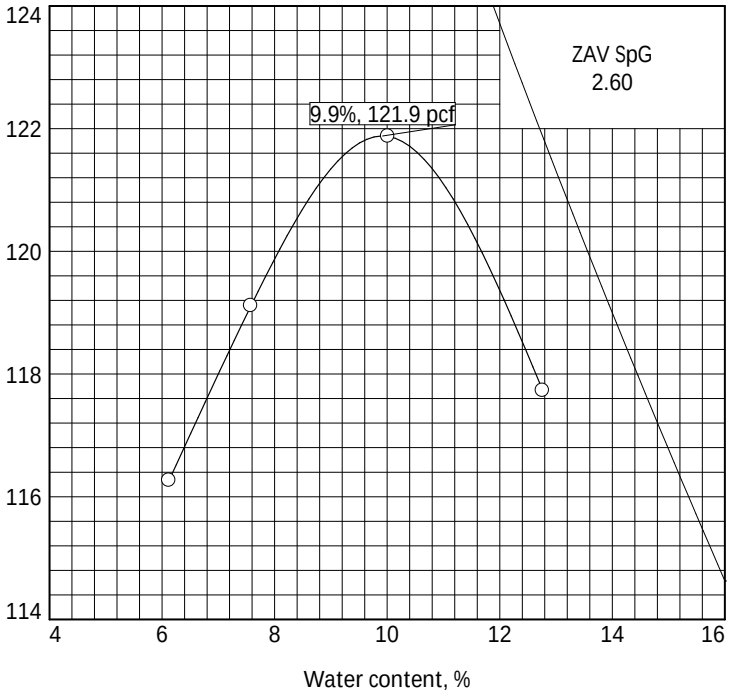
Denver, Colorado

Figure

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COMPACTION TEST REPORT

Curve No. 4347



Preparation Method

Rammer: Wt. 5.5 lb. Drop 12 in.

Type Manual

Layers: No. three Blows per 25

Mold Size 0.03333 cu. ft.

Test Performed on Material

Passing #4 Sieve

%>#4 4 %<No.200 21

Atterberg (D 4318): LL 18 PI 4

NM (D 2216) Sp.G. (D 854) 2.6

USCS (D 2487) SC-SM

AASHTO (M 145) A-2-4(0)

Date: Sampled 9/9/25

Received 9/9/25

Tested 9/18/25

Tested By AS

COMPACTION TESTING DATA
AASHTO T 99-22 Method A Standard

	1	2	3	4	5	6
WM + WS	6216.0	6288.0	6378.0	6358.0		
WM	4346.7	4346.7	4346.7	4346.7		
WW + T #1	447.8	395.7	398.3	510.6		
WD + T #1	435.6	378.6	371.9	470.3		
TARE #1	236.4	153.0	108.3	154.6		
WW + T #2						
WD + T #2						
TARE #2						
MOIST.	6.1	7.6	10.0	12.8		
DRY DENS.	116.3	119.1	121.9	117.7		

SIEVE TEST RESULTS

Opening Size	% Passing	Specs.
3/4"	100	
3/8"	99	
#4	96	
#8	89	
#16	77	
#30	64	
#50	49	
#100	33	
#200	21	

TEST RESULTS

Maximum dry density = 121.9 pcf

Optimum moisture = 9.9 %

Material Description

silty, clayey sand

Remarks:

Project No. 25-1-302C Client: ValleyShore Engineering, LLC

Project: HP Peterson Rd - ValleyShore Eng.

○ Location: Boring B-8 Depth: 1'-4' Sample Number: 4347

Checked by: JJM

Title: Lab Manager

Kumar & Associates, Inc.

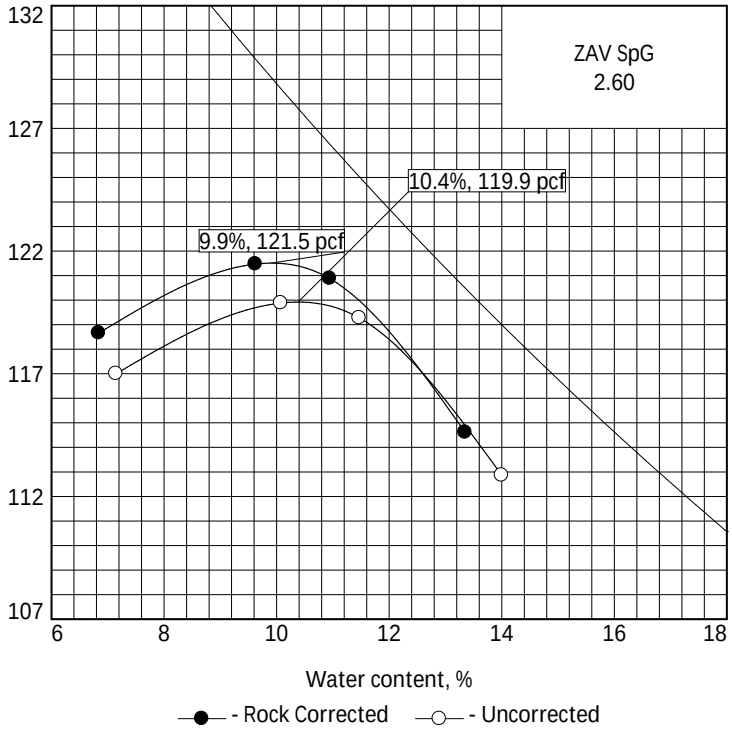
Denver, Colorado

Figure

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COMPACTION TEST REPORT

Curve No. 4348



Preparation Method

Rammer: Wt. 5.5 lb. Drop 12 in.

Type Manual

Layers: No. three Blows per 25

Mold Size 0.03333 cu. ft.

Test Performed on Material

Passing #4 Sieve

%>#4 5 %<No.200 23

Atterberg (D 4318): LL 17 PI 2

NM (D 2216) Sp.G. (D 854) 2.6

USCS (D 2487) SM

AASHTO (M 145) A-2-4(0)

Date: Sampled 9/9/25

Received 9/9/25

Tested 9/17/25

Tested By AS

COMPACTION TESTING DATA
AASHTO T 99-22 Method A Standard
AASHTO T 99/T 180 Annex A Oversize Corr. Applied to Each Test Point

	1	2	3	4	5	6
WM + WS	6246.0	6346.0	6361.0	6296.0		
WM	4346.7	4346.7	4346.7	4346.7		
WW + T #1	568.0	450.1	451.8	556.1		
WD + T #1	550.7	423.4	421.2	511.1		
TARE #1	308.7	158.5	154.4	189.7		
WW + T #2						
WD + T #2						
TARE #2						
MOIST.	6.8	9.6	10.9	13.4		
DRY DENS.	118.7	121.5	120.9	114.6		

SIEVE TEST RESULTS

Opening Size	% Passing	Specs.
3/4"	100	
3/8"	99	
#4	95	
#8	86	
#16	76	
#30	67	
#50	55	
#100	37	
#200	23	

ROCK CORRECTED TEST RESULTS	UNCORRECTED
Maximum dry density = 121.5 pcf	119.9 pcf
Optimum moisture = 9.9 %	10.4 %

Material Description: silty sand

Remarks:

Project No. 25-1-302C Client: ValleyShore Engineering, LLC

Project: HP Peterson Rd - ValleyShore Eng.

○ Location: Boring B-10 Depth: 1'-4' Sample Number: 4348

Checked by: JJM

Title: Lab Manager

Kumar & Associates, Inc.

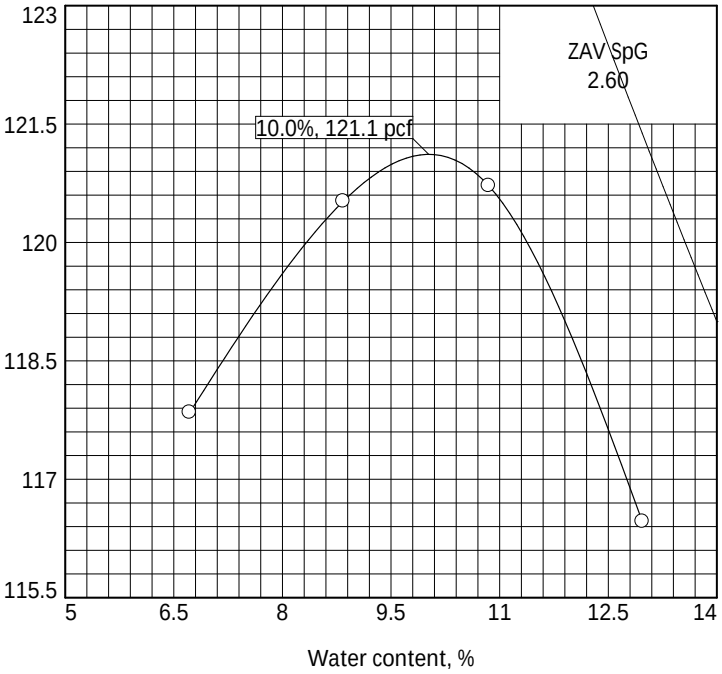
Denver, Colorado

Figure

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

COMPACTION TEST REPORT

Curve No. 4349



Preparation Method
Rammer: Wt. 5.5 lb. Drop 12 in.
Type Manual
Layers: No. three Blows per 25
Mold Size 0.03333 cu. ft.

Test Performed on Material
Passing #4 Sieve

%>#4 4 %<No.200 15
Atterberg (D 4318): LL NV PI NP
NM (D 2216) Sp.G. (D 854) 2.6
USCS (D 2487) SM
AASHTO (M 145) A-1-b
Date: Sampled 9/9/25
Received 9/9/25
Tested 9/17/25
Tested By AS

COMPACTION TESTING DATA
AASHTO T 99-22 Method A Standard

	1	2	3	4	5	6
WM + WS	6252.0	6334.0	6374.0	6340.0		
WM	4346.7	4346.7	4346.7	4346.7		
WW + T #1	414.5	423.3	553.5	497.4		
WD + T #1	398.1	401.2	514.4	457.8		
TARE #1	154.0	151.2	154.0	152.5		
WW + T #2						
WD + T #2						
TARE #2						
MOIST.	6.7	8.8	10.8	13.0		
DRY DENS.	117.8	120.5	120.7	116.5		

SIEVE TEST RESULTS

Opening Size	% Passing	Specs.
3/4"	100	
3/8"	99	
#4	96	
#8	85	
#16	70	
#30	55	
#50	38	
#100	24	
#200	15	

TEST RESULTS

Maximum dry density = 121.1 pcf

Optimum moisture = 10.0 %

Material Description

silty sand

Remarks:

Project No. 25-1-302C Client: ValleyShore Engineering, LLC

Project: HP Peterson Rd - ValleyShore Eng.

○ Location: Boring B-13 Depth: 1'-4' Sample Number: 4349

Checked by: JJM

Title: Lab Manager

Kumar & Associates, Inc.

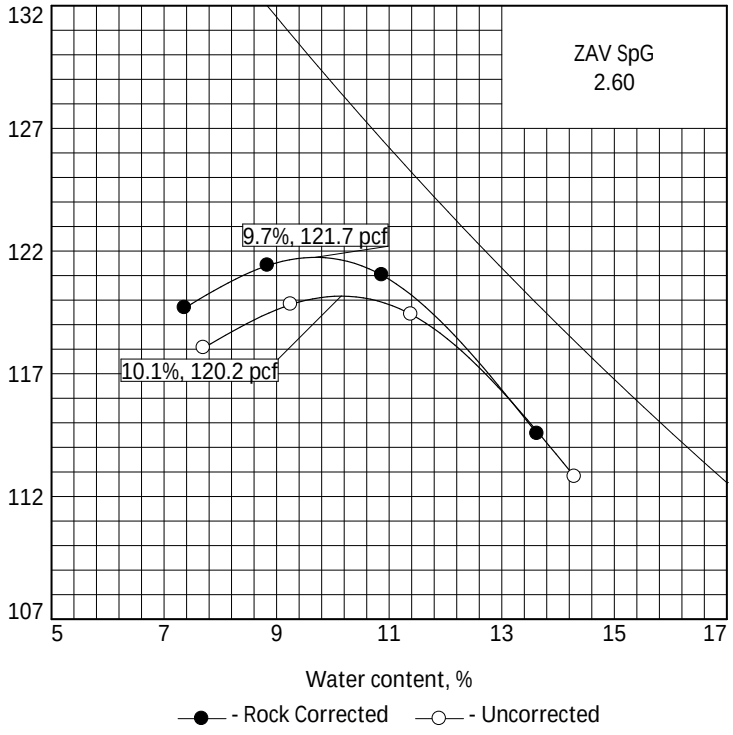
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Figure

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COMPACTION TEST REPORT

Curve No. 4350



Preparation Method

Rammer: Wt. 5.5 lb. Drop 12 in.

Type Manual

Layers: No. three Blows per 25

Mold Size 0.03333 cu. ft.

Test Performed on Material

Passing #4 Sieve

%>#4 5 %<No.200 16

Atterberg (D 4318): LL NV PI NP

NM (D 2216) Sp.G. (D 854) 2.6

USCS (D 2487) SM

AASHTO (M 145) A-2-4(0)

Date: Sampled 9/9/25

Received 9/9/25

Tested 9/16/25

Tested By AS

COMPACTION TESTING DATA
AASHTO T 99-22 Method A Standard
AASHTO T 99/T 180 Annex A Oversize Corr. Applied to Each Test Point

	1	2	3	4	5	6
WM + WS	6273.0	6330.0	6362.0	6300.0		
WM	4346.7	4346.7	4346.7	4346.7		
WW + T #1	363.7	434.0	534.0	506.1		
WD + T #1	348.5	410.3	498.8	462.1		
TARE #1	151.2	154.2	189.8	154.3		
WW + T #2						
WD + T #2						
TARE #2						
MOIST.	7.4	8.8	10.9	13.6		
DRY DENS.	119.7	121.4	121.0	114.6		

SIEVE TEST RESULTS

Opening Size	% Passing	Specs.
3/4"	100	
3/8"	99	
#4	95	
#8	88	
#16	75	
#30	60	
#50	42	
#100	26	
#200	16	

ROCK CORRECTED TEST RESULTS	UNCORRECTED
Maximum dry density = 121.7 pcf	120.2 pcf
Optimum moisture = 9.7 %	10.1 %

Material Description: silty sand

Remarks:

Project No. 25-1-302C Client: ValleyShore Engineering, LLC

Project: HP Peterson Rd - ValleyShore Eng.

○ Location: Boring B-16 Depth: 1'-4' Sample Number: 4350

Checked by: JJM

Title: Lab Manager

Kumar & Associates, Inc.

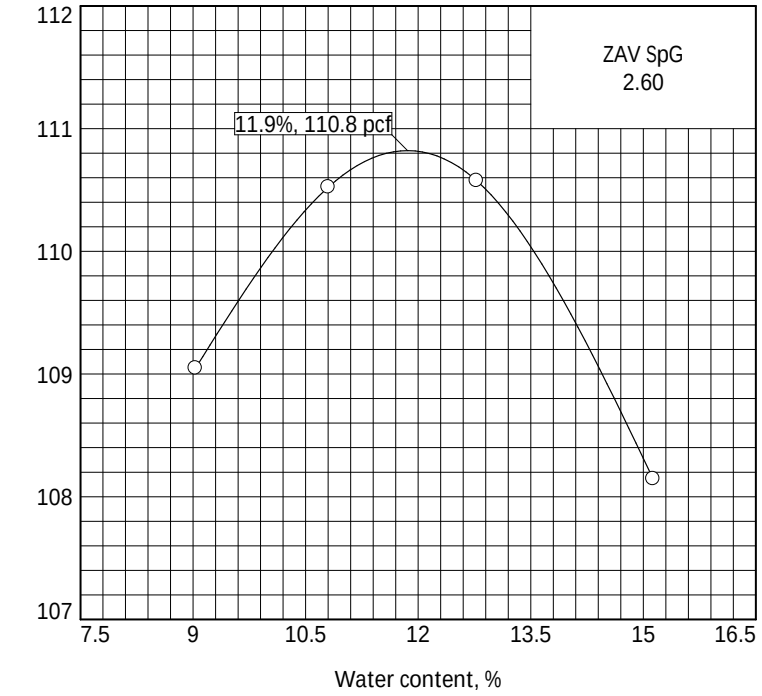
Denver, Colorado

Figure

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COMPACTION TEST REPORT

Curve No. 4351



Preparation Method

Rammer: Wt. 5.5 lb. Drop 12 in.

Type Manual

Layers: No. three Blows per 25

Mold Size 0.03333 cu. ft.

Test Performed on Material

Passing #4 Sieve

%>#4 1 %<No.200 9.9

Atterberg (D 4318): LL 32 PI 18

NM (D 2216) Sp.G. (D 854) 2.6

USCS (D 2487) SW-SC

AASHTO (M 145) A-2-6(0)

Date: Sampled 9/9/25

Received 9/9/25

Tested 9/16/25

Tested By AS

COMPACTION TESTING DATA
AASHTO T 99-22 Method A Standard

	1	2	3	4	5	6
WM + WS	6148.0	6202.0	6236.0	6233.0		
WM	4346.7	4346.7	4346.7	4346.7		
WW + T #1	564.6	433.0	446.2	515.0		
WD + T #1	543.4	405.8	413.6	468.5		
TARE #1	308.7	154.0	158.5	161.2		
WW + T #2						
WD + T #2						
TARE #2						
MOIST.	9.0	10.8	12.8	15.1		
DRY DENS.	109.0	110.5	110.6	108.1		

SIEVE TEST RESULTS

Opening Size	% Passing	Specs.
3/4"	100	
3/8"	100	
#4	99	
#8	95	
#16	86	
#30	69	
#50	41	
#100	19	
#200	9.9	

TEST RESULTS

Maximum dry density = 110.8 pcf

Optimum moisture = 11.9 %

Material Description

well-graded sand with clay

Remarks:

Project No. 25-1-302C Client: ValleyShore Engineering, LLC

Project: HP Peterson Rd - ValleyShore Eng.

○ Location: Boring B-18 Depth: 1'-4' Sample Number: 4351

Checked by: JJM

Title: Lab Manager

Kumar & Associates, Inc.

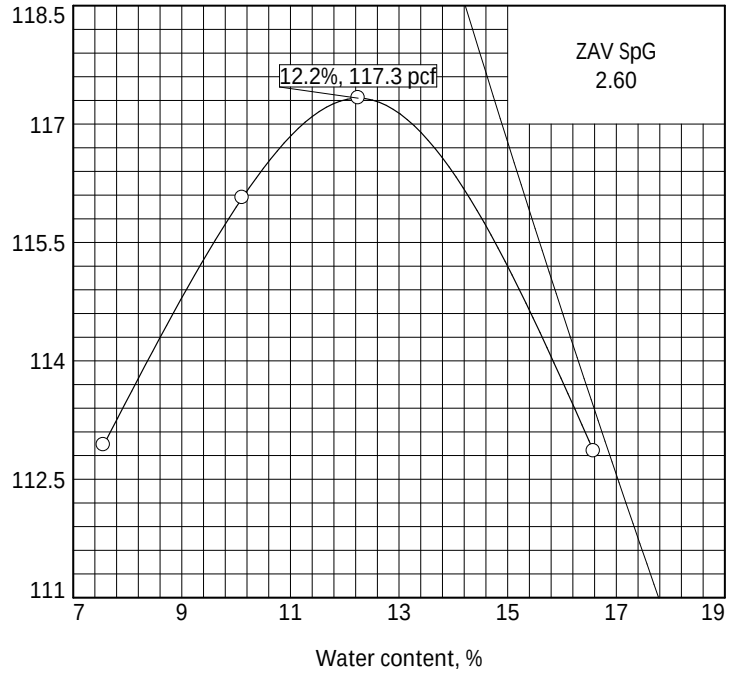
Denver, Colorado

Figure

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

COMPACTION TEST REPORT

Curve No. 4352



Preparation Method

Rammer: Wt. 5.5 lb. Drop 12 in.

Type Manual

Layers: No. three Blows per 25

Mold Size 0.03333 cu. ft.

Test Performed on Material

Passing #4 Sieve

%>#4 3 %<No.200 7.3

Atterberg (D 4318): LL NV PI NP

NM (D 2216) Sp.G. (D 854) 2.6

USCS (D 2487) SW-SM

AASHTO (M 145) A-1-b

Date: Sampled 9/9/25

Received 9/9/25

Tested 9/18/25

Tested By AS

COMPACTION TESTING DATA
AASHTO T 99-22 Method A Standard

	1	2	3	4	5	6
WM + WS	6187.0	6283.0	6342.0	6340.0		
WM	4346.7	4346.7	4346.7	4346.7		
WW + T #1	592.1	523.0	545.8	729.2		
WD + T #1	566.0	492.6	510.7	652.7		
TARE #1	220.8	192.1	224.2	191.4		
WW + T #2						
WD + T #2						
TARE #2						
MOIST.	7.6	10.1	12.3	16.6		
DRY DENS.	112.9	116.1	117.3	112.9		

SIEVE TEST RESULTS

Opening Size	% Passing	Specs.
3/4"	100	
3/8"	99	
#4	97	
#8	87	
#16	65	
#30	44	
#50	25	
#100	13	
#200	7.3	

TEST RESULTS

Maximum dry density = 117.3 pcf

Optimum moisture = 12.2 %

Material Description

well-graded sand with silt

Remarks:

Project No. 25-1-302C Client: ValleyShore Engineering, LLC

Project: HP Peterson Rd - ValleyShore Eng.

○ Location: Boring B-20 Depth: 1'-4' Sample Number: 4352

Checked by: JJM

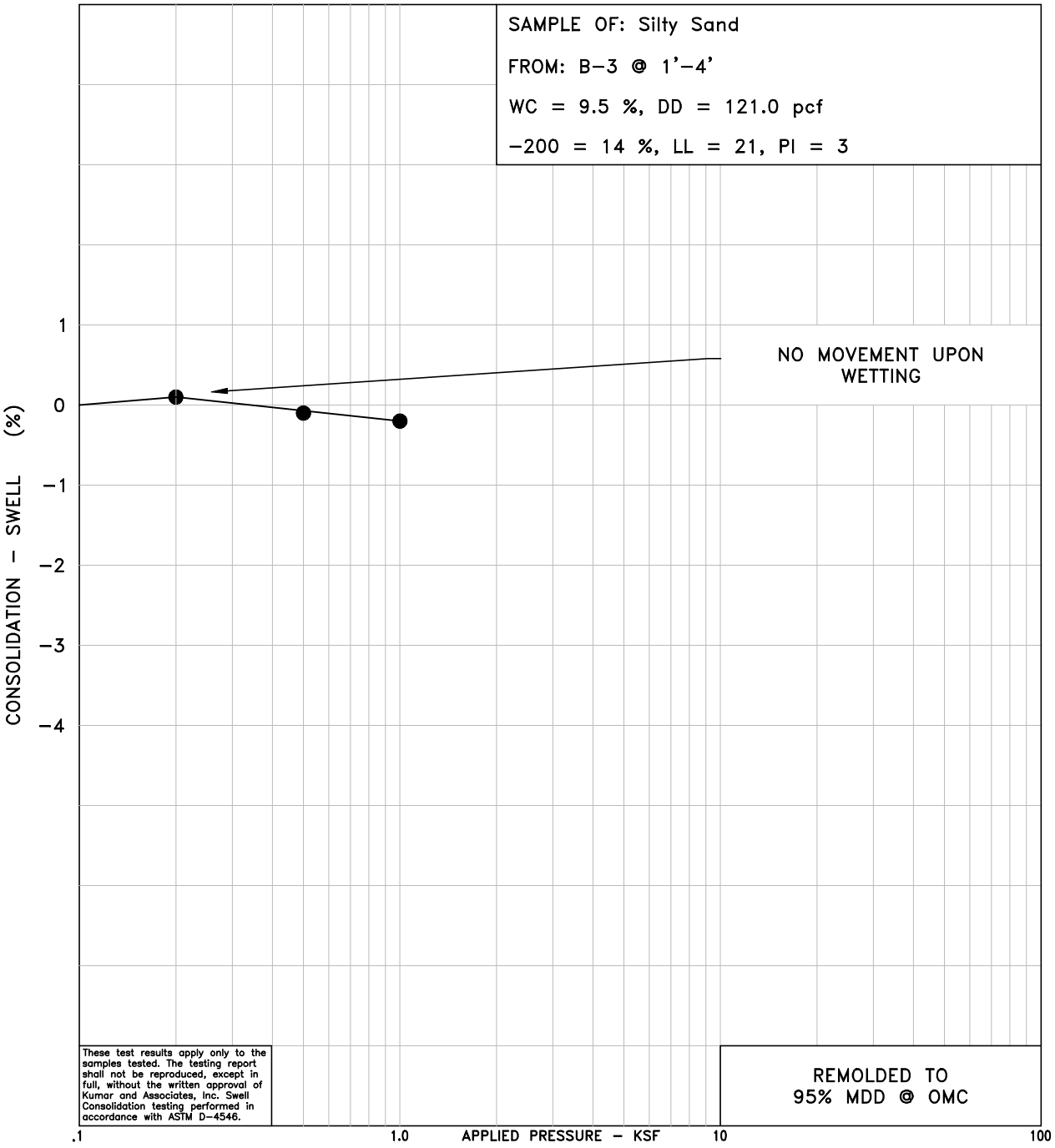
Title: Lab Manager

Kumar & Associates, Inc.

Denver, Colorado

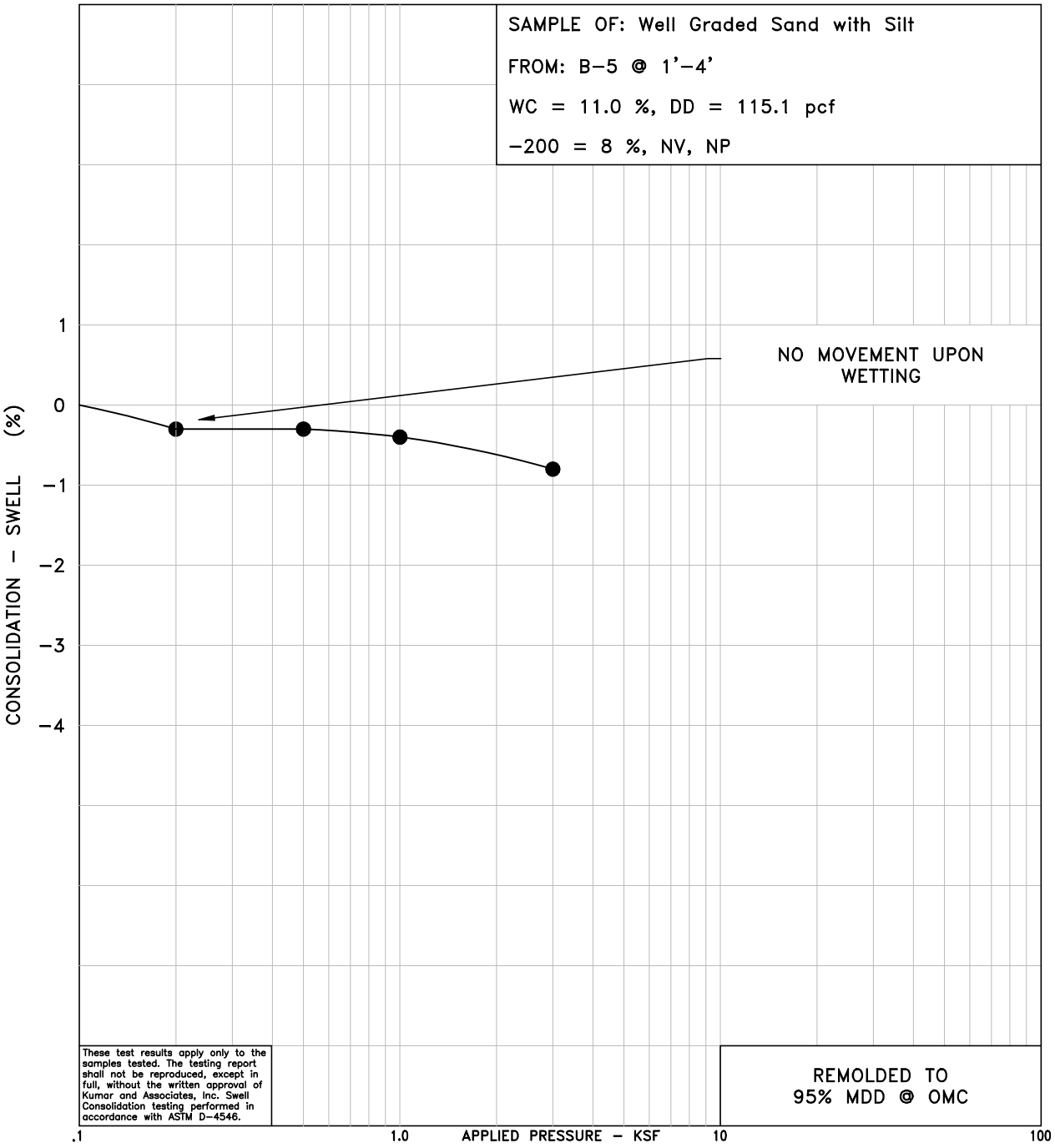
Figure

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc



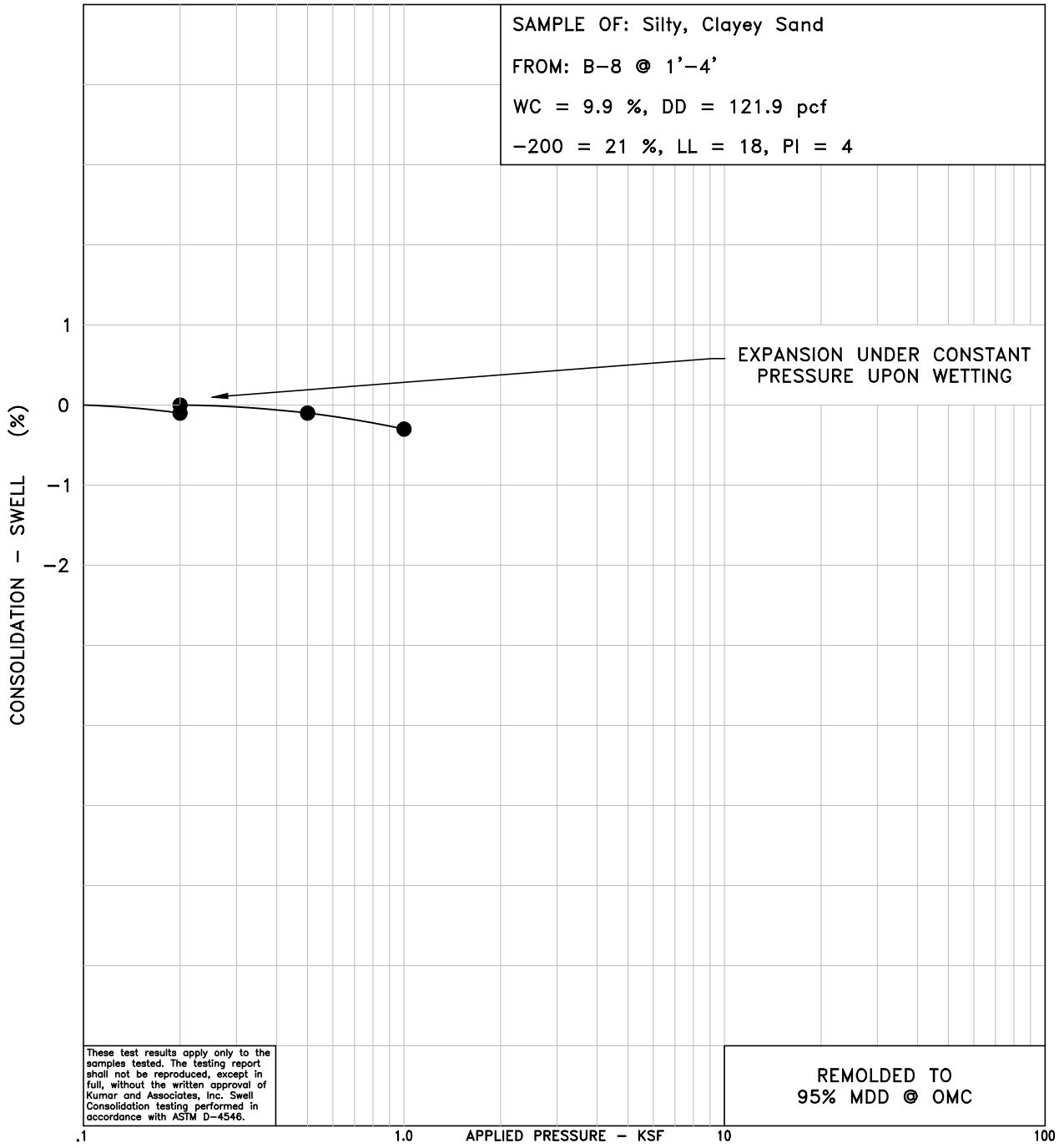
25-1-302.C	Kumar & Associates	REMOLDED SWELL-CONSOLIDATION TEST RESULTS	4345

October 03, 2025 - 09:15am
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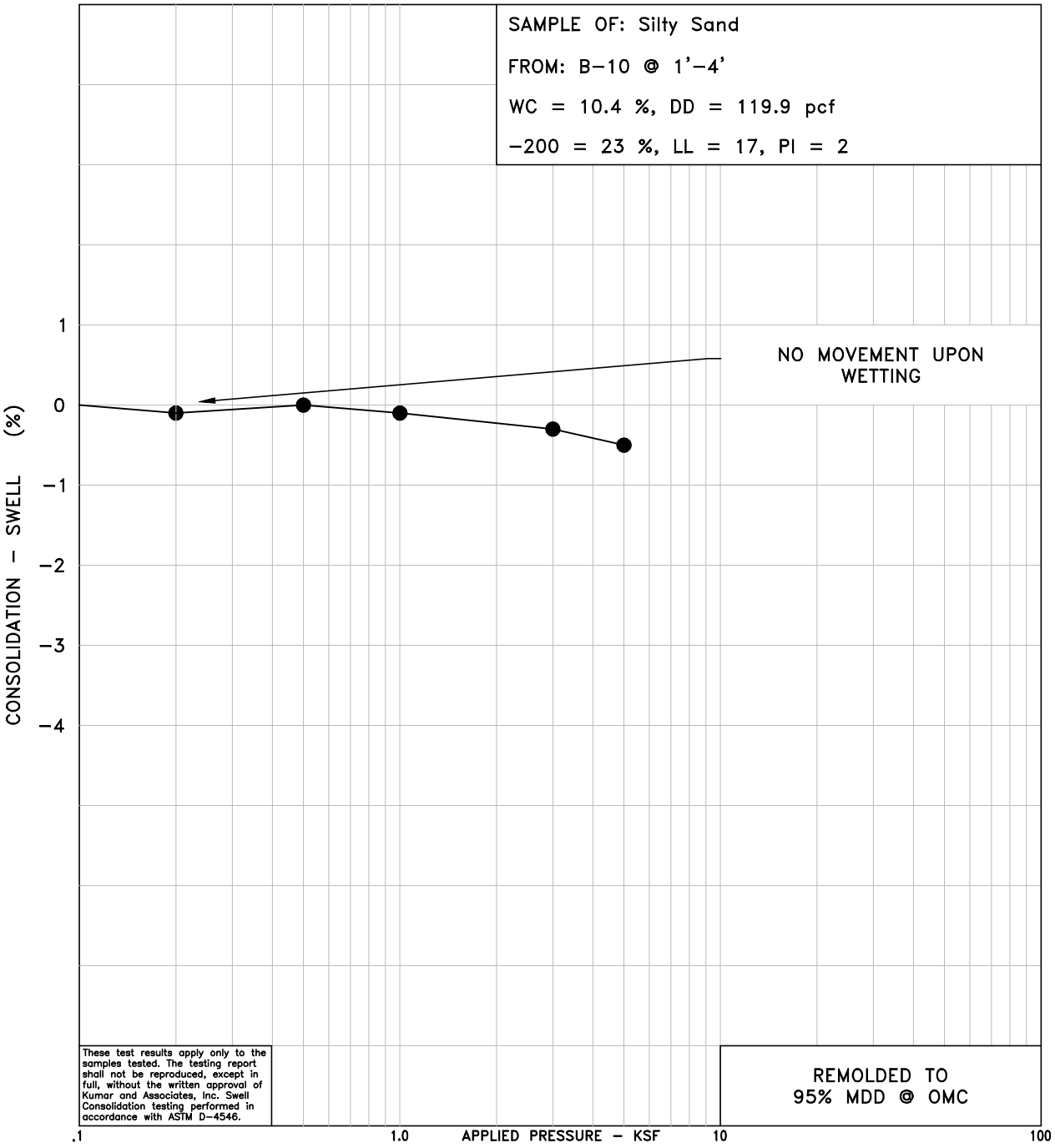
25-1-302.C	Kumar & Associates	REMOLDED SWELL-CONSOLIDATION TEST RESULTS	4346

October 03, 2025 - 09:15am
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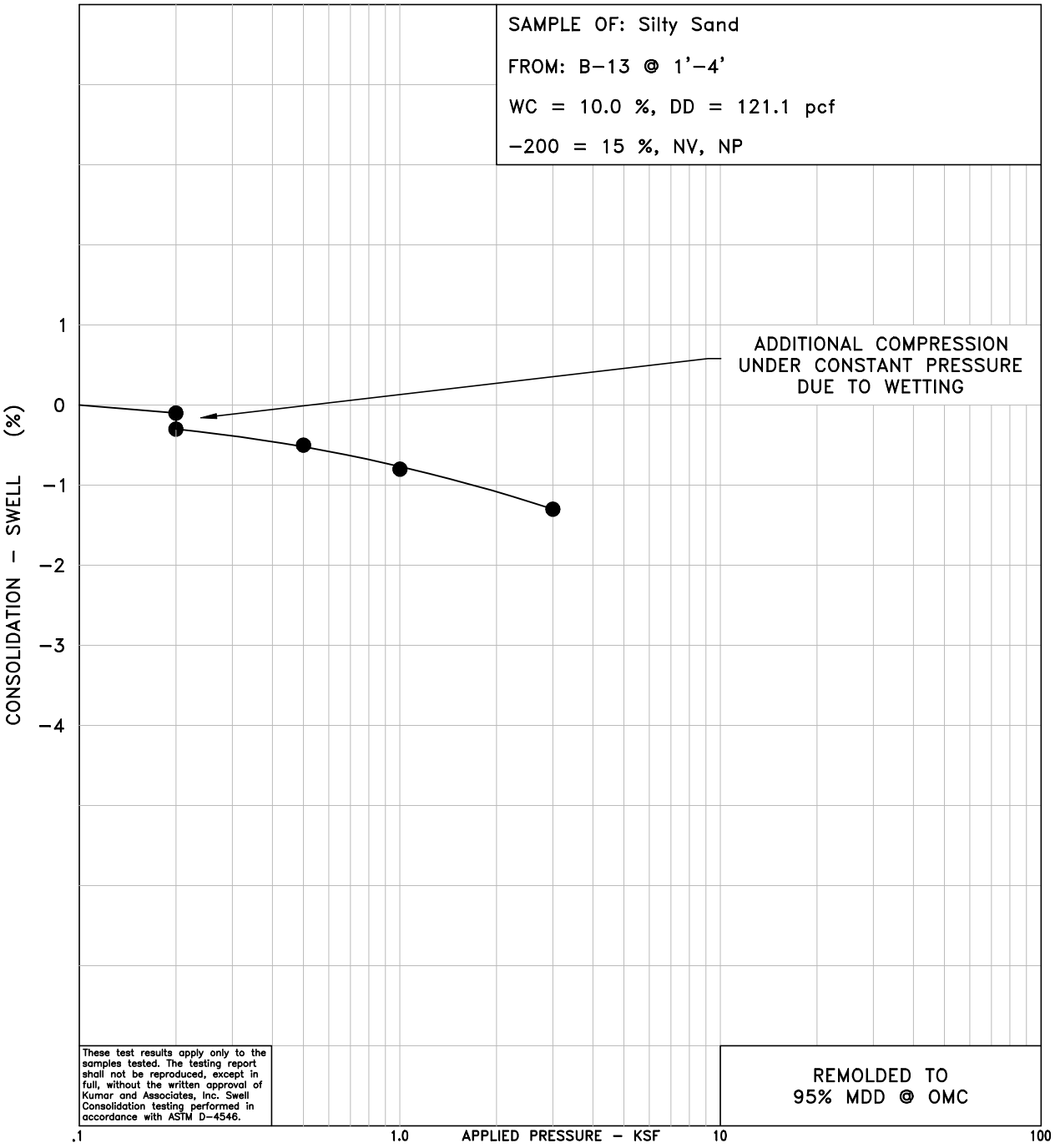
25-1-302.C	Kumar & Associates	REMOLDED SWELL-CONSOLIDATION TEST RESULTS	4347

October 03, 2025 - 09:15am
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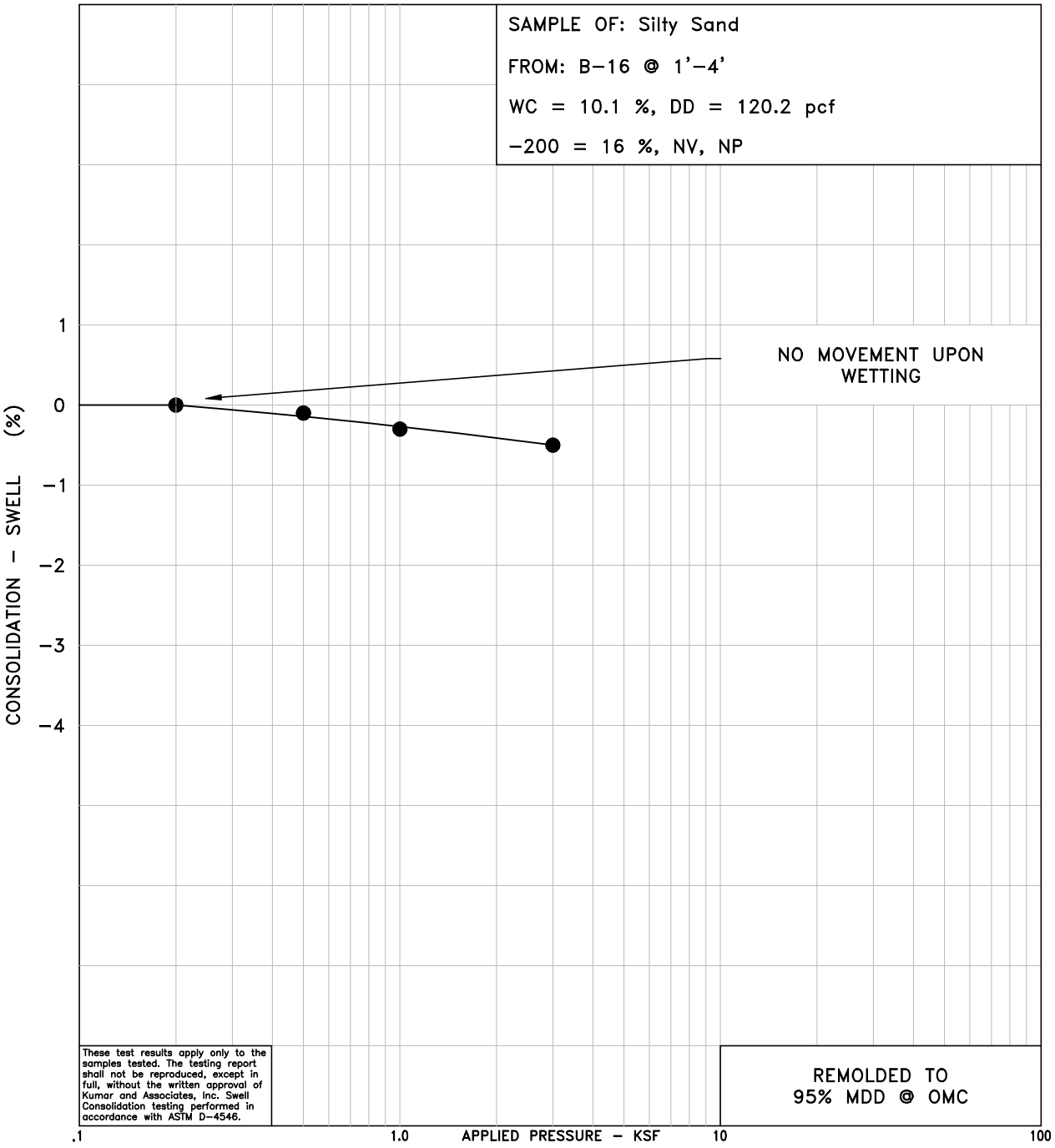
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October 03, 2025 - 09:15am
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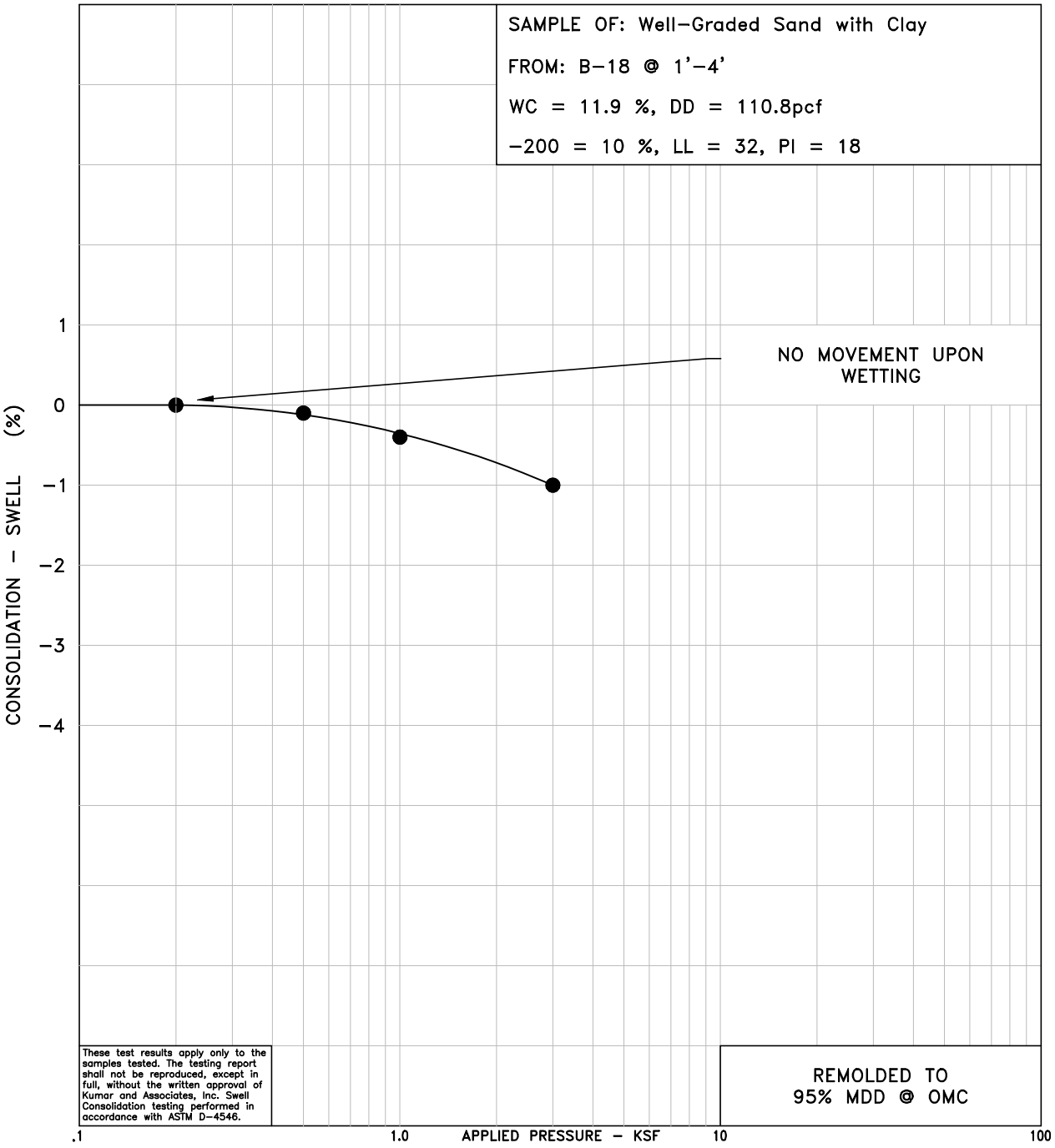
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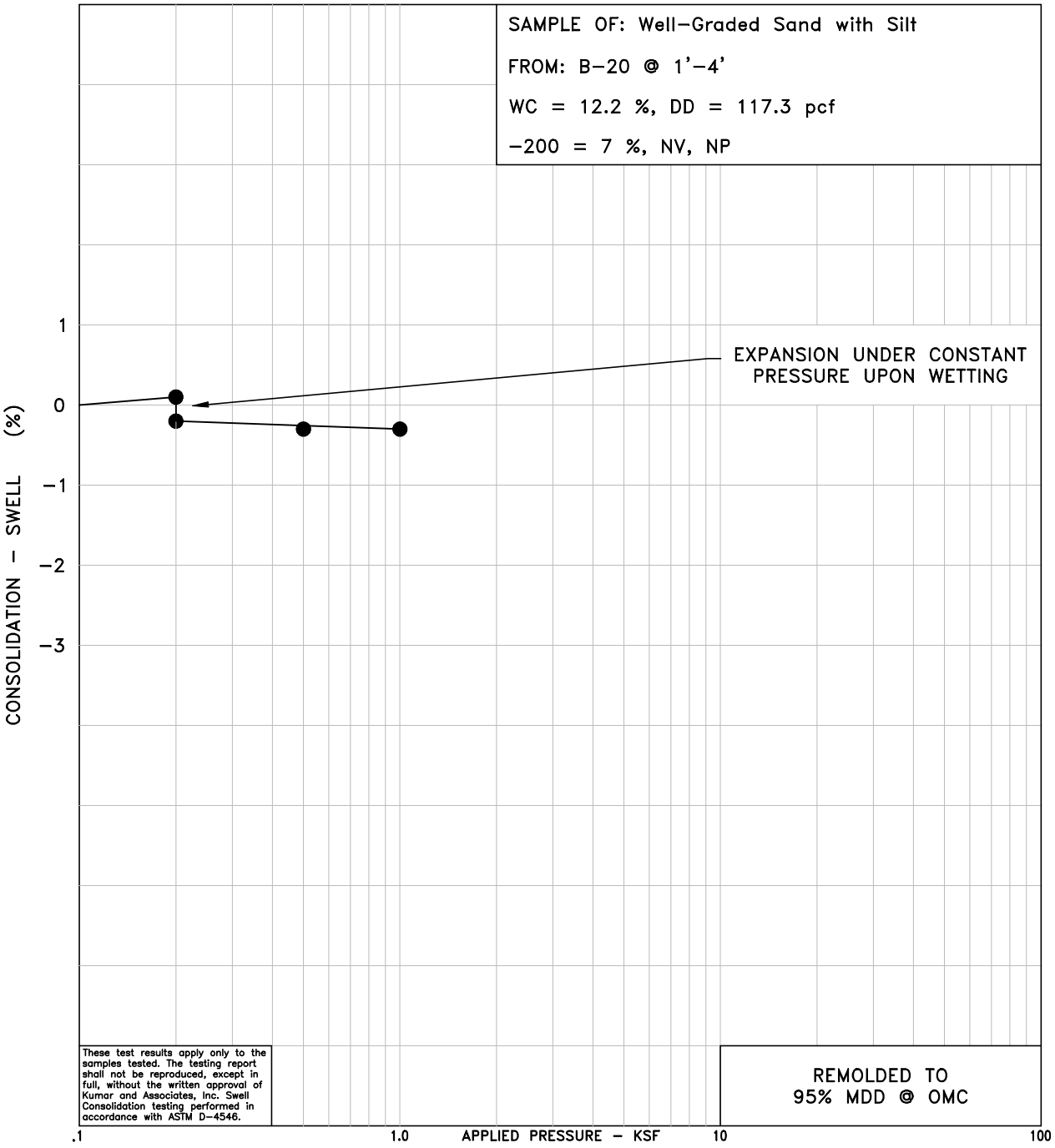
25-1-302.C	Kumar & Associates	REMOLDED SWELL-CONSOLIDATION TEST RESULTS	4350

October 03, 2025 - 09:15am
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25-1-302.C	Kumar & Associates	REMOLDED SWELL-CONSOLIDATION TEST RESULTS	4351

October 03, 2025 - 09:15am
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25-1-302.C	Kumar & Associates	REMOLDED SWELL-CONSOLIDATION TEST RESULTS	4352

October 03, 2025 - 09:15am
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