Buc-ee's #87
El Paso County, CO

STORMWATER MANAGEMENT PLAN (SWMP) REPORT

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MAY 2026

Kimley»Horn

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CERTIFICATION

DEVELOPER/OWNER'S STATEMENT

"The owner will comply with the requirements of the Erosion and Stormwater Quality Control Plan, including temporary BMP inspection requirements and final stabilization requirements. I acknowledge the responsibility to determine whether the construction activities on these plans require Colorado Discharge Permit System (CDPS) permitting for Stormwater discharges associated with Construction Activity."

Developer/Owner Signature: _____

Name of Developer/Owner: _____ Date: _____

DBA: _____ Phone: _____

Title: _____ Email: _____

Address: _____

ENGINEER'S STATEMENT

"The Erosion and Stormwater Quality Control/Grading Plan was prepared under my direction and supervision and is correct to the best of my knowledge and belief. If such work is performed in accordance with the grading and erosion control plan, the work will not become a hazard to life and limb, endanger property, or adversely affect the safety, use, or stability of a public way, drainage channel, or other property."

Signature:_____ Date:_____

Printed Name: Kyle Watson, PE

INTRODUCTION

INTRODUCTION AND PURPOSE

The purpose of this report is to outline the SWMP plan for Buc-ee's #87 travel center and associated infrastructure (herein, the "Project") located within the jurisdictional limits of El Paso County (the "County").

PERMIT COVERAGE AND APPLICATIONS

Based upon a Site Disturbance Area of one (1) acre or more, this Site requires the approval of this Stormwater Management Plan and a Grading and Erosion Control Plan with the County and the issuance of a Colorado Discharge Permit System (CDPS) – Stormwater Discharge Associated with Construction Activities Application (the General Permit) through the Colorado Department of Public Health and Environment (CDPHE).

The primary goal of pollution prevention efforts during Project construction is to control sediment and pollutants that originate on the site and prevent them from flowing to surface waters. A successful pollution prevention program also relies upon careful inspection and adjustments during the construction process to enhance its effectiveness. It is the intent of this plan to implement stormwater control measures, also referred to as best management practices (BMP) for enhancing the quality of stormwater discharges associated with the construction activity. Control measure designs are based on the criteria set forth by the General Permit, the Urban Stormwater Drainage Criteria Manual, Volume 3, El Paso County Drainage Criteria Manual Vol. 2 ("DCM") and the El Paso County Engineering Criteria Manual ("ECM"). This plan must be implemented before construction begins on the site. It primarily addresses the impact of storm rainfall and runoff on areas of the ground surface disturbed during the construction process. In addition, there are recommendations for controlling other sources of pollution that could accompany the major construction activities. Applicability of this plan shall be terminated when disturbed areas are stabilized, temporary erosion controls are removed, construction activities covered herein have ceased and the permit has been inactivated.

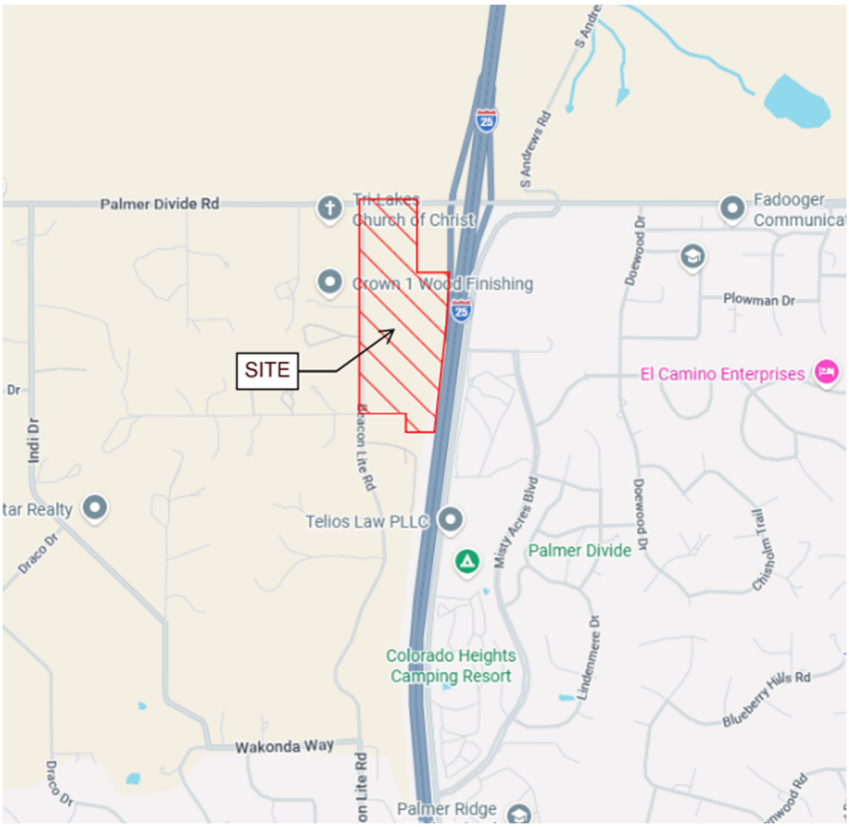
SITE DESCRIPTION

GENERAL PROJECT DESCRIPTION

The Project is a proposed travel center and associated infrastructure to support the development. The project site is approximately 30.83 acres and includes three full spectrum detention ponds. This report covers the subject parcel for the travel center development, as well as road improvements on Beacon Lite Road and Palmer Divide Road, and the proposed water pump, tank, and treatment building and sanitary sewer pump station, totaling ±44.56 acres of disturbed area.

PROJECT LOCATION

The site is located at the southeast corner of Beacon Lite Road and Palmer Divide Road by Interstate 25, El Paso County, State of Colorado. More specifically, the site is located in the northwest quarter of Section 2, Township 11 South, Range 67 West of the 6th PM. It is bound to the north by Palmer Divide Road and undeveloped private property, to the east by Interstate 25, to the south by undeveloped private property, and to the west by Beacon Lite Road. See Vicinity Map on next page.



Vicinity Map
(Not to Scale)

SITE CONDITIONS

VEGETATION

The existing site is currently vacant with groundcover including native weeds, brush, grasses, and trees, as well as existing unpaved farm roads.

Native grasses on the site have an average approximate groundcover density of 80%. This density was obtained by survey information, site visits, and desktop review of the existing conditions. Approximately 30% of the project site has tree cover. An effort has been made to preserve as many trees as possible with the development.

The 30.83-acre Site for Buc-ee's is currently vacant land with no recent over-lot grading. There is an active GEC permit open on the subject site and portions of the parcel are being used for stockpile for the Beacon Lite Road Improvements project (reference EDARP File No. CDR261).

DRAINAGE CHARACTERISTICS

The existing topography generally slopes west to east across the site with slopes ranging from 3% to 35%. Flows in the existing condition generally sheet flow west to east and are collected in existing roadside channels along the Interstate 25 on-ramp to the north and in existing on-site natural drainage channels and swales on the south portion of the site before being conveyed to a channel along Interstate 25. One of

these drainage channels has been identified as a non-jurisdictional seasonally flooded stream (R4SBC). Flow is then ultimately conveyed through a system of existing culverts and open channels east before discharging into Greenland Ranch Creek, located approximately a half mile northeast of the Site. There are no stream crossings in the area.

The site is currently being used as a stockpile area for the Beacon Lite Road Improvements. The Grading and Erosion Control Plan for this stockpile area includes a temporary sediment basin, pond, and associated erosion control and drainage infrastructure. Reference EDARP File No. CDR261, provided in **Appendix K**.

The historic runoff pattern will generally be maintained and unaffected with the proposed Project. The 5-year and 100-year design storm events were used in determining rainfall and runoff for the proposed drainage system per chapter 6 of the El Paso County Drainage Criteria (the "DCM"). Table 6-2 of the El Paso County DCM is the source for rainfall data for the 5- and 100-year design storm events. Design runoff was calculated using the Rational Method for developed conditions as established in the El Paso DCM and the Mile High Flood District Manual (the "Manual"). The detention basins' outlet structures were designed to release the Water Quality Capture Volume (WQCV) in 40 hours. Based upon this approach, we feel that the drainage design provided for the Site is conservative and in keeping with the zoning and historic drainage concept for the area.

Water quality treatment for the Project will be provided by three proposed stormwater facilities. Two of the full spectrum extended detention basins (EDB) are located on the eastern portion of the site, and the third full-spectrum EDB is located on the north portion of the site. The controlled 5-year and 100-year releases from the detention basin outlet structures will ultimately outfall to existing drainageways downstream.

The Flood Insurance Rate Maps (FIRM) 08041C0065G effective date December 7, 2018 and 08041C0276G effective date December 7, 2018, by FEMA, indicates that the Site is located in Zone X (outside of the 500-year flood plain).

The FIRM are provided in **Appendix C**.

ULTIMATE DISCHARGE

Ultimate Receiving Waters: Greenland Ranch Creek

Major Drainage Basin: Bald Mountain Drainage Basin

Stormwater runoff exiting the site collects along Interstate 25 and is conveyed east through a series of closed and open conveyance systems, ultimately discharging into Greenland Ranch Creek, located approximately a half mile northeast of the Site.

In the proposed condition, discharge from the on-site stormwater detention facilities will discharge into the existing channel along Interstate 25 and maintain existing drainage patterns to the ultimate outfall from there. Improvements are proposed for portions of this channel along Interstate 25. All three full-spectrum water quality and stormwater detention ponds will have a full outlet control structure as well as an emergency spillway. The eastern and southern ponds will outfall both the primary spillway and the emergency overflow to the existing channel along Interstate 25, and the northern pond will outfall to the north to a channel south of Palmer Divide Road, both ultimately being conveyed under Interstate 25 via existing culverts.

A proposed conditions map is provided in Appendix A.

SITE SOILS

A review of the Natural Resource Conservation Service (NRCS) Web Soil Survey determined that soils onsite are generally Hydrologic Soil Group (HSG) Type B. Soils were determined to consist of Peyton-Pring-Crowfoot sandy loams, Peyton-Pring-Crowfoot complex, Peyton-Pring complex, and Tomah-Crowfoot loamy sands. These soils are defined as well-drained, with low to medium runoff capabilities and moderately-high to high rate of water transmission.

A Geotechnical analysis was performed for the site. The Geotechnical Engineering Report, prepared by Terracon and dated January 31, 2025, revised August 11, 2025, indicates that groundwater was encountered between 8.5 and 22 feet below existing grades.

The NRSC Soils map and the Geotechnical Engineering Report are provided in **Appendix D**.

AREAS AND VOLUMES

The total anticipated project disturbance area is approximately ±44.56 acres (±30.83 onsite acres). The estimated earthwork quantities on-site are as follows:

Cut: ±109,549 cubic yards

Fill: ±477,514 cubic yards

Net: ±367,968 cubic yards FILL

*No cut or fill factor applied

EROSION & SEDIMENT CONTROL MEASURES

Construction operations including grading, hauling of soil, drainage, pavement work, and final stabilization shall implement erosion and sediment control measures as described below and in the Timing section of this report. Additional measures shall be implemented as appropriate.

Erosion and sediment control measures shall be implemented during construction of the Project. Two construction entrances with vehicle tracking control (VTC) shall be implemented to reduce off-site sediment tracking. One of these entrance will be located on Beacon Lite Road at the proposed future location of the central driveway to the Buc-ee's site, and the second will be located at the southern end of the proposed improvements on Beacon Lite Road. Temporary Soil Stockpiles (SP) shall be protected from stormwater using silt fence or other perimeter control as necessary to inhibit soil transport as well as at material storage areas. Silt fence will also be used for perimeter control on the downslope side of all disturbed areas. Two Concrete Washout Structures (CWA) are proposed adjacent to the VTCs to capture and contain concrete waste.

Three Sediment Basins (SB) are proposed at the future location of the three proposed EDBs and will provide a 40-hour drain down time to allow for sediment to settle out before discharging offsite. A series of diversion channels are proposed to convey runoff and will be equipped with Check Dams (CD) to capture sediment and prevent washout and erosion of the diversion channels. Culvert Inlet Protection (CIP) will be provided on all existing culverts to prevent sediment from entering the closed conveyance system. Inlet Protection (IP) will be provided on existing inlets within the disturbed area as well as all proposed inlets as installed to prevent sediment from entering the existing and installed closed conveyance systems.

Permanent erosion control measures for slopes, channels, and ditches, or any disturbed land area shall be completed within fourteen (14) calendar days after final grading or final earth disturbances have been completed. When it is not possible to permanently stabilize a disturbed area after an earth disturbance has been completed or where significant earth disturbance activity ceases, temporary soil control measures shall be implemented within fourteen (14) calendar days. All temporary soil erosion control measures shall be maintained until final stabilization has been achieved.

Refer to the Grading and Erosion Control Plans for locations and sizing of recommended erosion control measures.

In addition to those measures noted above, Portable Toilets will also be utilized on site. Portable toilets shall be located on flat surfaces away from drainage paths, tied-down or staked-down, emptied regularly, and, where possible, secondary containment pans shall be provided under the portable toilets.

All persons engaging in earth disturbances shall design, implement, and maintain acceptable soil erosion and sedimentation control measures in conformance with the erosion and sediment control technical standards adopted by the County. All temporary erosion and sediment control facilities, and all permanent facilities intended to control erosion of any earth disturbance operation shall be installed before any earth disturbance operations take place. Any earth disturbances shall be conducted in such a manner so that the total amount of soil exposed at any given time shall be minimized, and the exposed area of any disturbed land shall be limited to the shortest possible period of time. Temporary soil erosion control facilities shall be removed, and earth disturbance areas graded and stabilized with permanent soil erosion control measures pursuant to approved plans and specifications.

Paved and impervious surfaces which are adjacent to construction sites must be swept on a daily basis and as needed during the day when sediment and other materials are tracked or discharged onto them. Either sweeping by hand or use of street sweepers is acceptable. Street sweepers using water while sweeping is preferred in order to minimize dust. Flushing off paved surfaces with water is prohibited.

All construction site operators shall control waste such as discarded building materials, hazardous chemicals (to include but not limited to, heavy equipment maintenance fluids, motor oil, antifreeze, and secondary containment of vehicle fuel), litter, and sanitary waste at the construction site that may cause adverse impacts to water quality. Chemicals, paints, solvents, fertilizers, and other toxic materials must be stored in weatherproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the Site, treated, and disposed at an approved solid waste or chemical disposal facility. On-site fueling is not expected with this project.

Throughout build-out, the developer shall be responsible for implementing and maintaining Best Management Practices (BMPs) to control erosion and sediment problems on all idle lots.

All stockpiles shall require erosion and sediment control. All stockpiles shall:

- Not be located adjacent to a waterway
- Be stabilized within 14 days after establishment. Stabilization shall include, but not be limited to, surface roughening, seeding, and mulching.
- Not exceed 10 feet in height.
- Utilize silt fence in all downslope sides of the stockpile.

TIMING AND PHASING SCHEDULE

The proposed project will begin in Spring 2027 with an anticipated final stabilization of Spring 2028, with final construction complete anticipated Fall 2028.

General construction sequencing and activities associated with this project are described below. They are presented in the order (or sequence) they are expected to begin, but each activity will not necessarily be completed before the next begins.

INITIAL/INTERIM PHASE

The initial phase shall consist of applying for and receiving the CDPS General Permit as well as construction/installation of temporary control measures to minimize potential for erosion and sediment transfer while mobilizing and preparing the site for construction activities. The operator shall minimize site disturbance by minimizing the extent of grading and clearing to effectively reduce sediment yield. The operator shall complete the anticipated initial phase sequencing as follows:

1. Prepare and submit the State of Colorado, Colorado Department of Public Health and Environment (CDPHE) Colorado Discharge Permit System (CDPS) General Permit. A copy of the permit shall be provided to the owner upon receipt from the CDPHE.
2. Prepare and submit the Grading and Erosion Control Plan to El Paso County. A copy of the permit shall be provided to the owner upon receipt from the County.
3. Install SWMP information sign in accordance with applicable county, state, and owner requirements.
4. Install *Vehicle Tracking Control (VTC)* as indicated on the Grading and Erosion Control Plans.
5. Install and denote on the plan any of the following areas: trailer, parking, lay down, porta-potty, wheel wash, concrete washout, fuel and material storage containers, solid waste containers, etc.
6. Prepare *Stabilized Staging Area (SSA)* and *Stockpile Area (SP).* Contractor to note the actual size and location of these areas and shall minimize these areas.
7. Install perimeter controls including *Silt Fence (SF)* as shown on the Grading and Erosion Control Plans. Ensure that the limits of construction are defined as necessary and known by all parties which will be responsible for construction on the site.
8. Install *Inlet Protection (IP), Culvert Inlet Protection (CIP) and Rock Socks (RS)* around all inlets and culverts as denoted on the Grading and Erosion Control Plans.
9. Install *Temporary Sediment Basement (TSB)* and with appropriate outfall structures as shown on the Grading and Erosion Control Plans.
10. Install *Drainage Channels (DC)* with outfall into the Temporary Sediment Basin.
11. Install *Check Dams (CD)* with appropriate spacing (as outlined in the El Paso County Typical Check Dam Detail) along the flow line of the drainage swales leading to the Sediment Basin.
12. Upon completion of the initial control measure installation, the operator shall schedule a pre-construction meeting with the owner and the County erosion control inspector to confirm BMPs installed are adequate prior to proceeding with additional land disturbing activities.
13. Begin clearing and grubbing of the site. Stockpile materials in accordance with the stockpile management (SP) BMP.
14. Install *Concrete Washout Area (CWA)* prior to construction of concrete improvements.

FINAL PHASE

The final phase shall consist of construction of site improvements, construction of permanent control measures, and final stabilization of the Site. The operator shall complete the anticipated final phase sequencing as follows:

1. Confirm existing control measures from the initial phase which are to be maintained throughout construction, are in working order and compliant with applicable regulations.
2. Repair and/or replace any existing control measures which are deemed inadequate.
3. *Temporarily Seed (TS)*, throughout construction, denuded areas that will be inactive for 14 days or more.
4. Complete installation of utilities and curb and gutters.
5. Install *Inlet Protection (IP)* around all installed stormwater inlets and *Culvert Inlet Protection (CIP)* on the upstream and downstream side of each installed culvert.
6. Permanently stabilize areas to be vegetated as they are brought to final grade.
7. Prepare site for paving.
8. Add base course and commence paving. Pave site, including gravel roadways, concrete sidewalk, and concrete parking lot.
9. Complete grading and installation of final stabilization over all areas in accordance with the approved landscape plans for the Project.
10. Achieve permanent stabilization in accordance with El Paso County, CDPHE, and owner requirements.
11. Remove remaining control measures once permanent stabilization has been achieved and accepted by the Town Inspector. Repair and stabilize areas disturbed through control measure removal.
12. Convert sediment basins into full spectrum water quality and stormwater detention ponds once site has reached final stabilization. Remove temporary sediment basin outfalls and spillways.
13. Notify the owner of intent to file the Notice of Inactivation with El Paso County and CDPHE and receive Owner acceptance to proceed with Stormwater Management Close-out.
14. Proceed with filing the Notice of Inactivation with El Paso County and CDPHE.
15. Provide the Owner with a copy of all stormwater documentation (permits, inspection reports, logs, etc.). Upon completion of Project, file the Stormwater Notice of Inactivation.

STORMWATER MANAGEMENT CONTROLS

QUALIFIED STORMWATER MANAGER

The Qualified Stormwater Manager is the Operator selected for the project. The terms Qualified Stormwater Manager and Operator have been used interchangeably throughout this stormwater management plan and both terms should be interpreted to mean the same thing. The Qualified Stormwater Manager is an individual knowledgeable in the principles and practices of erosion and sediment control and pollution prevention, and with the skills to assess the effectiveness of stormwater controls implemented to meet the requirements of the General Permit. The Qualified Stormwater manager will be sufficiently qualified for the required duties per the ECM Appendix 1.5. The Qualified Stormwater Manager is responsible for developing, implementing, maintaining, and revising the Grading, Erosion and Sediment Control Plan. The activities and responsibilities of the Qualified Stormwater Manager shall address all aspects of the facility's Grading, Erosion, and Sediment Control Plan.

Company: _____

Contact: _____

Address: _____

_____

Phone: _____

Email: _____

Qualified Stormwater Manager contact info will be given to El Paso County prior to work commencing.

SITE SPECIFIC POLLUTION SOURCES

Further identification of site-specific pollutants that fall within the categories outlined in the next section may be field noted using the corresponding log included in **Appendix E** of this report. The logs are intended to record site specific pollutants, the date of arrival on the site, the date removed from the site, and the methods of treatment.

IDENTIFICATION OF POLLUTANT SOURCES

Evaluation of general sediment and non-sediment pollution sources associated with site construction activities, as outlined within the General Permit, consist of the following:

- **Disturbed and Stored Soils** – Earth disturbing activities (grading, excavation, etc.) will be necessary for this project; therefore, the potential exists for disturbed site soils to contribute sediment to stormwater discharges.
- **Vehicle Tracking and Sediment** – Construction traffic will be entering and exiting the Site; therefore, the potential exists for vehicle tracking to contribute sediment to stormwater discharges.
- **Management of Contaminated Soils** – Contaminated soils are not anticipated on this Site. If encountered, the Qualified Stormwater Manager shall take appropriate containment and treatment measures.
- **Loading and Unloading Operations** – Loading and unloading operations will be taking place at the Site; therefore, the potential exists for these operations to introduce sediment and non-sediment pollutants to stormwater discharges.
- **Outdoor Storage of Materials** – Limited outdoor storage of materials is anticipated with construction of this site; however, outdoor storage of chemicals, fertilizers, etc. is not anticipated.
- **Vehicle and Equipment Maintenance and Fueling** – Routine maintenance and fueling of vehicles and equipment is anticipated with this Site; therefore, the potential exists for pollutants associated with these activities to contribute pollutants to stormwater discharges.
- **Significant Dust or Particulate Generating Processes** – Earth disturbing activities (grading, excavation, etc.) will be necessary for this project; therefore, the potential exists for windblown site soils to contribute sediment to stormwater discharges.
- **Routine Maintenance** – Routine maintenance involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc., other than those identified within Vehicle and Equipment Maintenance and Fueling are not anticipated with this project. If encountered, the Qualified Stormwater Manager shall take appropriate containment and treatment measures.

- **Onsite Waste Management** – Waste management consisting of solid waste piles, liquid wastes, dumpsters, etc. are anticipated onsite; therefore, the potential exists for these operations to introduce sediment and non-sediment pollutants to stormwater discharges.
- **Concrete Truck / Equipment Washing** – Concrete truck and equipment washing are not anticipated with this project. If encountered, the Qualified Stormwater Manager shall take appropriate containment and treatment measures.
- **Dedicated Asphalt and Concrete Batch Plants** – Dedicated asphalt and/or concrete batch plants are not anticipated with this project. If encountered, the Qualified Stormwater Manager shall take appropriate containment and treatment measures and document as necessary.
- **Portable Toilets** - Portable toilets will be located a minimum of 10 feet from stormwater inlets and 50 feet from state waters. They will be secured at all four corners to prevent overturning and cleaned on a weekly basis. They will be inspected daily for spills. As decided by the Qualified Stormwater Manager, a spill liner can be added beneath the portable toilets.
- **Non-Industrial Waste Sources** – Non-Industrial waste sources limited to portable sanitary facilities are anticipated with this project.
- **Additional Pollutant Sources** – Additional areas or procedures where potential spills could occur are not anticipated with this project.

Logs for the identification of pollutant sources are included in **Appendix E** for reference and use.

Based on the following, the potential to contribute pollutants to stormwater discharges is not significant for most of the pollutants identified above:

- Relatively Low Frequency of the Activities
- The Ability to Schedule Activities During Dry Weather
- Existing Site Topography
- The Ability to Implement Primary and Secondary Containment for Product Storage
- The Ability to Locate Activities Away from Drainage Ways

Potential pollutant sources noted below shall be mitigated by use of Best Management Practices (BMPs) as noted in the following sections:

- Disturbed and Stored Soils
- Vehicle Tracking and Sediment
- Loading and Unloading Operations
- Outdoor Storage
- Vehicle Equipment and Maintenance Fueling
- Significant Dust or Particulate Generating Processes
- Non-Industrial Waste Sources

BEST MANAGEMENT PRACTICES FOR STORMWATER POLLUTION PREVENTION

STRUCTURAL PRACTICES FOR EROSION AND SEDIMENT CONTROL

Structural BMPs shall be implemented onsite to minimize erosion and sediment transport. Recommended BMPs based upon a limited site review may be seen within the SWMP Site Map included in the Appendices of this report. Additional BMPs shall be implemented by the SWMP Administrator if necessary to prevent

sediment-laden runoff from leaving the Project Site. The SWMP shall be updated to reflect any changes or revisions enacted in the field. Temporary Structural BMPs for this Site consist of:

- Silt Fence (SF): A silt fence is a woven geotextile fabric attached to wooden posts and trenched into the ground. It is designed as a sediment barrier to intercept sheet flow runoff from disturbed areas.
- Check Dams/Erosion Bales (CD): Check dams are temporary grade control structures placed in drainage channels to limit the erosivity of stormwater by reducing flow velocity. Sediment control logs may also be used as check dams.
- Vehicle Tracking Control (VTC): Vehicle tracking controls provide stabilized construction site access where vehicles exit the site onto paved public roads. An effective vehicle tracking control helps remove sediment (mud or dirt) from vehicles, reducing tracking onto the paved surface.
- Temporary Sediment Basin (SB): A sediment basin is a temporary pond built on a construction site to capture eroded or disturbed soil transported in storm runoff prior to discharge from the site. Sediment basins are designed to capture site runoff and slowly release it to allow time for settling of sediment prior to discharge
- Inlet Protection (IP): Inlet protection consists of permeable barriers installed around an inlet to filter runoff and remove sediment prior to entering a storm drain inlet. Inlet protection can be constructed from rock socks, sediment control logs, silt fence, block and rock socks, or other materials.
- Culvert Inlet Protection (CIP): Culvert inlet protection consists of a permeable erosion log staked into the fill slope on the invert in and invert out side of a culvert. It is designed as a sediment barrier to remove sediment prior to entering a culvert.
- Temporary Diversion Methods (DC): A temporary diversion method is a graded channel lined with plastic, geotextile, turf reinforced mat, or rip rap. It is designed to convey runoff to a controlled location to reduce runoff channelization and erosion of earth.

Permanent Structural BMPs for the Site consist of:

- Full Spectrum Extended Detention Basins (EDB) (3)

NON-STRUCTURAL PRACTICES FOR EROSION AND SEDIMENT CONTROL

Non-structural BMPs shall be implemented onsite to minimize erosion and sediment transport. Recommended BMPs based upon a limited site review may be seen within the SWMP Site Map included in the Appendices of this report. Additional BMPs shall be implemented by the SWMP Administrator if necessary to prevent sediment-laden runoff from leaving the Project Site. The SWMP shall be updated to reflect any changes or revisions enacted in the field. Non-structural BMPs for the Site consist of:

- Temporary Seeding and Mulching (SM): Temporary seeding can be used to stabilize disturbed areas that will be inactive for an extended period. Provide temporary vegetative cover on disturbed areas which will not be paved, built upon, or fully landscaped or worked for an extended period (typically 30 days or more), plant an annual grass appropriate for the time of planting and mulch the planted areas.
- Permanent Seeding and Mulching (SM): To provide vegetative cover on disturbed areas that have reached final grade, a perennial grass mix should be established. Permanent seeding should be performed promptly (typically 14 days) after reaching final grade.
- Stabilized Staging and Storage Area (SSA): A stabilized staging area is a clearly designated area where construction equipment and vehicles, stockpiles, waste bins, and other construction-related materials are stored. The contractor office trailer may also be located in this area.

- Concrete Washout Area (CWA): Concrete waste management involved designating and properly managing a specific area of the construction site as a concrete washout area. A concrete washout area can be created using one of several approaches designed to receive wash water from washing of tools, concrete mixer chutes, liquid concrete waste from dump trucks, mobile batch mixers, or pump trucks.
- Stockpile Management (SP): Stockpile management includes measures to minimize erosion and sediment transport from soil stockpiles.
- Street Sweeping (SS): Street Sweeping is used to remove sediment, debris, and other construction materials from adjacent sites or roadways. Paved and impervious surfaces which are adjacent to construction sites must be swept on a weekly basis or as needed during the week when sediment and other materials are tracked or discharged onto them. Either sweeping by hand or use of street sweepers is acceptable. Street sweepers using water while sweeping is preferred in order to minimize dust. Scraped or swept material shall not be deposited in the storm sewer. Street sweeping is the responsibility of the Operator and will not be performed by the City or County to meet the requirements of this Plan.
- Good Housekeeping (Multiple Practices): Implement construction site good housekeeping practices to prevent pollution associated with solid, liquid, and hazardous construction-related materials and wastes. Stormwater Management Plans (SWMPs) should clearly specify BMPs including these good housekeeping practices.
    - Provide for waste management.
    - Establish proper building material staging areas.
    - Designate paint and concrete washout areas.
    - Establish proper equipment/vehicle fueling and maintenance practices.
    - Control equipment/vehicle washing and allowable non-stormwater discharges.
    - Develop a spill prevention and response plan.

PHASED BMP IMPLEMENTATION

Construction of the identified improvements will take place under three main phases of construction anticipated as identified within the construction sequencing included within this report.

A Land Disturbance, BMP Installation, and Stabilization Log is provided in the Appendices and shall be filled out accordingly during BMP implementation.

MATERIALS HANDLING AND SPILL PREVENTION

Any hazardous or potentially hazardous material that is brought onto the construction Site shall be handled properly in order to reduce the potential for stormwater pollution. In an effort to minimize the potential for a spill of petroleum product or hazardous materials to come in contact with stormwater, the following steps shall be implemented:

- Materials Safety Data Sheets (MSDS) information shall be kept on site for any and all applicable materials.
- All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, additives for soil stabilization, concrete, curing compounds and additives, etc.) shall be stored in a secure location, under cover and in appropriate, tightly sealed containers when not in use.
- The minimum practical quantity of all such materials shall be kept on the job site and scheduled for delivery as close to the time of use as practical.

- A spill control and containment kit (containing, for example, absorbent material, acid neutralizing agent, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) shall be provided on the construction Site and location(s) shown on Site Maps.
- All of the product in a container shall be used before the container is disposed of. All such containers shall be triple rinsed with water prior to disposal. The rinse water used in these containers shall be disposed of in a manner in compliance with State and Federal regulations and shall not be allowed to mix with stormwater discharges.
- All products shall be stored in and used from the original container with the original product label and used in strict compliance with the instructions on the product label.
- The disposal of excess or used products shall be in strict compliance with instructions on the product label.

Temporary onsite fuel tanks for construction vehicles shall meet all state and federal regulations. Tanks shall have approved spill containment with the capacity required by the applicable regulations. From NFPA 30: All tanks shall be provided with secondary containment (i.e. containment external to and separate from primary containment). Secondary containment shall be constructed of materials of sufficient thickness, density, and composition so as to not be structurally weakened as a result of contact with the fuel stored and capable of containing discharged fuel for a period of time equal to or longer than the maximum anticipated time sufficient to allow recovery of discharged fuel.

The tanks shall be in sound condition free of rust or other damage which might compromise containment. Fuel storage areas shall meet all Environmental Protection Agency (EPA), OSHA, and other regulatory requirements for signage, fire extinguisher, etc. Hoses, valves, fittings, caps, filler nozzles, and associated hardware shall be maintained in proper working condition at all times. The location of fuel tanks shall be shown on the Site Maps and shall be located to minimize exposure to water and surface water drainage features.

The Operator shall develop and implement a Materials Handling and Spill Prevention Plan (MHSPP) in accordance with the EPA and State of Colorado requirements. In the event of an accidental spill, immediate action shall be undertaken by the Operator to contain and remove the spilled material. All hazardous materials, including contaminated soil, shall be disposed of by the Operator in the manner specified by federal, state, and local regulations and by the manufacturer of such products. As soon as possible, the spill shall be reported to the appropriate agencies. As required under the provisions of the Clean Water Act, any spill or discharge entering Waters of the United States shall be properly reported. The Operator shall prepare a written record of any spill and associated clean-up activities of petroleum products or hazardous materials in excess of 1 gallon or reportable quantities, whichever is less.

Any spills of petroleum products or hazardous materials in excess of Reportable Quantities as defined by EPA or the state or local agency regulations, shall be immediately reported to the Colorado Department of Public Health and Environment spill reporting lines

- CDPHE Environmental Release and Incident Reporting Line: (877) 518-5608

For reference, a bulletin of Environmental Spill Reporting published by the CDPHE, has been included in the Appendices of this report.

VEHICLE TRACKING AND DUST CONTROL

Vehicle Tracking Control BMPs (structural and non-structural) shall be implemented in order to control potential sediment discharges from vehicle tracking. Practices shall be implemented for all areas of

potential vehicle tracking which include but are not limited to reduced Site access and utilization of designed haul routes.

Areas of soil that are denuded of vegetation and have little protection from particles being picked up and carried by wind should be protected with a temporary cover or kept under control with water or other soil adhering products to limit wind transported particles exiting the Site perimeter.

WASTE MANAGEMENT AND DISPOSAL

An effective first step toward preventing pollution in stormwater from work sites involves using a commonsense approach to improve the facilities basic housekeeping methods. Porr housekeeping practices result in increased waste and potential for stormwater contamination.

No solid materials are allowed to be discharged from the Site with stormwater. All soil waste, including disposable materials incidental to the construction activities, must be collected and placed in containers. Secure covers for the containers shall be provided at all times to meet state and local requirements. The location of solid waste receptacles shall be identified on the SWMP by the Operator.

Concrete waste is anticipated with this Project; and therefore, a dedicated concrete washout is required. The SWMP Administrator shall take appropriate containment and treatment measures and document as necessary.

PORTABLE TOILETS

Portable toilets shall be provided on-site as necessary for construction personnel. Portable toilets shall be located on flat surfaces away from drainage paths, tied down or staked down, emptied regularly, and where possible secondary containment pans shall be provided under the portable toilets. Portable toilets will be located a minimum of 10 feet from stormwater inlets and 50 feet from state waters. They will be secured at all four corners to prevent overturning and cleaned on a weekly basis. They will be inspected daily for spills. In the event of a spill, the Permittee shall follow spill prevention measures as noted in the Appendix.

NON-STORMWATER DISCHARGE COMPONENTS

Only specifically authorized non-stormwater discharges are allowed to enter he storm sewer and all authorized non-stormwater discharges shall be eliminated or reduced to the extent practical. There are no non-stormwater discharges anticipated at the Site.

Appropriate control measures shall be used to minimize the discharge of pollutants. Such control measures will be strictly followed to ensure any impacts from non-stormwater discharges are reduced or eliminated. Appropriate control measures are:

- Emergency Fire Fighting Activities
- Uncontaminated ground water or spring water
    - If possible, direct uncontaminated ground water or spring water to stabilized points of discharge. If discharged to a disturbed area, assure measures to control erosive velocities and sediment control measures are implemented. Velocity control measures include riprap aprons and other conveyance measures. Sediment control measures might include stone check dams, sediment traps, and basins.

    - If uncontaminated ground water is discharged off-site, a Construction Dewatering Permit will be required. This Permit will not apply if dewatering is not performed of if water is not discharged off-site.
- Landscape Irrigation Return Flows
    - Volume of water used for irrigation prior to establishment of vegetation shall be controlled to prevent excess runoff and erosion. Temporary sediment control measures shall remain in place until all upstream disturbed areas are stabilized. Sediment loss will be controlled using sediment control measures such as wattles, sediment fence, and vegetative buffers.

STABILIZATION AND STORMWATER MANAGEMENT

TEMPORARY STABILIZATION AND SHORT-TERM STORMWATER MANAGEMENT

The County considers the completion of over-lot grading operations, by definition, to be substantially complete, therefore, all areas that will be dormant for more than 30 days after the completion of the over-lot grading will require temporary seeding within 14 days of establishment. This does not preclude the 7-day requirement for areas fully completed in the future. At a minimum, in ensuring that this requirement is followed, adequate phasing/scheduling will be required.

FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT

In the natural condition, the site soil is stabilized by means of native vegetation. The final stabilization technique to be used at this project for stabilizing soils shall be to provide a protective cover of landscaping vegetation, pavement, and granular stabilization material. Seeding should be conducted after final grade is achieved and soils are prepared to take advantage of soil moisture and seed germination. The Qualified Stormwater Manager should evaluate the short- and long-term forecasts prior to applying permanent seed. Three full spectrum extended detention basins will be constructed with this project. These detention basins will be designed to release flows at or less than historic rates.

Final site stabilization is achieved when vegetative cover provides permanent stabilization with a density greater than 70 percent of the pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed over the entire area to be stabilized by vegetative cover.

INSPECTION AND MAINTENANCE

Inspections shall be the responsibility of the Qualified Stormwater Manager throughout the construction process.

INSPECTION SCHEDULE REQUIREMENTS

Inspection and maintenance of erosion control measures shall comply with the criteria set forth by the General Permit (COR400000), or the following, whichever is more stringent.

The Permittee or Contractor shall produce written and signed records every seven (7) days and within 24 hours after every significant precipitation event or snow melt that causes surface erosion. All necessary maintenance and repair shall be completed immediately. If more frequent

inspections are required to ensure that control measures are properly maintained and operated, the inspection schedule shall be modified to meet this need.

When snow cover exists over the entire Site for an extended period, inspections are not always feasible. This condition should be documented, including date of snowfall and date of melting conditions to bring awareness of and preparation for areas where melting conditions may pose a risk of surface erosion. A copy of the SWMP shall be maintained at the site at all times. Any degradation of the control measures described in the SWMP or excessive accumulation of sediments shall be remedied immediately upon discovery. The Contractor shall record all storm events on the Storm Event Log included in **Appendix H**.

INSPECTION PROCEDURES

The inspection shall include observations of:

- The Constructed Site Perimeter and Discharge Points;
- All Disturbed Areas;
- Vehicles and Equipment;
- Areas Used for Material / Waste Storage That are Exposed to Precipitation;
- Other Areas Determined to Have a Significant Potential for Stormwater Pollution;
- Erosion and Sediment Control Measures Identified in the SWMP; and
- Any Other Structural Control Measures That May Require Maintenance

The inspection must determine if there is evidence of, or the potential for, pollutants entering the drainage system. Control measures should be reviewed to determine if they still meet the design intent and operational criteria in the SWMP and if they continue to adequately control pollutants at the site. Any control measures not operating in accordance with the SWMP must be addressed as soon as possible, immediately in most cases, to minimize the discharge of pollutants and the SWMP must be updated and inspections must be documented.

Examples of specific items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. Ultimately, it is the responsibility of the Contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more controls than are shown on the plans. Assessing the need for additional controls and implementing them or adjusting existing controls will be an ongoing requirement until the site achieves final stabilization.

1. Vehicle Tracking Control – Locations where vehicles enter and exit the site shall be inspected for evidence of offsite sediment tracking. Exits shall be maintained as necessary to prevent the release of sediment from vehicles leaving the site. Any sediment deposited on the adjacent roadway shall be removed as necessary throughout the day or at the end of every day and disposed of in an appropriate manner. Sediment shall not be washed into storm sewer systems.
2. Erosion Control Devices – Rolled erosion control products (nets, blankets, turn reinforcement mats) and marginally vegetated areas (areas not meeting required vegetative densities for final stabilization) must be inspected frequently. Riling, rutting, and other signs of erosion indicate the erosion control device is not functioning properly and additional erosion control devices are warranted.
3. Sediment Control Devices – Sediment barriers (silt fence, sediment control logs, etc.), traps, and basins must be inspected, and they must be cleaned out at such time as their original capacity has been reduced by 50 percent. All materials excavated from behind sediment barriers or in

traps and basins shall be incorporated into onsite soils or spread out on an upland portion of the site and stabilized. To minimize the potential for sediment releases from the Project, site perimeter control devices shall be inspected with consideration given to changing up-grading conditions.

4. Material Storage Areas – Material storage areas should be located to minimize exposure to weather. Inspections shall evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system or discharging from the site. If necessary, the materials must be covered, or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas. All state and local regulations pertaining to material storage areas shall be adhered to.
5. Vegetation – Seed/Sod shall be free from weedy species and appropriate for site soils and regional climate. Seeding, sodding, tacking, and mulching shall be completed, in accordance with the requirements outlined within the Project Manual and locations identified within the plans, immediately after topsoil is applied and final grade is reached. Grassed areas shall be inspected to confirm that a healthy stand of grass is maintained. Rip-rap, mulch, gravel, decomposed granite, or other equivalent permanent stabilization measures may be employed in lieu of vegetation based on site-specific conditions and Owner approval.
6. Discharge Points – All discharge points must be inspected to determine whether erosion and sediment control measures are effective in preventing discharge of sediment from the site or impacts to receiving waters.

Based on the inspection results, all necessary maintenance and repair shall be completed immediately and in no cases longer than seventy-two (72) hours after identification. The inspection reports must be completed after each inspection. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the SWMP at the time of inspection and specifically identify all incidents of non-compliance.

The Qualified Stormwater Manager shall ensure that, at a minimum, the following is recorded for each inspection and kept onsite for reference:

a. The inspector's name and signature (must be a Qualified Stormwater Manager),
b. The date and type of the inspection (regular inspection vs. post-storm inspection),
c. Weather conditions at the time of the inspection,
d. Phase of construction at the time of the inspection,
e. Estimated acreage of disturbance at the time of inspection,
f. The minimum frequency of inspections chosen,
g. Location(s) of discharges of sediment or other pollutants from the site,
h. Location(s) of control measures needing maintenance,
i. Location(s) and identification of inadequate control measures,
j. Location(s) and identification of additional control measures are needed that were not in place at, the time of inspection, and
k. Any corrective actions taken.

If repairs are needed to any control measures, they shall be completed immediately. After adequate corrective action(s) and maintenance have been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the report shall contain a statement stating the following:

“I verify that, to the best of my knowledge and belief, all corrective action and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit.”

This statement must be signed by a Qualified Stormwater Manager. If it is infeasible to install or repair control measures immediately after discovering the deficiency, the following information must be documented and kept on record:

1. Describe why it is infeasible to initiate the installation or repair immediately; and
2. Provide a schedule for installing or repairing the control measure and returning it to an effective operating condition as soon as possible.

The use and maintenance of log books, photographs, field notebooks, drawings, or maps should also be included in the SWMP records when appropriate. Copies of the Inspection and Sampling Report Forms have been included in **Appendix I** for reference and use.

CONTROL MEASURE MAINTENANCE / REPLACEMENT AND FAILED CONTROL MEASURES

Site inspection procedures noted above must address maintenance of control measures that are found to no longer function as needed and designed, as well as preventive measures to proactively ensure continued operation.

The Qualified Stormwater Manager shall implement a preventative maintenance program to ensure that control measure breakdowns and failures are handled proactively. Site inspections should uncover any conditions which could result in the discharge of pollutants to storm sewers and surface waters and shall be rectified. For example, sediment shall be removed from silt fences on a regular basis to prevent failure of the control measure. Sediment shall be removed to an appropriate location so that it will not become an additional pollutant source.

The inspection process must also include replacement of control measures when needed or the addition of new control measures in order to adequately manage the pollutant sources at the site.

Any control measure deficiencies, replacement, or additional control measures that may be required shall be documented on the Stormwater Management Site Map and on the appropriate Inspection Form. If amendments to the SWMP are required, these amendments shall be documented on the SWMP Amendment Log included in **Appendix J** for reference and use.

DISPOSITION OF TEMPORARY MEASURES

Most temporary erosion and sediment control measures must be removed within 30 days after final site stabilization is achieved. Trapped sediment and disturbed soil areas resulting from the disposal of temporary measures must be returned to final plan grades and permanently stabilized to prevent further soil erosion.

PLAN MODIFICATIONS

This document should be viewed as a “living document” that is continuously being reviewed and modified as part of the overall process of evaluating and managing stormwater quality issues at the site. The Qualified Stormwater Manager shall amend the SWMP when there is a change in design, construction, operation, or maintenance of the site which would require the implementation of new or revised BMPs or

if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity or when BMPs are no longer necessary and are removed. These actions are defined under the Control Measure Maintenance/Replacement and Failed Control Measure Section of this report.

Plan revisions made prior to or following a change(s) onsite, including revisions to sections addressing site conditions and control measures, a notation must be included in the plan that identifies:

- Date of site change,
- The control measure removed or modified,
- The location(s) of those control measures, and
- Any changes to the control measures

This document does not incorporate or rely on control measures owned or operated by another entity.

REFERENCES

Colorado Discharge Permit System (CDPS) – Stormwater Discharge Associated with Construction Activities Application - Prepared by Water Quality Control Division, Colorado Department of Public Health and Environment; Revised April 2019.

Colorado Discharge Permit System (CDPS) General Permit – Stormwater Discharges Associated with Construction Activity - Prepared by Water Quality Control Division, Colorado Department of Public Health and Environment; signed and issued on May 31, 2007 and administratively continued effective July 1, 2012.

NRCS Web Soil Survey - Website: http://websoilsurvey.nrcs.usda.gov

Stormwater Discharges Associated with Construction Activity – Stormwater Management Plan Preparation Guidance - Prepared by Water Quality Control Division, Colorado Department of Public Health and Environment; Revised April 2011.

Urban Storm Drainage Criteria Manual, Volume 3 – Mile High Flood District, Denver, CO.; November 2015.

Beacon Lite Road Stockpile Grading and Erosion Control Plan – Prepared by PRC Engineering, March 11, 2026.

APPENDIX A

GRADING AND EROSION CONTROL PLANS / SITE MAPS

EL PASO COUNTY
GRADING AND EROSION CONTROL PLAN

BUC-EE'S

Buc-ee's #87

INTERSTATE HIGHWAY 25 AND PALMER DIVIDE RD
MONUMENT, CO 80118

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WEST LINE OF THE NORTHWEST QUARTER OF SAID SECTION 2, BEARING NORTH 00°29'49" WEST, A DISTANCE OF 2767.08 FEET, AS MONUMENTED AT THE WEST QUARTER CORNER BY A RECOVERED NO. 6 REBAR WITH 2.5" ALUMINUM CAP, STAMPED "PLS 10945", 0.4' ABOVE GRADE, AND AT THE NORTHWEST CORNER BY A RECOVERED NO. 6 REBAR WITH 3.25" ALUMINUM CAP STAMPED, "LS 17496", IN MONUMENT BOX.

AS SURVEYED LEGAL DESCRIPTION:

A PARCEL OF LAND BEING A PORTION OF THAT PROPERTY DESCRIBED IN QUIT CLAIM DEED RECORDED AT BOOK 5501, PAGE 684 AND A PORTION OF THAT PROPERTY DESCRIBED IN SPECIAL WARRANTY DEED RECORDED AT RECEPTION NO. 222106819, IN THE EL PASO COUNTY OFFICE OF THE CLERK AND RECORDER, SITUATED IN THE NORTHWEST QUARTER OF SECTION 2, TOWNSHIP 11 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 2;

THENCE SOUTH 67°25'57" EAST, A DISTANCE OF 95.37 FEET TO THE INTERIOR SOUTHEAST CORNER OF THE PARCEL DESCRIBED IN SPECIAL WARRANTY DEED RECORDED AT RECEPTION NO. 222083003 IN SAID RECORDS AND THE POINT OF BEGINNING;

THENCE COINCIDENT WITH THE SOUTH LINE OF LAST SAID SPECIAL WARRANTY DEED SOUTH 88°38'48" EAST, A DISTANCE OF 307.26 FEET;

THENCE SOUTH 00°18'01" EAST, A DISTANCE OF 545.91 FEET;

THENCE NORTH 89°38'22" EAST, A DISTANCE OF 405.07 FEET TO THE WESTERLY RIGHT-OF-WAY OF INTERSTATE-25;

THENCE COINCIDENT WITH SAID WESTERLY RIGHT-OF-WAY LINE THE FOLLOWING TWO (2) COURSES;

1) SOUTH 04°18'32" EAST, A DISTANCE OF 429.82 FEET;

2) SOUTH 07°01'30" WEST, A DISTANCE OF 1247.08 FEET;

THENCE NORTH 89°51'03" WEST, A DISTANCE OF 224.17 FEET TO THE EAST LINE OF THE TOWN OF MONUMENT BEACON LITE WATER TANK SUBDIVISION EXEMPTION;

THENCE COINCIDENT WITH THE EAST AND NORTH LINES OF SAID TOWN OF MONUMENT BEACON LITE WATER TANK SUBDIVISION EXEMPTION THE FOLLOWING TWO (2) COURSES:

1) NORTH 00°29'49" WEST, A DISTANCE OF 157.25 FEET;

2) SOUTH 89°30'11" WEST, A DISTANCE OF 409.20 FEET TO THE EAST RIGHT-OF-WAY LINE OF BEACON LITE ROAD AS DESCRIBED IN BOOK 571, PAGE 55 IN SAID RECORDS;

THENCE COINCIDENT WITH SAID EAST RIGHT-OF-WAY LINE, NORTH 00°29'49" WEST, A DISTANCE OF 1176.84 FEET TO THE SOUTHWEST CORNER OF THE PARCEL DESCRIBED IN THE SPECIAL WARRANTY DEED RECORDED AT RECEPTION NO. 224092706 IN SAID RECORDS;

THENCE COINCIDENT WITH THE SOUTH AND EAST LINES OF LAST SAID SPECIAL WARRANTY DEED AND THE EAST LINE OF SAID PARCEL OF LAND DESCRIBED IN RECEPTION NO. 222083003 THE FOLLOWING FIVE (5) COURSES:

1) NORTH 89°51'22" EAST, A DISTANCE OF 5.91;

2) NORTH 00°08'39" WEST, A DISTANCE OF 486.79 FEET;

3) NORTH 04°08'13" EAST, A DISTANCE OF 160.73 FEET;

4) NORTH 00°08'41" WEST, A DISTANCE OF 203.28 FEET;

5) NORTH 44°02'37" EAST, A DISTANCE OF 49.33 FEET TO THE POINT OF BEGINNING.

PARCEL CONTAINS 1,343,044 SQUARE FEET OR 30.8320 ACRES, MORE OR LESS.

BENCHMARK INFORMATION:

BASIS OF ELEVATIONS: ELEVATIONS ARE BASED UPON COLORADO DEPARTMENT OF TRANSPORTATION BENCHMARK NO. V395 (KK1315) BEING A STAINLESS STEEL ROD IN MONUMENT BOX (ELEVATION = 7346.61' NAVD 88)

JURISDICTIONAL UTILITY CONTACTS

SANITATION:
MONUMENT SANITATION DISTRICT
130 2ND STREET
MONUMENT, CO 80132
PHONE: (719) 481-4886
CONTACT: MARK PARKER

ELECTRICITY PROVIDER:
MOUNTAIN VIEW ELECTRIC ASSOCIATION
15706 JACKSON CREEK PKWY, SUITE 100
MONUMENT, CO 80132
PHONE: (719) 494-2607
CONTACT: KELE KAONO

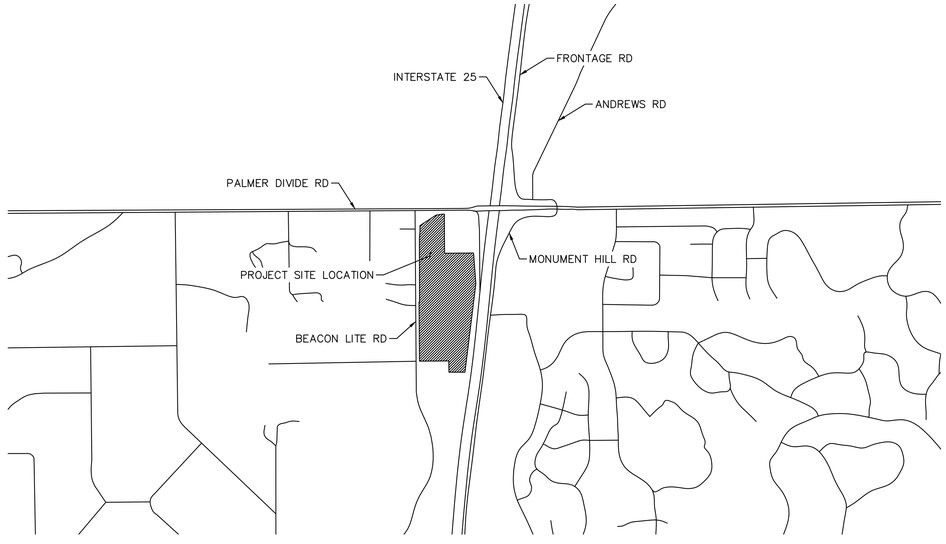
PROJECT DESIGN TEAM

CIVIL ENGINEER:
KIMLEY-HORN AND ASSOCIATES, INC.
6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, CO 80111
PHONE: (303) 228-2300
CONTACT: KYLE WATSON, P.E.

SURVEY:
KIMLEY-HORN & ASSOCIATES, INC.
GREENWOOD VILLAGE, CO 80111
PHONE: (720) 739-3134
CONTACT: DARREN WOLTERSTORFF, P.L.S.

OWNER/DEVELOPER:
BUC-EE'S, LTD
2500 NORTH HWY 228
ANGLETON, TX, 77515
PHONE: (979) 529-2704
CONTACT: SCOTT RATCLIFF, P.E.

ARCHITECT:
LA ARCHITECTS
7800 WASHINGTON AVE, SUITE 600
HOUSTON, TX 77007
PHONE: (713) 600-3600
CONTACT: LUZ DENIZZE, AIA



VICINITY MAP
1" = 1000'

NORTH

SHEET INDEX	
Sheet Number	Sheet Title
1	COVER SHEET
2	GEC NOTES
3	INITIAL EROSION CONTROL PLAN - NORTH
4	INITIAL EROSION CONTROL PLAN - SOUTH
5	INTERIM EROSION CONTROL PLAN - NORTH
6	INTERIM EROSION CONTROL PLAN - SOUTH
7	FINAL EROSION CONTROL PLAN - NORTH
8	FINAL EROSION CONTROL PLAN - SOUTH
9	CUT AND FILL PLAN
10	EROSION CONTROL DETAILS
11	EROSION CONTROL DETAILS

DESIGN ENGINEER'S STATEMENT:

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

KYLE WATSON, P.E. #0055720 — DATE

OWNER/ DEVELOPER'S STATEMENT:

I, THE OWNER/DEVELOPER, HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

SCOTT RAY, OWNER/ DEVELOPER — DATE
[BUSINESS NAME]
[ADDRESS]

EL PASO COUNTY:
COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

JOSHUA J PALMER, P.E. — DATE
COUNTY ENGINEER/ ECM ADMINISTRATOR

Know what's below. Call before you dig.

No.	REVISIONS	DATE	BY

Kimley»Horn

© 2026 KIMLEY-HORN AND ASSOCIATES, INC.
6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, COLORADO 80111
PHONE: (303) 228-2300

KHA PROJECT 196094001
DATE 9/17/2026
SCALE AS SHOWN
DESIGNED BY MMR
DRAWN BY ECM
CHECKED BY KEW

COVER SHEET

GRADING AND EROSION CONTROL PLAN
EL PASO COUNTY

PREPARED FOR
BUC-EE'S, LTD.

COUNTY OF EL PASO COLORADO

SHEET NUMBER
1

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

EL PASO COUNTY STANDARD NOTES

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
   A. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   B. CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
   C. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
   D. CDOT M & S STANDARDS
4. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER' RESPONSIBILITY TO RECTIFY.
6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (PCD) – INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
9. ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
10. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
11. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
12. SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS.OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
13. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOT AND MUTCD CRITERIA. [IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.]
14. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DOT, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
15. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.
16. EL PASO COUNTY DOES NOT OWN AND IS NOT RESPONSIBLE FOR THE UNDERDRAINS OR GROUNDWATER. DISCHARGE SYSTEMS SHOWN ON THESE PLANS AND ASSUMES NO LIABILITY FOR WATER RIGHTS ADMINISTRATION BY APPROVING THESE PLANS. MAINTENANCE AND WATER RIGHTS ARE THE RESPONSIBILITY OF THE DEVELOPER.

EL PASO COUNTY GRADING AND EROSION CONTROL NOTES

1. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE, AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY (EPC) STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE (LDC), THE ENGINEERING CRITERIA MANUAL (ECM), THE DRAINAGE CRITERIA MANUAL (DCM) VOLUME 1 AND 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
2. A PRECONSTRUCTION MEETING BETWEEN THE PERMIT HOLDER(S) AND EL PASO COUNTY SHALL BE HELD PRIOR TO ANY CONSTRUCTION ACTIVITIES. IT IS THE RESPONSIBILITY OF THE PERMIT HOLDER(S) TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF. NO LAND DISTURBANCE OR CONSTRUCTION ACTIVITIES BEYOND THE INSTALLATION OF THE INITIAL CONSTRUCTION CONTROL MEASURES (CCMS), AS INDICATED ON THE APPROVED GEC PLAN OR CDS WITH GEC PLANS, MAY OCCUR PRIOR TO RECEIVING A NOTICE TO PROCEED (NTP) ISSUED BY THE ECM ADMINISTRATOR. FAILURE TO OBTAIN A NOTICE TO PROCEED PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES MAY RESULT IN AN IMMEDIATE STOP WORK ORDER (SWO).
3. CONSTRUCTION CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. STORMWATER RUNOFF FROM ALL DISTURBED AREAS AND SOIL STORAGE AREAS MUST UTILIZE OR FLOW TO ONE OR MORE CCM(S) TO MINIMIZE EROSION OR SEDIMENT IN THE DISCHARGE. THE CCM(S) MUST CONTAIN OR FILTER FLOWS IN ORDER TO PREVENT THE BYPASS OF FLOWS WITHOUT TREATMENT AND MUST BE APPROPRIATE FOR STORMWATER RUNOFF FROM DISTURBED AREAS AND FOR THE EXPECTED FLOW RATE, DURATION, AND FLOW CONDITIONS (E.G., SHEET OR CONCENTRATED FLOW).
4. ALL CCMS SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL FINAL STABILIZATION IS ACHIEVED. THE QUALIFIED STORMWATER MANAGER (QSM) SHALL ASSESS THE ADEQUACY OF CCMS AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CCMS ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CCMS.
5. PRIOR TO CONSTRUCTION THE PERMIT HOLDER(S) SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
6. MANAGEMENT OF THE STORMWATER MANAGEMENT PLAN (SWMP) DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QSM. THE SWMP SHALL BE LOCATED ON-SITE OR DIGITALLY ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION ACTIVITIES AND MUST BE IMPLEMENTED AS WRITTEN FROM THE START OF CONSTRUCTION ACTIVITY UNTIL FINAL STABILIZATION IS ACHIEVED. THE QSM SHALL AMEND THE SWMP WHEN THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE SITE WHICH WOULD REQUIRE THE IMPLEMENTATION OF NEW OR REVISED CCMS OR IF THE SWMP PROVES TO BE INEFFECTIVE IN CONTROLLING POLLUTANTS IN STORMWATER RUNOFF ASSOCIATED WITH CONSTRUCTION ACTIVITY OR WHEN CCMS ARE NO LONGER NECESSARY AND ARE REMOVED. THE QSM SHALL MAINTAIN A RECORD OF AMENDMENTS MADE TO THE SWMP THAT INCLUDES THE DATE AND IDENTIFICATION OF THE CHANGES.
7. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A RECEIVING WATER UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED. IN ADDITION TO MAINTAINING 50 HORIZONTAL FEET OF PRE-EXISTING VEGETATION UPGRADIENT OF A RECEIVING WATER (UNLESS INFEASIBLE AND APPROVED), THE PERMIT HOLDER(S) MUST INSTALL CCMS UPGRADIENT OF THE VEGETATIVE BUFFER.
8. TEMPORARY STABILIZATION MEASURES SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
9. EROSION CONTROL BLANKET (ECB) OR OTHER APPROVED CONTROL MEASURE(S) SHALL BE USED ON SLOPES STEEPER THAN 3:1.
10. VEHICLE TRACKING CONTROLS (VTC) MUST BE IMPLEMENTED TO MINIMIZE VEHICLE TRACKING OF SEDIMENT FROM DISTURBED AREAS. VTCS MUST INCLUDE A STRUCTURE CONTROL MEASURE (E.G., TRACKING PAD) AND MAY INCLUDE A NON-STRUCTURAL CONTROL MEASURE (E.G., SWEEPING). MATERIAL TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
11. ANY TEMPORARY OR PERMANENT CONTROL MEASURE DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF-SITE.
12. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER, PERMANENT CONTROL MEASURES (PCMS), OR DITCHES EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
13. ALL PCMS SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT AFFECT THE DESIGN OR FUNCTION OF PCMS MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
14. SOIL COMPACTION MUST BE MINIMIZED IN AREAS WHERE INFILTRATION PCMS WILL BE INSTALLED OR IN AREAS WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION PCMS SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF SOIL COMPACTION DOES OCCUR IN AREAS WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER OR IN AREAS WHERE INFILTRATION PCMS WILL BE INSTALLED, DECOMPACTION OF THE SOIL MUST BE COMPLETED PRIOR TO PLANTING OR INSTALLATION OF THE PCM(S). AN INFILTRATION TEST MUST BE CONDUCTED FOR ALL INFILTRATION PCMS AND THE INFILTRATION TEST RESULTS SUBMITTED TO EL PASO COUNTY PRIOR TO PRELIMINARY ACCEPTANCE (PA).
15. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND PERMANENT STABILIZATION METHODS ARE COMPLETE. WHEN USING VEGETATIVE COVER AS A PERMANENT STABILIZATION METHOD, THE VEGETATION SHALL BE EVENLY DISTRIBUTED PERENNIAL VEGETATION AND OF THE VARIETY AND SPECIES FOUND IN THE COUNTY-APPROVED SEED MIXES OR IN THE APPROVED GEC PLAN. VEGETATION COVERAGE SHALL BE, AT A MINIMUM, EQUAL TO 70% OF WHAT WOULD HAVE BEEN PROVIDED BY NATIVE VEGETATION IN A LOCAL, UNDISTURBED AREA OR ADEQUATE REFERENCE SITE. ALL TEMPORARY CCMS SHALL BE REMOVED UPON FINAL STABILIZATION AND PRIOR TO STORMWATER PERMIT TERMINATION.
16. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
17. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO BE DISCHARGED OFFSITE OR TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR CONTROL MEASURES. CONCRETE WASHOUT AREAS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK, OR STREAM.
18. DURING CONSTRUCTION DEWATERING OPERATIONS, UNCONTAMINATED GROUNDWATER MAY BE DISCHARGED ON-SITEIN ACCORDANCE WITH THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT'S (CDPHE) LOW RISK DISCHARGE GUIDANCE POLICY FOR DISCHARGES OF UNCONTAMINATED GROUNDWATER TO LAND. IF CONSTRUCTION DEWATERING OPERATIONS ARE UNABLE TO MEET ALL CRITERIA, CONDITIONS, AND CONTROL MEASURE REQUIREMENTS OF THE LOW RISK DISCHARGE GUIDANCE POLICY, A COLORADO DISCHARGE PERMIT SYSTEM (CDPS) GENERAL PERMIT COG080000 WILL BE REQUIRED.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTE FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES, OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
20. THE PERMIT HOLDER(S) SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
21. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
22. MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. APPROPRIATE CMS SHALL BE UTILIZED BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
23. BULK STORAGE (I.E., INDIVIDUAL CONTAINERS OF 55 GALLONS OR GREATER) OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT, OR EQUIVALENT PROTECTION, TO CONTAIN ALL SPILLS ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM, OR OTHER FACILITIES.
24. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
25. ON AREAS OF EXPOSED SOIL, MINIMIZE DUST THROUGH THE APPROPRIATE APPLICATION OF WATER OR OTHER DUST SUPPRESSION TECHNIQUES. WATER APPLICATION MUST BE CONDUCTED IN A MANNER TO PREVENT DISCHARGE OFFSITE UNLESS AUTHORIZED BY A CDPS OR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT.
26. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
27. FOR SITES WHERE A SOILS REPORT IS REQUIRED, THE APPROVED SOILS REPORT FOR THIS SITE SHALL BE CONSIDERED A PART OF THESE PLANS.
28. PERMIT HOLDER(S) AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUME 2, AND ENGINEERING CRITERIA MANUAL. ALL APPLICABLE LOCAL, STATE, AND FEDERAL PERMITS MUST BE OBTAINED PRIOR TO CONSTRUCTION. IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE OR LESS THAN 1 ACRE AND PART OF A LARGER COMMON PLAN OF DEVELOPMENT OR SALE THAT WOULD DISTURB 1 OR MORE ACRES, THE PERMIT HOLDER(S) SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE (COR400000 PERMIT) TO THE CDPHE WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A SWMP, OF WHICH THIS GEC PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD – PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

Know what's **below.**
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6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, COLORADO 80111
PHONE: (303) 228-2300

KHA PROJECT 196094001
DATE 9/17/2026
SCALE AS SHOWN
DESIGNED BY MMR
DRAWN BY ECM
CHECKED BY KEW

GEC NOTES

GRADING AND EROSION CONTROL PLAN
EL PASO COUNTY

PREPARED FOR
BUC-EE'S, LTD.

COUNTY OF EL PASO COLORADO

SHEET NUMBER
2

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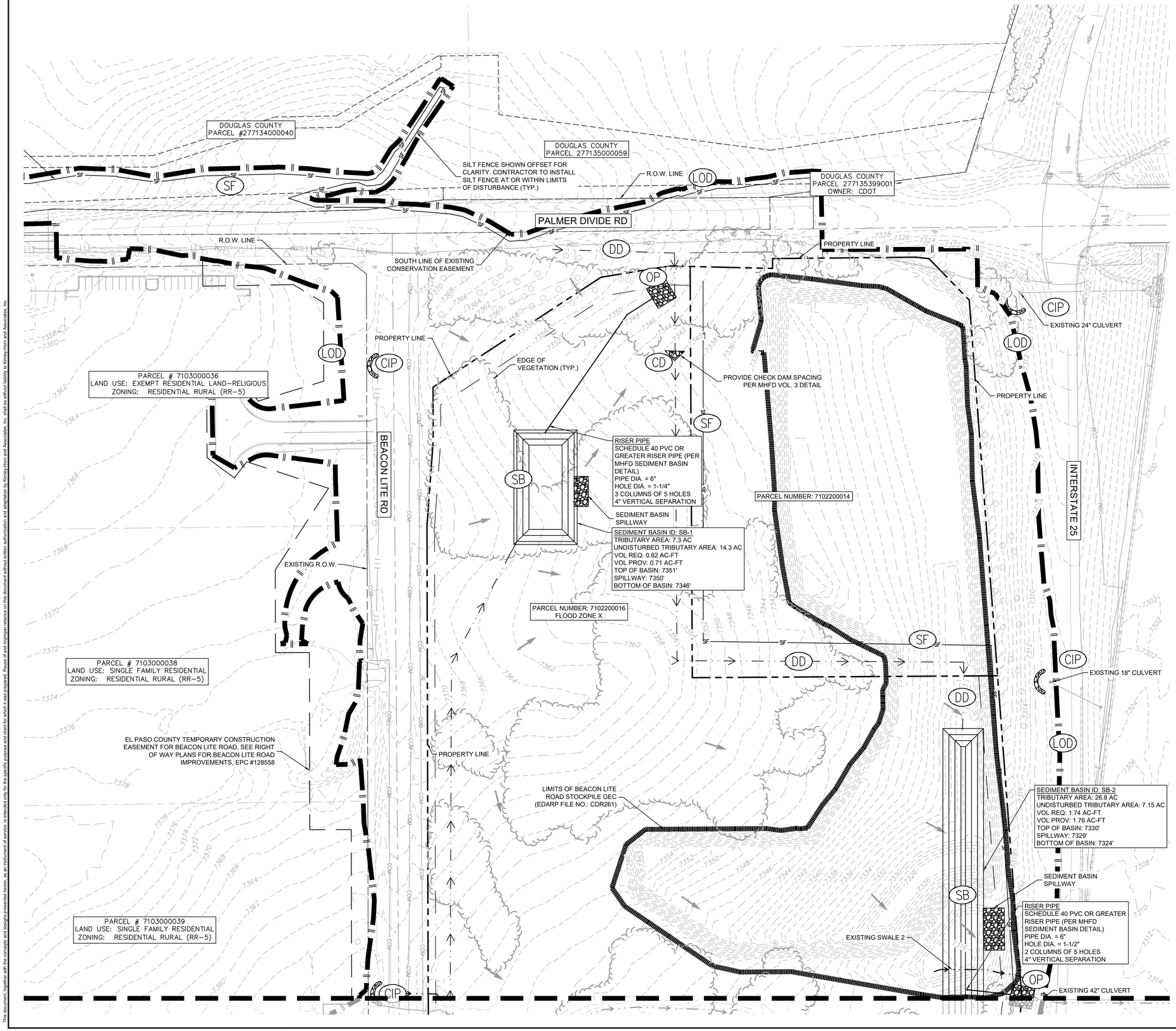

LEGEND

- PROPERTY LINE
- R.O.W. LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING SLOPE
- PROPOSED SLOPE
- (SF) SILT FENCE
- (LOD) LIMITS OF DISTURBANCE
- (SB) SEDIMENT BASIN
- (DD) DIVERSION DITCH
- (SP) STOCK PILE
- (SSA) STABILIZED STAGING AREA
- (CWA) CONCRETE WASH OUT AREA
- (VTC) VEHICLE TRACKING CONTROL
- (OP) OUTFALL PROTECTION
- (CD) CHECK DAM
- (CIP) CULVERT INLET PROTECTION

NOTE:

THIS SITE HAS A GEC PERMIT (EDARP FILE NO.: CDR261) THAT MAY BE ACTIVE AT TIME OF CONSTRUCTION. CONTRACTOR TO COORDINATE RELEASE OF EXISTING PERMIT AND ANY STOCKPILE MATERIALS WITH EL PASO COUNTY PRIOR TO COMMENCEMENT OF THIS EROSION CONTROL PLAN.

GRAPHIC SCALE IN FEET
0 30 60 120

NORTH

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GREENWOOD VILLAGE, COLORADO 80111
PHONE: (303) 228-2300

KHA PROJECT 196094001
DATE 9/11/2026
SCALE AS SHOWN
DESIGNED BY MMR
DRAWN BY ECM
CHECKED BY KEW

INITIAL EROSION CONTROL PLAN - NORTH
GRADING AND EROSION CONTROL PLAN
EL PASO COUNTY
PREPARED FOR
BUC-EE'S, LTD.
COUNTY OF EL PASO COLORADO

SHEET NUMBER
3

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EXISTING 42" CULVERT

EXISTING CHANNEL 1
(R4SBC - SEASONALLY FLOODED STREAM)

PROPERTY LINE

RISER PIPE
SCHEDULE 40 PVC OR GREATER
RISER PIPE (PER MHFD SEDIMENT BASIN DETAIL)
PIPE DIA. = 6"
HOLE DIA. = 1-1/2"
2 COLUMNS OF 5 HOLES
4" VERTICAL SEPARATION

PROPERTY LINE

BEACON LITE RD

EXISTING SWALE 1

PARCEL #7103001063
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

EL PASO COUNTY TEMPORARY CONSTRUCTION EASEMENT FOR BEACON LITE ROAD, SEE RIGHT OF WAY PLANS FOR BEACON LITE ROAD IMPROVEMENTS, EPC #128558

PROVIDE CHECK DAM
SPACING PER MHFD
VOL. 3 DETAIL

PARCEL NUMBER: 7102200016
FLOOD ZONE X

PARCEL #7103001062
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

EXISTING 18" CULVERT

WELLS

PARCEL #7103001003
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

PROVIDE CHECK DAM
SPACING PER MHFD
VOL. 3 DETAIL

RISER PIPE
SCHEDULE 40 PVC OR GREATER RISER PIPE (PER MHFD SEDIMENT BASIN DETAIL)
PIPE DIA. = 6"
HOLE DIA. = 1-1/2"
1 COLUMN OF 5 HOLES
4" VERTICAL SEPARATION

SEDIMENT BASIN SPILLWAY

SEDIMENT BASIN ID: SB-3
TRIBUTARY AREA: 4 AC
UNDISTURBED TRIBUTARY AREA: 6.9 AC
VOL REQ: 0.33 AC-FT
VOL PROV: 0.49 AC-FT
TOP OF BASIN: 7349'
SPILLWAY: 7348'
BOTTOM OF BASIN: 7344'

EXISTING 36" CULVERT

LEGEND

- PROPERTY LINE
- R.O.W. LINE
- XXXX EXISTING MAJOR CONTOUR
- XXXX EXISTING MINOR CONTOUR
- XXXX PROPOSED MAJOR CONTOUR
- XXXX PROPOSED MINOR CONTOUR
- EXISTING SLOPE
- PROPOSED SLOPE
- (SF) SILT FENCE
- (LOD) LIMITS OF DISTURBANCE
- (SB) SEDIMENT BASIN
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NOTE:

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GRAPHIC SCALE IN FEET
0 30 60 120

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PHONE: (303) 228-2300

KHA PROJECT 196094001
DATE 9/1/2026
SCALE AS SHOWN
DESIGNED BY MMR
DRAWN BY ECM
CHECKED BY KEW

INITIAL EROSION CONTROL PLAN - SOUTH
GRADING AND EROSION CONTROL PLAN
EL PASO COUNTY

PREPARED FOR
BUC-EE'S, LTD.

COUNTY OF EL PASO COLORADO

SHEET NUMBER
4

DOUGLAS COUNTY
PARCEL #277134000040

DOUGLAS COUNTY
PARCEL 277135000059

EXISTING CONSERVATION EASEMENT

DOUGLAS COUNTY
PARCEL 277135399001
OWNER: CDOT

SOUTH LINE OF EXISTING
CONSERVATION EASEMENT

PALMER DIVIDE RD

PROPERTY LINE

EXISTING 24" CULVERT

PARCEL # 7103000036
LAND USE: EXEMPT RESIDENTIAL LAND-RELIGIOUS
ZONING: RESIDENTIAL RURAL (RR-5)

BEACON LITE RD

INTERSTATE 25

PROVIDE CHECK DAM SPACING
PER MHFD VOL. 3 DETAIL

RISER PIPE
SCHEDULE 40 PVC OR
GREATER RISER PIPE (PER
MHFD SEDIMENT BASIN
DETAIL)
PIPE DIA. = 6"
HOLE DIA. = 1-1/4"
3 COLUMNS OF 5 HOLES
4" VERTICAL SEPARATION

SEDIMENT BASIN
SPILLWAY

PROPERTY LINE

PARCEL NUMBER: 7102200014

SEDIMENT BASIN ID: SB-1
TRIBUTARY AREA: 7.3 AC
UNDISTURBED TRIBUTARY AREA: 14.3 AC
VOL REQ: 0.62 AC-FT
VOL PROV: 0.71 AC-FT
TOP OF BASIN: 7351'
SPILLWAY: 7350'
BOTTOM OF BASIN: 7346'

PARCEL NUMBER: 7102200016
FLOOD ZONE X

PARCEL # 7103000038
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL (RR-5)

RIGHT-OF-WAY

EL PASO COUNTY TEMPORARY CONSTRUCTION
EASEMENT FOR BEACON LITE ROAD, SEE RIGHT
OF WAY PLANS FOR BEACON LITE ROAD
IMPROVEMENTS, EPC #128558

BEACON LITE RD
COLLECTOR ROADWAY
VARIABLE WIDTH R.O.W

PROPERTY LINE

FUEL CANOPY

EXISTING 18" CULVERT

PROPERTY LINE

SEDIMENT BASIN ID: SB-2
TRIBUTARY AREA: 26.8 AC
UNDISTURBED TRIBUTARY AREA: 7.15 AC
VOL REQ: 1.74 AC-FT
VOL PROV: 1.76 AC-FT
TOP OF BASIN: 7330'
SPILLWAY: 7329'
BOTTOM OF BASIN: 7324'

SEDIMENT BASIN
SPILLWAY

RISER PIPE
SCHEDULE 40 PVC OR GREATER
RISER PIPE (PER MHFD
SEDIMENT BASIN DETAIL)
PIPE DIA. = 6"
HOLE DIA. = 1-1/2"
2 COLUMNS OF 5 HOLES
4" VERTICAL SEPARATION

EXISTING 42" CULVERT

PARCEL # 7103000039
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL (RR-5)

LEGEND

- PROPERTY LINE
- R.O.W. LINE
- XXXX EXISTING MAJOR CONTOUR
- XXXX EXISTING MINOR CONTOUR
- XXXX PROPOSED MAJOR CONTOUR
- XXXX PROPOSED MINOR CONTOUR
- EXISTING SLOPE
- PROPOSED SLOPE
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GRAPHIC SCALE IN FEET
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DRAWN BY ECM
CHECKED BY KEW

INTERIM EROSION CONTROL PLAN - NORTH
GRADING AND EROSION CONTROL PLAN
EL PASO COUNTY

PREPARED FOR
BUC-EE'S, LTD.

COUNTY OF EL PASO COLORADO

SHEET NUMBER
5

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PARCEL #7103001063
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

PARCEL #7103001062
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

PARCEL #7103001003
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

PARCEL NUMBER: 7102200016
FLOOD ZONE X

R.O.W. LINE

PROPERTY LINE

BEACON LITE RD

EL PASO COUNTY TEMPORARY CONSTRUCTION EASEMENT FOR BEACON LITE ROAD, SEE RIGHT OF WAY PLANS FOR BEACON LITE ROAD IMPROVEMENTS, EPC #128558

PROPOSED BEACON LITE ROAD IMPROVEMENTS ASSOCIATED WITH THIS DEVELOPMENT WILL TIE INTO EL PASO COUNTY BEACON LITE ROAD IMPROVEMENTS

FUEL CANOPIES

PROPOSED BUC-EE'S BUILDING 74,000 SF

EXISTING 42" CULVERT

EXISTING 18" CULVERT

EXISTING 36" CULVERT

WELLS

RISER PIPE
SCHEDULE 40 PVC OR GREATER RISER PIPE (PER MHFD SEDIMENT BASIN DETAIL)
PIPE DIA. = 6"
HOLE DIA. = 1-1/2"
2 COLUMNS OF 5 HOLES
4" VERTICAL SEPARATION

PROVIDE CHECK DAM SPACING PER MHFD VOL. 3 DETAIL

RISER PIPE
SCHEDULE 40 PVC OR GREATER RISER PIPE (PER MHFD SEDIMENT BASIN DETAIL)
PIPE DIA. = 6"
HOLE DIA. = 1-1/2"
1 COLUMN OF 5 HOLES
4" VERTICAL SEPARATION

SEDIMENT BASIN SPILLWAY

SEDIMENT BASIN ID: SB-3
TRIBUTARY AREA: 4 AC
UNDISTURBED TRIBUTARY AREA: 6.9 AC
VOL REQ: 0.33 AC-FT
VOL PROV: 0.49 AC-FT
TOP OF BASIN: 7349'
SPILLWAY: 7348'
BOTTOM OF BASIN: 7344'

LEGEND

- PROPERTY LINE
- R.O.W. LINE
- XXXX EXISTING MAJOR CONTOUR
- XXXX EXISTING MINOR CONTOUR
- XXXX PROPOSED MAJOR CONTOUR
- XXXX PROPOSED MINOR CONTOUR
- EXISTING SLOPE
- PROPOSED SLOPE
- (SF) SILT FENCE
- (LOD) LIMITS OF DISTURBANCE
- (SB) SEDIMENT BASIN
- (DD) DIVERSION DITCH
- (SP) STOCK PILE
- (SSA) STABILIZED STAGING AREA
- (CWA) CONCRETE WASH OUT AREA
- (VTC) VEHICLE TRACKING CONTROL
- (OP) OUTFALL PROTECTION
- (CD) CHECK DAM
- (CIP) CULVERT INLET PROTECTION

NOTE:

THIS SITE HAS A GEC PERMIT (EDARP FILE NO.: CDR261) THAT MAY BE ACTIVE AT TIME OF CONSTRUCTION. CONTRACTOR TO COORDINATE RELEASE OF EXISTING PERMIT AND ANY STOCKPILE MATERIALS WITH EL PASO COUNTY PRIOR TO COMMENCEMENT OF THIS EROSION CONTROL PLAN.

GRAPHIC SCALE IN FEET
0 30 60 120

NORTH

Know what's below. Call before you dig.

No.	REVISIONS	DATE	BY

Kimley»Horn
© 2026 KIMLEY-HORN AND ASSOCIATES, INC.
6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, COLORADO 80111
PHONE: (303) 228-2300

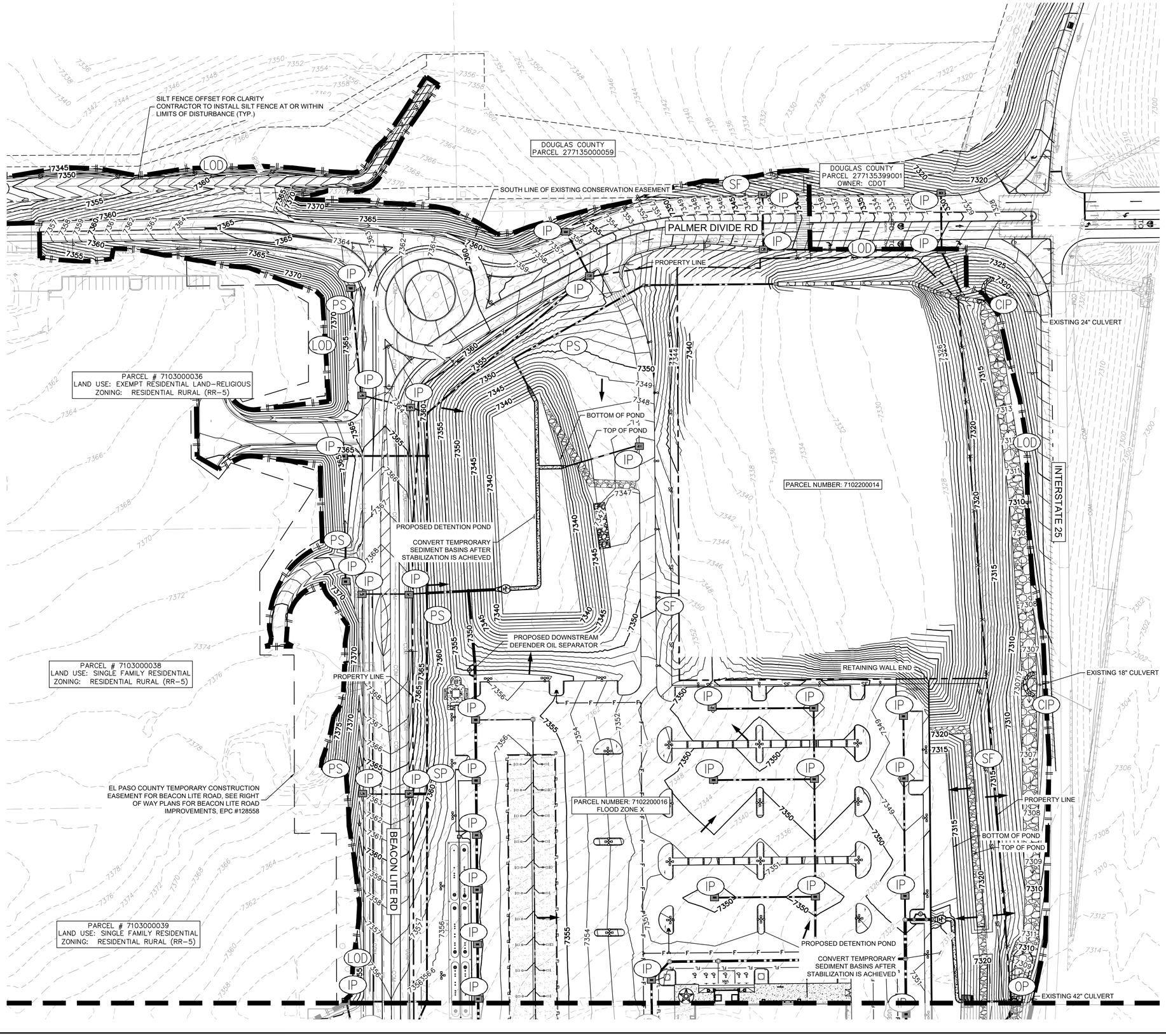
KHA PROJECT 196094001
DATE 9/17/2026
SCALE AS SHOWN
DESIGNED BY MMR
DRAWN BY ECM
CHECKED BY KEW

INTERIM EROSION CONTROL PLAN - SOUTH
GRADING AND EROSION CONTROL PLAN
EL PASO COUNTY

PREPARED FOR
BUC-EE'S, LTD.

COUNTY OF EL PASO COLORADO

SHEET NUMBER
6



LEGEND

	PROPERTY LINE
	R.O.W. LINE
XXXX	EXISTING MAJOR CONTOUR
XXXX	EXISTING MINOR CONTOUR
XXXX	PROPOSED MAJOR CONTOUR
XXXX	PROPOSED MINOR CONTOUR
	EXISTING SLOPE
	PROPOSED SLOPE
SF	SILT FENCE
LOD	LIMITS OF DISTURBANCE
VTC	VEHICLE TRACKING CONTROL
OP	OUTFALL PROTECTION
CIP	CULVERT INLET PROTECTION
IP	INLET PROTECTION
PS	PERMANENT SEEDING

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KHA PROJECT 196094001
DATE 9/11/2026
SCALE AS SHOWN
DESIGNED BY MMR
DRAWN BY ECM
CHECKED BY KEW

FINAL EROSION CONTROL PLAN - NORTH

GRADING AND EROSION CONTROL PLAN

EL PASO COUNTY

PREPARED FOR BUC-EE'S, LTD.

COUNTY OF EL PASO COLORADO

SHEET NUMBER 7

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LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

PARCEL #7103001062
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

PARCEL #7103001003
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

BEACON LITE RD

EL PASO COUNTY TEMPORARY CONSTRUCTION EASEMENT FOR BEACON LITE ROAD, SEE RIGHT OF WAY PLANS FOR BEACON LITE ROAD IMPROVEMENTS, EPC #128558

PROPOSED BEACON LITE ROAD IMPROVEMENTS ASSOCIATED WITH THIS DEVELOPMENT WILL TIE INTO EL PASO COUNTY BEACON LITE ROAD IMPROVEMENTS

PROPOSED BUC-EE'S BUILDING 74,000 SF

PARCEL NUMBER: 7102200016
FLOOD ZONE X

PROPERTY LINE

EXISTING 42" CULVERT

RETAINING WALL

100' OFFSET FROM WELLS

PUMP STATION

TREATMENT BUILDING

LIFT STATION

WELLS

RETAINING WALL START

WATER STORAGE TANK

TOP OF POND

BOTTOM OF POND

PROPOSED DETENTION POND

CONVERT TEMPRORARY SEDIMENT BASINS AFTER STABILIZATION IS ACHIEVED

EXISTING 36" CULVERT

LEGEND

- PROPERTY LINE
- R.O.W. LINE
- XXXX EXISTING MAJOR CONTOUR
- XXXX EXISTING MINOR CONTOUR
- XXXX PROPOSED MAJOR CONTOUR
- XXXX PROPOSED MINOR CONTOUR
- EXISTING SLOPE
- PROPOSED SLOPE
- (SF) SILT FENCE
- (LOD) LIMITS OF DISTURBANCE
- (SB) SEDIMENT BASIN
- (DD) DIVERSION DITCH
- (SP) STOCK PILE
- (SSA) STABILIZED STAGING AREA
- (CWA) CONCRETE WASH OUT AREA
- (VTC) VEHICLE TRACKING CONTROL
- (OP) OUTFALL PROTECTION
- (CD) CHECK DAM
- (CIP) CULVERT INLET PROTECTION

NOTE:

THIS SITE HAS A GEC PERMIT (EDARP FILE NO.: CDR261) THAT MAY BE ACTIVE AT TIME OF CONSTRUCTION. CONTRACTOR TO COORDINATE RELEASE OF EXISTING PERMIT AND ANY STOCKPILE MATERIALS WITH EL PASO COUNTY

GRAPHIC SCALE IN FEET
0 30 60 120

NORTH

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GREENWOOD VILLAGE, COLORADO 80111
PHONE: (303) 228-2300

KHA PROJECT 196094001
DATE 9/11/2026
SCALE AS SHOWN
DESIGNED BY MMR
DRAWN BY ECM
CHECKED BY KEW

FINAL EROSION CONTROL PLAN - SOUTH
GRADING AND EROSION CONTROL PLAN
EL PASO COUNTY
PREPARED FOR
BUC-EE'S, LTD.
COUNTY OF EL PASO COLORADO

SHEET NUMBER
8

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DOUGLAS COUNTY
PARCEL #277134000040

DOUGLAS COUNTY
PARCEL 277135000059

DOUGLAS COUNTY
PARCEL 277135399001
OWNER: CDOT

PALMER DIVIDE RD

PROPERTY LINE

PARCEL # 7103000036
LAND USE: EXEMPT RESIDENTIAL LAND-RELIGIOUS
ZONING: RESIDENTIAL RURAL (RR-5)

BEACON LITE RD

PARCEL NUMBER: 7102200014

DETENTION POND

INTERSTATE 25

PARCEL # 7103000038
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL (RR-5)

PARCEL # 7103000039
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL (RR-5)

FRESHWATER FORESTED/
SHRUB WETLAND

DETENTION POND

PARCEL #7103001063
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

PROPERTY LINE

PROPERTY LINE

PARCEL #7103001062
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

PARCEL #7103001003
LAND USE: SINGLE FAMILY RESIDENTIAL
ZONING: RESIDENTIAL RURAL RR-5

DETENTION POND

PROPERTY LINE

LEGEND

- PROPERTY LINE
- PROPOSED R.O.W
- GRADING LIMITS
- XXXX EXISTING MAJOR CONTOUR
- XXXX EXISTING MINOR CONTOUR
- XXXX PROPOSED MAJOR CONTOUR
- XXXX PROPOSED MINOR CONTOUR
- XXXX% EXISTING SLOPE
- XXXX% PROPOSED SLOPE
- FILL (475,758 CY)
- CUT (116,219 CY)

GRAPHIC SCALE IN FEET
0 60 120 240

NORTH

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GREENWOOD VILLAGE, COLORADO 80111
PHONE: (303) 228-2300

KHA PROJECT 196094001
DATE 9/17/2026
SCALE AS SHOWN
DESIGNED BY MMR
DRAWN BY ECM
CHECKED BY KEW

CUT AND FILL PLAN
GRADING AND EROSION CONTROL PLAN
EL PASO COUNTY

PREPARED FOR
BUC-EE'S, LTD.

COUNTY OF EL PASO COLORADO

SHEET NUMBER
9

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SC-1 Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' – 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

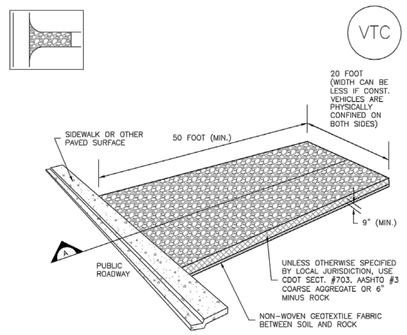
6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

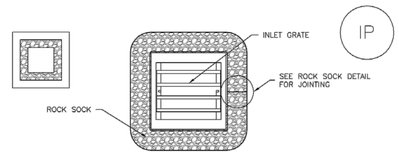
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Vehicle Tracking Control (VTC) SM-4



VTC–1. AGGREGATE VEHICLE TRACKING CONTROL

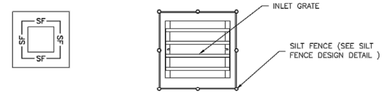
Inlet Protection (IP) SC-6



IP–3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES
1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



IP–4. SILT FENCE FOR SUMP INLET PROTECTION

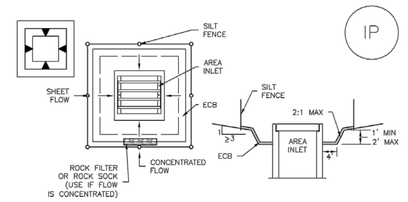
SILT FENCE INLET PROTECTION INSTALLATION NOTES

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.

3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

SC-6 Inlet Protection (IP)



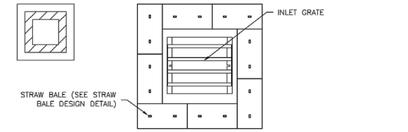
IP–5. OVEREXCAVATION INLET PROTECTION

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

1. THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA.

2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.

3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.



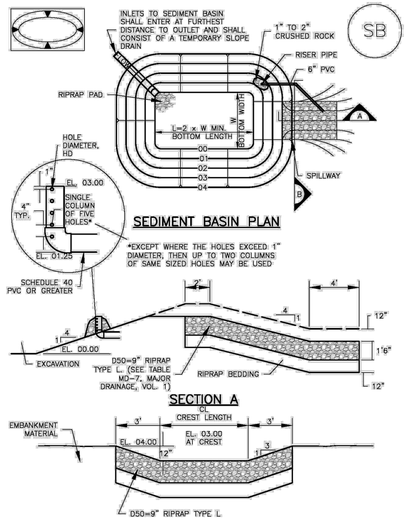
IP–6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

Sediment Basin (SB) SC-7



SC-7 Sediment Basin (SB)

TABLE SB–1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 ½	2	9/32
2	21	3	13/16
3	28	5	5/8
4	33 ½	6	3/4
5	38 ½	8	23/32
6	43	9	25/32
7	47 ¾	11	27/32
8	51	12	29/32
9	55	13	7/8
10	58 ¾	15	15/16
11	61	16	31/32
12	64	18	1
13	67 ½	19	1 1/16
14	70 ½	21	1 1/8
15	73 ¾	22	1 3/16

SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF SEDIMENT BASIN.
   –TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN),
   –FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
   –FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.

2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.

3. SEDIMENT BASING SHALL BE INSTALLED PRIOR TO ANY OTHER LAND–DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS AS A STORMWATER CONTROL.

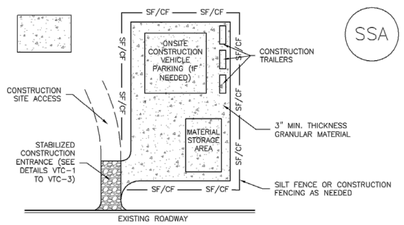
4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.

5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.

6. PIPE SCH 40 OR GREATER SHALL BE USED.

7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

Stabilized Staging Area (SSA) SM-6



SSA–1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF STAGING AREA(S).
   –CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.

5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

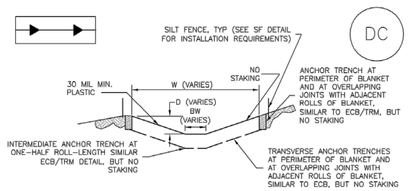
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

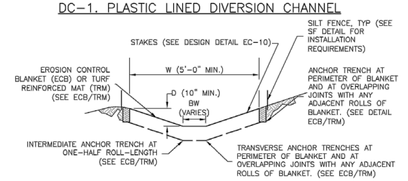
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

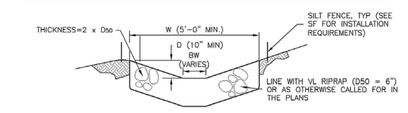
SM-8 Temporary Diversion Methods (TDM)



DC–1. PLASTIC LINED DIVERSION CHANNEL



DC–2. GEOTEXTILE OR MAT LINED DIVERSION CHANNEL



DC–3. RIPRAP LINED DIVERSION CHANNEL

Know what's below. Call before you dig.

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No.	REVISIONS	DATE	BY

Kimley»Horn
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6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, COLORADO 80111
PHONE: (303) 228-2300

KHA PROJECT	196094001
DATE	9/17/2026
SCALE	AS SHOWN
DESIGNED BY	MMR
DRAWN BY	ECM
CHECKED BY	KEW

EROSION CONTROL DETAILS
GRADING AND EROSION CONTROL PLAN
EL PASO COUNTY
PREPARED FOR
BUC-EE'S, LTD.
COLORADO
COUNTY OF EL PASO

SHEET NUMBER
10

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species[a] (Common name)	Growth Season[b]	Pounds of Pure Live Seed (PLS)/acre[c]	Planting Depth (inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
3. Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	½
5. Millet	Warm	3 - 15	½ - ¾
6. Winter wheat	Cool	20–35	1 - 2
7. Winter barley	Cool	20–35	1 - 2
8. Winter rye	Cool	20–35	1 - 2
9. Triticale	Cool	25–40	1 - 2

[a] Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

[b] See Table TS/PS-2 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

[c] Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

Temporary and Permanent Seeding (TS/PS) EC-2

Table TS/PS-2. Seeding Dates for Annual and Perennial Grasses

	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
Seeding Dates	**Warm**	**Cool**	**Warm**	**Cool**
January 1–March 15			✓	✓
March 16–April 30		1,2,3	✓	✓
May 1–May 15			✓	
May 16–June 30	5			
July 1–July 15	5			
July 16–August 31				
September 1–September 30		6, 7, 8, 9		
October 1–December 31			✓	✓

Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the USDCM Volume 2 *Revegetation* Chapter and Volume 3 Mulching BMP Fact Sheet (EC-04) for additional guidance.

Maintenance and Removal

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

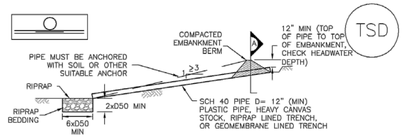
If a temporary annual seed was planted, the area should be reseeded with the desired perennial mix when there will be no further work in the area. To minimize competition between annual and perennial species, the annual mix needs time to mature and die before seeding the perennial mix. To increase success of the perennial mix, it should be seeded during the appropriate seeding dates the second year after the temporary annual mix was seeded. Alternatively, if this timeline is not feasible, the annual mix seed heads should be removed and then the area seeded with the perennial mix.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

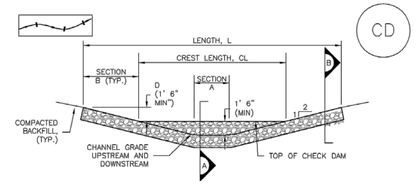
Protect seeded areas from construction equipment and vehicle access.

Temporary Slope Drains (TSD) EC-7



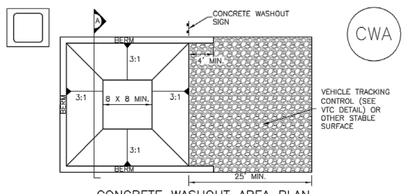
TSD–1. TEMPORARY SLOPE DRAIN PROFILE

Check Dams (CD) EC-12



CD–1. CHECK DAM

Concrete Washout Area (CWA) MM-1



CWA–1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –CWA INSTALLATION LOCATION.

2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.

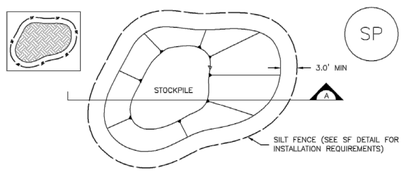
5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.

6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

Stockpile Management (SP) MM-2



SP–1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF STOCKPILES.
   –TYPE OF STOCKPILE PROTECTION.

2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.

3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30–60 DAYS).

4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

MM-2 Stockpile Management (SM)

STOCKPILE PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

STOCKPILE PROTECTION MAINTENANCE NOTES

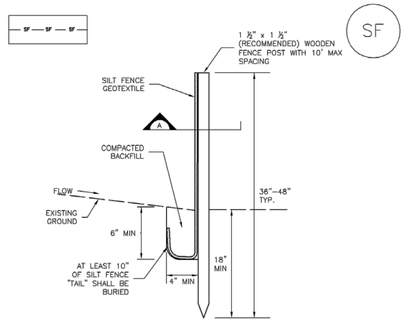
4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.

5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Silt Fence (SF) SC-1



SF–1. SILT FENCE

Know what's **below.** **Call** before you dig.

No.	REVISIONS	DATE	BY

Kimley»Horn

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6200 SOUTH SYRACUSE WAY, SUITE 300
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PHONE: (303) 228-2300

KHA PROJECT 196094001
DATE 9/17/2026
SCALE AS SHOWN
DESIGNED BY MMR
DRAWN BY ECM
CHECKED BY KEW

EROSION CONTROL DETAILS

GRADING AND EROSION CONTROL PLAN
EL PASO COUNTY

PREPARED FOR
BUC-EE'S, LTD.

COLORADO

COUNTY OF EL PASO

SHEET NUMBER
10

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APPENDIX B

CDPHE STORMWATER PERMIT

APPENDIX C

FEMA FIRM MAPS

National Flood Hazard Layer FIRMette

FEMA

104°52'28"W 39°7'58"N

104°51'51"W 39°7'30"N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/30/2026 at 8:34 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX D

SOILS INFORMATION

Buc-ee’s Monument

Geotechnical Engineering Report

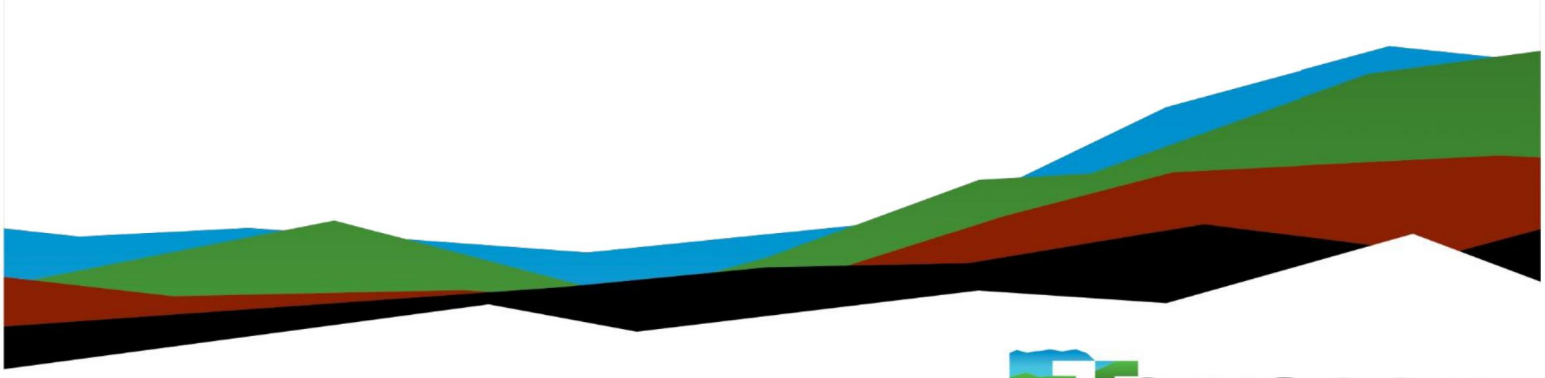
Southwest of Interstate 25 and Palmer Divide Road

Monument, Colorado

January 31, 2025 (Revised August 11, 2025) |
Terracon Project No. 23245069

Prepared for:

Buc-ee’s Ltd
327 FM 2004 Road
Lake Jackson, Texas 77566



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January 31, 2025 (Revised August 11, 2025)

Buc-ee's Ltd
327 FM 2004 Road
Lake Jackson, Texas 77566

Attn: Mr. Scott Ratcliff
P: (979) 529-2704
E: scott.ray@buc.ees.com

Re: Geotechnical Engineering Report
Buc-ee's Monument
Southwest of Interstate 25 and Palmer Divide Road
Monument, Colorado
Terracon Project No. 23245069

Mr. Ratcliff:

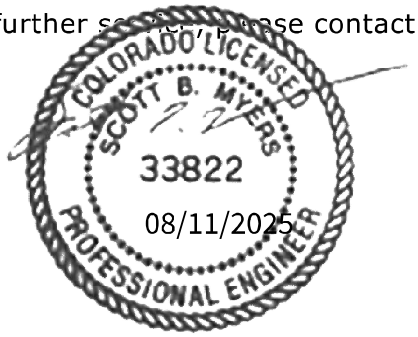
We have completed the scope of Geotechnical Engineering services for the project referenced above in general accordance with Terracon Proposal No. P23245069 and Master Services Agreement Task Order dated June 17, 2024, and executed on June 21, 2024. This report presents the findings of subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs, and pavements for the proposed project.

This report was revised on August 11, 2025 to include additional recommendation and discussion in reference to the provided grading plans for this project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon



Nick M. Novotny, P.G., C.E.G.
Geotechnical Department Manager

Scott B. Myers, P.E.
Regional Senior Consultant

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Exploration and Testing Procedures
Site Location and Exploration Plans
Exploration and Laboratory Results
Off-Site Pavement Information
Supporting Information

Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the Terracon logo will bring you back to this page. For more interactive features, please view your project online at **client.terracon.com**.

Refer to each individual Attachment for a listing of contents.

Report Summary

Topic [1]	Overview Statement [2]
Project Description	The project consists of constructing a new Buc-ee's facility. The development will consist of the following: ▪ Convenience store building: single-story building with a footprint of about 73,372 square feet ▪ Fuel canopies ▪ Buc-ee's pole sign ▪ Underground Storage Tanks (USTs) farm and remote generator pad ▪ EV Charging area ▪ Parking/driveway areas
Geotechnical Characterization	The subsurface conditions encountered at the project site generally consisted of about 2 to 6 inches of topsoil, underlain by native sand soils with varying amounts of silt and clay, and native clay soils with varying amounts of sand to depths of about 4 to 24 feet below ground surface (bgs). Native soils were underlain by bedrock consisting of sandstone and claystone to the maximum depths explored of about 25 to 50 feet bgs in the exploratory borings. Boring Nos. B-30, B-33, B-36 to B-44, B-46 to B-49, B-52, B-53, B-55, B-56, B-58 to B-63, B-65 to B-84, B-86 to B-88, and B-90 to B-92 did not encounter bedrock to the maximum depths explored of 10 to 25.5 feet. Groundwater was encountered in some of the exploratory borings at depths of about 9 to 22 feet at the time of our exploration. The majority of the test borings did not encounter groundwater to the maximum depths explored.
Earthwork	Based on the provided grading plan, we anticipate cuts on the order of about 17 feet for this project. It is anticipated that cuts and excavations for the proposed construction can be accomplished with conventional earthmoving equipment for the majority of the site. However, heavy-duty construction equipment capable of ripping may be necessary when cutting or excavating into very hard sandstone bedrock to facilitate rock breakup and removal.

Topic [1]	Overview Statement [2]
	Based on our review of the provided grading plans, we understand cut and fill slopes are planned for this project with slopes of 4:1 Horizontal to Vertical (H:V) or flatter.
Difficult Excavations	Based on the results of our field exploration, sandstone bedrock was encountered at the site in the area of the proposed underground storage tanks at depths as shallow as 4 feet. Based on the review of the provided grading plan we anticipate cuts of up to about 17 feet for the site grading and excavations of up to about 15 feet for the proposed underground storage tanks. It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment for the majority of the site. However, heavy-duty construction equipment capable of ripping may be necessary when excavating into very hard sandstone bedrock to facilitate rock breakup and removal. Consideration should be given to obtaining a unit price for difficult excavation in the contract documents for the project.
Loose Soils	Test boring data indicate that loose soils may be locally present. Consequently, loose soils could be encountered below foundations or other improvements and these conditions will likely require some corrective work.
Foundation Recommendations	The proposed building, pad mounted equipment, and fueling canopies may be constructed on a shallow foundations bottomed on new engineered fill, provided the owner is willing to accept the associated risk of movement. The proposed fueling canopies and monument sign may be constructed on drilled pier foundation systems embedded in the underlying native soils or bedrock.
Interior Floors	The floor system for the proposed building may consist of a slab-on-grade constructed on new engineered fill, provided the owner is willing to accept the risk of movement.
Retaining Walls	Based on our review of the provided grading plan, new retaining walls of about 31 feet in height are planned at the north, east and southern portions of the site. We anticipate that the proposed retaining walls will be of Mechanically Stabilized Earth (MSE) and concrete cantilever construction.

Topic [1]	Overview Statement [2]
	Recommendations for MSE type retaining walls are not included in this report and additional site-specific studies will be required to provide recommendations for these elements.
Pavements	This report includes recommended minimum pavement sections for the on-site flexible and rigid pavements for this project.
General Comments	This section contains important information about the limitations of this geotechnical engineering report.

1. If the reader is reviewing this report as a pdf, the topics above can be used to access the appropriate section of the report by simply clicking on the topic itself.
2. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed Buc-ee's Monument to be located southwest of Interstate 25 and Palmer Divide Road in Monument, Colorado. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface conditions
- Groundwater conditions
- Earthwork
- Grading and drainage
- Foundation design and construction
- Floor slab design and construction
- Seismic site classification
- Lateral earth pressure
- On-site pavement design and construction
- Off-site pavement information

The geotechnical engineering Scope of Services for this project included the advancement of 93 test borings (designated as Boring Nos. B-1 to B-92, and S-1) to depths ranging from approximately 10 to 50 feet below existing site grades.

This report was revised on August 5, 2025 to include additional recommendation and discussion in reference to the provided grading plans for this project.

Plans showing the site and boring locations are shown on the **Site Location** and **Exploration Plan**, respectively. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs in the **Exploration Results** section.

Project Description

Our initial understanding of the project was provided in our proposal and was discussed during project planning. Our final understanding of the project conditions is as follows:

Item	Description
Information Provided	An email request for proposal was provided by Mr. Scott Ratcliff on June 7, 2024. The request included a site plan with requested exploration locations, including soil borings and pavement boring locations. The grading plan was provided to us by the Kimley-Horn on July 9, 2025.
Project Description	The project consists of constructing a new Buc-ee's facility. The development will consist of the following: ■ Convenience store building: single-story building with a footprint of about 73,372 square feet ■ Fuel canopies ■ Buc-ee's pole sign ■ Underground Storage Tanks (USTs) and remote generator pad ■ EV Charging area ■ Parking/driveway areas ■ Cuts up to about 17 feet to achieve final grade ■ Fills up to about 31 feet to achieve final grade
Proposed Structures	The proposed building is planned to be of concrete tilt up or pre-cast panel construction on shallow spread footings with a slab-on-grade floor. The canopy and pole sign structures are anticipated to be supported by shallow spread footings or drilled pier foundations. The remote generator pad is anticipated to be supported by a shallow foundation. We understand the on-site parking /drive areas will generally consist of portland cement concrete pavements. We understand no below-grade areas are planned for these structures, however, underground storage tanks (USTs) are planned to be installed in the northwest portion of the site.
Finished Floor Elevation	Based on our review of the provided grading plan, the Finished Floor Elevation (FFE) for the convenience store building are anticipated to be at 7346.7 feet.
Maximum Loads (Assumed)	■ Building Columns: 20 to 150 kips ■ Building Walls: 1 to 4 kips per linear foot (klf) ■ Canopy Columns: 20 to 30 kips ■ Slabs: 150 to 250 pounds per square foot (psf)

Item	Description
Grading/Slopes	Based on our review of the provided grading plans, we understand maximum cuts on the order of about 17 feet and maximum fills on the order of about 31 feet are planned for this project. The cuts are planned in the western and northwestern portions of the project site, while the fills are planned in the southern and eastern portions of the site. We understand new retaining walls on the order of about 31 feet in height are anticipated at the north, east and southern portions of the site to develop final site grades. Based on our review of the provided grading plans, we understand cut and fill slopes are planned for this project with slopes of 4:1 Horizontal to Vertical (H:V) or flatter.
Below-Grade Structures	We anticipate the proposed USTs will be installed to depths of about 15 feet below finished grade.
Free Standing Retaining Walls	We understand new retaining walls on the order of about 31 feet in height are anticipated to develop final site grades. Retaining walls are planned for the north, east and southern portions of the site. We anticipate the retaining walls will be constructed as Mechanically Stabilized Earth (MSE) or concrete cantilever walls. Recommendations for MSE type retaining walls are not included in this report and additional site-specific studies will be required to provide recommendations for these elements.
Pavements	On-site drives and parking area pavements for automobile and truck traffic are anticipated to consist of portland cement concrete. Based on other previous Buc-ee's projects Terracon has completed, the following are the anticipated design equivalent single axle loads (ESALs) for the on-site pavements: ▪ Light-Duty (car parking): 200,000 18-kip axle loads (ESALs) ▪ Heavy-Duty (drive lanes): 500,000 18-kip axle loads (ESALs) ▪ Extra-Heavy-Duty (truck lanes for diesel islands): 4,000,000 18-kip axel loads (ESALs) The pavement design period is 20 years.
Building Code	2021 IBC

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located southwest of Interstate 25 and Palmer Divide Road in Monument, Colorado. See **Site Location**
Existing Improvements	The site currently consists of undeveloped land.
Current Ground Cover	Ground cover on the site generally consists of native grasses and weeds. However, areas of the site contain trees and are wooded.
Existing Topography	The site topography slopes down to the southwest with an elevation difference of about 40 feet across the site.
Geology	Surficial geologic conditions near the site, as mapped by the U.S. Geological Survey (USGS) ([1]Thorson, 2003), consist of the Dawson Formation of Paleocene Age. This formation within this area has been reported to include sandstone and conglomerate. The geologic conditions presented in this section were obtained by locating the subject site on available large-scale geologic maps. Due to the scales involved, the precise location of the site can be difficult to determine. In addition, large-scale geologic maps describe only general trends. Local variations are possible and site-specific geology may differ from those described above. A site-specific detailed geologic description is beyond the scope of this project.

Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of the site. Conditions observed at each

[1]Thorson, J.P., 2003, **Geologic Map of the Greenland Quadrangle**, Douglas and El Paso Counties, Colorado, Colorado Geological Survey, Open-File Report OF-03-09, 1:24,000.

exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** and the GeoModel can be found in the **Figures** attachment of this report. As noted in **General Comments**, the characterization is based upon widely spaced exploration points across the site, and variations are likely.

Subsurface Profile

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Topsoil**	Topsoil; about 2 to 6 inches
2	**Native Sand**	Native sand with varying amounts of clay, silt, and gravel; very loose to dense
3	**Native Clay**	Native lean clay with varying amounts of sand and gravel; stiff to hard
4	**Bedrock**	Bedrock consisting of sandstone and claystone; soft to very hard, weak to strong cementation

Stratification boundaries on the boring logs represent the approximate location of changes in soil and material types; in situ, the transition between materials may be gradual. Further details of the borings can be found on the boring logs in the **Exploration Results**.

Based on the results of the laboratory testing and our experience in the area, native clay soils have nil to low expansive potential, while native sand and sandstone bedrock are considered to be non-expansive. Based upon the results of our laboratory testing and our local experience, the potential for vertical movement due to swelling soils is considered to be negligible.

A summary of laboratory test results is included in the **Exploration Results**.

Groundwater Conditions

The borings were observed while drilling and upon completion of drilling for the presence and level of groundwater. The water levels encountered in the boreholes can be found on the boring logs in **Exploration Results** and are summarized below.

Boring No.	Shallowest depth to groundwater encountered while drilling or upon completion of drilling	Approximate Elevation of Groundwater Encountered [1]
B-10	22 feet	7,309 feet
B-11	14 feet	7,309 feet
B-12	19 feet	7,313 feet
B-13	14 feet	7,312 feet
B-15	9 feet	7,311 feet
B-31	18.5 feet	7,300.5 feet
B-32	12 feet	7,304 feet
B-76	8.5 feet	7,316.5 feet
S-1	10 feet	7,302 feet

1. Approximate water elevations are based on the boring elevations, which were interpolated from the ALTA/NSPS Land Title Survey prepared by Kimley-Horn, dated June 14, 2024.
2. Due to safety concerns, borings were backfilled immediately after completion. Therefore, subsequent groundwater measurements were not obtained.
3. Groundwater was only encountered during our field exploration at the locations listed in the table above.

These observations represent groundwater conditions at the time of the field exploration and may not be indicative of other times or at other locations.

Zones of perched and/or trapped groundwater may also occur at times in the subsurface soils overlying bedrock, on top of the bedrock surface or within permeable fractures in the bedrock materials. The location and amount of perched water is dependent upon several factors, including hydrologic conditions, type of site development, irrigation demands on or adjacent to the site, fluctuations in water features, seasonal and weather conditions.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. Groundwater levels during construction or at other times in the life of the structures may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

Seismic Considerations

Based on our subsurface exploration and laboratory testing, it is our opinion that the soils have a low risk of liquefaction. The following table presents the seismic site

classification based on the 2021 International Building Code (IBC), and the subsurface conditions encountered within the borings:

Code Used	Site Classification
2021 International Building Code (IBC) [1,2]	D

1. In general accordance with the 2021 International Building Code.
2. The 2021 International Building Code (IBC) requires a site subsurface profile determination extending a depth of 100 feet for seismic site classification. The current scope requested does not include the required 100-foot subsurface profile determination. The deepest boring of this exploration extended to a maximum depth of about 50 feet and this seismic site class definition considers that similar subsurface conditions exist below the maximum depth of the subsurface exploration.

Corrosivity

The table below lists the results of laboratory soluble sulfate testing.

Boring	Sample Depth (feet)	Soluble Sulfate (%)
B-8	1 – 4	<0.10
B-17	1 – 4	<0.10
B-20	1 – 4	<0.10
B-28	1 – 4	<0.10
B-32	1 – 4	<0.10
B-52	1 – 4	<0.10
B-82	1 – 4	<0.10

Results of water-soluble sulfate testing indicate that samples of the on-site soils have an exposure class of S0 when classified in accordance with the American Concrete Institute (ACI) Design Manual. The results of the testing indicate ASTM Type I portland cement is suitable for project concrete in contact with on-site soils. However, if there is no (or minimal) cost differential, use of ASTM Type II portland cement is recommended for additional sulfate resistance of construction concrete. Concrete should be designed in accordance with the provisions of the ACI Design Manual.

Geotechnical Overview

Based on subsurface conditions encountered in the borings, the site appears suitable for the proposed construction from a geotechnical point of view provided certain precautions and design and construction recommendations outlined in this report are followed. We have identified geotechnical conditions that could impact design and construction of the proposed site improvements.

Difficult Excavations

It is anticipated that cuts for the proposed construction can be accomplished with conventional earthmoving equipment for the majority of the site. However, heavy-duty construction equipment capable of ripping may be necessary when cutting into very hard sandstone bedrock to facilitate rock breakup and removal.

It is anticipated that excavations for the proposed underground storage tanks (USTs) may require the use of heavy-duty construction equipment capable of ripping into very hard sandstone bedrock to facilitate rock breakup and removal. Consideration should be given to obtaining a unit price for difficult excavation in the contract documents for the project.

Loose Soils

Test boring data indicate that loose soils may be locally present. Consequently, loose soils could be encountered below foundations or other improvements and these conditions will likely require some corrective work. Corrective work could involve removal and re-compaction or replacement, in-place soil densification, or deepening footing excavations to suitable bearing materials. In any event, Terracon should be contacted to observe foundation excavations to evaluate bearing conditions and to provide guidance concerning corrective work (if needed).

Deep Fill Zones

Based on our review of the provided grading plans, we understand fills up to about 31 feet in depth are planned for the eastern portion of the project site. In addition, we understand that fills on the order of about 20 feet are planned beneath portions of the proposed building.

Foundation elements constructed on deep fills are subject to settlement resulting from self-weight of the new engineered fill materials. Additionally, settlement within the native materials below the new engineered fill can occur due to the weight of the fill. The amount of time for the new engineered fill to settle under its own weight cannot be

accurately predicted. Therefore, it is critical that new engineered fills and native soils at the base of the new engineered fill be monitored for settlement during and after placement of new fill materials for this project to verify that the majority of the anticipated settlement has concluded prior to construction in these areas.

Earthwork

The following sections present recommendations for site preparation, excavation, subgrade preparation, and placement of engineered fills on the project. All earthwork on the project should be observed and evaluated by Terracon.

Site Preparation

Strip and remove existing vegetation, organics, and other deleterious materials from proposed building and pavement areas. All exposed surfaces should be free of mounds and depressions that could prevent uniform compaction.

Stripped materials consisting of vegetation, unsuitable fills, and organic materials should be wasted from the site or used to revegetate landscaped areas or exposed slopes after completion of grading operations.

Where possible, the site should be initially graded to create a relatively level surface to receive fill and to provide for a relatively uniform thickness of fill beneath the proposed building and improvement areas. All exposed areas that will receive fill, once properly cleared, should be scarified to a minimum depth of 12 inches, conditioned to near optimum moisture content, and compacted. It is imperative the moisture content of prepared materials be protected from moisture loss.

Although evidence of underground facilities were not observed during our exploration, such features could be encountered during construction. If unexpected fills or underground facilities are encountered, such features should be removed, and the excavation thoroughly cleaned prior to backfill placement and/or construction.

It is anticipated that the majority of excavations for the proposed construction can be accomplished with conventional earthmoving equipment. However, heavy-duty construction equipment may be necessary when excavating into very hard sandstone bedrock.

Depending upon seasonal conditions, surface water may infiltrate into the excavations on the site. Water seeping into excavations at this site could most likely be controlled by shallow trenches leading to a sump pit where the water could be removed by pumping.

The stability of subgrade soils may be affected by precipitation, repetitive construction

traffic, or other factors. If unstable conditions are encountered or develop during construction, workability may be improved by overexcavation of wet zones and mixing these soils with crushed gravel. Use of geotextiles could also be considered as a stabilization technique. Lightweight excavation equipment may be required to reduce subgrade pumping.

Deep Cuts and Fills

Based on our review of the provided grading plans, we understand fills up to about 31 feet in depth are planned for the eastern portion of the project site. In addition, we understand that fills on the order of about 20 feet are planned beneath portions of the proposed building.

Foundation elements constructed on deep fills are subject to settlement resulting from self-weight of the new engineered fill materials, which is anticipated to be on the order of about 4 to 6 inches or more. Additionally, settlement on the order of about 1 to 2 inches could occur within the native materials below the new engineered fill due to the weight of the fill. The amount of time for the new engineered fill to settle under its own weight cannot be accurately predicted. However, some studies have shown that about 75% of the self-weight settlement of new fill consisting of granular soils can occur during construction.

Therefore, it is critical that new engineered fills and native soils at the base of the new engineered fill be monitored for settlement during and after placement of new fill materials for this project to verify that the majority of the anticipated settlement has concluded prior to construction in these areas. This type of settlement monitoring might include setting several monitoring plates at the base of the ground to receive fill as well as at the top of the newly placed deep fills to monitor settlement versus time to determine when the majority of settlement due to self-weight of the deep fills has substantially completed. Terracon should be contacted to work closely with the project team to develop the settlement monitoring program (i.e. number of settlement monuments, locations, monument construction details, frequency of monitoring, etc.).

We also understand that cuts on the order of about 7 feet are planned for portions of the proposed building footprint, and cuts on the order of about 17 feet are planned in the western portion of the site to achieve final grades. Structures constructed across cut-fill transitions are subject to an additional risk of differential movement as a result of variations in performance between the native materials and the new engineered fill. Therefore, in addition to the monitoring program discussed above for placement of new engineered fill on this project, we recommend that foundations for structures that are constructed across a cut-fill transition be constructed on a zone of new engineered fill to reduce the risk of differential movement.

Material Types

Fill for this project should consist of engineered fill. Engineered fill is fill that meets the criteria presented in this report and has been properly documented.

Engineered fill should meet the following material property requirements:

Fill Type [1,2]	USCS Classification	Acceptable location for placement
On-site sand soils	SC, SP, SM	On-site sand soils are considered suitable for reuse as engineered fill below foundation, slab, and pavement areas and as general fill for this project.
On-site clay soils [3]	CL	On-site clay soils mixed with sand are considered suitable for reuse as engineered fill below foundation, slab, and pavement areas, and as general fill for this project.
Processed Sandstone and claystone bedrock [4]	N/A	The processed on-site sandstone and claystone bedrock is considered suitable for engineered fill below foundation, slab, and pavement areas for this project.
Imported soils	Varies	Imported soils meeting the gradation outlined herein can be considered acceptable for use as engineered fill beneath foundations, slabs and pavements.

1. Engineered fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the Geotechnical Engineer for evaluation.
2. Care should be taken during the fill placement process to avoid zones of dis-similar fill. Improvements constructed over varying fill types are at a higher risk of differential movement compared to improvements over a uniform fill zone.
3. On-site clay soils should be mixed with on-site sand soils to meet the gradation requirements outlined below for imported soils.
4. On-site sandstone and claystone bedrock materials should be staged separately from excavated soils and processed to a soil-like consistency with a maximum particle size of 3 inches.

Imported soils for engineered fill (if required) should meet the following material property requirements:

Gradation	Percent finer by weight (ASTM C136)
3"	100
1"	90-100
¾"	50-100
No. 4 Sieve	50-100
No. 200 Sieve	<35

- Liquid Limit..... 30 (max)
- Plasticity Index..... 15 (max)
- Maximum Expansive Potential (%)..... 0.5*

  *Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at optimum water content. The sample is confined under a 200-psf surcharge and submerged.

Compaction Requirements

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift.

Item	Description
Fill lift thickness	8-inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6-inches in loose thickness when hand-guided equipment (i.e. jumping jack, plate compactor) is used
Compaction requirements [1,2]	Minimum of 95% of the material's modified Proctor maximum dry density (ASTM D1557) for fills less than 10 feet in depth. Minimum 100% of the material's modified Proctor maximum dry density for fills greater than 10 feet in depth.
Moisture content cohesionless soils (sand soils)	-2 to +2% of the optimum moisture content

1. We recommend that engineered fill be tested for water content and compaction during placement. Should the results of the in-place density tests indicate the specified water or compaction limits have not been met, the area represented by the test should be

Item	Description
	reworked and retested as required until the specified water and compaction requirements are achieved.
	2. Water levels should be maintained low enough to allow for satisfactory compaction to be achieved without the compacted fill material pumping when proofrolled.

Excavation

Excavations into the subsurface soils and bedrock will encounter a variety of conditions. The individual contractor(s) is responsible for designing and constructing stable, temporary excavations as required to maintain stability of both the excavation sides and bottom. All excavations should be sloped or shored in the interest of safety following local and federal regulations, including current Occupational Safety and Health Administration (OSHA) excavation and trench safety standards.

Soils and bedrock penetrated by the proposed excavations may vary significantly across the site. The soil and bedrock classifications are based solely on the materials encountered in the exploratory borings. The contractor should verify that similar conditions exist throughout the proposed area of excavation. If different subsurface conditions are encountered at the time of construction, the actual conditions should be evaluated to determine any excavation modifications necessary to maintain safe conditions.

Grading and Drainage

All grades must be adjusted to provide positive drainage away from the building and improvements during construction and maintained throughout the life of the proposed project. Infiltration of water into utility or foundation excavations must be prevented during construction. Landscaped irrigation adjacent to the foundation systems should be minimized or eliminated. Water permitted to pond near or adjacent to the perimeter of the structures (either during or post-construction) can result in significantly higher soil movements than those discussed in this report. As a result, any estimations of potential movement described in this report cannot be relied upon if positive drainage is not obtained and maintained, and water is allowed to infiltrate the fill and/or subgrade.

Permanent grades should be sloped at a minimum of 5 percent grade for at least 5 feet beyond the perimeter of the building. Asphalt pavement or concrete flatwork should be sloped at a minimum of 2 percent beyond the building perimeters for the life of the building. Where Americans with Disabilities Act (ADA) or other requirements or existing site features limit the gradient, slopes on the order of ½ to 1 percent minimum may be necessary to comply with the ADA but do increase the risk of unanticipated movement. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be compacted in accordance with recommendations in this report and free of all

construction debris to reduce the possibility of water infiltration. After building construction and prior to project completion, we recommend that verification of final grading be performed to document that positive drainage, as described above, has been achieved.

Where paving or flatwork abuts the structures, care should be taken that joints are properly sealed and maintained to prevent the infiltration of surface water.

Sprinkler mains and spray heads should be located a minimum of 5 feet away from the building lines. Where drip line irrigation is located near the building, we recommend that drip line irrigation systems be located at least 5 feet from the outside edge of the foundations. Roof drains should discharge on pavements or be extended away from the building a minimum of 5 feet through the use of splash blocks or downspout extensions.

Earthwork Construction Considerations

Upon completion of grading operations, care should be taken to maintain the moisture content of the subgrade prior to construction of slabs-on-grade, pavements, etc. Construction traffic over prepared subgrade should be minimized and avoided to the extent practical.

The site should also be graded to prevent ponding of surface water on prepared subgrade or in excavations. In areas where water is allowed to pond over a period of time, the affected area should be removed and allowed to dry out. If constraints do not allow for moisture conditioning of affected areas as recommended in this report, the affected area should be overexcavated and replaced with engineered fill. As an alternative, geotextiles could also be considered as a stabilization technique.

The Geotechnical Engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during overexcavation operations, excavations, subgrade preparation; proof-rolling; placement and compaction of controlled compacted fills; backfilling of excavations into the completed subgrade, and just prior to construction of building floor slabs.

Based on our review of the provided grading plans, we understand fills up to about 31 feet in depth are planned for the eastern portion of the project site, and fills on the order of about 20 feet are planned beneath portions of the proposed building. We also understand cuts on the order of about 17 feet are planned in the western portion of the site, and cuts on the order of about 7 feet are planned in the western portion of the building.

Structures constructed across cut-fill transitions are subject to an additional risk of differential movement as a result of variations in performance between the native materials and the new engineered fill. Therefore, it is imperative that the

recommendations provided in the **Earthwork** and **Foundation Recommendation** sections of this report be followed to reduce the risk of differential movement.

Foundation Recommendations

Based upon the results of the field exploration and laboratory testing program for this exploration, the following foundation systems were evaluated for the proposed building, pad mounted equipment, fueling canopies, light poles, and monument sign:

- Spread footing or reinforced concrete mat foundations on a zone of new engineered fill.
- Straight-shaft, cast-in-place piers/shafts constructed in native soils or bedrock.

Shallow Foundation Options – Proposed Building

The proposed building may be constructed on shallow foundations bottomed on a zone of new engineered fill, provided the owner is willing to accept the associated risk of movement.

Based on our review of the provided grading plans, we understand the proposed building is planned to be constructed across a cut-fill transition. Therefore, prior to construction of site improvements (including foundations) for the proposed building, settlement monitoring results for the new fill materials should be reviewed and the project team should determine that the settlement of deep fill areas has substantially completed. In addition, to reduce the risk of differential movement across the cur-fill transition, we recommend foundations be constructed on a minimum of 3 feet of new engineered fill.

Design recommendations for shallow foundation systems for the proposed building are presented in the following table.

Description	Value
Subgrade Preparation	Minimum of 3 feet of new engineered fill
Supporting Stratum	New engineered fill
Maximum Allowable Bearing Pressure [1,2]	2,500 psf

Description	Value
Modulus of Subgrade Reaction	Square: $K_{(BXB)} = K_1\left(\frac{B+1}{2B}\right)^2$ Rectangle: $K_{(BXL)} = K_1\left(\frac{1+0.5B/L}{1.50}\right)$ K_1 = 120 pounds per square inch per inch (psi/in) Where: K_1 = modulus of subgrade reaction of a foundation measuring 1 ft x 1 ft $K_{(BXB)}$ = modulus of subgrade reaction for a foundation having a square dimension B $K_{(BXL)}$ = modulus of subgrade reaction for a foundation having dimensions of B by L
Coefficient of Friction (Sliding)	0.4
Minimum Footing Dimensions	Isolated footings: 24 inches Continuous footings: 18 inches
Maximum Mat Foundation Dimensions	10 x 10 feet
Minimum Embedment Below Finished Grade for Frost Protection [3]	30 inches
Approximate Total Movement [4,5]	About 1 inch
Estimated Differential Movement [5,6,7]	About ½ to ¾ of total movement

1. The recommended maximum allowable bearing pressure assumes that any lower strength soils, if encountered, will be excavated and replaced with engineered fill.
2. The maximum allowable soil bearing pressure can be increased by 1/3 for transient loading conditions.
3. For perimeter footings, footings beneath unheated areas, and footings that will be exposed to freezing conditions during construction. Interior footings may bottom at a minimum depth of 12 inches below finished grade in heated areas.
4. Foundation movement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of engineered fill, and the quality of the earthwork operations and footing construction.
5. Based upon the results of our laboratory testing and our local experience, the potential for vertical movement due to swelling soils is considered to be negligible.
6. Footings should be proportioned on the basis of equal total dead load pressure to reduce differential movement between adjacent footings.
7. Estimate differential movement is considered to be over a distance of about 40 feet.

Shallow Foundation Options – Proposed Equipment and Fueling Canopies

The proposed pad mounted equipment and fueling canopies may be constructed on shallow foundations bottomed on native soils or new engineered fill, provided the owner is willing to accept the associated risk of movement. Prior to construction of site improvements (including foundations), the settlement monitoring results should be reviewed and the project team should determine that the settlement of deep fill areas has substantially completed.

Design recommendations for shallow foundation systems for the proposed pad mounted equipment and/or fueling canopies are presented in the following table.

Description	Value
Subgrade Preparation	Minimum of 12 inches of scarified, moisture conditioned, and compacted native soils below bottom of lowest foundation element
Supporting Stratum	Native soils or new engineered fill
Maximum Allowable Bearing Pressure [1,2]	2,500 psf
Modulus of Subgrade Reaction	Square: $K_{(BXB)} = K_1\left(\frac{B+1}{2B}\right)^2$ Rectangle: $K_{(BXL)} = K_1\left(\frac{1+0.5B/L}{1.50}\right)$ K_1 = 120 pounds per square inch per inch (psi/in) Where: K_1 = modulus of subgrade reaction of a foundation measuring 1 ft x 1 ft $K_{(BXB)}$ = modulus of subgrade reaction for a foundation having a square dimension B $K_{(BXL)}$ = modulus of subgrade reaction for a foundation having dimensions of B by L
Coefficient of Friction (Sliding)	0.4
Minimum Footing Dimensions	Isolated footings: 24 inches Continuous footings: 18 inches
Maximum Mat Foundation Dimensions	10 x 10 feet

Description	Value
Minimum Embedment Below Finished Grade for Frost Protection [3]	30 inches
Approximate Total Movement [4,5]	About 1 inch
Estimated Differential Movement [5,6,7]	About ½ to ¾ of total movement

1. The recommended maximum allowable bearing pressure assumes that any lower strength soils, if encountered, will be excavated and replaced with engineered fill.
2. The maximum allowable soil bearing pressure can be increased by 1/3 for transient loading conditions.
3. For perimeter footings, footings beneath unheated areas, and footings that will be exposed to freezing conditions during construction. Interior footings may bottom at a minimum depth of 12 inches below finished grade in heated areas.
4. Foundation movement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of engineered fill, and the quality of the earthwork operations and footing construction.
5. Based upon the results of our laboratory testing and our local experience, the potential for vertical movement due to swelling soils is considered to be negligible.
6. Footings should be proportioned on the basis of equal total dead load pressure to reduce differential movement between adjacent footings.
7. Estimate differential movement is considered to be over a distance of about 40 feet.

Shallow Foundation Construction Considerations

Additional foundation movements could occur if water from any source infiltrates the foundation soils; therefore, proper drainage should be provided in the final design and during construction and throughout the life of the structure. Failure to maintain the proper drainage as recommended in the **Grading and Drainage** section of **Earthwork** will nullify the movement estimates provided above.

Unstable subgrade conditions should be observed by the Geotechnical Engineer to assess the subgrade and provide suitable alternatives for stabilization. Stabilized areas should be proofrolled prior to continuing construction to assess the stability of the subgrade.

The base of all foundation excavations should be free of water and loose soil prior to concrete placement. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Should the soils at bearing level become excessively dry, disturbed or saturated, or frozen, the affected soil should be removed prior to placing concrete.

Footings, foundations, and masonry walls should be detailed and reinforced as necessary to reduce the potential for distress caused by differential foundation movement. The use of joints at openings or other discontinuities in masonry walls is recommended.

Drilled Pier Recommendations

The proposed fueling canopies and monument sign could be constructed on drilled pier foundation systems embedded in the underlying native soils or bedrock. Design recommendations for a drilled pier foundation systems are presented in the table below:

Description	Value
Minimum Pier Length [1]	8 feet
Maximum Allowable End-Bearing Pressure [2]	▪ Native soils / engineered fill – 3,000 psf ▪ Sandstone Bedrock – 25,000 psf [3]
Maximum Allowable Skin Friction [4]	▪ Native soils / engineered fill – 250 psf ▪ Sandstone Bedrock – 1,750 psf
Minimum Pier Diameter	18 inches
Approximate Total Movement	▪ Piers terminated in native soils / engineered fill – about 1 inch ▪ Piers terminated in bedrock - about ½ inch

1. Recommended minimum length and diameter may need to be increased to account for structural engineering requirements.
2. In accordance with IBC Section 1806.1, if design of the pier foundations is completed using allowable stress design (ASD) methods, the vertical bearing resistance may be increased by 1/3 where used with the alternative basic load combinations that include wind or seismic loads that are described in IBC Section 1605.3.2. This 1/3 increase does not apply if design is completed using load and resistance factor design (LRFD) methods. Increases also do not apply to the resistance of uplift loads, nor to the soil properties provided in this report for modeling the pier response to lateral loads, nor the resulting lateral pier deflection vs. applied load graph.
3. Drilled piers must penetrate bedrock a minimum of 5 feet of 2 pier diameters, whichever is greater.
4. Skin friction should not be applied in the upper 3 feet of the drilled pier to account for frost effects.

Piers should be considered to work in group action if the center-to-center horizontal spacing is less than three pier diameters. A minimum practical center-to-center horizontal spacing between piers of at least three diameters should be maintained, and adjacent piers should bottom at the same elevation. The capacity of individual piers must be reduced when considering the effects of group action. Capacity reduction is a function of pier spacing and the number of piers within a group. The following table presents capacity reductions for closely spaced piers.

Description	Value		
Drilled Pier Spacing (Center-to-Center)	>3 diameters	>2 to 3 diameters	1 to 2 diameters
Pier Capacity Reduction	None	30 percent	50 percent

1. End bearing values do not need to be reduced for closely spaced piers if bottom of piers are at the same elevation.

To satisfy forces in the horizontal direction using the computer program LPILE©, piers may be designed for the following lateral load criteria:

Soil Type	Curve Model (p-y)	Unit Weight (pcf)	Undrained Shear Strength (psf)	Angle of Internal Friction, Φ (degrees)	Coeff. of Subgrade Reaction, k (pci)	Strain, ε_{50} (%)
Clay	Stiff clay w/out free water	120	1,000	--	Allow LPile program to choose values based on the other parameters in this table.	
Sand	Sand (Reese)	115	--	31		
Sandstone	Sand (Reese)	130	--	41		

Lateral analysis should account for the center-to-center spacing and P-Y multiplier values per the following table:

Pier Center-to-Center Spacing (In Direction of Loading)	P-multiplier, P_M Row 1	P-multiplier, P_M Row 2	P-multiplier, P_M Row 3 and Higher
3 x diameter	0.8	0.4	0.3
5 x diameter	1.0	0.85	0.7

The structural engineer should determine the reinforcement necessary for the piers. At a minimum, all piers should be reinforced full depth for the applied axial, lateral, and uplift stresses imposed.

Drilling to design depth through the very hard sandstone bedrock layers will likely require the use of heavy-duty equipment.

Groundwater was encountered at depths as shallow as 8.5 feet in the area of the proposed monument sign. Pier casing will be required if groundwater, loose soils, or caving soils are encountered. Casing should be withdrawn in a slow continuous manner maintaining a sufficient head of concrete to prevent infiltration of water or caving soils

or the creation of voids in pier concrete. Pier concrete should have a relatively high fluidity when placed in cased pier holes or through a tremie. Pier concrete with slump in the range of 5 to 7 inches is recommended for uncased piers. For cased piers, a slump in the range of 7 to 9 inches is recommended.

Groundwater should be removed from each pier hole prior to concrete placement. Pier concrete should be placed immediately after completion of drilling and cleaning. If pier concrete cannot be placed in dry conditions, a tremie or slurry drilling method should be used for concrete placement. Free-fall concrete placement in piers will only be acceptable if provisions are taken to avoid striking the concrete on the sides of the hole or reinforcing steel. The use of a bottom-dump hopper, or an elephant's trunk discharging near the bottom of the hole where concrete segregation will be reduced, is recommended.

Due to potential sloughing and raveling, foundation concrete quantities may exceed calculated geometric volumes. Pier-bearing surfaces must be cleaned prior to concrete placement. A Terracon representative should observe the bearing surface and shaft configuration.

The top of the piers should be cylindrical in shape. Forms may be necessary at the top of the piers in order to minimize the disturbance of the soils and to maintain a cylindrical shape. Failure to provide this shape (i.e., allowing mushrooming of pier tops) may result in additional uplift forces and unanticipated movement.

Light Pole Foundations

Design recommendations for drilled pier foundations systems to support the proposed light poles are presented in the table below:

Description	Value
Soil Type	Sand
Minimum Pier Length/Embedment Depth	8 feet [1]
Maximum Allowable End Bearing Pressure	3,000 psf
Allowable Skin Friction [2]	250 psf
Allowable Lateral Bearing Pressure [3,4]	340 psf/ft.

Description	Value

1. The minimum pier length is from finished grade.
2. Allowable skin friction should not be applied for the upper 3 feet of the drilled pier from finished grade to account for frost effects.
3. The allowable lateral bearing pressure is based on the Broms method.
4. The estimated movement of the light pole base cannot be reasonably estimated the vertical loads of the light pole are very low. Because of the low vertical loads, movement of the light poles will be primarily controlled by the overall performance of the surrounding soils.

Floor Slabs

Slab-on-grade floors may be utilized for the interior floor system for the proposed building, provided slabs-on-grade are constructed on new engineered fill, and provided some slab movement can be tolerated.

Based on our review of the provided grading plans, we understand the proposed building is planned to be constructed across a cut-fill transition. Therefore, prior to construction of floor slabs for the proposed building, settlement monitoring results for the new fill materials should be reviewed and the project team should determine that the settlement of deep fill areas has substantially completed.

In addition, to reduce the risk of differential movement across the cut-fill transition, we recommend floor slabs be constructed on a 3 foot zone of new engineered fill. We estimate this alternative will reduce settlement to about 1 inch or less.

For structural design of concrete slabs-on-grade, a modulus of subgrade reaction of 120 pounds per cubic inch (pci) may be used for point or limited area loads for floors supported on an engineered fill.

Additional floor slab design and construction recommendations are as follows:

- Positive separations and/or isolation joints should be provided between slabs and all foundations, columns, or utility lines to allow independent movement.
- Control joints should be provided in slabs to control the location and extent of cracking.
- Interior trench backfill placed beneath slabs should be compacted in accordance with recommended specifications described previously.
- The use of a vapor retarder should be considered beneath concrete slabs on grade that will be covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer

and slab contractor should refer to ACI 302 for procedures and cautions regarding the use and placement of a vapor retarder.
- Floor slabs should not be constructed on frozen subgrade.
- Other design and construction considerations, as outlined in the ACI Design Manual, are recommended.

Movements of slab-on-grades using the above outlined technique will likely be reduced and tend to be more uniform. The estimates outlined previously assume that the other recommendations provided in the recommendations outlined in this section and in the **Grading and Drainage** subsection of **Earthwork** are followed.

Exterior Flatwork

Exterior slabs-on-grade and flatwork constructed on the on-site soils or new engineered fill will have a low risk of movement. We recommend the subgrade soils below exterior slabs-on-grade are scarified to a depth of at least 12 inches, moisture conditioned, and compacted to grade. New fill materials beneath slabs-on-grade should be placed and compacted as outlined in the **Earthwork** section of this report.

For structural design of exterior concrete slabs-on-grade, a modulus of subgrade reaction of 120 pci may be used for point or limited area loads for exterior slabs-on-grade at this site.

Additional slab design and construction recommendations are as follows:

- Minimizing moisture increases in the backfill.
- Controlling moisture-density during placement of backfill.
- Positive separations and/or isolation joints should be provided between exterior slabs and the building to allow independent movement.
- Control joints should be provided in slabs to control the location and extent of cracking.
- Exterior slabs should not be constructed on frozen subgrade
- Other design and construction considerations, as outlined in Section 302.1R of the ACI Design Manual, are recommended.

Movements of exterior flatwork using the above outlined technique will likely be reduced and tend to be more uniform. The estimates outlined previously assume that the other recommendations provided in the recommendations outlined in this section and in the **Grading and Drainage** subsection of **Earthwork** are followed.

Underground Storage Tank Recommendations

We understand underground storage tanks (USTs) are planned at the northwestern portion of the site with anticipated excavation depths of about 15 feet. Based on the results of our field exploration and our review of the provided grading plans, sandstone bedrock is anticipated to be encountered at or above final site grades in the area of the proposed USTs. Therefore, sandstone bedrock should be anticipated in excavations for the proposed USTs.

We anticipate specialized heavy-duty equipment capable of ripping may be required for bedrock excavation to facilitate rock breakup and removal for the installation of the USTs. Consideration should be given to obtaining a unit price for difficult excavation in the contract documents for the project.

Groundwater was not encountered in any of the borings performed in the area of the proposed underground storage tanks. However, groundwater was encountered in other portions of the site at depths as shallow as 9 feet. We recommend that the proposed USTs be designed to resist buoyancy forces equal to those generated if water was within 5 feet of finished site grades.

On-site soils and processed bedrock excavated from the proposed tank locations should be suitable for reuse as engineered fill or backfill in the construction of the underground fuel storage tanks for the project, provided the materials meet the requirements presented in this report. The excavation and backfilling operations for the construction of the tanks should be performed in accordance with the **Earthwork** section of this report.

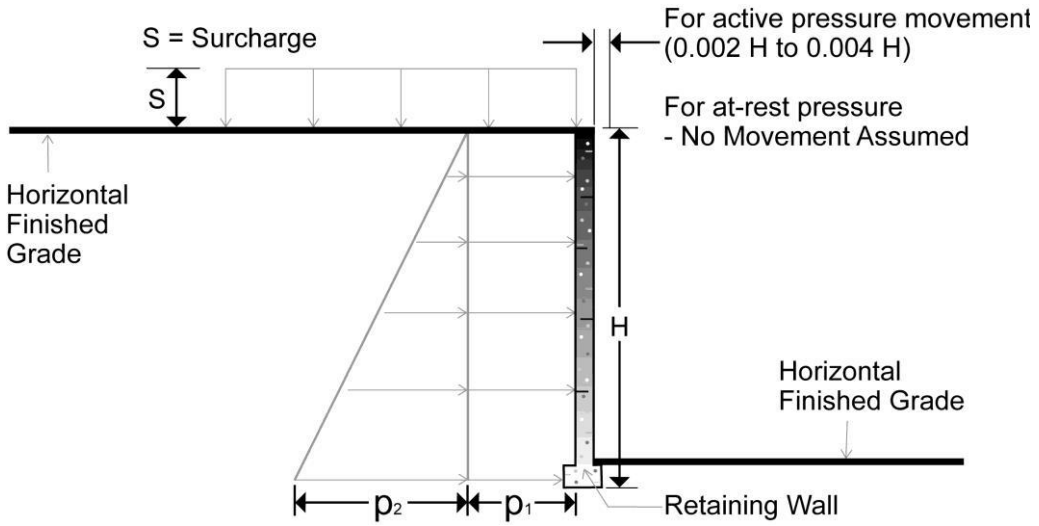
Retaining Walls

Based on our review of the provided grading plan, we understand retaining walls on the order of 31 feet are planned for this project. We understand some retaining walls for this project will be of mechanically stabilized earth (MSE) type construction. **Global stability analysis, design parameters, and recommendations for MSE retaining walls are not included in this report and additional site-specific studies and laboratory testing will be required to provide recommendations and design parameters for proposed MSE walls on this project.**

The foundations for concrete cantilever or gravity retaining walls of less than 15 feet in height may be designed using the parameters provided in the **Foundation Recommendations** section of this report.

Reinforced concrete walls with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to those indicated in the following table.

Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls.



Earth Pressure Conditions	Lateral Earth Pressure Coefficient	Equivalent Fluid Density (pcf)	Surcharge Pressure, p_1 (psf)	Earth Pressure, p_2 (psf)
Active (Ka)	0.38	45	(0.38)S	(45)H
At-Rest (Ko)	0.55	65	(0.55)S	(65)H
Passive (Kp)	2.3	275	---	---

Applicable conditions to the above include:

- For active earth pressure, wall must rotate about base, with top lateral movements of about 0.002 H to 0.004 H, where H is wall height
- For passive earth pressure to develop, wall must move horizontally to mobilize resistance.
- Uniform surcharge, where S is surcharge pressure
- In-situ soil backfill weight a maximum of 120 pcf
- Horizontal backfill, compacted to at least 95 percent of standard Proctor maximum dry density
- Loading from heavy compaction equipment not included
- No hydrostatic pressures acting on wall
- No dynamic loading
- No safety factor included in soil parameters

To control hydrostatic pressure behind earth-retaining walls we recommend that a drain be installed below the foundation of the wall with a collection pipe leading to a reliable discharge.

The preceding data are applicable only to cast-in-place concrete or modular block walls up to 15 feet in height. In addition, the wall designer should perform standard wall design practices including analysis for overturning, sliding, bearing capacity, and global stability, and results of these analyses should be provided for our review. Additional sampling, laboratory testing and document review associated with retaining walls is beyond the original scope of work but can be performed as a separate scope, for a separate fee.

Retaining Wall Drainage

To reduce hydrostatic loading on retaining walls, a subsurface drain system should be placed behind the walls. The drain system should consist of free-draining granular soils containing less than 10 percent fines (by weight) passing a No. 200 sieve placed adjacent to the wall. The free-draining granular material should be graded to prevent the intrusion of fines or encapsulated in a suitable filter fabric. A drainage system consisting of either weep holes or perforated drain lines (placed near the base of the wall) should be used to intercept and discharge water which would tend to saturate the backfill. Where used, drain lines should be embedded in a uniformly graded filter material and provided with adequate clean-outs for periodic maintenance. As an alternative, a prefabricated drainage structure, such as geocomposite, may be used as a substitute for the granular backfill adjacent to the wall.

On-site Pavements

General Pavement Comments

Pavement designs are provided for the traffic conditions and pavement life conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section of this report. Analyses for the pavement design of the project were generally based on the procedures of AASHTO as referenced in the El Paso County Engineering Criteria Manual.

Traffic Analysis

The total 20-year ESAL's (18-kip Equivalent Single Axle Loads) in Light-Duty, Heavy-Duty and Extra Heavy-Duty areas used in this analysis were assumed based on the experience with previous Buc-ee's project Terracon has completed. The equivalent single axle loads (ESALs) used for the pavement design are outlined in the following table:

On-Site Pavement Area	Total 18-kip Equivalent Single Axle Load (ESAL) over a 20 Year Design Life
Light-Duty	200,000
Heavy-Duty	500,000
Extra Heavy Duty	4,000,000

Subgrade Soils

Pavements constructed on the on-site soils and new engineered fill will have a low risk of movement. We recommend the subgrade soils below pavements be scarified to a depth of at least 12 inches, moisture conditioned, and compacted to grade.

The design modulus of subgrade reaction (M_{RSG}) for the pavement analyses was determined in accordance with the procedures of AASHTO as referenced in the El Paso County Engineering Criteria Manual. Based on the results of the laboratory testing, the subgrade conditions in the area of the proposed on-site new pavements were analyzed and a single design modulus of subgrade reaction was used for design purposes. Samples of subgrade materials were tested for sieve analysis, and plasticity index, and California Baring Ratio (CBR). The results of the CBR testing for the on-site pavements is provided in the table below:

Boring No.	Soil Type	CBR Value
B-43	Clayey Sand (SC)	3.7
B-55	Clayey Sand (SC)	6.5
B-75	Silty Sand (SM)	4.5

Based on the results of the CBR testing, we selected a design CBR value of 4.0 for use in our analysis. The design CBR and corresponding resilient modulus and modulus of subgrade reaction (M_{RSG}) are summarized in the following table:

Design CBR Value	Correlated Resilient Modulus	Correlated Design M_{RSG}
4.0	5,000 psi	120 pci

Pavement Design Parameters

Based on the data outlined in this report, the following design parameters were determined by the procedures outlined by AASHTO as referenced in the El Paso County Engineering Criteria Manual and were utilized for pavement engineering analyses for the project:

On-Site Pavement Design Parameters		
Analysis Period		20 years
Level of Reliability		80%
Overall Standard Deviation		0.45
Serviceability	Initial (P_0) PSI	4.2
	Terminal (Pt) PSI	2.0
Subgrade Conditions	Design CBR Value	4.0
	Correlated Design M_{RSG}	120 pci
	Correlated Resilient Modulus	5,000 psi
Seasonal Variation Factor		1.0
Load Transfer Coefficient	Without Dowels	3.8
	With Dowels	3.2

On-site Pavement Thicknesses

Based on the results of the analyses, the following tables provide the minimum recommended thickness of portland cement concrete (PCC) sections for on-site pavements for plain jointed (no dowels) and jointed reinforced (with dowels) PCC pavements:

On-Site PCC Pavement Thickness Recommendations – Plain Jointed (No Dowels)

Layer	Thickness (inches)		
	Light-Duty PCC [1]	Heavy-Duty PCC [1, 2]	Extra-Heavy-Duty PCC
PCC	5.5 inches	7.0 inches	--
Aggregate Base	4.0 inches	4.0 inches	--
Total	9.5 inches	11.0 inches	--

1. Contraction joints for Light-Duty and Heavy-Duty PCC (rigid) pavements should be constructed in accordance with the American Concrete Institute (ACI) PRC 330-21 (Commercial Concrete Parking Lots and Site Paving Design and Construction - Guide). ACI PRC 330-21 is based on non-doweled pavements.
2. **Minimum Buc-ee's pavement thickness**

On-Site PCC Pavement Thickness Recommendations – Jointed Reinforced (With Dowels)

Layer	Thickness (inches)		
	Light-Duty PCC [1]	Heavy-Duty PCC [1, 2]	Extra-Heavy-Duty PCC
PCC	--	7.0 inches	8.0 inches
Aggregate Base	--	4.0 inches	4.0 inches
Total	--	11.0 inches	12.0 inches

1. Contraction joints for Heavy-Duty and Extra-Heavy Duty PCC should be constructed in accordance with ACI 330.2R-17 (Guide for the Design and Construction of Concrete Site Paving for Industrial and Trucking Facilities).
2. Minimum Buc-ee's pavement thickness
3. Heavy-Duty PCC pavements should include ¾-inch diameter by 10-inch long dowel bars spaced at 12 inches center to center in all longitudinal and transverse contraction and construction joints.
4. Extra-Heavy-Duty PCC pavements should include 1¼-inch diameter by 15-inch long dowel bars spaced at 12 inches center to center in all longitudinal and transverse contraction and construction joints.

Contraction joints should be saw cut to 1/5 of the depth of the concrete. Early entry sawing methods should be used and should begin as soon as the slab can support the weight of a man and the saw and can be cut without dislodging coarse aggregate particles from the surface.

Contraction joints should have a maximum spacing no greater than 12.5 feet for 5.5-inch thick concrete (Light-Duty PCC) and 15 feet for 6-inch thick or greater concrete (Heavy-Duty PCC and Extra-Heavy-Duty PCC), as described in ACI 330.2R-17.

Expansion (isolation) joints must be full depth and should only be used to isolate fixed objects abutting or within the paved area. When they must be located in areas that encounter wheel loads, the pavement edges at the joint should be thickened by 2 inches

wherever practical. The transition in thickness should occur over a minimum distance of 5 feet.

Tie bars made of deformed steel with a ½-inch diameter and 30-inch length spaced at 30 inches on center are also recommended to tie the exterior curb and gutter to the outer concrete pavement edge to keep the outside slab from separating from the curb and gutter.

All concrete for rigid pavements should have a minimum 28-day compressive strength of 4,500 and be placed with a maximum slump of 4 inches.

Although not required for structural support, a minimum 4-inch thick base course layer is recommended to help reduce potential for slab curl, shrinkage cracking, and subgrade pumping through joints.

Proper joint spacing as described above will also be required to prevent excessive slab curling and shrinkage cracking. Joints should be sealed to prevent entry of foreign material and doweled where necessary for load transfer. PCC pavement details for joint spacing, joint reinforcement, and joint sealing should be prepared in accordance with ACI PRC 330-21 and ACI 330.2R-17. Concrete pavements should be constructed in accordance with ACI 325.9R-15.

The jointing information provided in this report is not comprehensive and should not be substituted for detailed construction plans and specifications. Once the pavement details are completed in the project civil design plans, Terracon should be contacted to review the plans including pavement slab layout, and jointing plan and details.

Pavement Maintenance

Future performance of pavements constructed at this site will be dependent upon several factors, including:

- Maintaining stable moisture content of the subgrade soils both before and after pavement construction.
- Providing for a planned program of preventative maintenance.

The performance of all pavements can be enhanced by minimizing excess moisture, which can reach the subgrade soils. The following recommendations should be implemented:

- Site grading at a minimum 2 percent grade onto or away from the pavements.
- Water should not be allowed to pond behind curbs.
- Compaction of any utility trenches for landscaped areas to the same criteria as the pavement subgrade.

- Sealing all landscaped areas in or adjacent to pavements or providing drains to reduce the risk of moisture migration to subgrade soils.
- Placing compacted backfill against the exterior side of curb and gutter.
- Placing curb, gutter, and/or sidewalk directly on subgrade soils without the use of base course materials.

Preventative maintenance should be planned and provided for an ongoing pavement management program in order to enhance future pavement performance. Preventative maintenance activities are intended to slow the rate of pavement deterioration.

Preventative maintenance consists of both localized maintenance (e.g. crack sealing and patching) and global maintenance (e.g. surface sealing). Preventative maintenance is usually the first priority when implementing a planned pavement maintenance program.

Pavement Construction Considerations

Site grading is generally accomplished early in the construction phase. However, as construction proceeds, the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, or rainfall. As a result, the pavement subgrade may not be suitable for pavement construction and corrective action will be required. The subgrade should be carefully evaluated at the time of pavement construction for signs of disturbance or excessive rutting. If disturbance has occurred, pavement subgrade areas should be reworked, moisture conditioned, and properly compacted to the recommendations in this report immediately prior to paving.

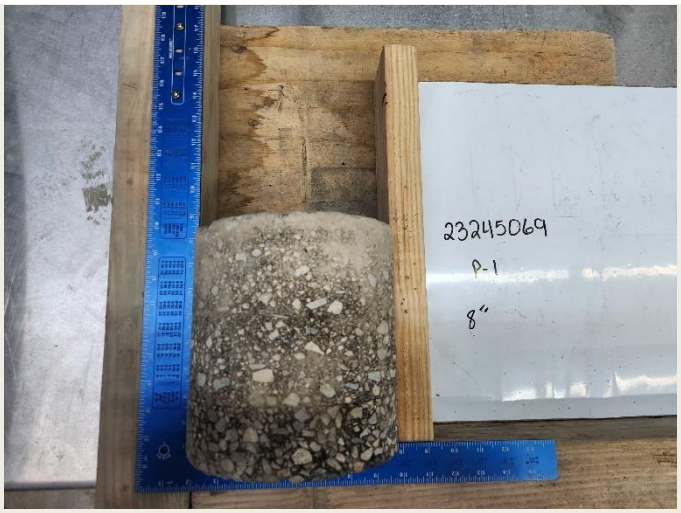
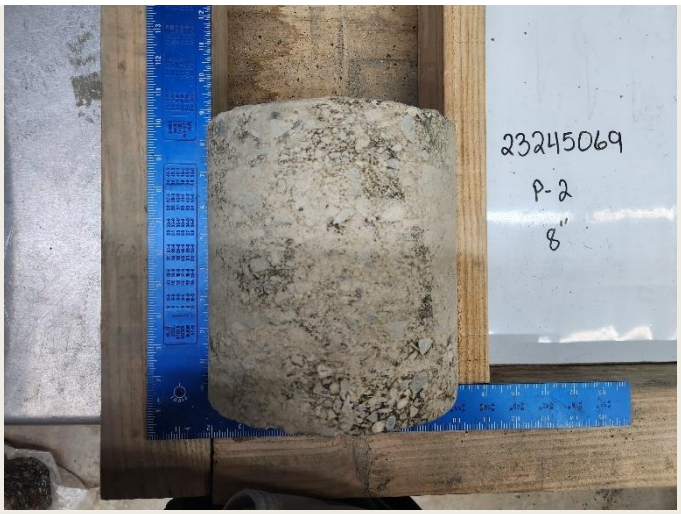
We recommend the pavement areas be rough graded and then thoroughly proofrolled with a loaded tandem axle dump truck prior to final grading and paving. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the materials with properly compacted fills. All pavement areas should be moisture conditioned and properly compacted to the recommendations in this report immediately prior to paving.

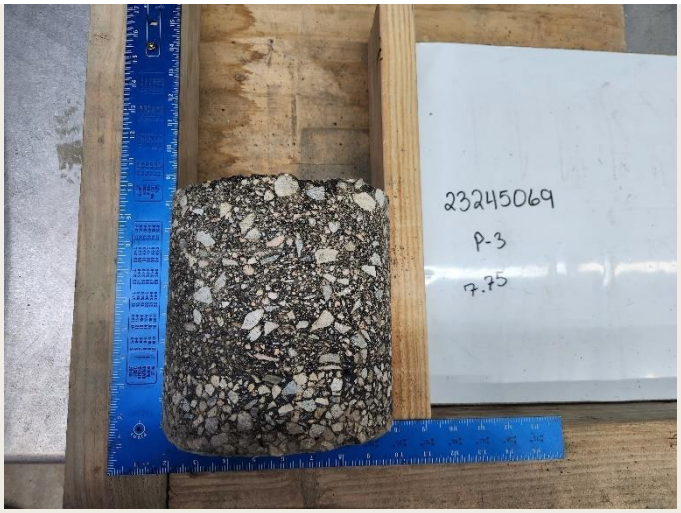
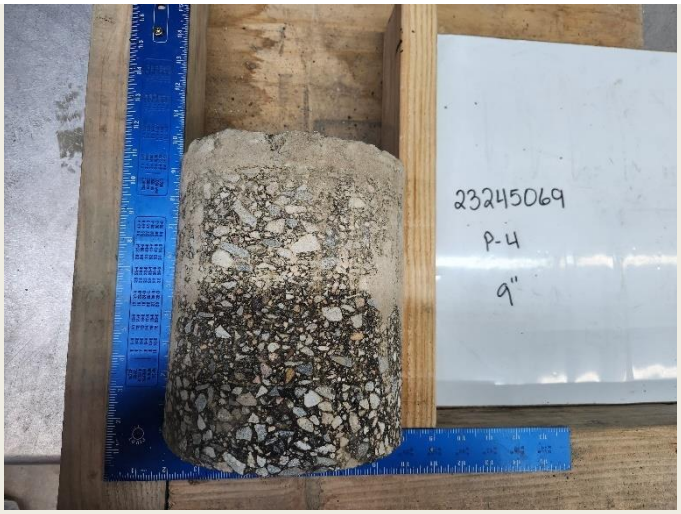
The placement of a partial pavement thickness for use during construction is not recommended without a detailed pavement analysis incorporating construction traffic. In addition, if the actual traffic varies from the assumptions outlined above, we should be contacted to confirm and/or modify the pavement thickness recommendations outlined above.

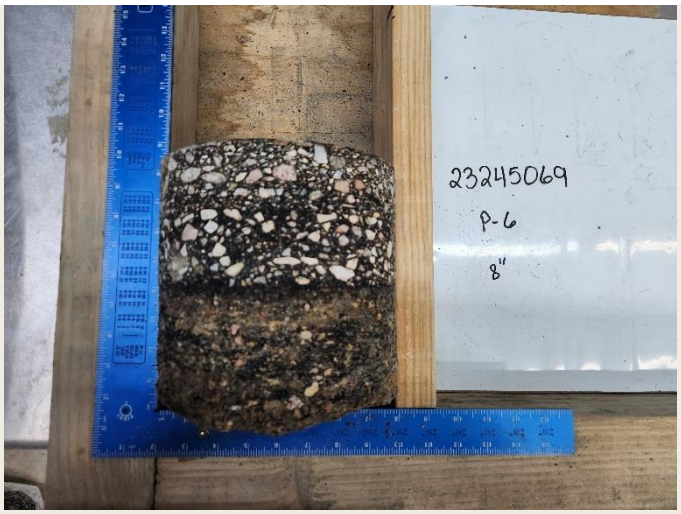
Off-Site Pavements

As requested, pavement cores were obtained from the Interstate 25 entry and exit ramps, and County Line Road. Soil samples were also collected at each location and

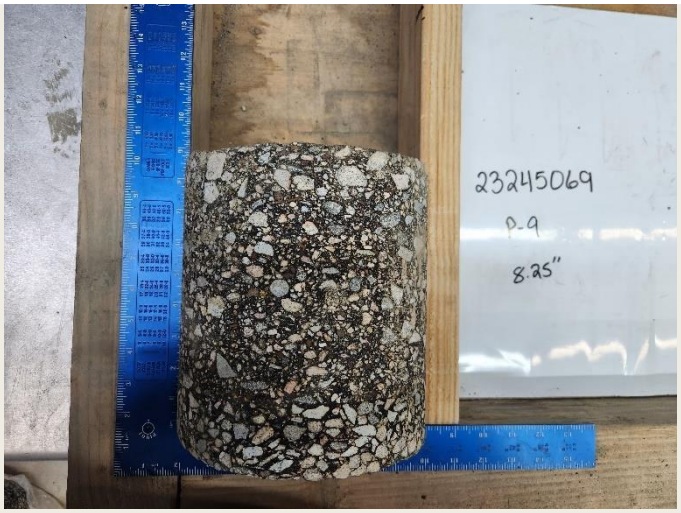
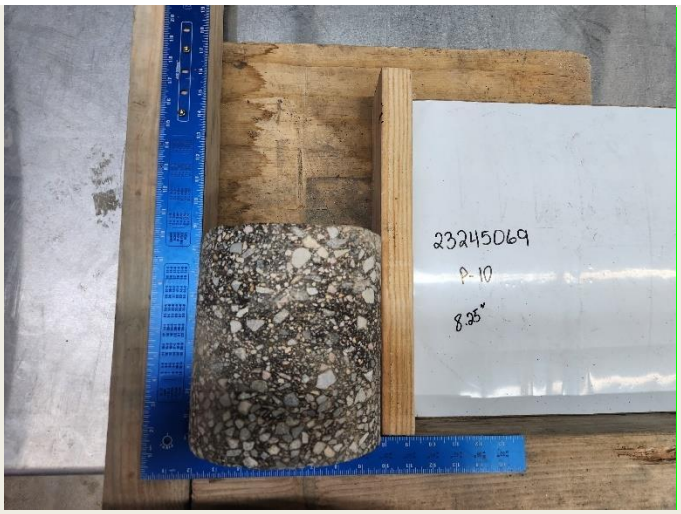
laboratory testing completed. Plans showing the off-site pavements boring locations are shown in the **Off-Site Pavement Information** section. Off-site pavement boring logs and laboratory test results on samples from the off-site pavement borings are also presented in the **Off-Site Pavement Information** section. The table below presents photographs and measurements of the off-site pavement cores:

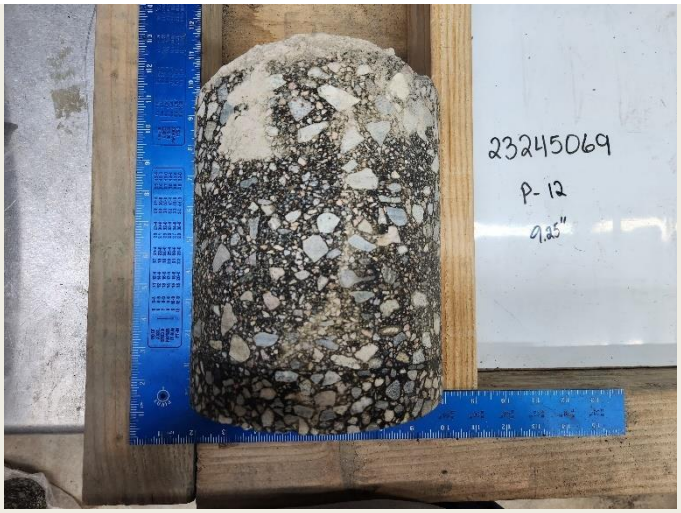
Core ID	Asphalt Pavement Thickness (inch)	Aggregate Base Thickness (inch)	Photo
P-1	8	4	
P-2	8	4	

Core ID	Asphalt Pavement Thickness (inch)	Aggregate Base Thickness (inch)	Photo
P-3	7.75	4.25	
P-4	9	5	

Core ID	Asphalt Pavement Thickness (inch)	Aggregate Base Thickness (inch)	Photo
P-5	4.5	5.5	
P-6	8	5	

Core ID	Asphalt Pavement Thickness (inch)	Aggregate Base Thickness (inch)	Photo
P-7	5.75	2.5	
P-8	2.5	5.5	

Core ID	Asphalt Pavement Thickness (inch)	Aggregate Base Thickness (inch)	Photo
P-9	8.25	5.25	
P-10	8.25	4.5	

Core ID	Asphalt Pavement Thickness (inch)	Aggregate Base Thickness (inch)	Photo
P-12	9.25	4.25	
P-13	11	5	

Core ID	Asphalt Pavement Thickness (inch)	Aggregate Base Thickness (inch)	Photo
P-15	8	3.75	

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-

party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Figures

Contents:

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Subsurface Profile F-F'
Subsurface Profile G-G'
Subsurface Profile H-H'
GeoModel – Convenience Store and Sign
GeoModel – Fuel Canopy and UST
GeoModel – Remote Generator
GeoModel – Pavements (Northern Portion)
GeoModel – Pavements (Central Portion)
GeoModel – Pavements (Southern Portion)

Cross Section Map with Aerial Image

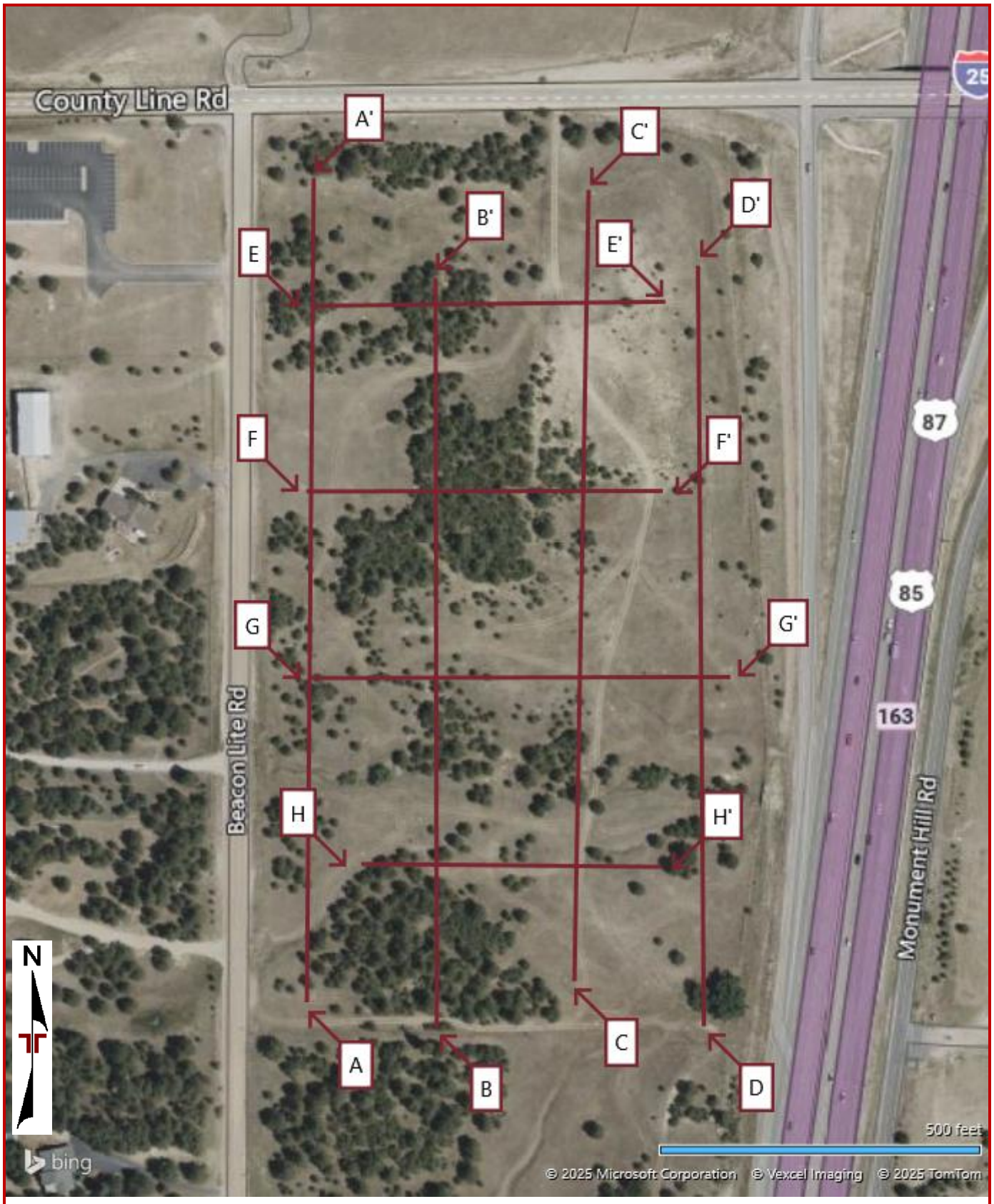
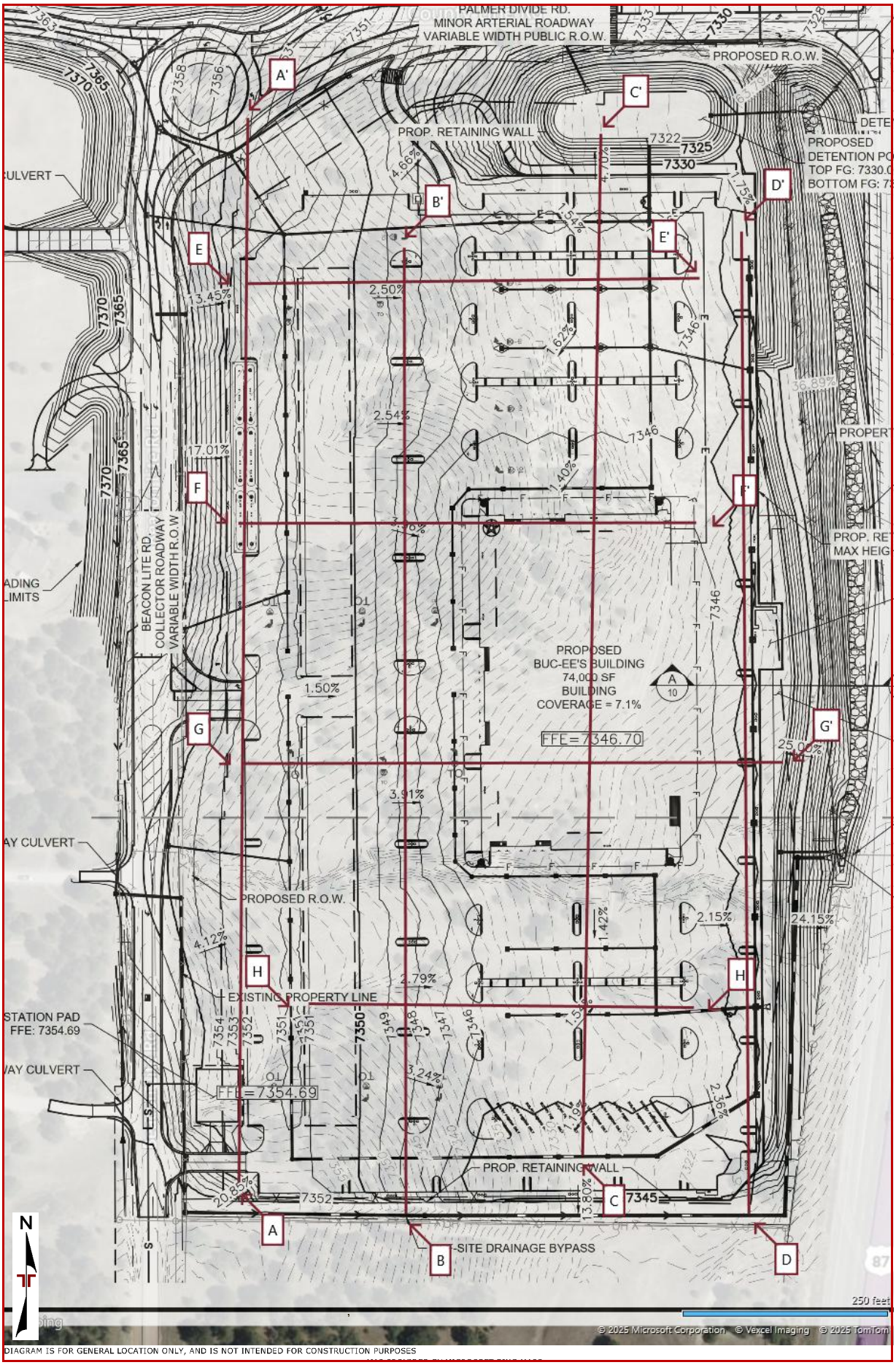


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Cross Section Map with Site Overlay



Cross Section Map with Site Overlay

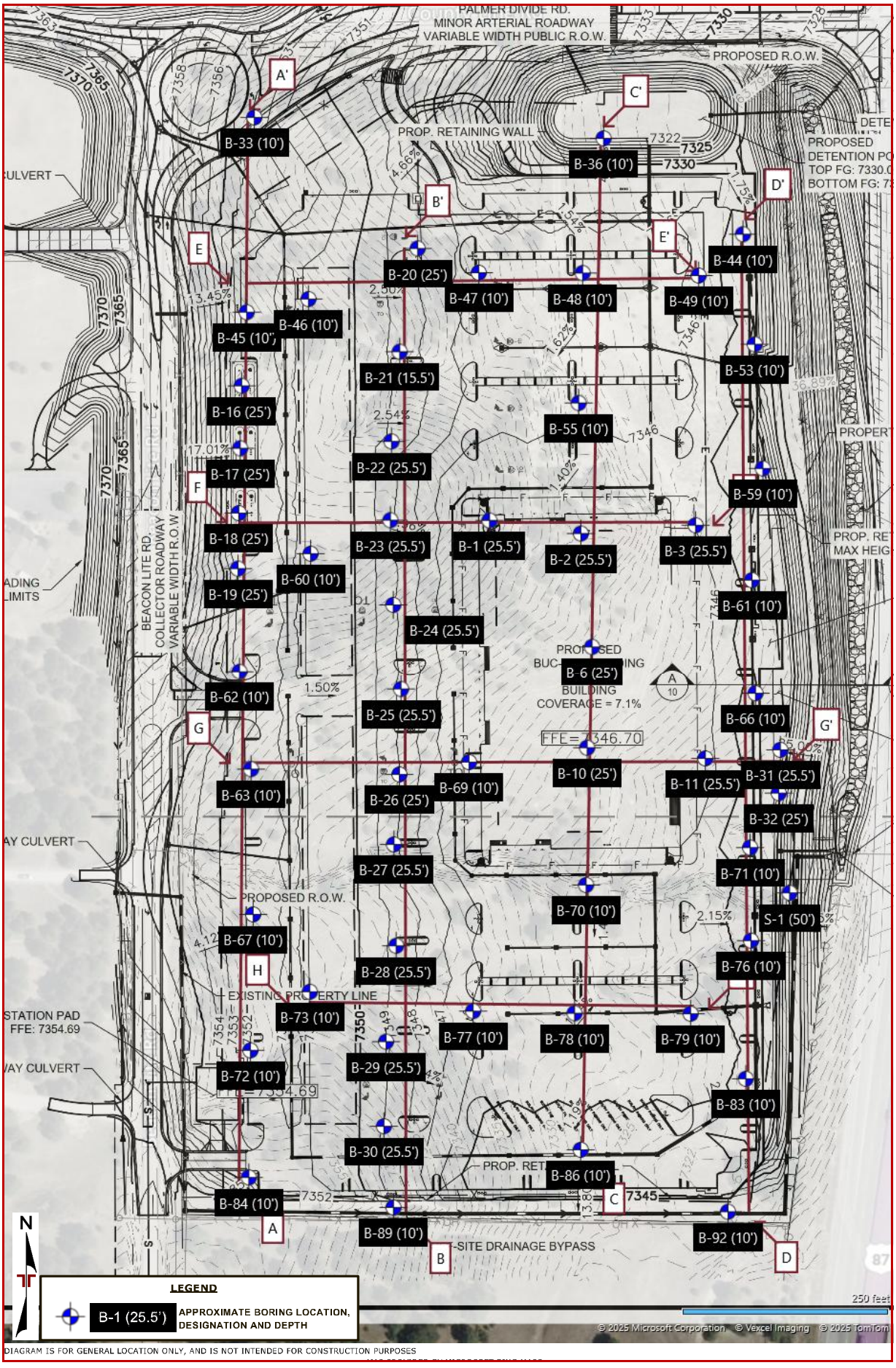


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

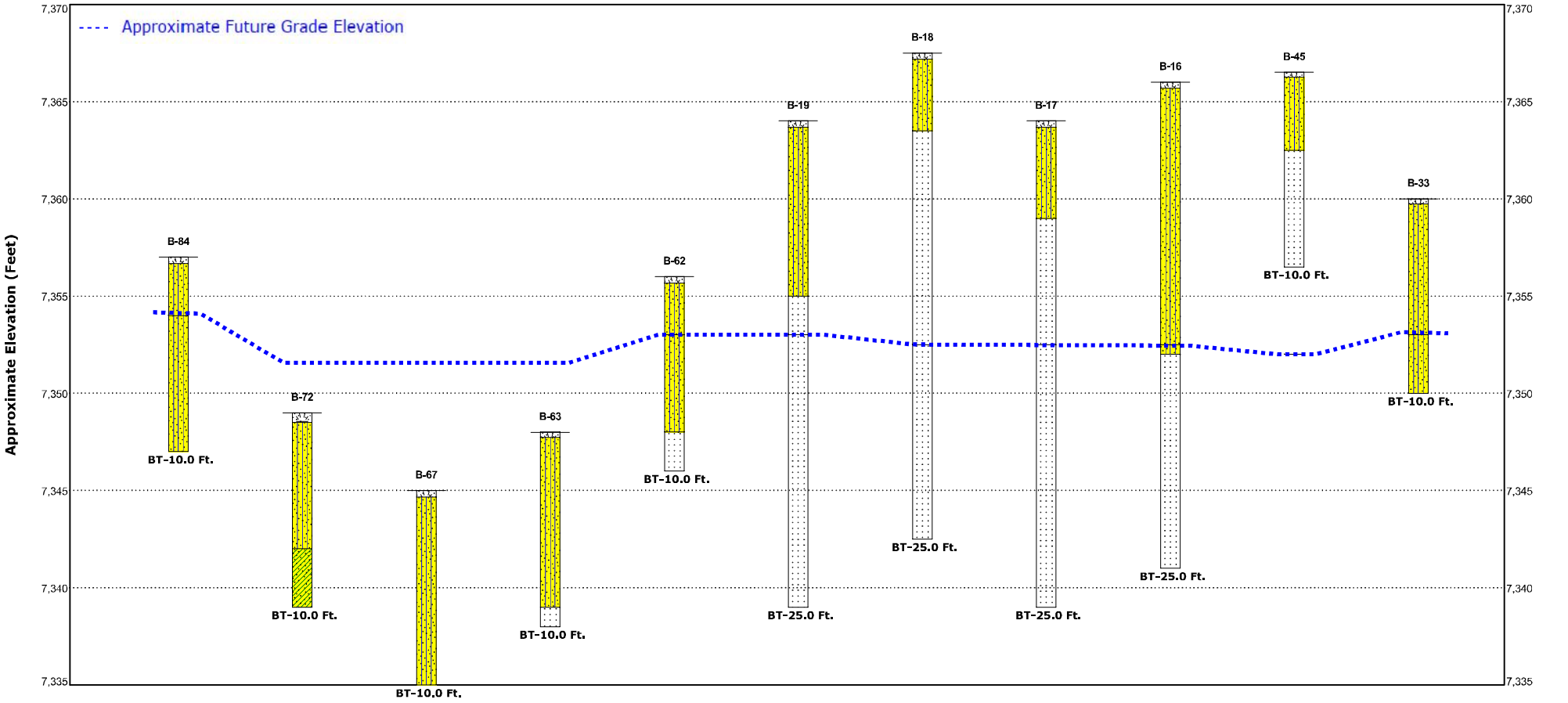
Buc-ee's Monument Off-site Pavement Improvements
Interstate 25 and Palmer Divide Avenue | Monument, Colorado
Terracon Project No. 23245069

Subsurface Profile

Section A-A'

Terracon
4172 Center Park Dr
Colorado Springs, CO

S ◄ ► N



Notes	Water Level Observations	Explanation	Material Legend
See Exploration Plan for orientation of soil profile. See General Notes in Supporting Information for symbols and soil classifications. Soils profile provided for illustration purposes only. Soils between borings may differ AR - Auger Refusal BT - Boring Termination	Water Level Reading at time of drilling. Water Level Reading after drilling.	B-16 — Borehole Number Moisture Content — %w — LL PL — Liquid and Plastic Limits Sampling (See General Notes) — Borehole Lithology AR / BT — Borehole Termination Type	Topsoil; Silty Sand; Sandstone; Sandy Lean Clay

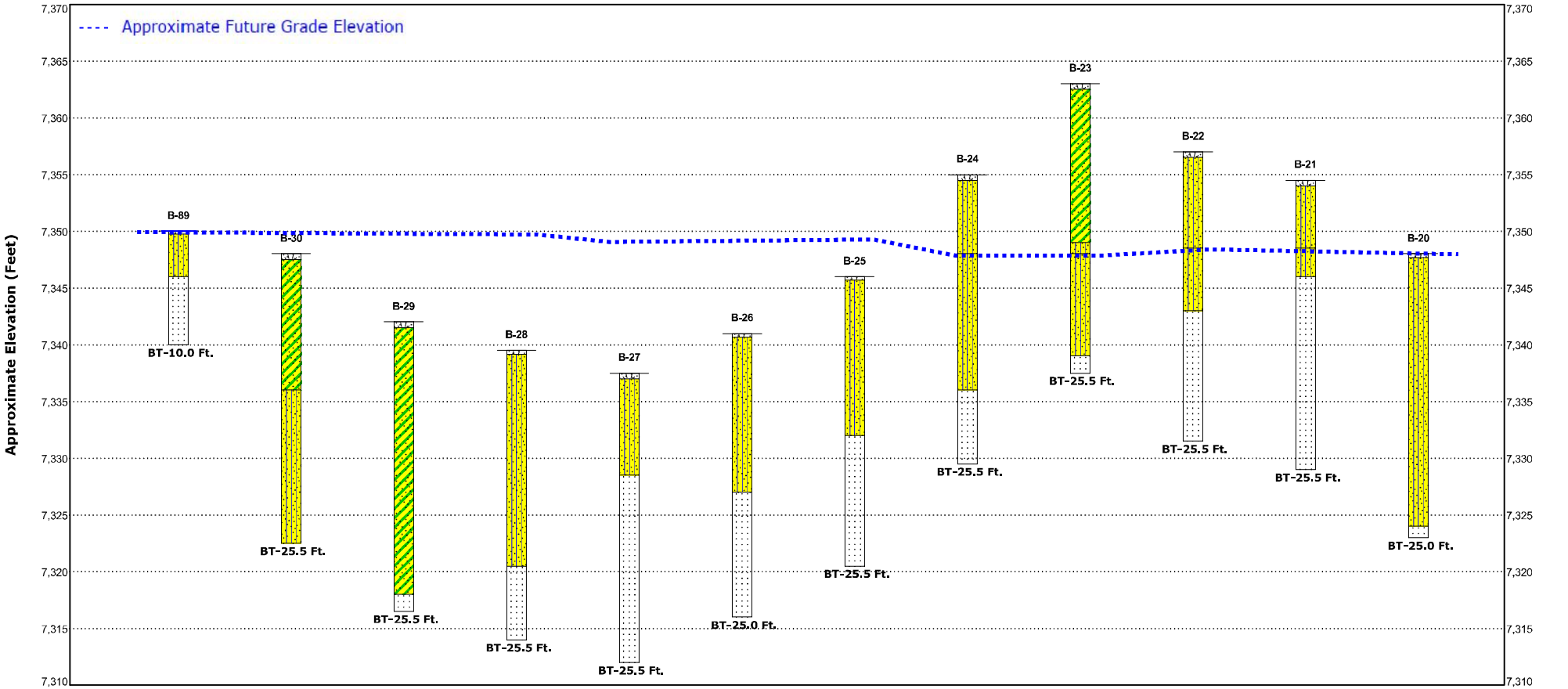
Buc-ee's Monument Off-site Pavement Improvements
Interstate 25 and Palmer Divide Avenue | Monument, Colorado
Terracon Project No. 23245069

Subsurface Profile

Section B-B'

Terracon
4172 Center Park Dr
Colorado Springs, CO

S ◄ ► N



Notes	Water Level Observations	Explanation	Material Legend
See Exploration Plan for orientation of soil profile. See General Notes in Supporting Information for symbols and soil classifications. Soils profile provided for illustration purposes only. Soils between borings may differ AR - Auger Refusal BT - Boring Termination	▽ Water Level Reading at time of drilling. ▼ Water Level Reading after drilling.	B-20 — Borehole Number Moisture Content — %w LL PL — Liquid and Plastic Limits Sampling (See General Notes) Borehole Lithology AR / BT — Borehole Termination Type	Topsoil; Silty Sand; Sandstone; Clayey Sand

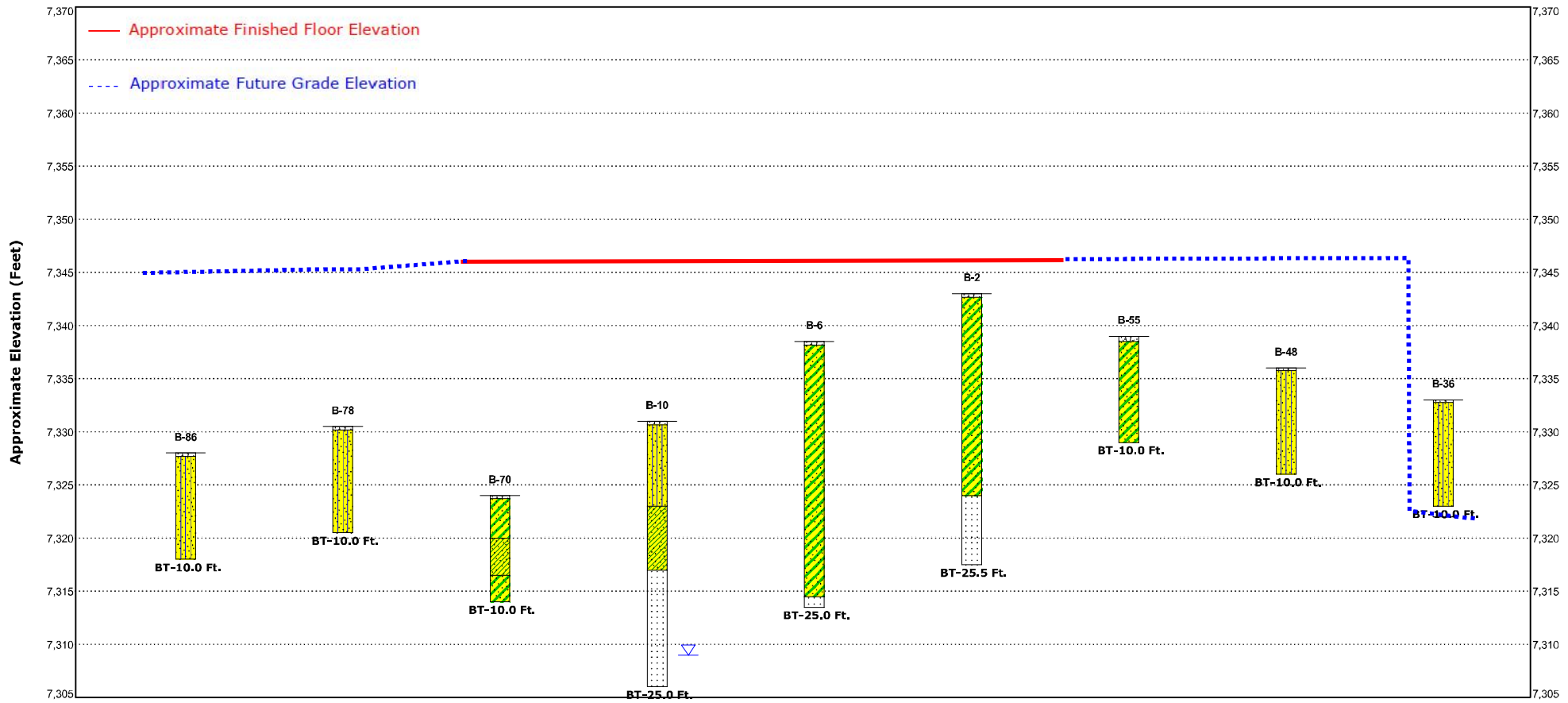
Buc-ee's Monument Off-site Pavement Improvements
Interstate 25 and Palmer Divide Avenue | Monument, Colorado
Terracon Project No. 23245069

Subsurface Profile

Section C-C'

Terracon
4172 Center Park Dr
Colorado Springs, CO

S ◄ ► N



Notes	Water Level Observations	Explanation	Material Legend
See Exploration Plan for orientation of soil profile. See General Notes in Supporting Information for symbols and soil classifications. Soils profile provided for illustration purposes only. Soils between borings may differ AR - Auger Refusal BT - Boring Termination	Water Level Reading at time of drilling. Water Level Reading after drilling.	B-2 — Borehole Number Moisture Content — %w — LL PL — Liquid and Plastic Limits Sampling (See General Notes) — Borehole Lithology AR / BT — Borehole Termination Type	Topsoil; Clayey Sand; Sandstone; Silty Sand; Sandy Lean Clay

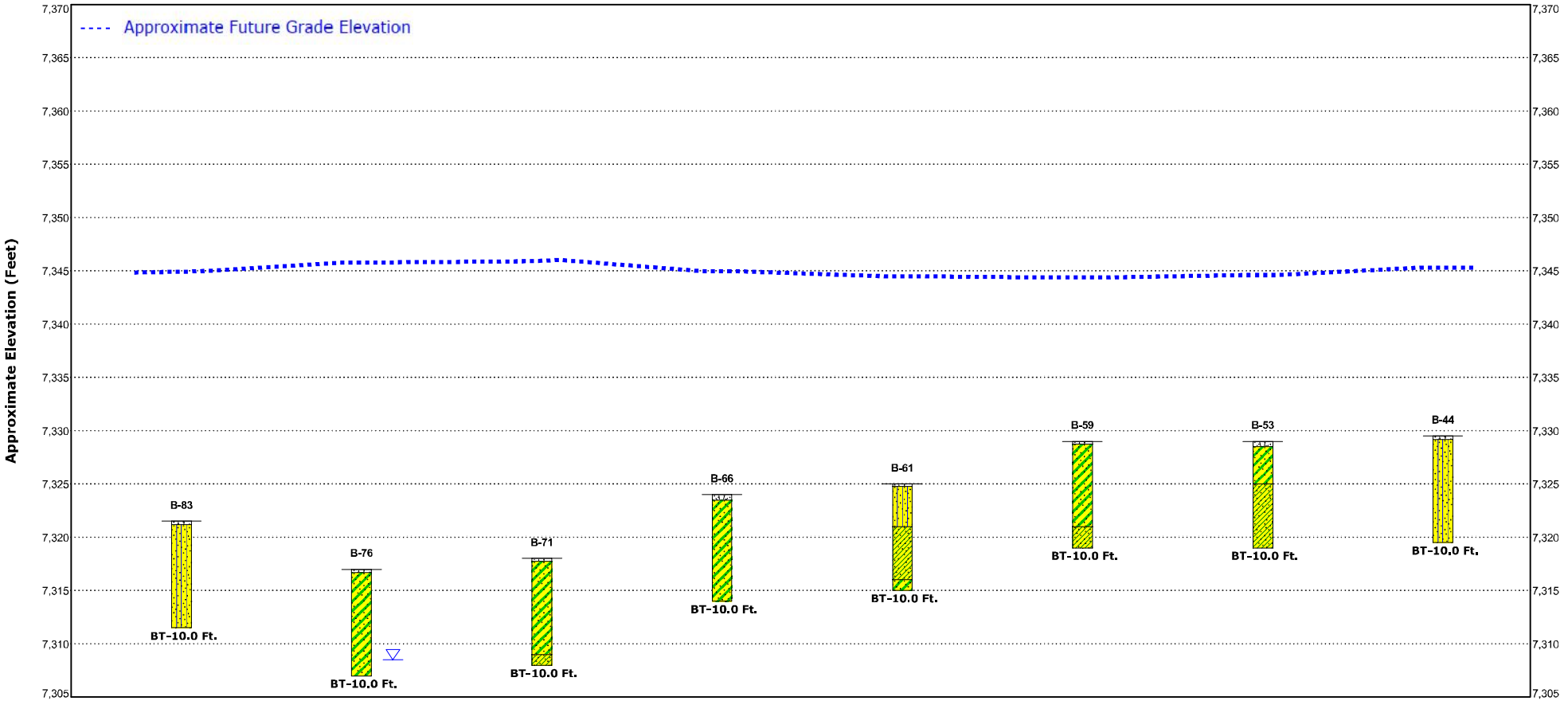
Buc-ee's Monument Off-site Pavement Improvements
Interstate 25 and Palmer Divide Avenue | Monument, Colorado
Terracon Project No. 23245069

Subsurface Profile

Section D-D'

Terracon
4172 Center Park Dr
Colorado Springs, CO

S ◄ ► N



Notes	Water Level Observations	Explanation	Material Legend
See Exploration Plan for orientation of soil profile. See General Notes in Supporting Information for symbols and soil classifications. Soils profile provided for illustration purposes only. Soils between borings may differ AR - Auger Refusal BT - Boring Termination	Water Level Reading at time of drilling. Water Level Reading after drilling.	B-44 — Borehole Number Moisture Content — %w LL PL — Liquid and Plastic Limits Sampling (See General Notes) — Borehole Lithology AR / BT — Borehole Termination Type	Topsoil; Silty Sand; Clayey Sand; Sandy Lean Clay

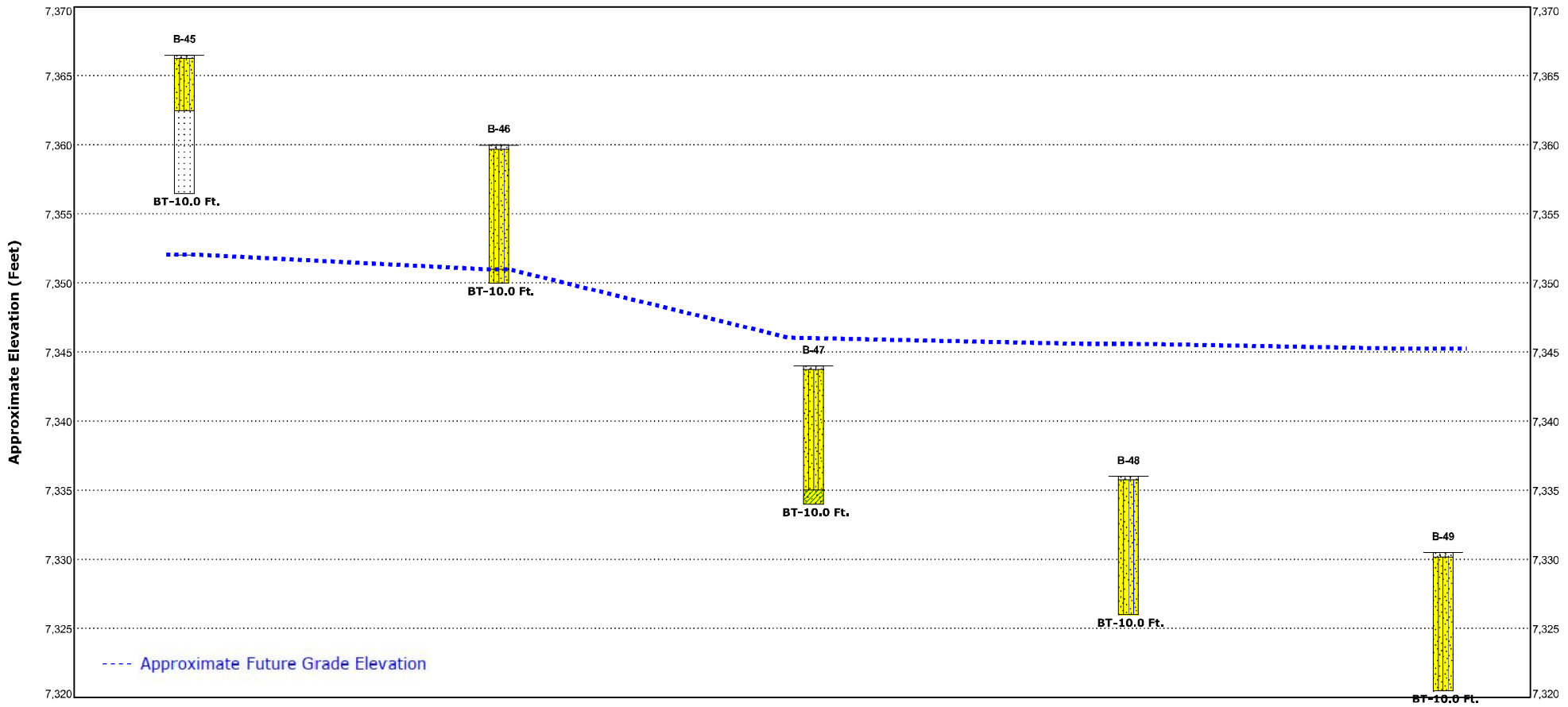
Buc-ee's Monument Off-site Pavement Improvements
Interstate 25 and Palmer Divide Avenue | Monument, Colorado
Terracon Project No. 23245069

Subsurface Profile

Section E-E'

Terracon
4172 Center Park Dr
Colorado Springs, CO

W ◄ ► E



Notes	Water Level Observations	Explanation	Material Legend
See Exploration Plan for orientation of soil profile. See General Notes in Supporting Information for symbols and soil classifications. Soils profile provided for illustration purposes only. Soils between borings may differ AR - Auger Refusal BT - Boring Termination	Water Level Reading at time of drilling. Water Level Reading after drilling.	B-45 — Borehole Number Moisture Content — %w — LL PL — Liquid and Plastic Limits Sampling (See General Notes) — Borehole Lithology AR / BT — Borehole Termination Type	Topsoil; Silty Sand; Sandstone; Sandy Lean Clay

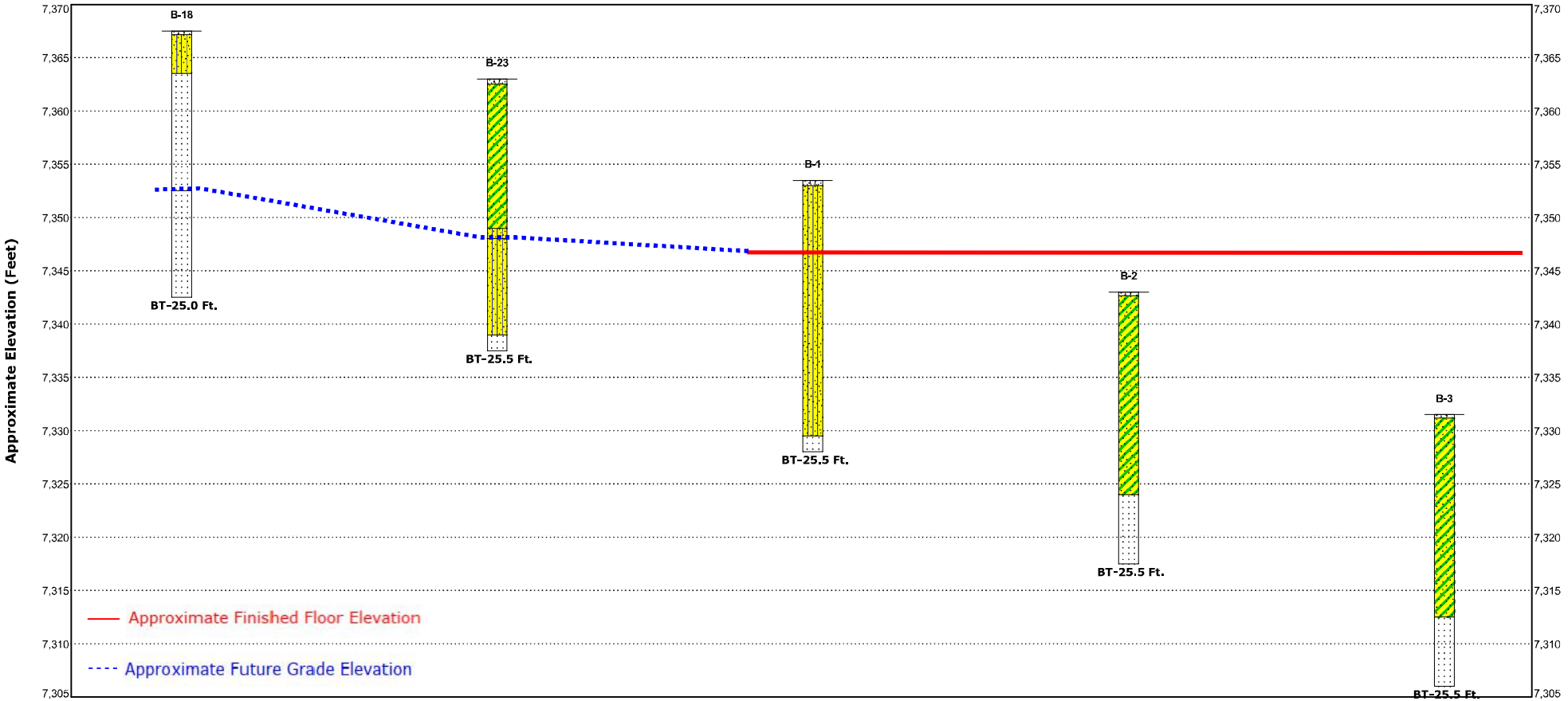
Buc-ee's Monument Off-site Pavement Improvements
Interstate 25 and Palmer Divide Avenue | Monument, Colorado
Terracon Project No. 23245069

Subsurface Profile

Section F-F'

Terracon
4172 Center Park Dr
Colorado Springs, CO

W E



Notes	Water Level Observations	Explanation	Material Legend
See Exploration Plan for orientation of soil profile. See General Notes in Supporting Information for symbols and soil classifications. Soils profile provided for illustration purposes only. Soils between borings may differ AR - Auger Refusal BT - Boring Termination	Water Level Reading at time of drilling. Water Level Reading after drilling.	B-1 — Borehole Number Moisture Content — %w LL PL — Liquid and Plastic Limits Sampling (See General Notes) Borehole Lithology AR / BT — Borehole Termination Type	Topsoil Silty Sand Sandstone Clayey Sand

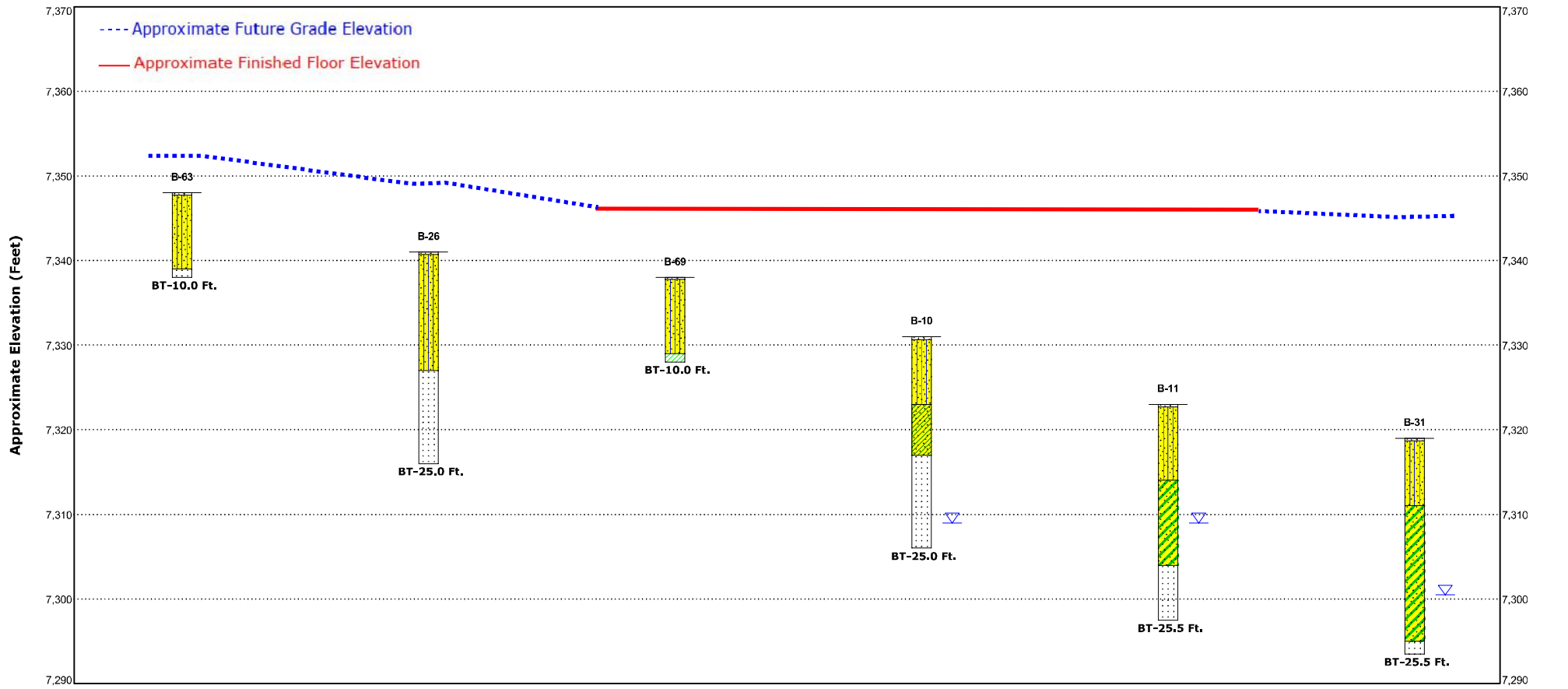
Buc-ee's Monument Off-site Pavement Improvements
Interstate 25 and Palmer Divide Avenue | Monument, Colorado
Terracon Project No. 23245069

Subsurface Profile

Section G-G'

Terracon
4172 Center Park Dr
Colorado Springs, CO

W ◄ ► E



Notes	Water Level Observations	Explanation	Material Legend
See Exploration Plan for orientation of soil profile. See General Notes in Supporting Information for symbols and soil classifications. Soils profile provided for illustration purposes only. Soils between borings may differ AR - Auger Refusal BT - Boring Termination	Water Level Reading at time of drilling. Water Level Reading after drilling.	B-10 — Borehole Number Moisture Content — %w — LL PL — Liquid and Plastic Limits Sampling (See General Notes) — Borehole Lithology AR / BT — Borehole Termination Type	Topsoil, Silty Sand, Sandy Lean Clay, Sandstone, Clayey Sand, Lean Clay

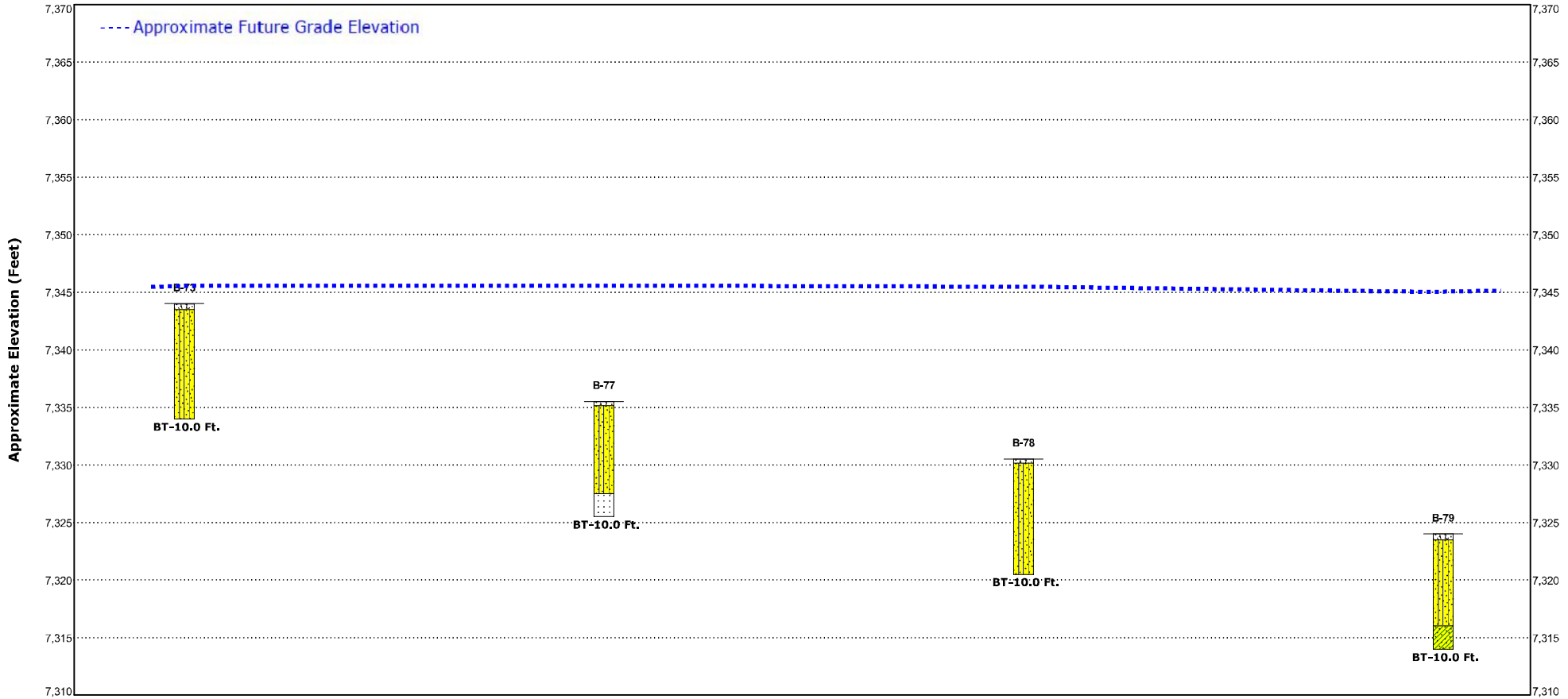
Buc-ee's Monument Off-site Pavement Improvements
Interstate 25 and Palmer Divide Avenue | Monument, Colorado
Terracon Project No. 23245069

Subsurface Profile

Section H-H'

Terracon
4172 Center Park Dr
Colorado Springs, CO

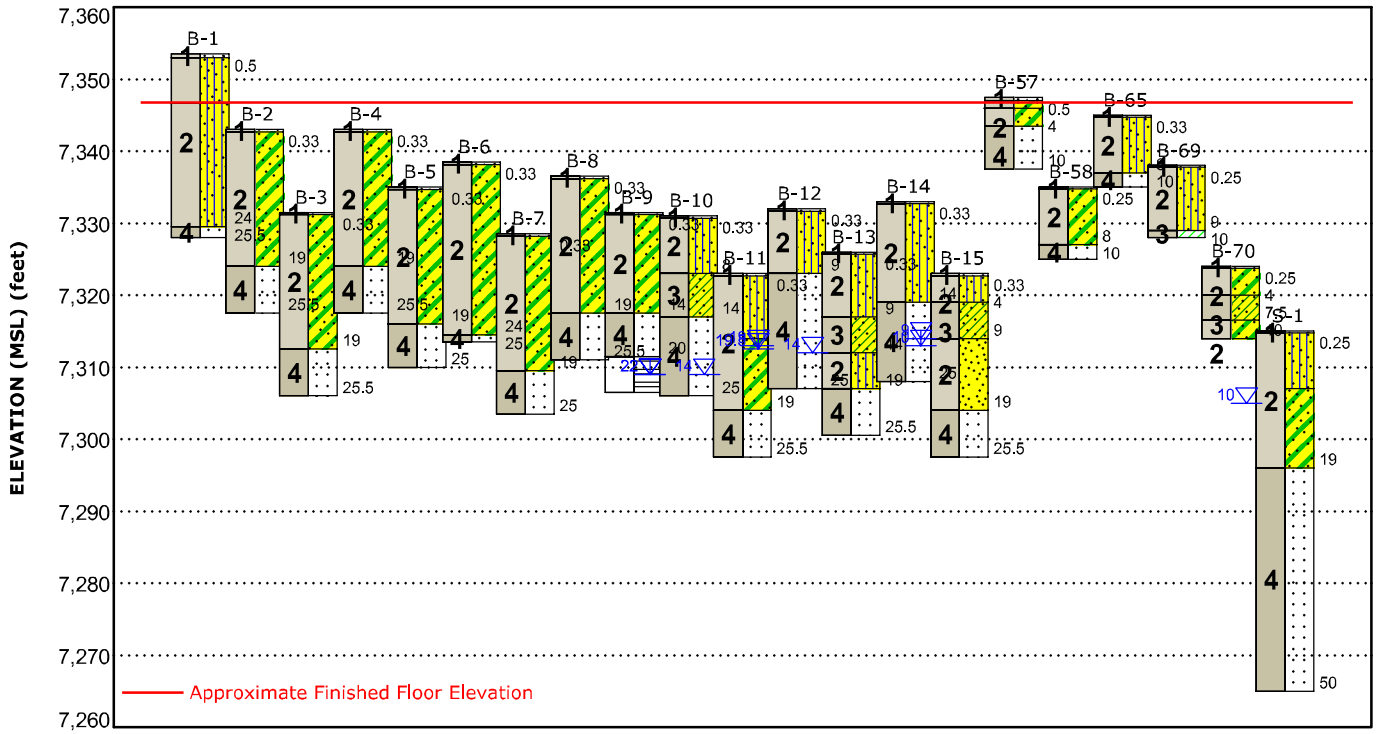
W ◄ ► E



Notes	Water Level Observations	Explanation	Material Legend
See Exploration Plan for orientation of soil profile. See General Notes in Supporting Information for symbols and soil classifications. Soils profile provided for illustration purposes only. Soils between borings may differ AR - Auger Refusal BT - Boring Termination	▽ Water Level Reading at time of drilling. ▼ Water Level Reading after drilling.	B-73 — Borehole Number Moisture Content — %w — LL PL — Liquid and Plastic Limits Sampling (See General Notes) — Borehole Lithology AR / BT — Borehole Termination Type	Topsoil; Silty Sand; Sandstone; Sandy Lean Clay

Terracon
4172 Center Park Dr
Colorado Springs, CO

GeoModel - Convenience Store and Sign



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Topsoil**	Topsoil; about 2 to 6 inches
2	**Native Sand**	Native sand with varying amounts of clay, silt and gravel; very loose to dense
3	**Native Clay**	Native lean clay with varying amounts of sand and gravel; stiff to hard
4	**Bedrock**	Bedrock consisting of sandstone and claystone; soft to very hard, weak to strong cementation

Legend

- Topsoil
- Sandstone
- Claystone
- Poorly-graded Sand
- Silty Sand
- Clayey Sand
- Sandy Lean Clay
- Lean Clay

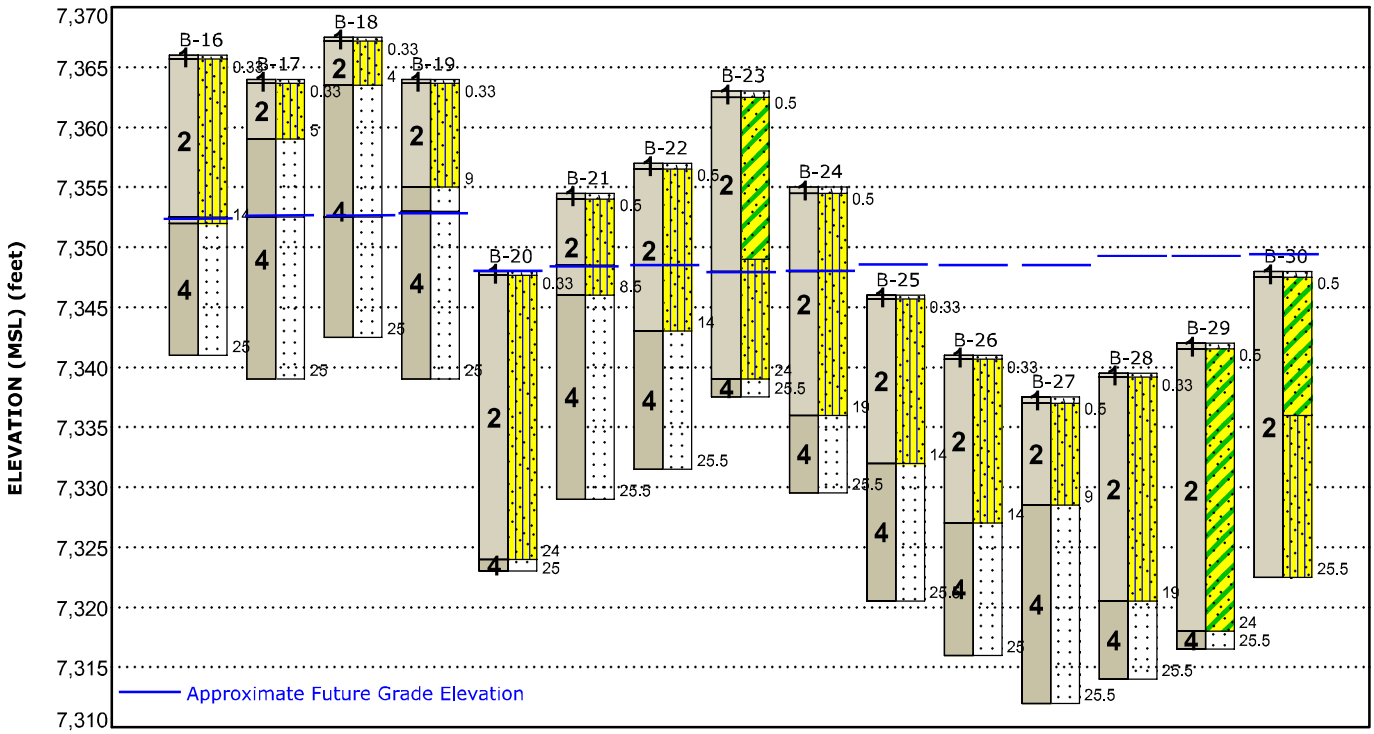
▽ First Water Observation
▽ Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

Terracon
4172 Center Park Dr
Colorado Springs, CO

GeoModel - Fuel Canopy and UST



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Topsoil**	Topsoil; about 2 to 6 inches
2	**Native Sand**	Native sand with varying amounts of clay, silt and gravel; very loose to dense
3	**Native Clay**	Native lean clay with varying amounts of sand and gravel; stiff to hard
4	**Bedrock**	Bedrock consisting of sandstone and claystone; soft to very hard, weak to strong cementation

Legend

Topsoil
Silty Sand
Sandstone
Clayey Sand

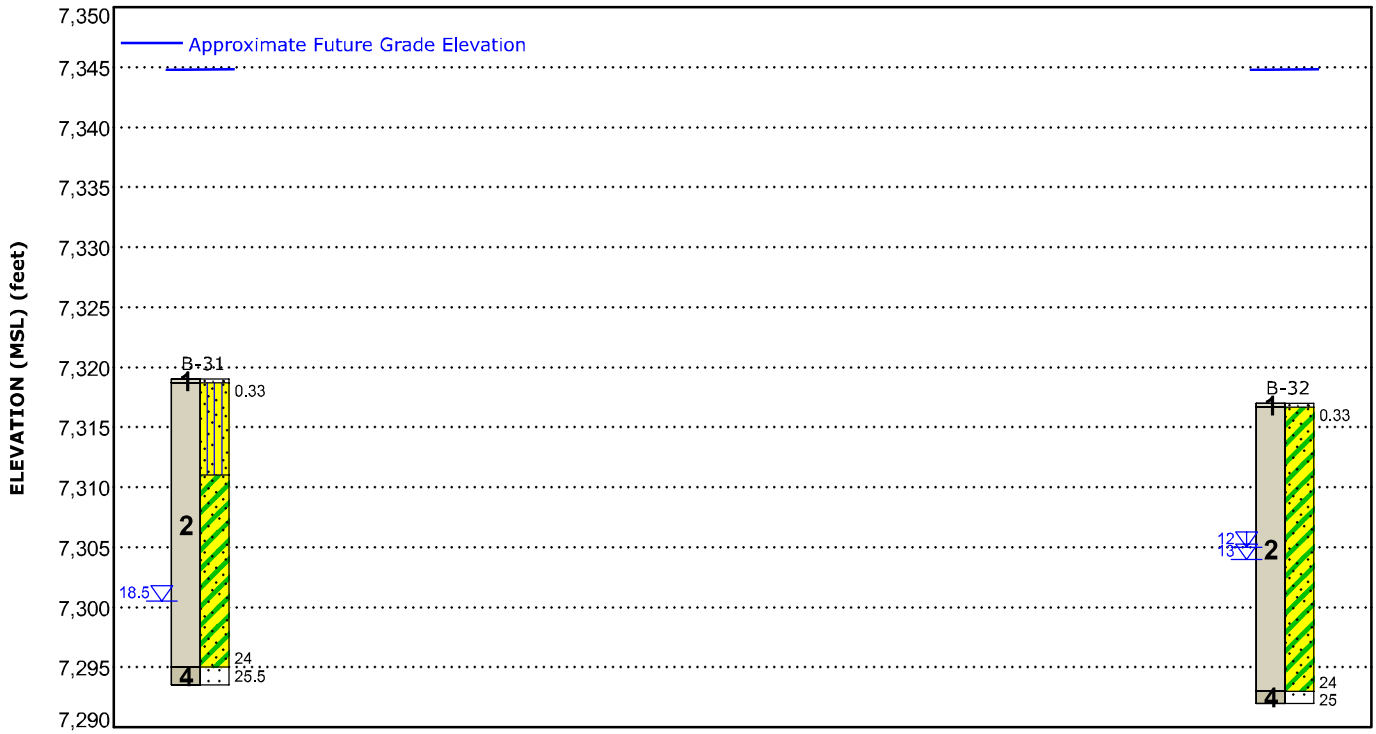
▽ First Water Observation
▽ Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

Terracon
4172 Center Park Dr
Colorado Springs, CO

GeoModel - Remote Generator



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Topsoil**	Topsoil; about 2 to 6 inches
2	**Native Sand**	Native sand with varying amounts of clay, silt and gravel; very loose to dense
3	**Native Clay**	Native lean clay with varying amounts of sand and gravel; stiff to hard
4	**Bedrock**	Bedrock consisting of sandstone and claystone; soft to very hard, weak to strong cementation

Legend

- Topsoil
- Silty Sand
- Clayey Sand
- Sandstone

▽ First Water Observation
▽ Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

Attachments

Exploration and Testing Procedures

Field Exploration

Boring Layout and Elevations: The locations of the borings are presented in the **Site Location and Exploration Plans**. The borings were located in the field by overlaying the site plan on Google Earth, recording the latitude and longitude coordinates, and staking the borings using a handheld, recreational-grade GPS unit. The accuracy of the latitude and longitude values is typically about +/- 25 feet when obtaining the values using this method. Ground surface elevations at the borings were estimated using Google Earth. The accuracy of the boring locations and elevations should only be assumed to the level implied by the methods used.

Subsurface Exploration Procedures: The borings were drilled with a CME-75 and Mobil B-57 truck-mounted rotary drill rigs with solid-stem augers. During the drilling operations, lithologic logs of the borings were recorded by the field engineer. Relatively undisturbed samples were obtained at selected intervals utilizing a 2-inch outside diameter standard split spoon sampler, a 2½-inch outside diameter modified California barrel sampler, and a 3-inch outside diameter Dames & Moore barrel sampler. Bulk samples were obtained from auger cuttings. Penetration resistance values were recorded in a manner similar to the standard penetration test (SPT). This test consists of driving the sampler into the ground with a 140-pound hammer free falling through a distance of 30 inches. The number of blows required to advance the barrel sampler 12 inches (18 inches for standard split-spoon samplers, final 12 inches are recorded) or the interval indicated is recorded and can be correlated to the standard penetration resistance value (N-value). The blow count values are indicated on the boring logs at the respective sample depths, barrel sampler blow counts are not considered N-values.

An automatic hammer was used to advance the samplers in the borings performed on this site. A greater efficiency is typically achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. Published correlations between the SPT values and soil properties are based on the lower efficiency cathead and rope method. This higher efficiency affects the standard penetration resistance blow count value by increasing the penetration per hammer blow over what would be obtained using the cathead and rope method. The effect of the automatic hammer's efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

The standard penetration test provides a reasonable indication of the in-place density of sandy type materials, but only provides an indication of the relative stiffness of cohesive materials since the blow count in these soils may be affected by the soil moisture content. In addition, considerable care should be exercised in interpreting the N-values in gravelly soils, particularly where the size of the gravel particle exceeds the inside diameter of the sampler.

Groundwater measurements were obtained in the borings at the time of drilling. Due to safety concerns, the borings were backfilled with auger cuttings drilling. Some settlement of the backfill may occur and should be repaired as soon as possible.

Laboratory Testing

Samples retrieved during the field exploration were returned to the laboratory for observation by the Geotechnical Engineer and were classified in general accordance with the Unified Soil Classification System presented in the **Supporting Information**. Rock classification was conducted using locally accepted practices for engineering purposes; petrographic analysis may reveal other rock types.

At this time, an applicable laboratory-testing program was formulated to determine engineering properties of the subsurface materials. Following the completion of the laboratory testing, the field descriptions were confirmed or modified as necessary, and the boring logs were prepared. The boring logs are included in the **Exploration Results**.

Laboratory test results are included in the **Exploration Results**. These results were used for the geotechnical engineering analyses and the development of foundation, earthwork, and pavement recommendations. All laboratory tests were performed in general accordance with the applicable local or other accepted standards.

Selected soil and bedrock samples were tested for the following engineering properties:

- Water content
- Dry density
- Grain size distribution
- Atterberg limits
- Swell/consolidation
- Moisture-Density Relationship (Standard Proctor)
- California Bearing Ratio (CBR)
- Water-soluble sulfate content

Site Location and Exploration Plans

Contents:

Site Location Plan
Exploration Plan with Aerial Image
Exploration Plan with Project Overlay (3 pages)
Exploration Plan with Project Overlay and Depth to Bedrock (3 pages)

Note: All attachments are one page unless noted above.

Site Location

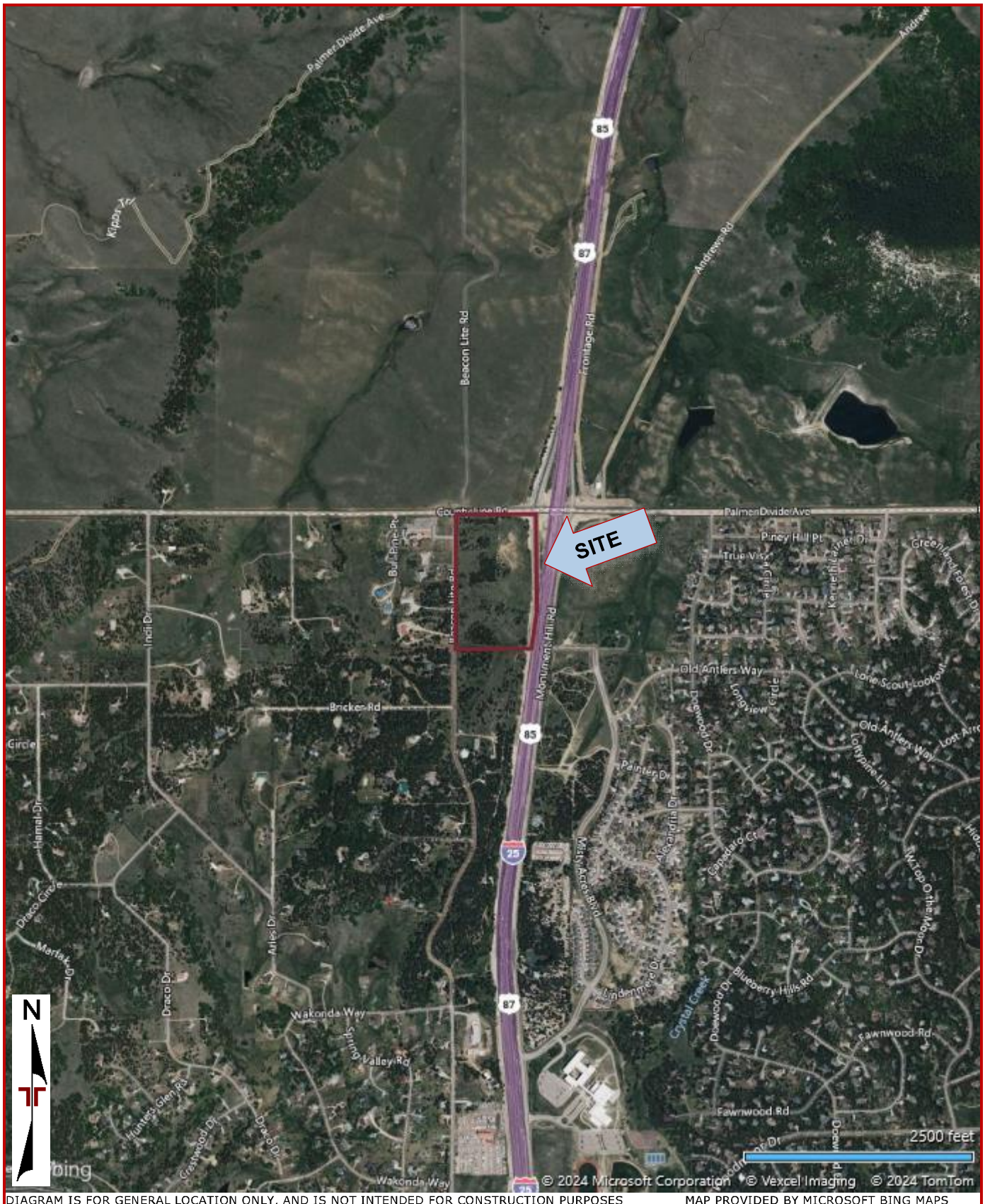


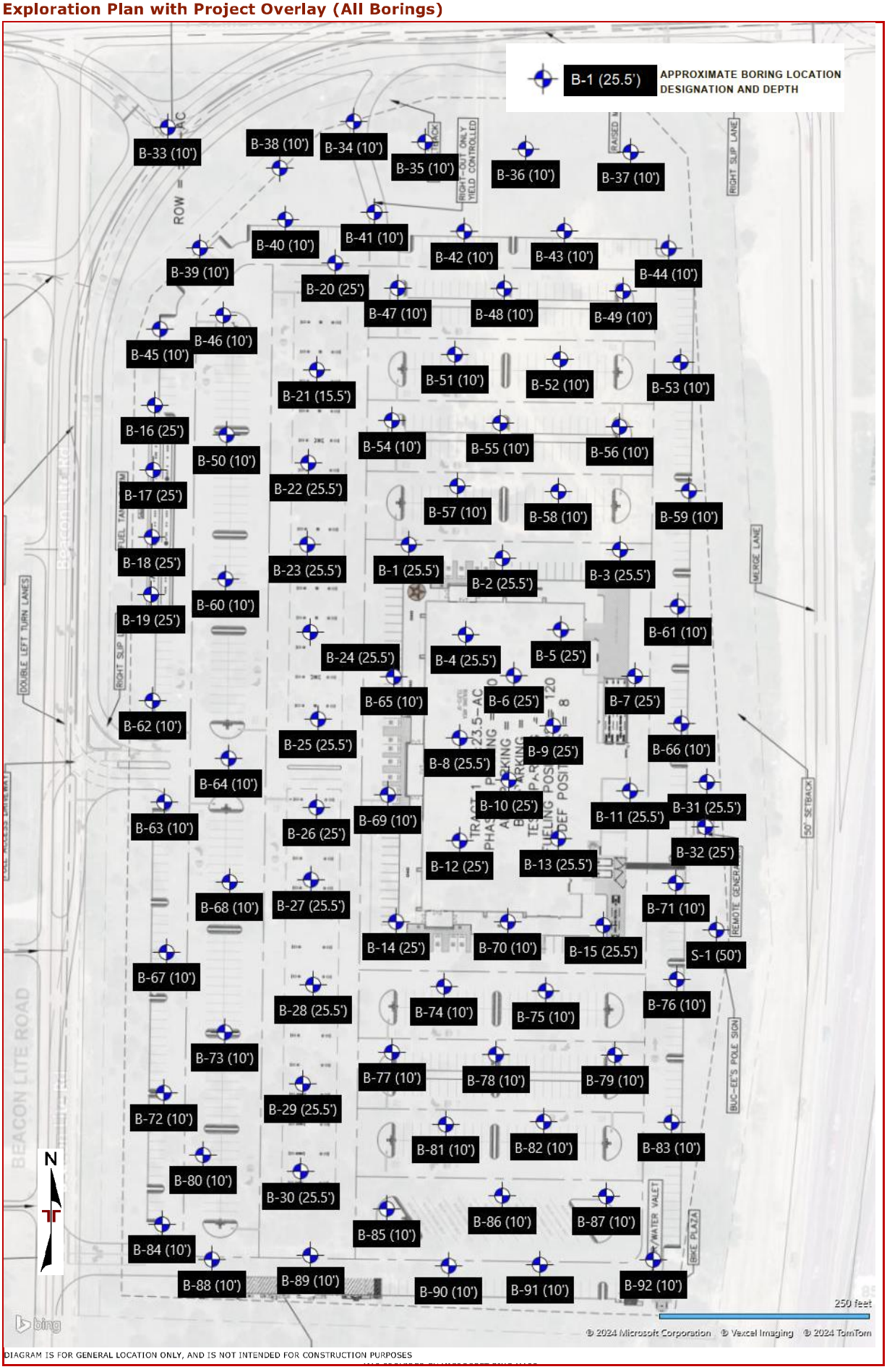
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan with Aerial Image

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Exploration Plan with Project Overlay (All Borings)



Exploration Plan with Project Overlay (Building and Sign Borings)

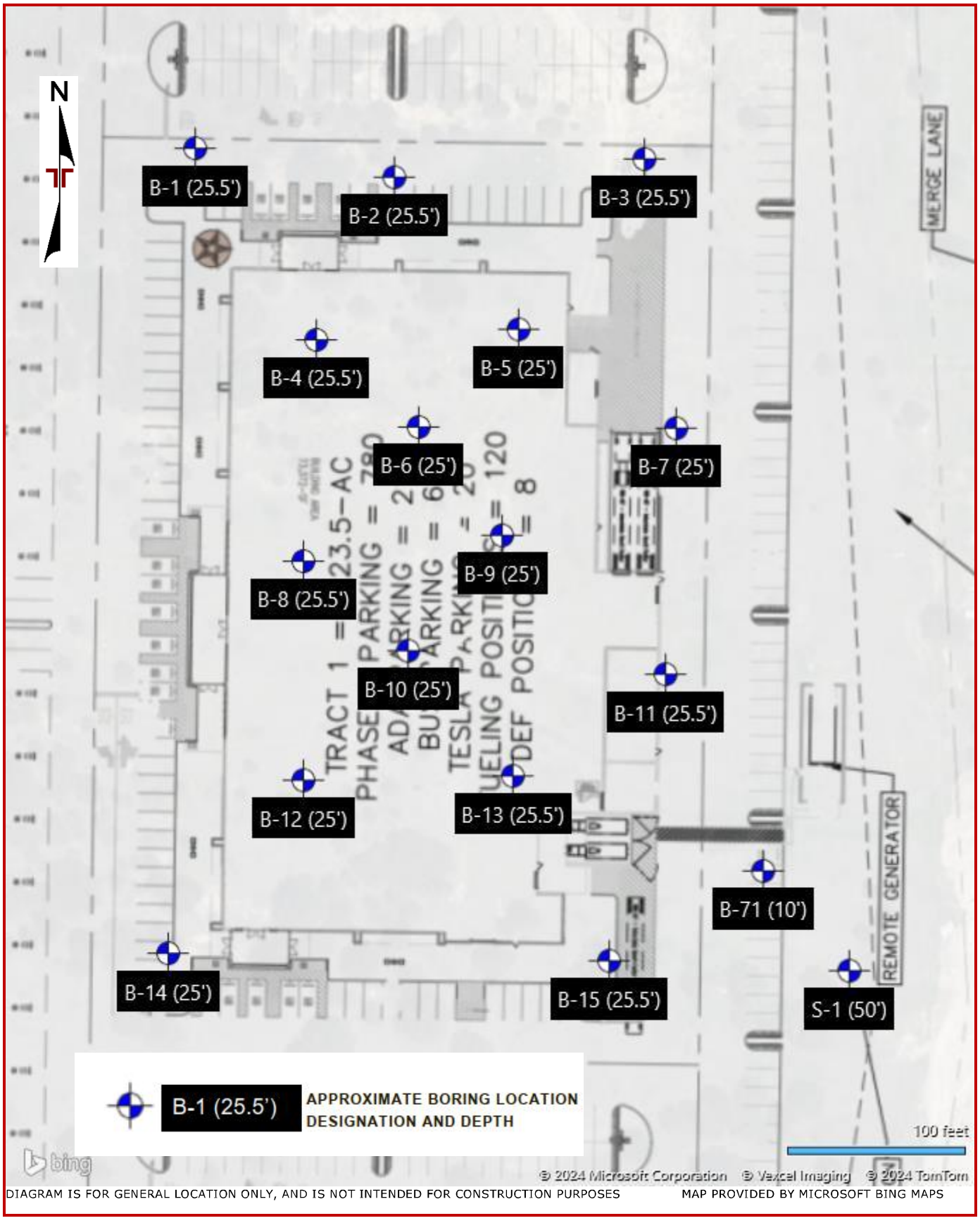


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan with Project Overlay (Fuel Canopy and UST Borings)

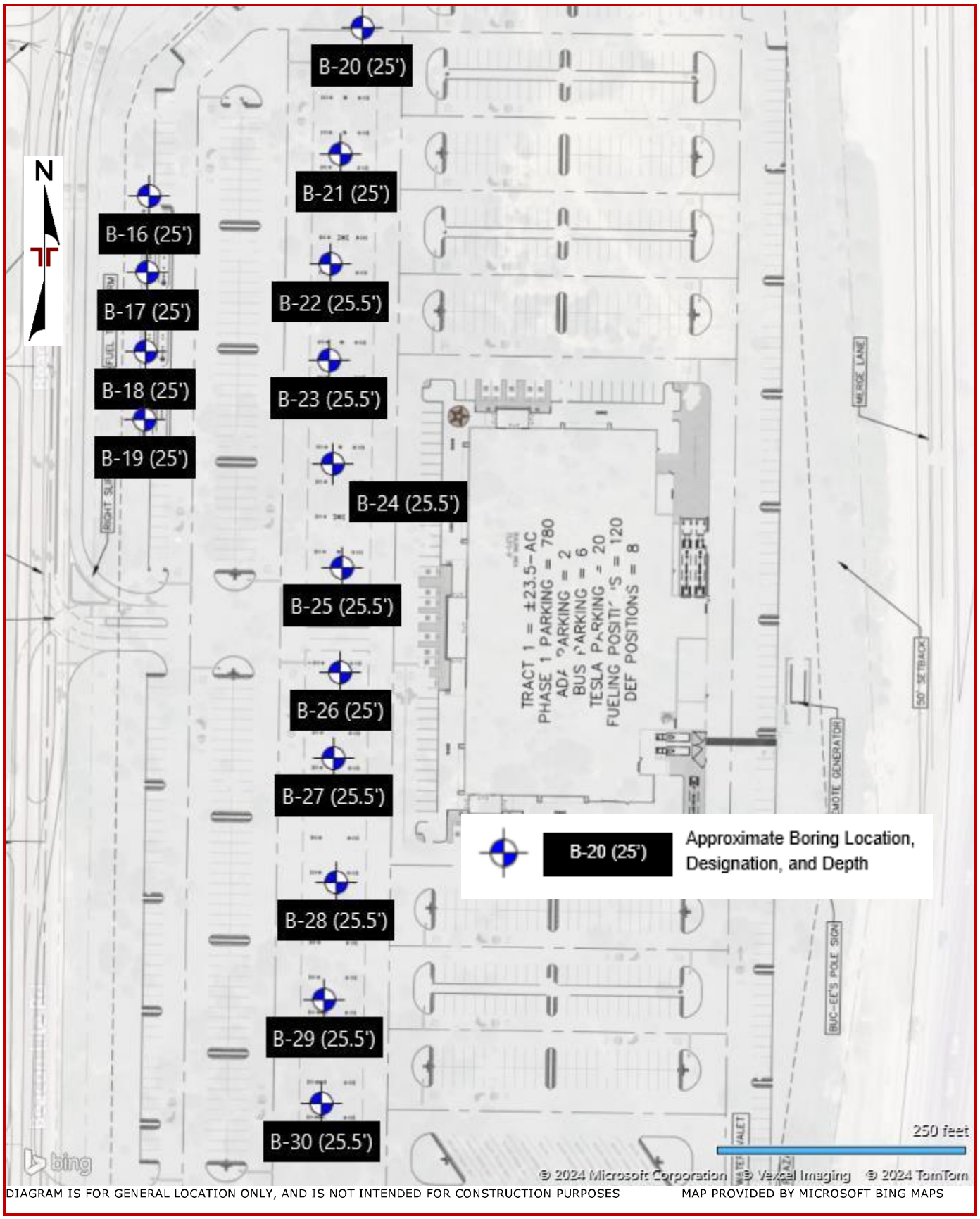
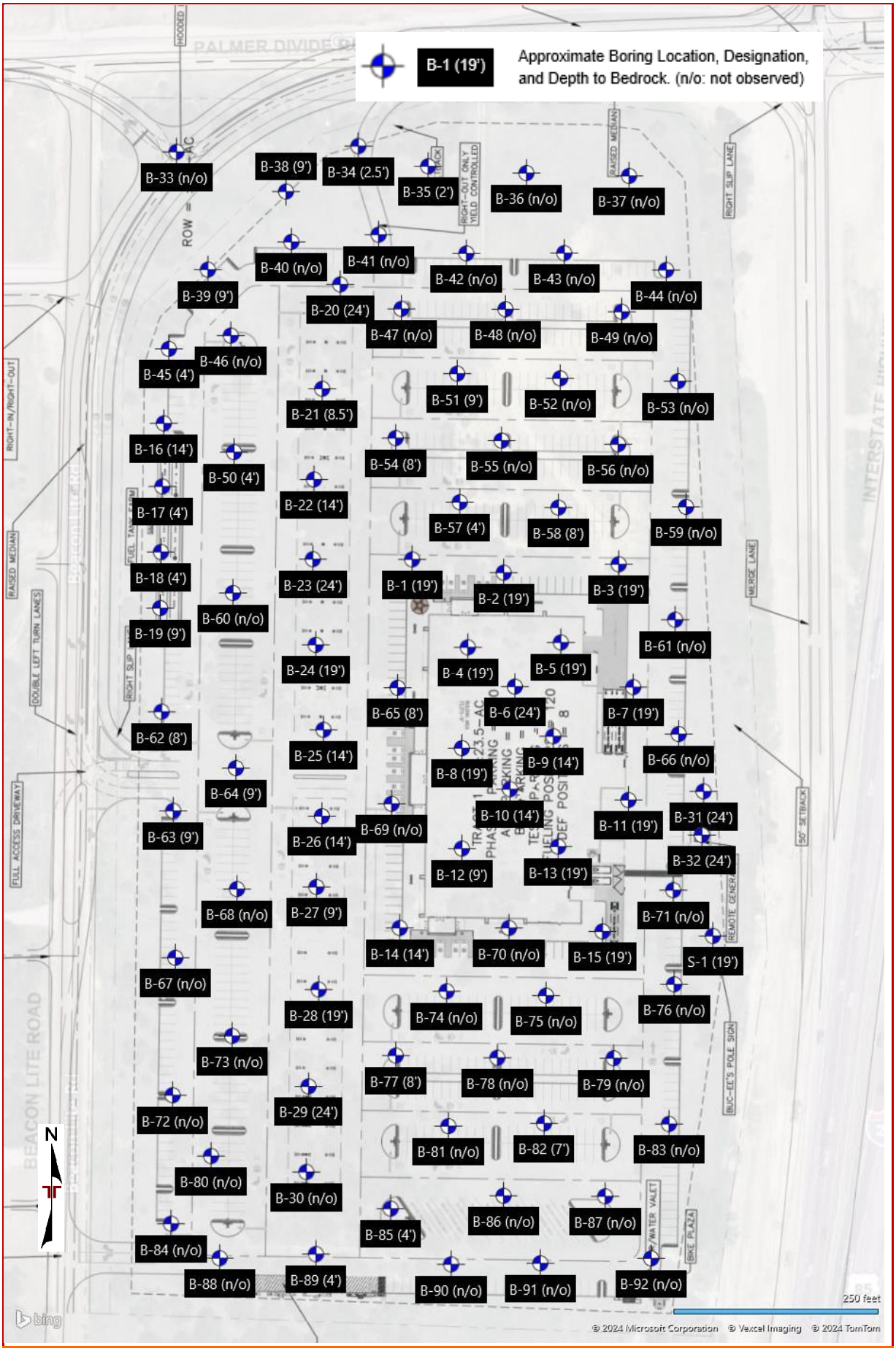


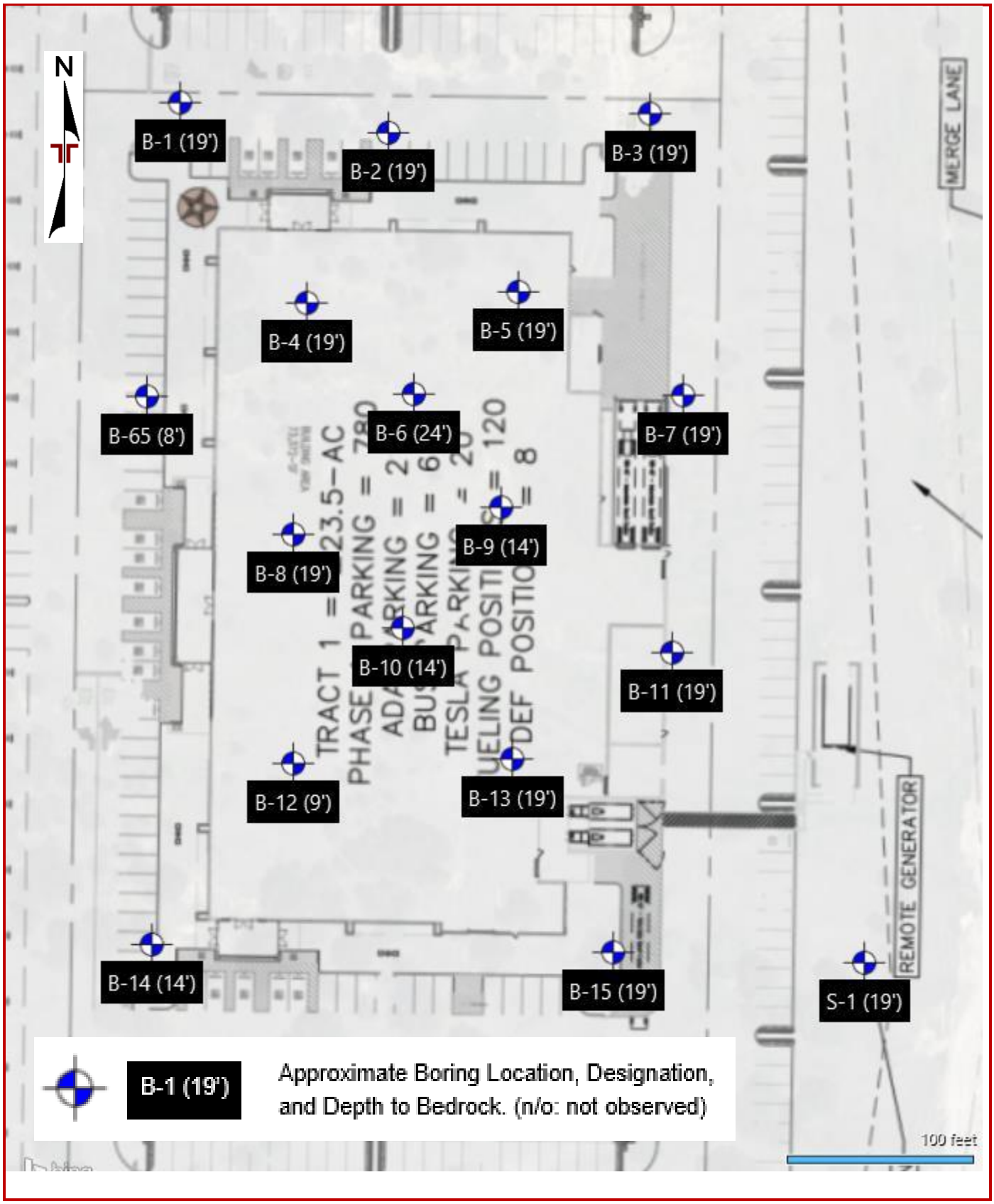
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan with Overlay and Depth to Bedrock (All Borings)



Exploration Plan with Overlay and Depth to Bedrock (Building and Sign Borings)



Exploration Plan with Overlay and Depth to Bedrock (Fuel Canopy and UST Borings)

Exploration and Laboratory Results

Contents:

Boring Logs (Boring Nos. B-1 to B-92 and S-1)
Swell Consolidation Test (24 pages)
Grain Size Distribution (19 pages)
Moisture Density Relationship (3 pages)
CBR (3 pages)
Corrosivity (2 pages)
Summary of Laboratory Test Results (8 pages)

Note: All attachments are one page unless noted above.

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-1

Location: See Exploration Plan

Latitude: 39.1282° Longitude: -104.8663°

Depth (Ft.) | Elevation: 7353.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 6 inches thick 7353								
		SILTY SAND (SM), fine to coarse grained, brown to orangish brown, medium dense to dense			18-28		3.1	100		
					22-30					
		6.8 7346.7								
2		Approximate Finished Floor Elevation = 7346.7 feet			22-27		5.7	100		
					10-9-12 N=21				NP	26
					17-23-26 N=49		6.9			
		24.0 7329.5								
4		**SANDSTONE**, fine to coarse grained, brown, very hard, strong cementation			24-36-50/4"					
		25.5 7328								
		Boring Terminated at 25.5 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
KE

Boring Started
07-22-2024

Boring Completed
07-22-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-2

Location: See Exploration Plan

Latitude: 39.1281° Longitude: -104.8659°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Depth (Ft.)	Elevation (Ft.) +/-	Model Layer	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	7342.67	1									
		2				15-13					
						7-10		7.5	113		
						13-20		7.2	117		
						18-20					
19.0	7324										
		4				21-50/5"		11.7	118	38-22-16	28
						13-18-40 N=58					
25.5	7317.5										

SANDSTONE, fine to coarse grained, light gray, olive brown, white, and orange brown, medium hard to hard, strong cementation

Boring Terminated at 25.5 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-17-2024

Boring Completed
07-17-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-3

Location: See Exploration Plan

Latitude: 39.1281° Longitude: -104.8654°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Depth (Ft.)	Elevation (Ft.) +/-	Model Layer	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	7331.17	1									
			TOPSOIL, about 4 inches thick								
		2	**CLAYEY SAND (SC)**, trace gravel, fine to coarse grained, brown to orangish brown, loose to medium dense			6-9	+0.2 @ 200 psf	13.2	113	38-14-24	43
						9-18					
						9-14		7.8	114		
						15-25		10.9	118		
19.0	7312.5										
		4	**SANDSTONE**, fine to coarse grained, brown, orange, pink, and white, hard, strong cementation			50/6"		8.6	114		
						15-17-39 N=56					
25.5	7306										
			Boring Terminated at 25.5 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Logged by
DG

Boring Started
07-17-2024

Boring Completed
07-17-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-4

Location: See Exploration Plan

Latitude: 39.1279° Longitude: -104.8660°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Depth (Ft.)	Elevation (Ft.) +/-	Model Layer	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	7342.67	1									
			TOPSOIL, about 4 inches thick								
			CLAYEY SAND (SC), with gravel below 14 feet, fine to coarse grained, brown to orangish brown, loose to medium dense			8-6					
						5-12		7.8	102		
		2				10-19		12.0	117	29-16-13	44
						15-21					
19.0	7324										
		4	**SANDSTONE**, fine to coarse grained, brown, hard to very hard, strong cementation			50/6"		9.2	106		
						21-33-50/5"					
25.5	7317.5										
			Boring Terminated at 25.5 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-17-2024

Boring Completed
07-17-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-5

Location: See Exploration Plan

Latitude: 39.1279° Longitude: -104.8657°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Depth (Ft.) | Elevation: 7335.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7334.67								
2		**CLAYEY SAND (SC)**, fine to coarse grained, brown to light gray, loose to medium dense			11-9				29-16-13	47
					6-9	-0.6 @ 500 psf	7.8	113		
					22-23		7.7	119		
					19-20		7.3	120		
4		19.0 7316 **SANDSTONE**, fine to coarse grained, white, olive brown, pink, and orange, hard to very hard, strong cementation			50/5"		9.1	106		
					43-50/5"		9.2			
		25.0 7310 ***Boring Terminated at 25 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-17-2024

Boring Completed
07-17-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-6

Location: See Exploration Plan

Latitude: 39.1277° Longitude: -104.8658°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Depth (Ft.)	Elevation (Ft.) +/-	Model Layer	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	7338.17	1									
		2				5-4					
						7-12		6.0	112		
						6-12				27-15-12	45
						23-26					
						19-35		11.4	121		
24.0	7314.5										
25.0	7313.5	4				26-50/4"		17.2	112		

TOPSOIL, about 4 inches thick

CLAYEY SAND (SC), fine to coarse grained, brown to orangish brown, loose to medium dense

SANDSTONE, fine to coarse grained, olive brown to orangish brown, medium hard, strong cementation

Boring Terminated at 25 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-17-2024

Boring Completed
07-17-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-7

Location: See Exploration Plan

Latitude: 39.1277° Longitude: -104.8653°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Elevation: 7328.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7328.17								
2		**CLAYEY SAND (SC)**, fine to coarse grained, orangish brown to brown, medium dense			11-10					
					10-13		11.0	112		
					11-11		10.7	111		
					11-22					
		19.0 7309.5								
4		**SANDSTONE**, fine to coarse grained, olive brown, pink, and white, medium hard to very hard, strong cementation			34-50/4"		7.7	116	NP	18
					50/4"					
		25.0 7303.5								
		Boring Terminated at 25 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings

Boring Started
07-17-2024

Boring Completed
07-17-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-8

Location: See Exploration Plan

Latitude: 39.1275° Longitude: -104.8661°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Depth (Ft.) | Elevation: 7336.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7336.17								
2		**CLAYEY SAND (SC)**, fine to coarse grained, dark brown to orangish brown, loose to medium dense			7-7		7.9	107		
					5-10	-0.8 @ 500 psf	7.5	117	NP	45
					8-15					
					9-11-13 N=24		11.8			
4		19.0 7317.5 **SANDSTONE**, fine to coarse grained, orange, brown, olive brown, gray, and red, medium hard, strong cementation			35-50/4"		10.6	118		
					19-21-26 N=47					
		25.5 7311 ***Boring Terminated at 25.5 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Logged by
DG

Boring Started
07-17-2024

Boring Completed
07-17-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-9

Location: See Exploration Plan

Latitude: 39.1276° Longitude: -104.8657°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Depth (Ft.)	Elevation (Ft.) +/-	Model Layer	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	7331.17	1									
			TOPSOIL, about 4 inches thick								
		2	**CLAYEY SAND (SC)**, fine to coarse grained, orangish brown, loose to medium dense			8-8		11.2	114		
						11-19					
						16-16		11.4	115		
14.0	7317.5										
		4	**SANDSTONE**, micaceous, with fines, fine grained, mottled olive brown to grayish brown to reddish brown, firm to hard, weak cementation			27-19		4.1	125		
						14-29		18.6	107	38-24-14	86
20.0	7311.5										
			CLAYSTONE, gray to orange, firm to hard								
						50/5"					
25.0	7306.5										
			Boring Terminated at 25 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-17-2024

Boring Completed
07-17-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-10

Location: See Exploration Plan

Latitude: 39.1274° Longitude: -104.8659°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7331.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 4 inches thick 7330.67									
2			**SILTY SAND (SM)**, fine to coarse grained, dark brown to tan, medium dense				11-13		3.5	101		
							12-14		6.2	119		
		8.0	7323	5								
3			**SANDY LEAN CLAY (CL)**, brown to orangish brown, very stiff				9-14	-0.5 @ 500 psf	13.6	111		
		14.0	7317	10								
4			**SANDSTONE**, with clay, fine to coarse grained, brown to tan, firm to medium hard, strong cementation				16-24		9.3	118	45-22-23	37
				15								
							14-19					
				20	▽							
							40-48					
		25.0	7306	25								
			Boring Terminated at 25 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
▽ 22 feet while drilling
▽ 22 feet upon completion of drilling

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-18-2024

Boring Completed
07-18-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-11

Location: See Exploration Plan

Latitude: 39.1274° Longitude: -104.8654°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7323.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 4 inches thick 7322.67									
2		9.0	**SILTY SAND (SM)**, fine to coarse grained, brown to dark brown, loose 7314				7-8					
							7-12		7.3	115		
				5								
							9-10		13.9	110	30-16-14	49
				10								
					▽		14-16		11.9	114		
				15								
4		19.0	**SANDSTONE**, fine to coarse grained, gray, tan, white, red, pink, and orange, medium hard to very hard, strong cementation 7304				23-50/5"					
				20								
		25.5	7297.5				27-46-39 N=85					
			Boring Terminated at 25.5 Feet	25								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
▽ 14 feet while drilling

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-18-2024

Boring Completed
07-18-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-12

Location: See Exploration Plan

Latitude: 39.1272° Longitude: -104.8661°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Depth (Ft.) | Elevation: 7332.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	7331.67								
2						14-17		5.8	124		
						10-18		7.5	123		
		9.0	7323								
4						23-45				NP	29
						15-50/6"		13.6	115		
				▽		9-5-7 N=12					
				▽							
		25.0	7307			50/4"		12.2	115		

Boring Terminated at 25 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
▽ 19 feet while drilling
▽ 19.5 feet upon completion of drilling

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-18-2024

Boring Completed
07-18-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-13

Location: See Exploration Plan

Latitude: 39.1272° Longitude: -104.8657°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7326.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 4 inches thick 7325.67									
2		9.0	**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, brown to dark brown, loose 7317				6-6				NP	43
							8-10		12.4	104		
				5								
3		14.0	**SANDY LEAN CLAY (CL)**, trace gravel, grayish brown, stiff 7312				7-7	-1.8 @ 500 psf	11.7	111		
				10	▽							
2		19.0	**SILTY SAND (SM)**, with gravel, fine to coarse grained, brown to gray, medium dense 7307				8-15		16.9	108		
				15								
4		25.5	**SANDSTONE**, fine to coarse grained, brown, gray, and white, medium hard, strong cementation 7300.5				38-50/4"					
				20								
							10-15-30 N=45					
				25								
			Boring Terminated at 25.5 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
▽ 14 feet while drilling

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-18-2024

Boring Completed
07-18-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-14

Location: See Exploration Plan

Latitude: 39.1269° Longitude: -104.8663°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Depth (Ft.) Elevation: 7333.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7332.67								
2		**SILTY SAND (SM)**, varies to clayey sand with gravel, fine to coarse grained, tan, medium dense			16-23					
					25-42		4.4	122		
					17-36		6.6	125		
		14.0 7319								
4		**SANDSTONE**, fine to coarse grained, white, pink, gray, and orange, medium hard to very hard, strong cementation			33-50/4"		11.8	118	37-19-18	25
					23-50/5"					
		25.0 7308			50/6"					
		Boring Terminated at 25 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Logged by
DG

Boring Started
07-18-2024

Boring Completed
07-18-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-15

Location: See Exploration Plan

Latitude: 39.1269° Longitude: -104.8655°

Approximate Future Grade Elevation: 7345.5 (Ft.) +/-
Elevation: 7323.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Material Description	Elevation	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 4 inches thick	7322.67									
2		4.0	**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, orangish brown to tan, medium dense	7319				9-10		7.1	111		
3		9.0	**SANDY LEAN CLAY (CL)**, orangish brown, stiff	7314	5			7-10	0.0 @ 500 psf	15.2	109	30-18-12	56
2		19.0	**POORLY GRADED SAND (SP)**, with gravel, trace clay, fine to coarse grained, brown to pink, loose to medium dense	7304	10	▽ ▽		7-9					
					15			16-22		9.9	113		
4		25.5	**SANDSTONE**, fine to coarse grained, white, pink, and gray, medium hard to hard, strong cementation	7297.5	20			26-50/5"					
					25			21-31-32 N=63					
			Boring Terminated at 25.5 Feet										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
▽ 9 feet while drilling
▽ 10 feet upon completion of drilling

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-18-2024

Boring Completed
07-18-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-16

Location: See Exploration Plan

Latitude: 39.1286° Longitude: -104.8674°

Depth (Ft.) | Elevation: 7366.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7365.67								
2		**SILTY SAND (SM)**, varies to clayey sand with gravel, fine to coarse grained, pale brown, medium dense to dense			13-17		5.7	118		
					7-13					
					16-32		11.1	115		
		13.5 7352.5								
		14.0 Approximate Future Grade Elevation = 7352.5 feet 7352								
4		**SANDSTONE**, fine to coarse grained, orange, brown, pink, and light red, medium hard to very hard, strong cementation			24-33		11.0	116		
					50/4"				NP	29
		25.0 7341			50/5"		7.9			
		Boring Terminated at 25 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Logged by
DG

Boring Started
07-16-2024

Boring Completed
07-16-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-17

Location: See Exploration Plan

Latitude: 39.1284° Longitude: -104.8674°

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7364.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 4 inches thick — 7363.67									
2			**SILTY SAND (SM)**, fine to coarse grained, brown, medium dense to dense				11-13		4.7	112		
							22-50/6"					
		5.0	7359	5								
			SANDSTONE, fine to coarse grained, white, gray, orange, and brown, medium hard to very hard, strong cementation				36-50/3"		10.6	116	NP	17
		11.5	7352.5	10								
4			Approximate Future Grade Elevation = 7352.5 feet				30-50/5"					
				15								
							25-50/5"		11.4			
				20								
							27-50/4"					
		25.0	7339	25								
			Boring Terminated at 25 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings

Boring Started
07-16-2024

Boring Completed
07-16-2024

Buc-ee's Monument Off-site Pavement Improvements
Interstate 25 and Palmer Divide Avenue | Monument, Colorado
Terracon Project No. 23245069

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-18

Location: See Exploration Plan

Latitude: 39.1282° Longitude: -104.8674°

Depth (Ft.) Elevation: 7367.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7367.17								
2		**SILTY SAND (SM)**, varies to clayey sand with gravel, fine to coarse grained, dark brown to tan, loose to medium dense			16-30		7.7	124		
		4.0 7363.5								
		SANDSTONE, with clay, fine to coarse grained, gray, white, orangish brown, and reddish brown, medium hard to very hard, strong cementation			37-50/5"		8.8	119		
					50/5"					
4		15.0 7352.5			28-42-50/4"		10.6		34-18-16	31
		Approximate Future Grade Elevation = 7352.5 feet								
					50/5"		9.1	100		
		25.0 7342.5			22-50/6"					
		Boring Terminated at 25 Feet								

Depth (Ft.): 5, 10, 15, 20, 25

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-16-2024

Boring Completed
07-16-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-19

Location: See Exploration Plan

Latitude: 39.1280° Longitude: -104.8674°

Depth (Ft.) Elevation: 7364.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7363.67								
2		**SILTY SAND (SM)**, varies to clayey sand with gravel, fine to coarse grained, brown, medium dense to dense			16-22					
					15-38	-1.6 @ 500 psf	4.9	110		
		9.0 7355								
		SANDSTONE, fine to coarse grained, orange, reddish brown, white, and gray, medium hard to very hard, strong cementation			15-50/5"				33-16-17	37
		11.0 7353								
4		Approximate Future Grade Elevation = 7353.0 feet			50/5"		8.2	117		
					40-50/3"					
		25.0 7339			50/6"					
		Boring Terminated at 25 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-16-2024

Boring Completed
07-16-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-20

Location: See Exploration Plan

Latitude: 39.1291° Longitude: -104.8666°

Approximate Future Grade Elevation: 7348.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7348.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 4 inches thick 7347.67									
2			**SILTY SAND (SM)**, fine to coarse grained, orangish brown to olive brown, loose to medium dense				4-4					
							6-14		7.1	103		
				5								
							10-18					
				10								
							12-27		8.0	120	NP	21
				15								
							19-30					
				20								
4		24.0	7324									
		25.0	**SANDSTONE**, fine to coarse grained, olive brown, dark grayish brown, and white, medium hard, strong cementation 7323				35-50/3"		8.2	114		
			Boring Terminated at 25 Feet	25								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Logged by
DG

Boring Started
07-19-2024

Boring Completed
07-19-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-21

Location: See Exploration Plan

Latitude: 39.1287° Longitude: -104.8667°

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7354.5 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5	**TOPSOIL**, about 6 inches thick 7354									
2		6.0	**SILTY SAND (SM)**, trace gravel and silt, fine to coarse grained, brown, medium dense 7348.5				24-26					
			Approximate Future Grade Elevation = 7348.5 feet				22-30		6.6	109		
		8.5	7346	5								
4		25.5	**SANDSTONE**, with clay and gravel, fine to coarse grained, gray brown, medium hard to very hard, moderate to strong cementation 7329				38-50/6"		4.9	106	22-13-9	44
				10								
							7-35-45 N=80					
				15								
							5-10-48 N=58		8.2			
				20								
							30-50/6"					
				25								
			Boring Terminated at 25.5 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
KE

Boring Started
07-22-2024

Boring Completed
07-22-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-22

Location: See Exploration Plan

Latitude: 39.1284° Longitude: -104.8667°

Elevation: 7357.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Description	Elevation	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5	**TOPSOIL**, about 6 inches thick	7356.5									
2		8.5	**SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown, medium dense to dense	7348.5				20-23		3.3	116	NP	33
					5			22-42					
		14.0	Approximate Future Grade Elevation = 7348.5 feet	7343	10			17-34		6.6	119		
4		25.5	**SANDSTONE**, with gravel, fine to coarse grained, gray brown, very hard, moderate to strong cementation	7331.5	15			9-47-50/4"					
					20			50/6"		8.2			
					25			33-50/4"					
			Boring Terminated at 25.5 Feet										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Logged by
KE

Boring Started
07-22-2024

Boring Completed
07-22-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-23

Location: See Exploration Plan

Latitude: 39.1282° Longitude: -104.8667°

Depth (Ft.) Elevation: 7363.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5	7362.5								
2						21-21		5.4	111	31-16-15	30
						5-11					
						11-12		11.4	108		
		14.0	7349								
		15.0	7348			6-5-6 N=11					
						9-9-11 N=20		8.3			
		24.0	7339								
4		25.5	7337.5			11-16-24 N=40					

CLAYEY SAND (SC), fine to coarse grained, brown, loose to medium dense

SILTY SAND (SM), fine to coarse grained, gray brown, medium dense

Approximate Future Grade Elevation = 7348.0 feet

SANDSTONE, with gravel, fine to coarse grained, gray brown, medium hard, moderate cementation

Boring Terminated at 25.5 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
KE

Boring Started
07-23-2024

Boring Completed
07-23-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-24

Location: See Exploration Plan

Latitude: 39.1279° Longitude: -104.8667°

Depth (Ft.) | Elevation: 7355.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 6 inches thick 7354.5								
		SILTY SAND (SM), varies to clayey sand with gravel, fine to coarse grained, brown, medium dense to dense			23-27		4.3	113		
					30-35		5.9	120		
		7.0 7348								
2		Approximate Future Grade Elevation = 7348.0 feet			16-30					
					5-6-6 N=12		8.2			
		19.0 7336								
4		**SANDSTONE**, with gravel, fine to coarse grained, gray brown, firm to hard, moderate to strong cementation			8-11-13 N=24		8.8		NP	25
		25.5 7329.5			20-23-28 N=51					
		Boring Terminated at 25.5 Feet								

Depth (Ft.): 5, 10, 15, 20, 25

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
KE

Boring Started
07-23-2024

Boring Completed
07-23-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-25

Location: See Exploration Plan

Latitude: 39.1276° Longitude: -104.8667°

Approximate Future Grade Elevation: 7348.0 (Ft.) +/-
Elevation: 7346.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7345.67								
2		**SILTY SAND (SM)**, varies to clayey poorly graded sand, fine to coarse grained, brown, medium dense			15-22					
					15-27		5.7	120		
					15-24					
4		14.0 7332 **SANDSTONE**, fine grained, grayish brown to olive brown, medium hard to very hard, moderate cementation			21-29-28 N=57		8.2		NP	27
					50/4"		9.7	123		
		25.5 7320.5			16-17-16 N=33		12.7			
		Boring Terminated at 25.5 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-19-2024

Boring Completed
07-19-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-26

Location: See Exploration Plan

Latitude: 39.1273° Longitude: -104.8667°

Approximate Future Grade Elevation: 7348.0 (Ft.) +/-
Depth (Ft.) Elevation: 7341.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7340.67								
2		**SILTY SAND (SM)**, varies to poorly graded sand with gravel, fine to coarse grained, dark brown, medium dense			19-37		5.7	122		
					20-27					
					15-34		10.8	120		
4		14.0 7327 **SANDSTONE**, varies to sandy claystone, fine to coarse grained, olive brown to orange, very hard, weak cementation			24-44-40 N=84		9.9			
					10-25-50/6"		13.3		32-19-13	54
							13.2			
		25.0 7316			24-50/4"					
		Boring Terminated at 25 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-19-2024

Boring Completed
07-19-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-27

Location: See Exploration Plan

Latitude: 39.1271° Longitude: -104.8667°

Approximate Future Grade Elevation: 7348.0 (Ft.) +/-
Depth (Ft.) Elevation: 7337.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 6 inches thick 7337								
2		**SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown, medium dense			10-10		5.3	104		
					7-14				NP	38
		9.0 7328.5								
4		**SANDSTONE**, with gravel, fine to coarse grained, gray brown, medium hard to hard, moderate to strong cementation			20-38		9.9	124		
					10-16-16 N=32		13.1			
					23-31-44 N=75					
					19-24-34 N=58		11.6			
		25.5 7312								
		Boring Terminated at 25.5 Feet								

Depth (Ft.): 5, 10, 15, 20, 25

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
KE

Boring Started
07-23-2024

Boring Completed
07-23-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-28

Location: See Exploration Plan

Latitude: 39.1267° Longitude: -104.8667°

Approximate Future Grade Elevation: 7349.0 (Ft.) +/-
Elevation: 7339.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 4 inches thick	7339.17								
2			**SILTY SAND (SM)**, varies to poorly graded sand with gravel, fine to coarse grained, dark brown, loose to medium dense				1-2					
							9-9		1.3	112		
				5								
							9-10		16.7	101	NP	10
				10								
							18-22		8.0	119		
				15								
4		19.0	**SANDSTONE**, fine to coarse grained, olive brown, white, and pink, firm to medium hard, strong cementation	7320.5			29-50/5"					
				20								
							12-14-13 N=27					
		25.5	***Boring Terminated at 25.5 Feet***	7314								
				25								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Logged by
DG

Boring Started
07-19-2024

Boring Completed
07-19-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-29

Location: See Exploration Plan

Latitude: 39.1264° Longitude: -104.8667°

Approximate Future Grade Elevation: 7349.0 (Ft.) +/-
Depth (Ft.) Elevation: 7342.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 6 inches thick 7341.5								
2		**CLAYEY SAND (SC)**, trace gravel and silt, fine to coarse grained, brown, loose to medium dense			20-23		4.7	102	21-13-8	41
					16-30					
					14-21		3.0	119		
					4-4-4 N=8					
					5-5-6 N=11		11.4			
		24.0 7318								
4		**SANDSTONE**, with gravel, fine to coarse grained, gray brown, medium hard, moderate to strong cementation			17-20-17 N=37					
		25.5 7316.5								
		Boring Terminated at 25.5 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
KE

Boring Started
07-24-2024

Boring Completed
07-24-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-30

Location: See Exploration Plan

Latitude: 39.1261° Longitude: -104.8667°

Approximate Future Grade Elevation: 7349.0 (Ft.) +/-
Depth (Ft.) Elevation: 7348.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 6 inches thick 7347.5								
		CLAYEY SAND (SC), varies to sandy lean clay, trace gravel and silt, fine to coarse grained, brown, medium dense			18-23					
					18-31		3.6	119	27-15-12	52
					20-37		3.3	116		
		12.0 7336								
2		**SILTY SAND (SM)**, fine to coarse grained, brown, medium dense			8-8-8 N=16		5.1			
					5-6-7 N=13					
					7-9-13 N=22					
		25.5 7322.5								
		Boring Terminated at 25.5 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
KE

Boring Started
07-24-2024

Boring Completed
07-24-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-31

Location: See Exploration Plan

Latitude: 39.1274° Longitude: -104.8650°

Approximate Future Grade Elevation: 7344.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7319.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 4 inches thick 7318.67									
2		8.0	**SILTY SAND (SM)**, fine to coarse grained, brown, loose to medium dense 7311				14-12		7.0	107		
				5			8-12					
		24.0	**CLAYEY SAND (SC)**, fine to coarse grained, brown to orangish brown, loose to medium dense 7295	10			6-9	-0.1 @ 500 psf	16.7	109	29-15-14	41
				15			5-6		19.4	109		
					▽							
				20			9-13		16.3	105		
4		25.5	**SANDSTONE**, fine to coarse grained, pink to white, firm, moderate cementation 7293.5	25			14-11-13 N=24					
			Boring Terminated at 25.5 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
▽ 18.5 feet while drilling

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-16-2024

Boring Completed
07-16-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-32

Location: See Exploration Plan

Latitude: 39.1272° Longitude: -104.8650°

Approximate Future Grade Elevation: 7344.0 (Ft.) +/-
Depth (Ft.) Elevation: 7317.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7316.67								
2		**CLAYEY SAND (SC)**, fine to coarse grained, brown to orangish brown, loose to medium dense			8-9		7.6	117		
					7-9	-0.9 @ 200 psf	16.7	105	28-15-13	44
					8-10		15.2	113		
					14-12		7.2	124		
					12-24					
4		24.0 7293 **SANDSTONE**, fine to coarse grained, gray, white, and pink, medium hard, moderate cementation 25.0 7292			35-28					
		Boring Terminated at 25 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
13 feet while drilling
12 feet upon completion of drilling

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Logged by
DG

Boring Started
07-16-2024

Boring Completed
07-16-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-33

Location: See Exploration Plan

Latitude: 39.1295° Longitude: -104.8673°

Depth (Ft.) Elevation: 7360.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7359.75								
2		**SILTY SAND (SM)**, trace gravel and clay, fine to coarse grained, tan to grayish brown, medium dense			19-24		3.2	122	NP	36
					24-23		4.8	122		
		5								
		7.0 7353 Approximate Future Grade Elevation = 7353.0 feet								
		10.0 7350			14-20					
		10 ***Boring Terminated at 10 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-10-2024

Boring Completed
07-10-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-34

Location: See Exploration Plan

Latitude: 39.1295° Longitude: -104.8665°

Depth (Ft.) Elevation: 7347.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 2 inches thick 7346.75								
2		**SILTY SAND (SM)**, trace gravel, fine to medium grained, tan to brown, dense								
		2.0 7345								
		2.5 Approximate Future Grade Elevation = 7345.0 feet 7344.5								
4		**SANDSTONE**, fine to coarse grained, orangish brown to redddish brown, medium hard, strong cementation			21-39		2.8	125	NP	32
					38-50/4"		4.0	123		
		10.0 7337			33-50/4"					
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-09-2024

Boring Completed
07-09-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-35

Location: See Exploration Plan

Latitude: 39.1295° Longitude: -104.8662°

Depth (Ft.) Elevation: 7338.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7337.75								
2		**SILTY SAND (SM)**, trace clay, fine to medium grained, brown								
		2.0 7336								
4		2.0 **SANDSTONE**, fine to coarse grained, orange to reddish brown, medium hard, moderate cementation 7336			22-34		7.6	124	NP	33
		Approximate Future Grade Elevation = 7336.0 feet								
					22-41		5.5	120		
		5								
		10.0 7328			31-49					
		10 ***Boring Terminated at 10 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-09-2024

Boring Completed
07-09-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-36

Location: See Exploration Plan

Latitude: 39.1294° Longitude: -104.8658°

Depth (Ft.) Elevation: 7333.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7332.75								
2		**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, brown to dark brown, loose to medium dense			7-6	-6.2 @ 200 psf	10.6	100	NP	39
					5-5		11.9	117		
		10.0 7323			6-12					
		Boring Terminated at 10 Feet								
		11.0 7322								
		Approximate Future Grade Elevation = 7322.0 feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-08-2024

Boring Completed
07-08-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-37

Location: See Exploration Plan

Latitude: 39.1294° Longitude: -104.8654°

Depth (Ft.) Elevation: 7329.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7329.25								
		SILTY SAND (SM), varies to clayey sand, fine to coarse grained, brown to dark grayish brown, loose to medium dense								
					8-4	-10.3 @ 200 psf	8.6	96	NP	40
					8-11		9.4	116		
2		5.5 7324								
		Approximate Future Grade Elevation = 7324.0 feet								
					7-19					
		10.0 7319.5								
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-08-2024

Boring Completed
07-08-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-38

Location: See Exploration Plan

Latitude: 39.1294° Longitude: -104.8668°

Approximate Future Grade Elevation: 7350.0 (Ft.) +/-
Depth (Ft.) Elevation: 7348.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7347.67								
2		**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, dark brown to very dark brown, loose to medium dense			4-4				NP	34
					8-12		11.1	119		
		9.0 7339								
4		**SANDSTONE**, fine to coarse grained, brown, medium hard, weak cementation 10.0 7338			15-18		8.4	127		
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Logged by
DG

Boring Started
07-10-2024

Boring Completed
07-10-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-39

Location: See Exploration Plan

Latitude: 39.1291° Longitude: -104.8672°

Depth (Ft.) Elevation: 7357.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7356.75								
2		**SILTY SAND (SM)**, varies to clayey sand, fine to medium grained, brown to orangish brown, loose to medium dense			8-8	-1.3 @ 200 psf	7.6	102	28-12-16	37
					10-10					
		5.0 7352								
		Approximate Future Grade Elevation = 7352.0 feet								
		9.0 7348								
4		**SANDSTONE**, fine to coarse grained, brown, medium hard, weak cementation 10.0 7347			19-29		8.2	122		
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Logged by
DG

Boring Started
07-10-2024

Boring Completed
07-10-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-40

Location: See Exploration Plan

Latitude: 39.1292° Longitude: -104.8668°

Approximate Future Grade Elevation: 7350.0 (Ft.) +/-
Depth (Ft.) Elevation: 7348.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7347.75								
2		**SILTY SAND (SM)**, varies to clayey sand with gravel, fine to coarse grained, brown, loose to medium dense			12-12		7.6	115		
					8-9	-0.7 @ 200 psf	12.0	116	30-14-16	30
		5								
		10.0 7338			10-12		10.6	113		
		10 ***Boring Terminated at 10 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-10-2024

Boring Completed
07-10-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-41

Location: See Exploration Plan

Latitude: 39.1292° Longitude: -104.8664°

Approximate Future Grade Elevation: 7347.0 (Ft.) +/-
Depth (Ft.) Elevation: 7342.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7341.67								
2		**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, brown to dark brown, medium dense			12-8		10.5	108	NP	42
					10-11		8.3	119		
		5								
		10.0 7332			12-12					
		10 ***Boring Terminated at 10 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-09-2024

Boring Completed
07-09-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-42

Location: See Exploration Plan

Latitude: 39.1292° Longitude: -104.8661°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Depth (Ft.) Elevation: 7337.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7336.75								
2		**CLAYEY SAND (SC)**, fine to coarse grained, grayish brown to light brown, loose to medium dense			4-3				29-13-16	42
					15-21		8.4	123		
		10.0 7327			9-10		15.9	112		
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-09-2024

Boring Completed
07-09-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-43

Location: See Exploration Plan

Latitude: 39.1292° Longitude: -104.8656°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Depth (Ft.) Elevation: 7332.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7331.75								
2		**CLAYEY SAND (SC)**, fine to coarse grained, dark brown to orangish brown, loose to medium dense			5-6	-0.8 @ 200 psf	13.0	108	29-15-14	40
					11-13		8.6	109		
		10.0 7322			9-10					
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-08-2024

Boring Completed
07-08-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-44

Location: See Exploration Plan

Latitude: 39.1291° Longitude: -104.8652°

Approximate Future Grade Elevation: 7345.0 (Ft.) +/-
Depth (Ft.) Elevation: 7329.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7329.17								
2		**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, dark brown to grayish brown, loose to medium dense			14-11	-0.8 @ 200 psf	3.3	109	NP	39
					6-9		9.5	120		
		5								
					15-21					
		10								
		10.0 7319.5 ***Boring Terminated at 10 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-08-2024

Boring Completed
07-08-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-45

Location: See Exploration Plan

Latitude: 39.1289° Longitude: -104.8673°

Depth (Ft.) Elevation: 7366.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7366.25								
2		**SILTY SAND (SM)**, fine to coarse grained, tan to orangish brown, medium dense 4.0 7362.5			12-21		7.0	117	NP	43
4		**SANDSTONE**, fine to coarse grained, pale brown to orangish brown, medium hard to hard, moderate to strong cementation 10.0 7356.5			27-45		6.0	122		
					50/6"					
		Boring Terminated at 10 Feet 14.5 7352								
		Approximate Future Grade Elevation = 7352.0 feet								

5

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-10-2024

Boring Completed
07-10-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-46

Location: See Exploration Plan

Latitude: 39.1289° Longitude: -104.8671°

Depth (Ft.) Elevation: 7360.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7359.67								
2		**SILTY SAND (SM)**, varies to clayey sand with gravel, fine grained, brown to orangish brown, medium dense			14-15				NP	35
					9-11		7.9	115		
		9.0 7351 Approximate Future Grade Elevation = 7351.0 feet								
		10.0 7350			13-25		10.1	122		
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-10-2024

Boring Completed
07-10-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-47

Location: See Exploration Plan

Latitude: 39.1290° Longitude: -104.8663°

Approximate Future Grade Elevation: 7347.0 (Ft.) +/-
Depth (Ft.) Elevation: 7344.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 2 inches thick 7343.75								
2		**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, brown, medium dense			13-14				NP	31
					16-25		5.8	119		
		9.0 7335								
3		10.0 **SANDY LEAN CLAY (CL)**, trace gravel, light grayish brown to orange, very stiff 7334			15-24		9.2	122		
		Boring Terminated at 10 Feet								

5

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-10-2024

Boring Completed
07-10-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-48

Location: See Exploration Plan

Latitude: 39.1290° Longitude: -104.8659°

Approximate Future Grade Elevation: 7346.5 (Ft.) +/-
Depth (Ft.) Elevation: 7336.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7335.75								
2		**SILTY SAND (SM)**, with gravel, fine to coarse grained, brown to orangish brown, loose to medium dense			7-8		4.5	105	NP	17
					7-10		5.6	97		
		5								
		10.0 7326			23-30					
		Boring Terminated at 10 Feet 10								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-08-2024

Boring Completed
07-08-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-49

Location: See Exploration Plan

Latitude: 39.1290° Longitude: -104.8654°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Depth (Ft.) Elevation: 7330.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7330.17								
2		**SILTY SAND (SM)**, with gravel, fine to coarse grained, tan to orangish brown, medium dense			17-26		7.6	115	NP	47
					24-33		4.1	100		
		5								
		10.0 7320.5			19-23					
		Boring Terminated at 10 Feet 10								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-08-2024

Boring Completed
07-08-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-50

Location: See Exploration Plan

Latitude: 39.1285° Longitude: -104.8671°

Depth (Ft.) Elevation: 7361.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7361.25								
2		**SILTY SAND (SM)**, trace clay, fine to coarse grained, tan to dark brown, medium dense			8-7		5.1	104	NP	27
		4.0 7357.5								
4		**SANDSTONE**, fine to coarse grained, light reddish brown to orange, firm to hard, moderate to strong cementation			13-31		6.4	126		
		10.0 7351.5			50/6"					
		10.5 ***Boring Terminated at 10 Feet*** 7351								
		Approximate Future Grade Elevation = 7351.0 feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-10-2024

Boring Completed
07-10-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-51

Location: See Exploration Plan

Latitude: 39.1288° Longitude: -104.8661°

Approximate Future Grade Elevation: 7346.5 (Ft.) +/-
Depth (Ft.) Elevation: 7342.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7341.75								
2		**SILTY SAND (SM)**, varies to clayey sand with gravel, fine to medium grained, brown, medium dense			11-18		8.7	120	NP	33
					10-15		10.7	121		
		9.0 7333								
4		10.0 **SANDSTONE**, fine to coarse grained, light gray, medium hard, strong cementation 7332			29-50/4"					
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Logged by
DG

Boring Started
07-09-2024

Boring Completed
07-09-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-52

Location: See Exploration Plan

Latitude: 39.1288° Longitude: -104.8657°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Depth (Ft.) Elevation: 7334.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7333.75								
2		**SILTY SAND (SM)**, varies to clayey sand with gravel, fine to coarse grained, tan to orange, medium dense to dense			25-33		7.7	121	NP	39
					16-17		7.7	118		
		5								
		10.0 7324			23-36					
		10 ***Boring Terminated at 10 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-08-2024

Boring Completed
07-08-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-53

Location: See Exploration Plan

Latitude: 39.1287° Longitude: -104.8652°

Approximate Future Grade Elevation: 7344.0 (Ft.) +/-
Depth (Ft.) Elevation: 7329.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 6 inches thick 7328.5								
2		**CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense			15-15		3.7	107	23-14-9	48
		4.0 7325								
3		**SANDY LEAN CLAY (CL)**, grayish brown to dark brown, stiff			6-7	-0.1 @ 200 psf	13.8	108		
		10.0 7319			7-11					
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-08-2024

Boring Completed
07-08-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-54

Location: See Exploration Plan

Latitude: 39.1286° Longitude: -104.8664°

Depth (Ft.) Elevation: 7349.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7348.75								
		CLAYEY SAND (SC), trace gravel, fine to coarse grained, dark brown to orangish brown, loose								
		2.0 7347								
2		Approximate Future Grade Elevation = 7347.0 feet			7-11		8.9	119	25-15-10	41
					6-10		10.5	114		
		8.0 7341								
4		**SANDSTONE**, fine to coarse grained, brown to orangish brown, hard, strong cementation			50/6"					
		10.0 7339								
		Boring Terminated at 10 Feet								

Depth (Ft.): 5, 10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-55

Location: See Exploration Plan

Latitude: 39.1285° Longitude: -104.8659°

Approximate Future Grade Elevation: 7346.5 (Ft.) +/-
Depth (Ft.) Elevation: 7339.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 5 inches thick 7338.5								
2		**CLAYEY SAND (SC)**, fine to coarse grained, dark brown to orangish brown, loose to medium dense			5-8		11.1	112	30-14-16	47
					15-21		7.1	117		
		10.0 7329			17-27					
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-09-2024

Boring Completed
07-09-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-56

Location: See Exploration Plan

Latitude: 39.1285° Longitude: -104.8654°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Depth (Ft.) Elevation: 7332.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7331.67								
2		**SILTY SAND (SM)**, varies to sandy silt, fine to coarse grained, dark brown to orangish brown, medium dense			14-18		9.6	108	NP	51
					17-31		9.9	115		
		5								
		10.0 7322			19-28					
		Boring Terminated at 10 Feet 10								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-09-2024

Boring Completed
07-09-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-57

Location: See Exploration Plan

Latitude: 39.1283° Longitude: -104.8661°

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7347.5 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5	**TOPSOIL**, about 6 inches thick 7347									
		1.5	**CLAYEY SAND (SC)**, trace gravel, fine to coarse grained, brown, dense 7346									
2			Approximate Future Grade Elevation = 7346.0 feet				27-35				22-13-9	45
		4.0	7343.5									
4			**SANDSTONE**, with gravel, fine to coarse grained, gray brown, medium hard to hard, strong cementation	5			42-50/4"		3.5			
		10.0	7337.5	10			24-29		10.5	119		
			Boring Terminated at 10 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
KE

Boring Started
07-22-2024

Boring Completed
07-22-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-58

Location: See Exploration Plan

Latitude: 39.1283° Longitude: -104.8657°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Depth (Ft.) Elevation: 7335.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7334.75								
2		**CLAYEY SAND (SC)**, varies to silty sand, fine to coarse grained, orangish brown, loose to medium dense			6-7	-0.2 @ 200 psf	11.4	114	29-15-14	42
					7-9		9.4	114		
		8.0 7327								
4		**SANDSTONE**, fine to coarse grained, brown, medium hard, moderate cementation			19-32		9.4	111		
		10.0 7325								
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Logged by
DG

Boring Started
07-09-2024

Boring Completed
07-09-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-59

Location: See Exploration Plan

Latitude: 39.1283° Longitude: -104.8651°

Approximate Future Grade Elevation: 7344.0 (Ft.) +/-
Depth (Ft.) Elevation: 7329.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7328.75								
2		**CLAYEY SAND (SC)**, fine to coarse grained, brown to orangish brown, loose			6-7	+0.1 @ 200 psf	13.6	113	32-15-17	39
					6-8		14.6			
		5								
3		8.0 7321 **SANDY LEAN CLAY (CL)**, brown, stiff			7-7		18.7			
		10.0 7319								
		10								
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-09-2024

Boring Completed
07-09-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-60

Location: See Exploration Plan

Latitude: 39.1280° Longitude: -104.8671°

Depth (Ft.) Elevation: 7363.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7363.25								
2		**SILTY SAND (SM)**, fine grained, brown to orangish brown, medium dense			18-19		4.5	111	NP	44
					12-17		6.7	120		
		5								
		10.0 7353.5			15-34					
		Boring Terminated at 10 Feet 10								
		12.5 7351								
		Approximate Future Grade Elevation = 7351.0 feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-10-2024

Boring Completed
07-10-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-61

Location: See Exploration Plan

Latitude: 39.1280° Longitude: -104.8652°

Approximate Future Grade Elevation: 7344.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7325.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 3 inches thick 7324.75									
2		4.0	**SILTY SAND (SM)**, trace gravel, fine to medium grained, brown to grayish brown, medium dense 7321				15-14		2.9	100	NP	44
3		9.0	**SANDY LEAN CLAY (CL)**, dark brown to grayish brown, stiff 7316	5			7-11	+0.5 @ 200 psf	15.8	108		
2		10.0	**CLAYEY SAND (SC)**, trace gravel, fine to coarse grained, brown to orangish brown, medium dense 7315				16-22					
			Boring Terminated at 10 Feet	10								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-09-2024

Boring Completed
07-09-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-62

Location: See Exploration Plan

Latitude: 39.1276° Longitude: -104.8674°

Depth (Ft.) | Elevation: 7356.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	7355.67	**TOPSOIL**, about 4 inches thick									
		3.0	7353	**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, dark brown, medium dense				10-15		2.8	107	NP	34
2		8.0	7348	Approximate Future Grade Elevation = 7353.0 feet	5			14-18		8.3	120		
4		10.0	7346	**SANDSTONE**, fine to coarse grained, brown, medium hard, moderate cementation				30-48					
				Boring Terminated at 10 Feet	10								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Logged by
DG

Boring Started
07-10-2024

Boring Completed
07-10-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-63

Location: See Exploration Plan

Latitude: 39.1273° Longitude: -104.8673°

Approximate Future Grade Elevation: 7352.0 (Ft.) +/-
Depth (Ft.) Elevation: 7348.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7347.75								
2		**SILTY SAND (SM)**, fine to coarse grained, brown to orangish brown, medium dense			17-16				NP	38
					13-20		5.7	116		
4		9.0 7339 **SANDSTONE**, fine to coarse grained, light olive gray to white, medium hard, moderate cementation 10.0 7338			17-43		11.4	120		
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-10-2024

Boring Completed
07-10-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-64

Location: See Exploration Plan

Latitude: 39.1275° Longitude: -104.8670°

Approximate Future Grade Elevation: 7351.0 (Ft.) +/-
Depth (Ft.) Elevation: 7347.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7347.25								
2		**SILTY SAND (SM)**, fine to coarse grained, brown to orangish brown, loose to medium dense			8-5		5.1		NP	22
					12-17		3.7	121		
4		9.0 7338.5 **SANDSTONE**, fine to coarse grained, brown to light reddish brown, medium hard, strong cementation 10.0 7337.5			31-50/4"					
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-10-2024

Boring Completed
07-10-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-65

Location: See Exploration Plan

Latitude: 39.1277° Longitude: -104.8664°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7345.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 4 inches thick 7344.67									
2			**SILTY SAND (SM)**, fine grained, tan to dark brown, medium dense				13-17		7.1	115	NP	45
							14-28		7.4	120		
				5								
4		8.0	7337 **SANDSTONE**, fine grained, brown, medium hard, weak cementation				19-36					
		10.0	7335 ***Boring Terminated at 10 Feet***	10								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-11-2024

Boring Completed
07-11-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-66

Location: See Exploration Plan

Latitude: 39.1276° Longitude: -104.8651°

Approximate Future Grade Elevation: 7345.0 (Ft.) +/-
Depth (Ft.) Elevation: 7324.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 5 inches thick 7323.5								
2		**CLAYEY SAND (SC)**, fine to coarse grained, orangish brown to dark brown, loose to medium dense			5-5		5.1	103	26-14-12	41
					9-12		10.3	118		
		10.0 7314			8-12					
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-09-2024

Boring Completed
07-09-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-67

Location: See Exploration Plan

Latitude: 39.1268° Longitude: -104.8673°

Approximate Future Grade Elevation: 7352.0 (Ft.) +/-
Depth (Ft.) Elevation: 7345.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7344.67								
2		**SILTY SAND (SM)**, varies to clayey sand, fine to medium grained, dark brown, loose			3-4		3.6	99	NP	26
					8-10		7.3	114		
		10.0 7335			13-18					
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-12-2024

Boring Completed
07-12-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-68

Location: See Exploration Plan

Latitude: 39.1271° Longitude: -104.8670°

Approximate Future Grade Elevation: 7351.0 (Ft.) +/-
Depth (Ft.) Elevation: 7341.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 5 inches thick 7340.5								
2		**CLAYEY SAND (SC)**, fine grained, brown to tan, loose to medium dense			5-7	-0.5 @ 200 psf	14.4	105	26-14-12	42
					13-21		10.9	124		
		10.0 7331			11-18		11.6	120		
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-10-2024

Boring Completed
07-10-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-69

Location: See Exploration Plan

Latitude: 39.1273° Longitude: -104.8664°

Approximate Finished Floor Elevation: 7346.7 (Ft.) +/-

Depth (Ft.) | Elevation: 7338.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7337.75								
2		**SILTY SAND (SM)**, varies to clayey sand with gravel, fine to coarse grained, tan to orangish brown, medium dense			13-13		7.2	117	NP	35
					13-22		6.5	123		
		5								
3		9.0 7329 **LEAN CLAY (CL)**, trace sand and gravel, mottled pale brown to brown to orange, very stiff 10.0 7328			11-16					
		10								
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-70

Location: See Exploration Plan

Latitude: 39.1269° Longitude: -104.8659°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Depth (Ft.) Elevation: 7324.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7323.75								
2		**CLAYEY SAND (SC)**, fine to coarse grained, tan to orangish brown, loose 4.0 7320			7-10		6.4	116	24-15-9	40
3		**SANDY LEAN CLAY (CL)**, grayish brown to orangish brown, stiff 7.5 7316.5			8-9	+0.3 @ 200 psf	8.7	115		
2		**CLAYEY SAND (SC)**, trace gravel, fine to coarse grained, orangish brown to orange, medium dense 10.0 7314			8-16					
		Boring Terminated at 10 Feet								

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-71

Location: See Exploration Plan

Latitude: 39.1271° Longitude: -104.8652°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Depth (Ft.) Elevation: 7318.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7317.75								
2		**CLAYEY SAND (SC)**, fine to coarse grained, dark brown to orangish brown, loose to medium dense			6-7		8.9	109	25-13-12	35
					9-11		8.5	120		
		9.0 7309								
3		**SANDY LEAN CLAY (CL)**, grayish brown to orangish brown, stiff 10.0 7308			6-8					
		Boring Terminated at 10 Feet								

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Logged by
DG

Boring Started
07-09-2024

Boring Completed
07-09-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-72

Location: See Exploration Plan

Latitude: 39.1264° Longitude: -104.8673°

Approximate Future Grade Elevation: 7352.0 (Ft.) +/-
Elevation: 7349.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 6 inches thick 7348.5								
2		**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, dark brown to black, loose to medium dense			4-5		3.5	105	NP	31
					10-15		6.6	116		
3		7.0 7342 **SANDY LEAN CLAY (CL)**, orangish brown, very stiff			8-12					
		10.0 7339 ***Boring Terminated at 10 Feet***								

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-12-2024

Boring Completed
07-12-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-73

Location: See Exploration Plan

Latitude: 39.1266° Longitude: -104.8671°

Approximate Future Grade Elevation: 7351.0 (Ft.) +/-
Depth (Ft.) Elevation: 7344.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 5 inches thick 7343.5								
2		**SILTY SAND (SM)**, varies to clayey sand with gravel, fine to coarse grained, tan to orangish brown, loose to medium dense			4-3		2.7		NP	24
					7-14		6.1	123		
		10.0 7334			14-26					
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-12-2024

Boring Completed
07-12-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-74

Location: See Exploration Plan

Latitude: 39.1267° Longitude: -104.8661°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Elevation: 7331.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 5 inches thick 7330.5								
2		**SILTY SAND (SM)**, trace clay and gravel, fine grained, brown to orangish brown, medium dense			10-11		8.3	109	NP	33
					15-17		6.2	121		
		10.0 7321			16-11					
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-12-2024

Boring Completed
07-12-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-75

Location: See Exploration Plan

Latitude: 39.1267° Longitude: -104.8657°

Approximate Future Grade Elevation: 7345.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7325.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5	**TOPSOIL**, about 5 inches thick 7324.5									
2			**CLAYEY SAND (SC)**, varies to silty sand, fine grained, dark brown to orangish brown, medium dense				12-11	+1.0 @ 200 psf	6.6	107	NP	39
							9-11		7.0	116		
				5								
3		8.0	7317 **LEAN CLAY (CL)**, with sand, dark brown to orangish brown, stiff				5-7		11.6	111		
		10.0	7315	10								
			Boring Terminated at 10 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-11-2024

Boring Completed
07-11-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-76

Location: See Exploration Plan

Latitude: 39.1267° Longitude: -104.8652°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-
Depth (Ft.) Elevation: 7317.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7316.67								
2		**CLAYEY SAND (SC)**, varies to silty sand, fine to coarse grained, dark brown to orangish brown, loose			6-11	+0.9 @ 200 psf	7.2	121	NP	44
					7-9		13.1	111		
		5								
					8-10					
		10.0 7307								
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
8.5 feet while drilling
9 feet upon completion of drilling

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-77

Location: See Exploration Plan

Latitude: 39.1265° Longitude: -104.8664°

Approximate Future Grade Elevation: 7346.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7335.5 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 4 inches thick 7335.17									
2			**SILTY SAND (SM)**, trace clay and gravel, fine to coarse grained, brown to dark brown, loose to medium dense				6-11		2.9	114	NP	20
							10-11		4.6	117		
				5								
4		8.0	7327.5									
			SANDSTONE, fine to coarse grained, brown, medium hard, weak cementation				19-29					
		10.0	7325.5	10								
			Boring Terminated at 10 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-12-2024

Boring Completed
07-12-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-78

Location: See Exploration Plan

Latitude: 39.1265° Longitude: -104.8659°

Approximate Future Grade Elevation: 7345.5 (Ft.) +/-
Depth (Ft.) Elevation: 7330.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7330.17								
2		**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, dark brown, loose to medium dense			4-5		3.2	110	NP	28
					6-10		7.2	119		
		10.0 7320.5			8-12					
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-79

Location: See Exploration Plan

Latitude: 39.1265° Longitude: -104.8654°

Approximate Future Grade Elevation: 7345.0 (Ft.) +/-
Depth (Ft.) Elevation: 7324.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **TOPSOIL**, about 6 inches thick 7323.5								
2		**SILTY SAND (SM)**, fine to coarse grained, brown to orangish brown, loose			7-8		2.0	121	NP	23
					14-13		8.3	119		
3		8.0 7316 **SANDY LEAN CLAY (CL)**, grayish brown to orange, stiff			7-10					
		10.0 7314 ***Boring Terminated at 10 Feet***								

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-80

Location: See Exploration Plan

Latitude: 39.1262° Longitude: -104.8671°

Approximate Future Grade Elevation: 7351.0 (Ft.) +/-
Depth (Ft.) Elevation: 7350.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7349.67								
2		**SILTY SAND (SM)**, fine to medium grained, tan to orangish brown, medium dense			14-14		2.6	117	NP	32
					13-13		4.7	117		
		5								
		10.0 7340			8-11					
		Boring Terminated at 10 Feet 10								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-12-2024

Boring Completed
07-12-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-81

Location: See Exploration Plan

Latitude: 39.1263° Longitude: -104.8661°

Approximate Future Grade Elevation: 7345.0 (Ft.) +/-
Depth (Ft.) Elevation: 7331.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7331.17								
2		**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, dark brown to black, loose to medium dense			3-3				NP	26
					14-26		5.1	121		
		8.5 7323								
3		**SANDY LEAN CLAY (CL)**, dark brown to orange, very stiff			7-12		9.7	116		
		10.0 7321.5								
		Boring Terminated at 10 Feet								

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-82

Location: See Exploration Plan

Latitude: 39.1263° Longitude: -104.8657°

Approximate Future Grade Elevation: 7345.0 (Ft.) +/-
Depth (Ft.) Elevation: 7328.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7327.75								
2		**SILTY SAND (SM)**, trace clay and gravel, fine grained, brown to dark brown, medium dense to dense			9-14		3.3	110	NP	19
					20-30		7.3	123		
4		8.0 7320 **SANDSTONE**, fine to coarse grained, brown to orange, medium hard, weak cementation			22-37					
		10.0 7318 ***Boring Terminated at 10 Feet***								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-83

Location: See Exploration Plan

Latitude: 39.1263° Longitude: -104.8652°

Approximate Future Grade Elevation: 7345.0 (Ft.) +/-
Depth (Ft.) Elevation: 7321.5 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7321.17								
2		**SILTY SAND (SM)**, fine to coarse grained, grayish brown to orangish brown, loose to medium dense			4-4		1.3		NP	17
					11-21		2.8	125		
		10.0 7311.5			12-9					
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-84

Location: See Exploration Plan

Latitude: 39.1259° Longitude: -104.8673°

Depth (Ft.) | Elevation: 7357.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick	7356.67								
		SILTY SAND (SM), with gravel, fine to coarse grained, brown to tan, loose to medium dense				6-12		1.3		NP	24
		3.0	7354								
		Approximate Future Grade Elevation = 7354.0 feet									
2						18-17		2.4	118		
		10.0	7347			7-18					
		Boring Terminated at 10 Feet									

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-12-2024

Boring Completed
07-12-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-85

Location: See Exploration Plan

Latitude: 39.1260° Longitude: -104.8664°

Approximate Future Grade Elevation: 7345.0 (Ft.) +/-
Elevation: 7340.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Description	Elevation	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5	**TOPSOIL**, about 6 inches thick	7339.5									
2			**SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown, medium dense to dense					14-16		3.7	108	NP	37
		4.0		7336									
4			**SANDSTONE**, with gravel, fine to coarse grained, gray brown, medium hard, moderate to strong cementation		5			29-44					
		10.0		7330				39-50/6"		3.4	119		
			Boring Terminated at 10 Feet		10								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
KE

Boring Started
07-24-2024

Boring Completed
07-24-2024

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-86

Location: See Exploration Plan

Latitude: 39.1260° Longitude: -104.8659°

Approximate Future Grade Elevation: 7345.0 (Ft.) +/-
Depth (Ft.) Elevation: 7328.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7327.67								
2		**SILTY SAND (SM)**, fine to coarse grained, dark brown, loose to medium dense			4-6		8.7	108	NP	27
					11-12		9.8	116		
		10.0 7318			9-9					
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-87

Location: See Exploration Plan

Latitude: 39.1260° Longitude: -104.8655°

Approximate Future Grade Elevation: 7345.0 (Ft.) +/-
Depth (Ft.) Elevation: 7323.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7322.67								
1		**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, dark brown, loose			5-9		6.0	117		
		4.0 7319								
2		**CLAYEY SAND (SC)**, fine to coarse grained, brown, loose to medium dense			7-9	+0.1 @ 200 psf	12.1	109	27-15-12	27
		10.0 7313			11-11		11.3	115		
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-88

Location: See Exploration Plan

Latitude: 39.1258° Longitude: -104.8671°

Approximate Future Grade Elevation: 7360.5 (Ft.) +/-

Model Layer	Depth (Ft.)	Elevation: 7360.5 (Ft.) +/-	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1	0.3	**TOPSOIL**, about 4 inches thick										
	7360.17											
2		**SILTY SAND (SM)**, fine to coarse grained, brown to orangish brown, loose to medium dense					6-6		6.7	121	NP	29
							8-10		7.9	123		
				5								
							9-11					
	10.0			10								
	7350.5											
		Boring Terminated at 10 Feet										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-12-2024

Boring Completed
07-12-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-89

Location: See Exploration Plan

Latitude: 39.1258° Longitude: -104.8667°

Approximate Future Grade Elevation: 7350.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7350.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**TOPSOIL**, about 3 inches thick 7349.75									
2		4.0	**SILTY SAND (SM)**, fine to coarse grained, orangish brown, medium dense 7346				17-19		2.7	107	NP	30
4		10.0	**SANDSTONE**, fine to coarse grained, pale brown to orange, medium hard, strong cementation 7340	5			29-50/6"		3.6	125		
				10			39-50/5"					
			Boring Terminated at 10 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-12-2024

Boring Completed
07-12-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-90

Location: See Exploration Plan

Latitude: 39.1258° Longitude: -104.8661°

Approximate Future Grade Elevation: 7333.0 (Ft.) +/-
Depth (Ft.) Elevation: 7333.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 4 inches thick 7332.67								
2		**SILTY SAND (SM)**, fine to coarse grained, brown to orangish brown, medium dense			13-17		3.8	108	NP	34
					14-20		4.0	117		
		10.0 7323			15-17					
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-12-2024

Boring Completed
07-12-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-91

Location: See Exploration Plan

Latitude: 39.1258° Longitude: -104.8657°

Approximate Future Grade Elevation: 7325.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 7325.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5	**TOPSOIL**, about 5 inches thick 7324.5									
2			**SILTY SAND (SM)**, varies to clayey sand, fine to coarse grained, brown, loose to medium dense				7-5		5.0	111	NP	22
				5			13-17		7.2	119		
		10.0	7315				9-13					
			Boring Terminated at 10 Feet	10								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Logged by
DG

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Boring Started
07-11-2024

Boring Completed
07-11-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. B-92

Location: See Exploration Plan

Latitude: 39.1258° Longitude: -104.8653°

Approximate Future Grade Elevation: 7323.0 (Ft.) +/-
Depth (Ft.) Elevation: 7323.0 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3 **TOPSOIL**, about 3 inches thick 7322.75								
2		**SILTY SAND (SM)**, varies to clayey sand with gravel, fine to coarse grained, brown to dark brown, loose to medium dense			7-6		4.6	101	NP	36
					10-14		11.0	119		
		5								
		10.0 7313			9-10					
		10								
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
Groundwater not encountered

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 77.9%

Driller
Terracon

Logged by
DG

Boring Started
07-11-2024

Boring Completed
07-11-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings and silica sand upon completion

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. S-1

Location: See Exploration Plan

Latitude: 39.1269° Longitude: -104.8650°

Approximate Future Grade Elevation: 7335.0 (Ft.) +/-

Depth (Ft.) | Elevation: 7315.0 (Ft.) +/-

Model Layer	Depth (Ft.)	Material Description	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1	0.3 (7314.75)	**TOPSOIL**, about 3 inches thick								
2	8.0 (7307)	**SILTY SAND (SM)**, with gravel, fine to coarse grained, brown to orangish brown, loose to medium dense			10-10		4.3	99	NP	29
					9-11					
			▽		6-8		14.5	96		
					5-9		12.3	93		
4	19.0 (7296)	**SANDSTONE**, fine to coarse grained, orange, light gray, dark brown, pink, and white, medium hard to very hard, strong cementation			50/6"		11.9	113		
					15-28-50/6"		6.9			

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
▽ 10 feet while drilling

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Logged by
DG

Boring Started
07-15-2024

Boring Completed
07-15-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. S-1

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 39.1269° Longitude: -104.8650° Depth (Ft.) Elevation: 7315.0 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
4		**SANDSTONE**, fine to coarse grained, orange, light gray, dark brown, pink, and white, medium hard to very hard, strong cementation *(continued)*	30			50/4"		15.1			
			35			50/4"					
			40			50/2"		4.2			
			45			50/6"					
		50.0 7265	50			50/4"		8.2			
		Boring Terminated at 50 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation was obtained by interpolation from Kimley Horn Grading Plan, dated 7/8/2025.

Water Level Observations
▽ 10 feet while drilling

Drill Rig
Mobile B-57

Hammer Type
Automatic Hammer efficiency: 83.5%

Driller
Terracon

Notes

Advancement Method
4-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

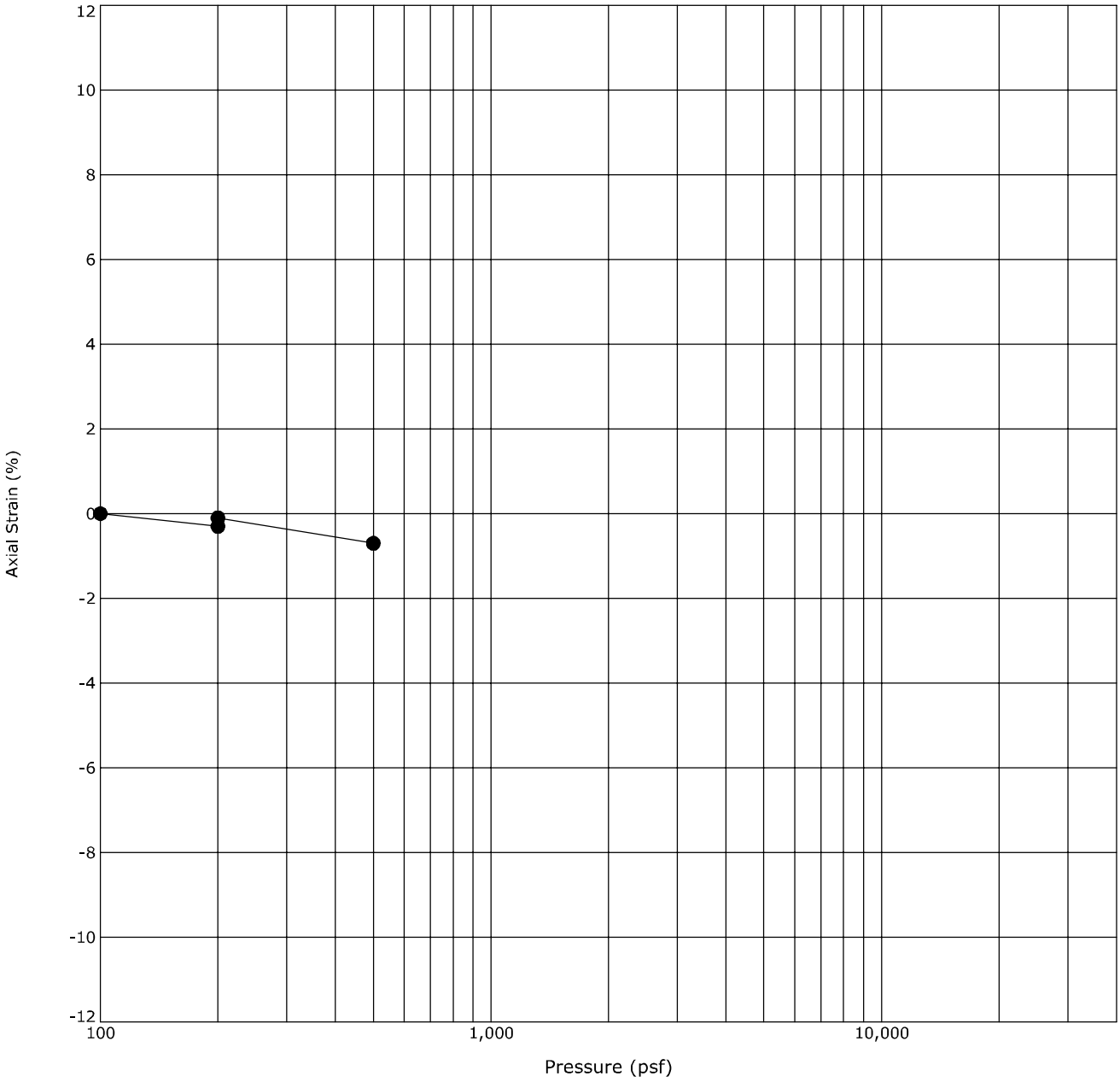
Logged by
DG

Boring Started
07-15-2024

Boring Completed
07-15-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

One-Dimensional Swell or Collapse

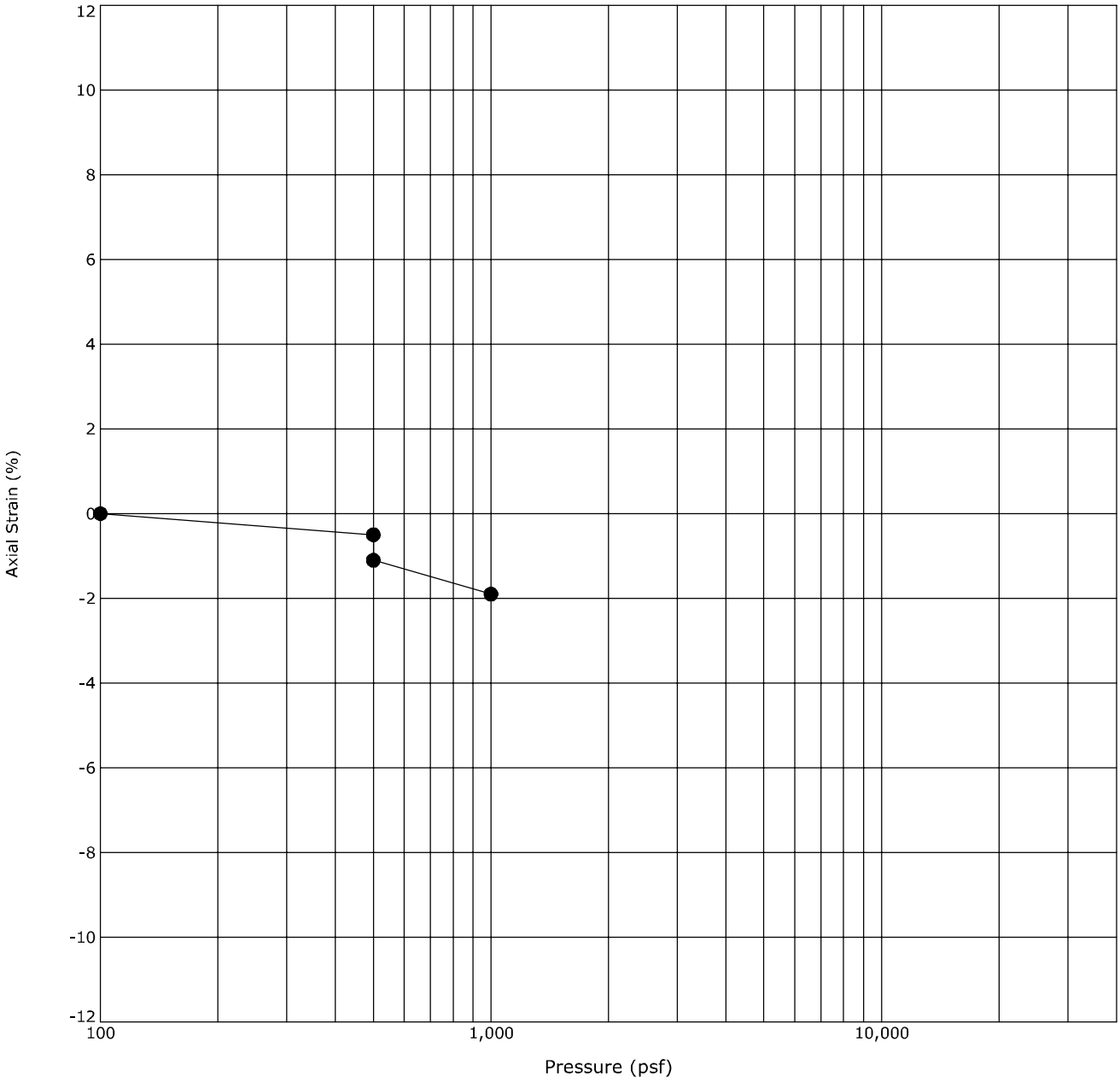


Boring ID	Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
● B-3	2 - 3	CLAYEY SAND	SC	113	13.2

Notes: Sample exhibited 0.2 percent expansion when wetted at an applied pressure of 200 psf.

Terracon
4172 Center Park Dr
Colorado Springs, CO

One-Dimensional Swell or Collapse

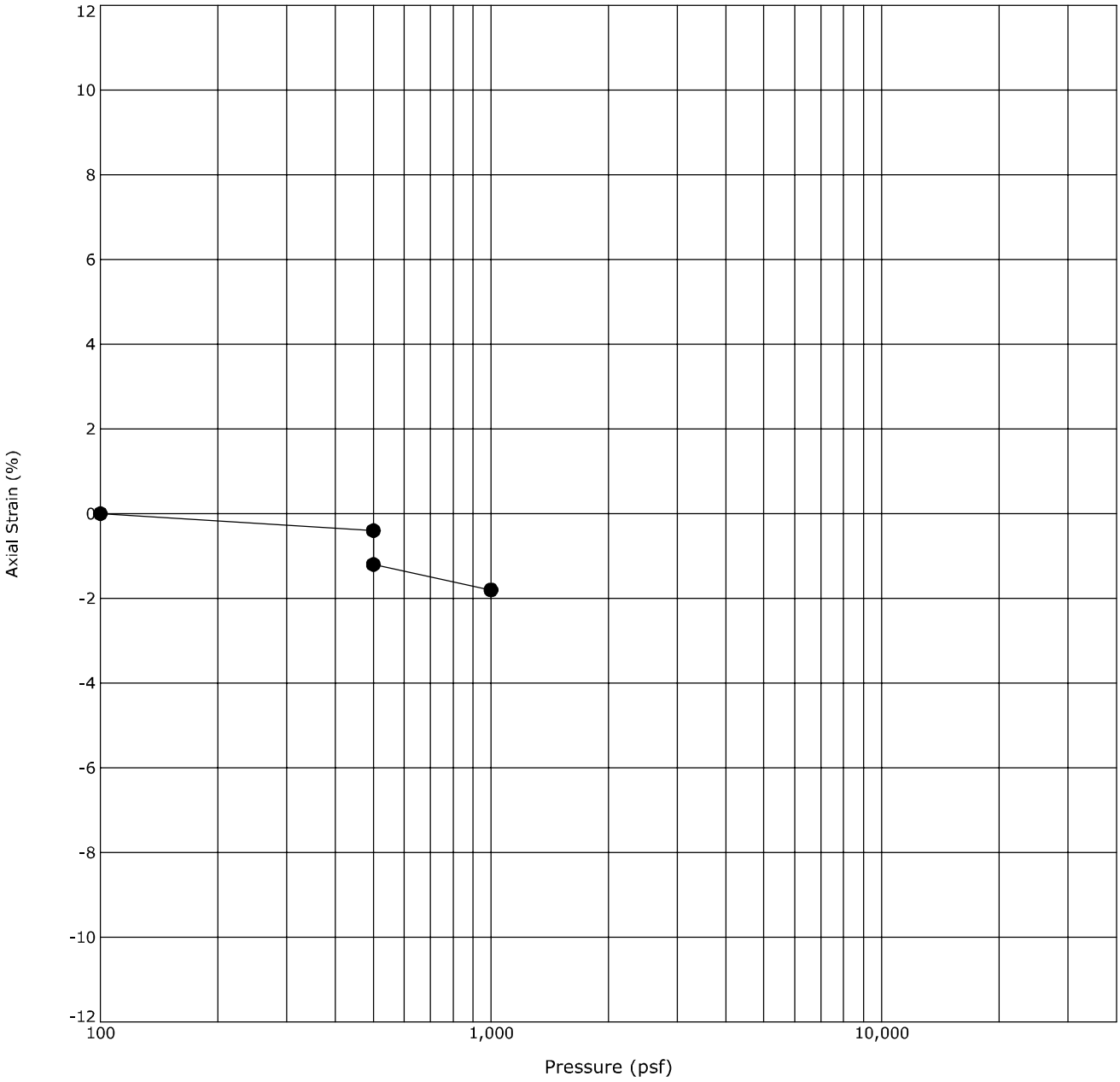


Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-5	4 - 5	CLAYEY SAND	SC	113	7.8

Notes: Sample exhibited 0.6 percent compression when wetted at an applied pressure of 500 psf.

Terracon
4172 Center Park Dr
Colorado Springs, CO

One-Dimensional Swell or Collapse

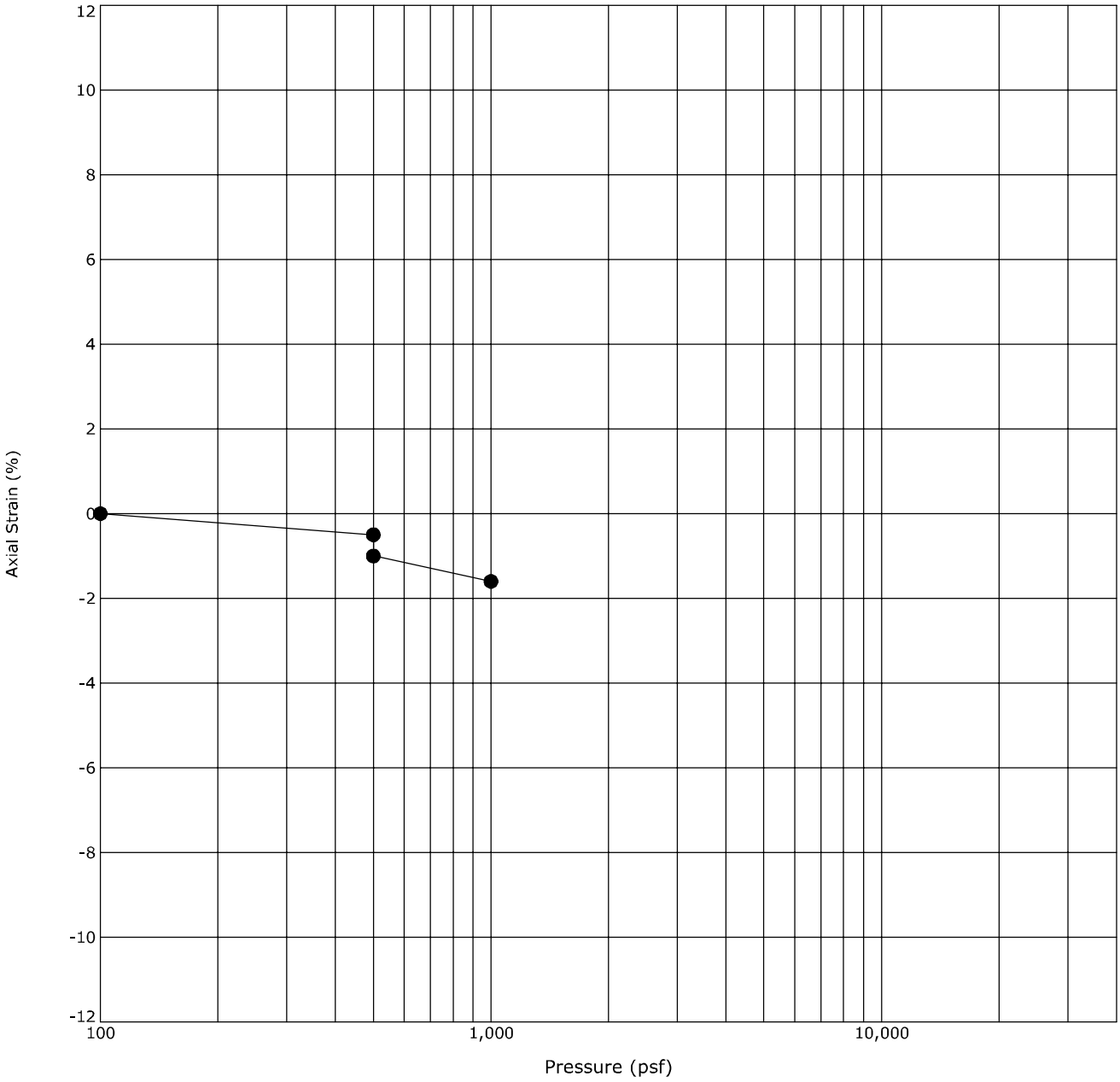


Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-8	4 - 5	SILTY SAND	SM	117	7.5

Notes: Sample exhibited 0.8 percent compression when wetted at an applied pressure of 500 psf.

Terracon
4172 Center Park Dr
Colorado Springs, CO

One-Dimensional Swell or Collapse

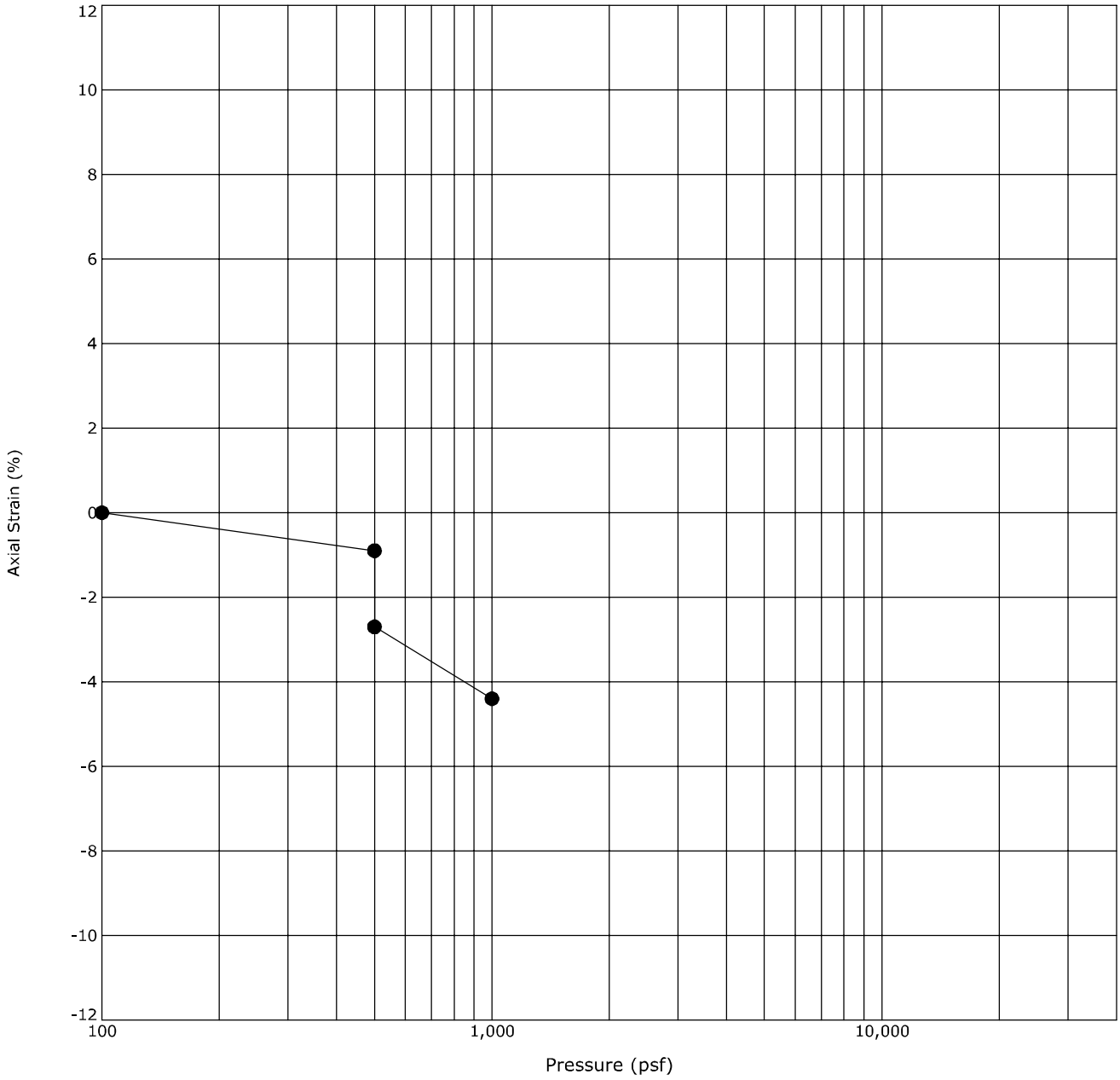


Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-10	9 - 10	SANDY LEAN CLAY	CL	111	13.6

Notes: Sample exhibited 0.5 percent compression when wetted at an applied pressure of 500 psf.

Terracon
4172 Center Park Dr
Colorado Springs, CO

One-Dimensional Swell or Collapse

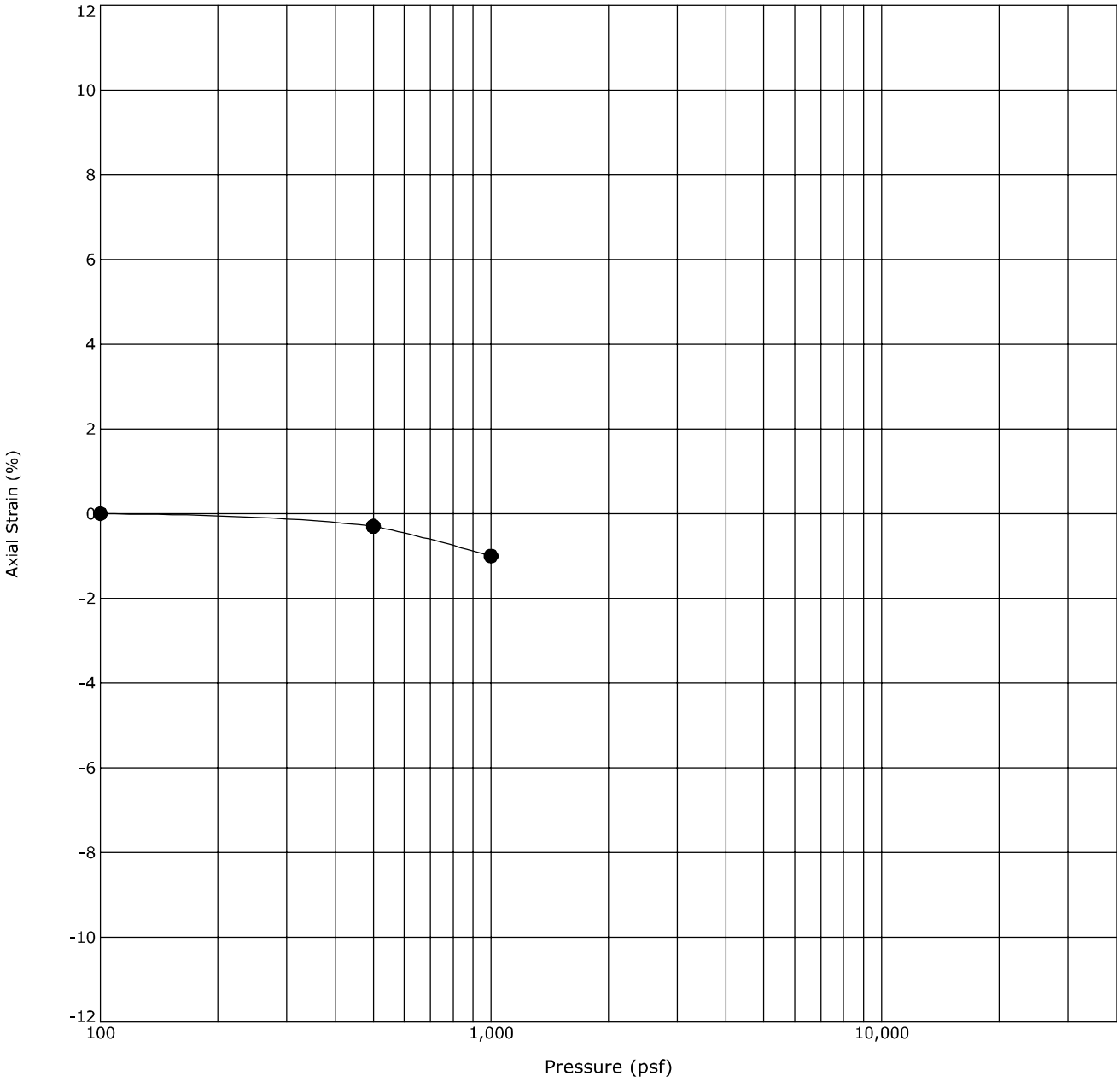


Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-13	9 - 10	SANDY LEAN CLAY	CL	111	11.7

Notes: Sample exhibited 1.8 percent compression when wetted at an applied pressure of 500 psf.

Terracon
4172 Center Park Dr
Colorado Springs, CO

One-Dimensional Swell or Collapse

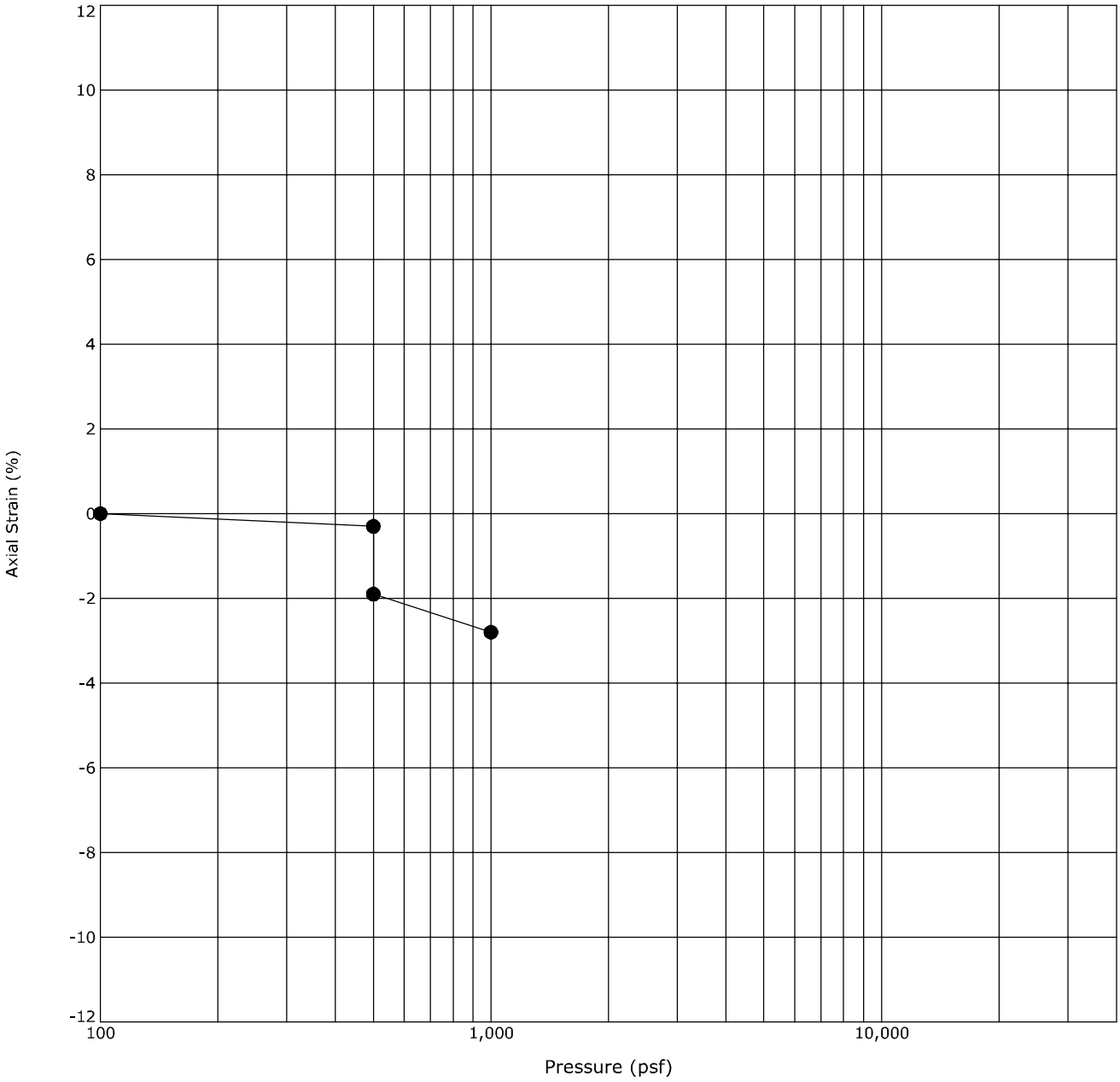


Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-15	4 - 5	SANDY LEAN CLAY	CL	109	15.2

Notes: Sample exhibited 0.0 percent compression when wetted at an applied pressure of 500 psf.

Terracon
4172 Center Park Dr
Colorado Springs, CO

One-Dimensional Swell or Collapse

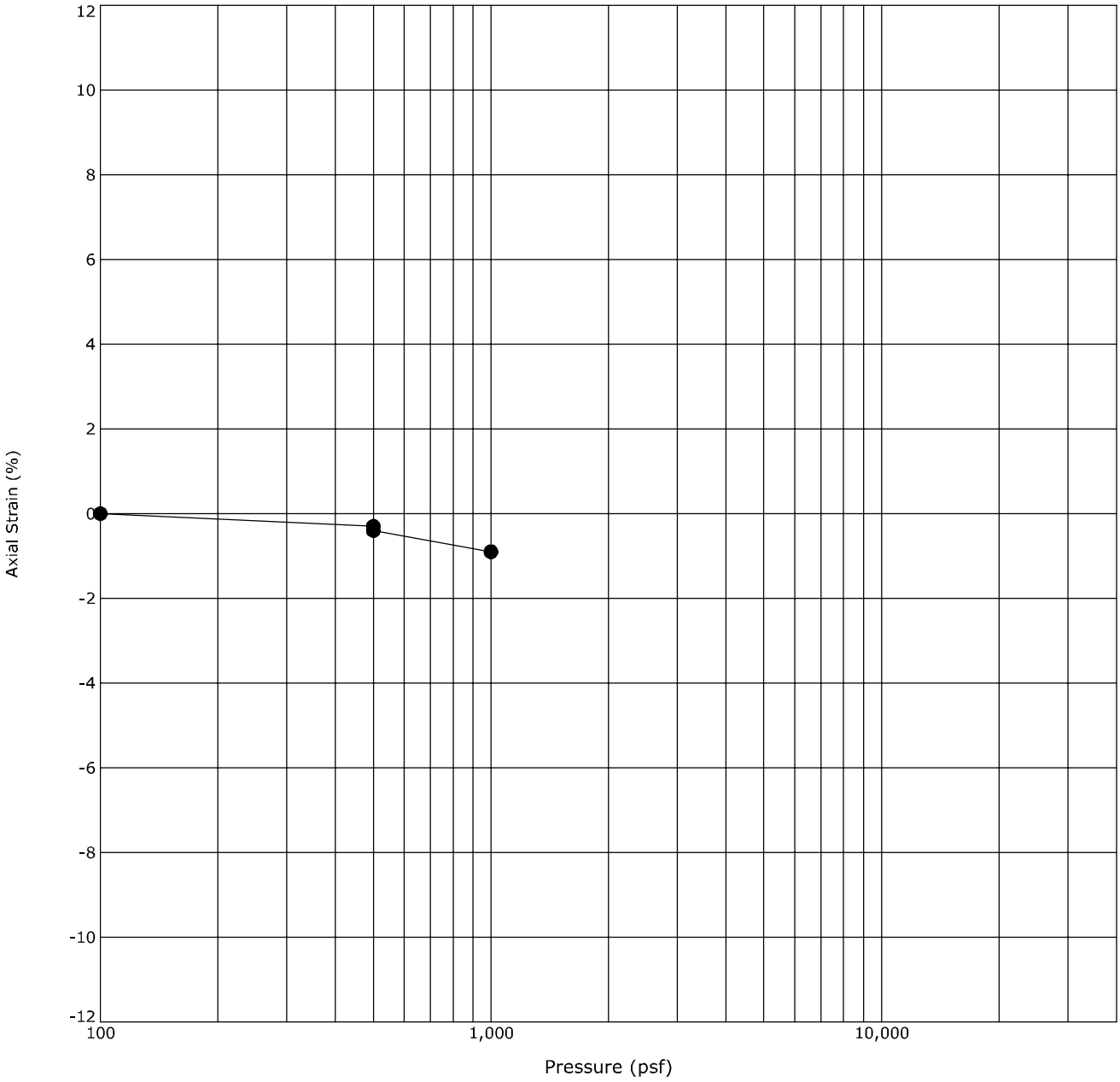


Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-19	4 - 5	SILTY SAND	SM	110	4.9

Notes: Sample exhibited 1.6 percent compression when wetted at an applied pressure of 500 psf.

Terracon
4172 Center Park Dr
Colorado Springs, CO

One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-31	9 - 10	CLAYEY SAND	SC	109	16.7

Notes: Sample exhibited 0.1 percent compression when wetted at an applied pressure of 500 psf.

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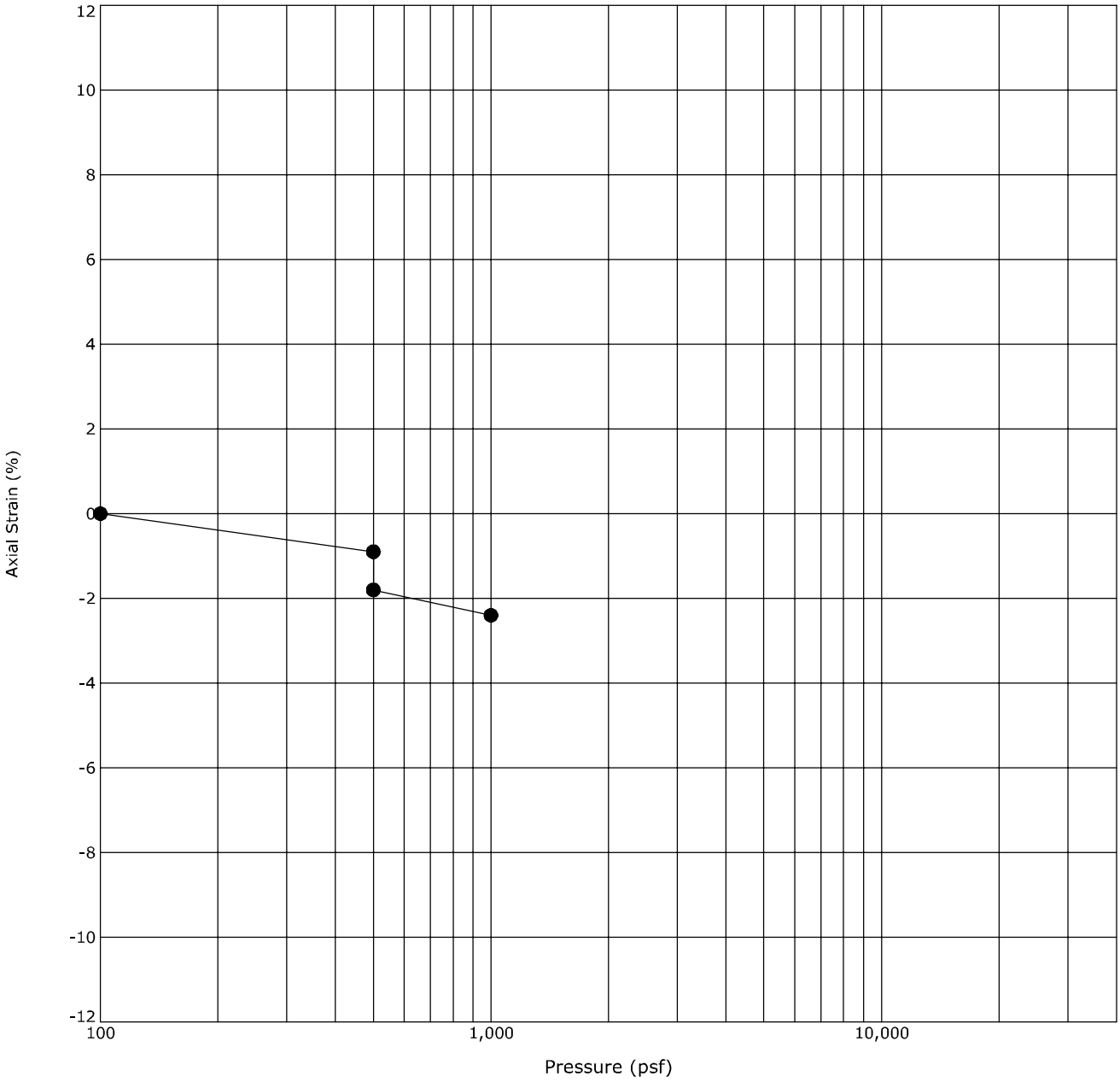
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-32	4 - 5	CLAYEY SAND	SC	105	16.7

Notes: Sample exhibited 0.9 percent compression when wetted at an applied pressure of 200 psf.

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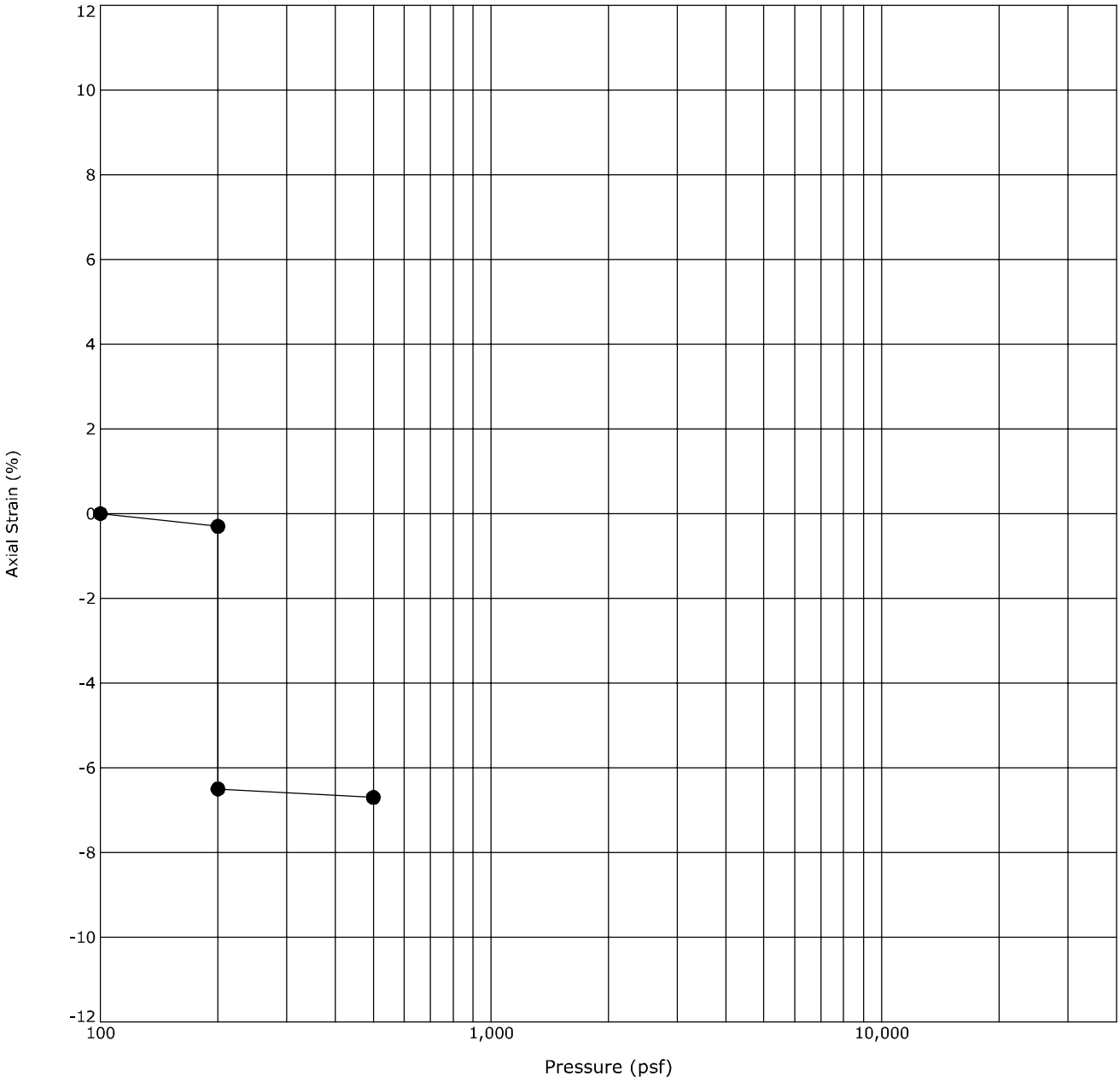
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-36	2 - 3	SILTY SAND	SM	100	9.3

Notes: Sample exhibited 6.2 percent compression when wetted at an applied pressure of 200 psf. (Sample disturbed)

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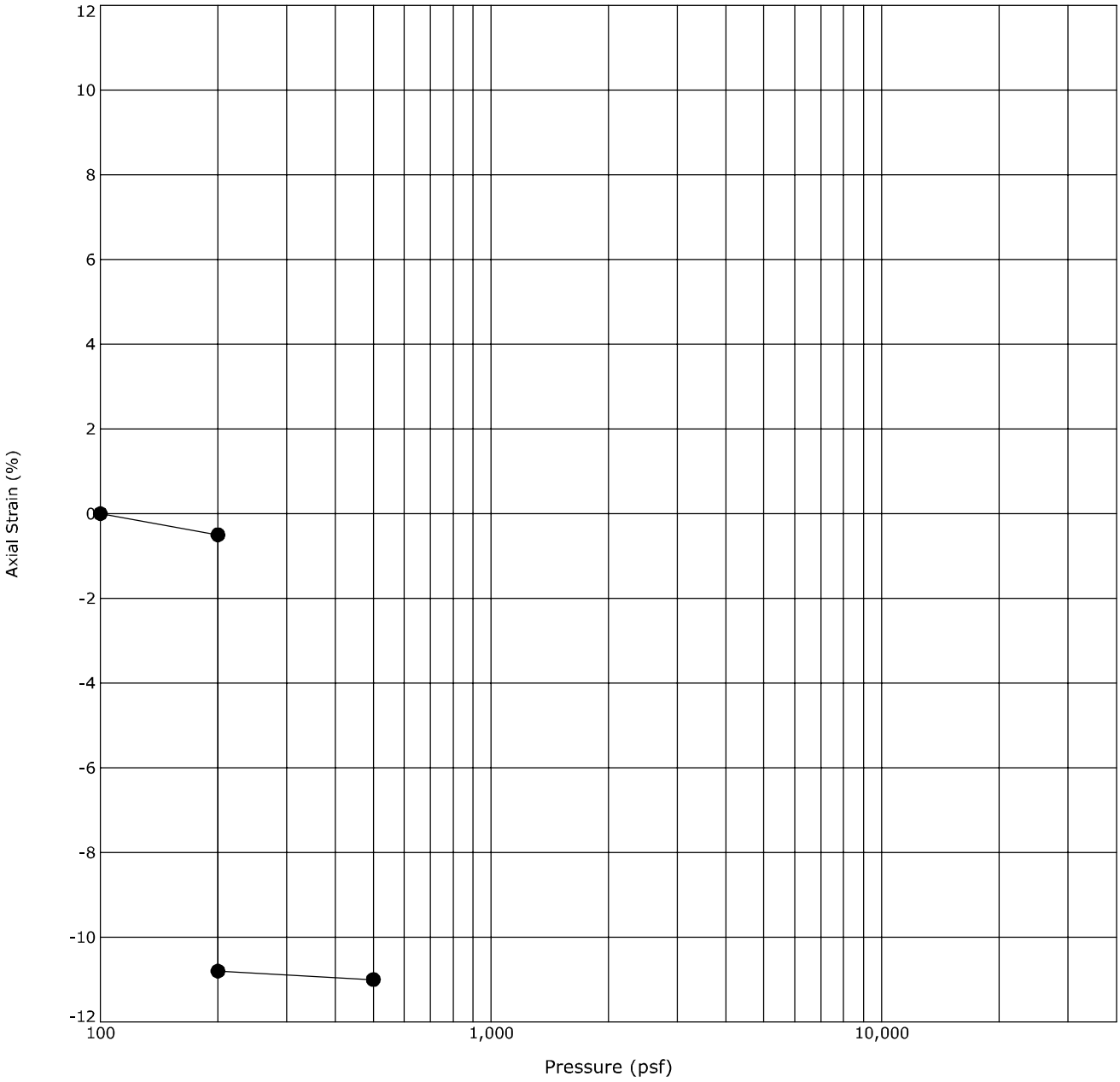
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-37	2 - 3	SILTY SAND	SM	96	8.6

Notes: Sample exhibited 10.3 percent compression when wetted at an applied pressure of 200 psf. (Sample disturbed)

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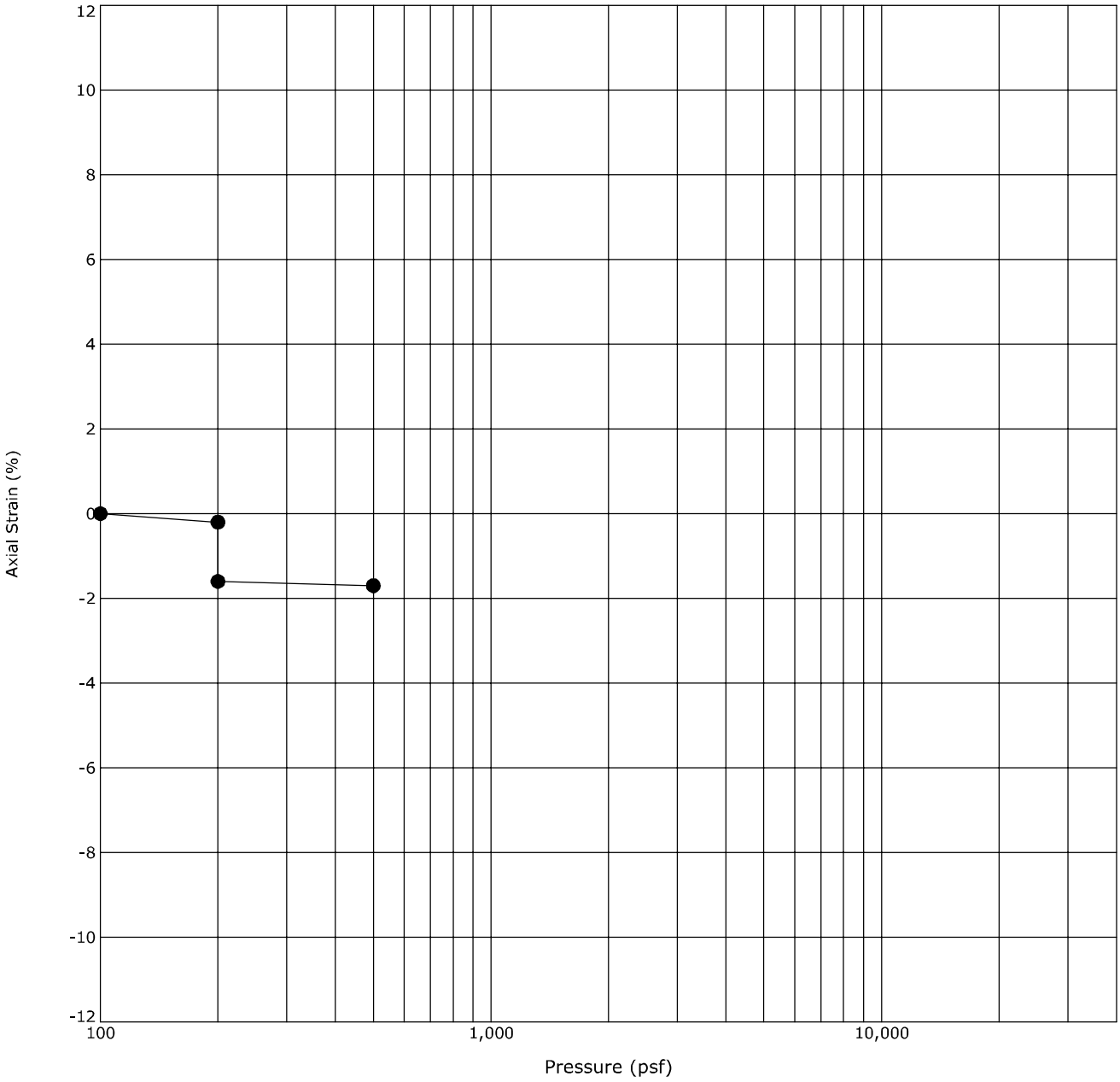
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-39	2 - 3	SILTY SAND	SM	102	7.6

Notes: Sample exhibited 1.4 percent compression when wetted at an applied pressure of 200 psf.

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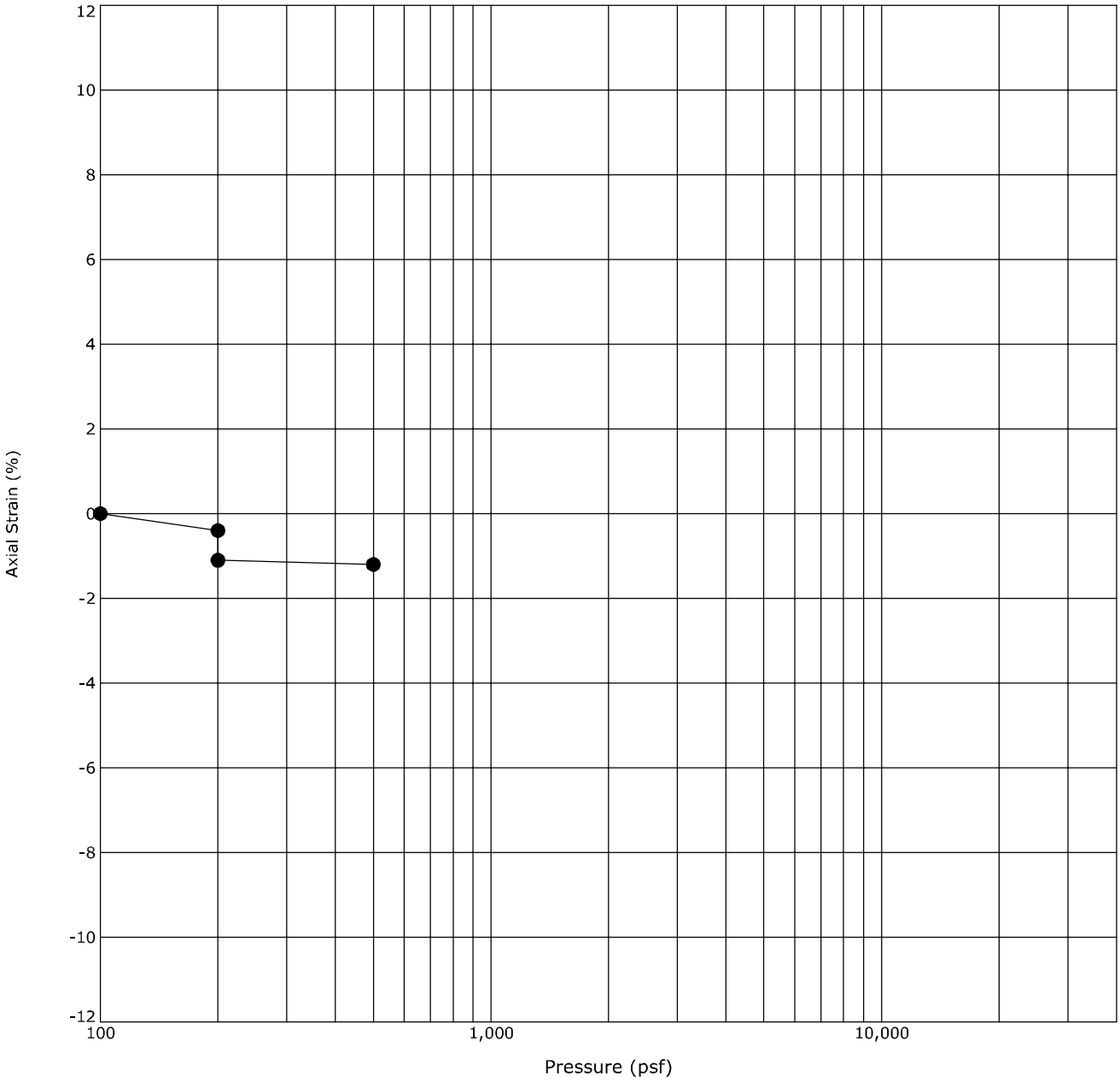
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-40	4 - 5	SILTY SAND	SM	116	12.0

Notes: Sample exhibited 0.7 percent compression when wetted at an applied pressure of 200 psf.

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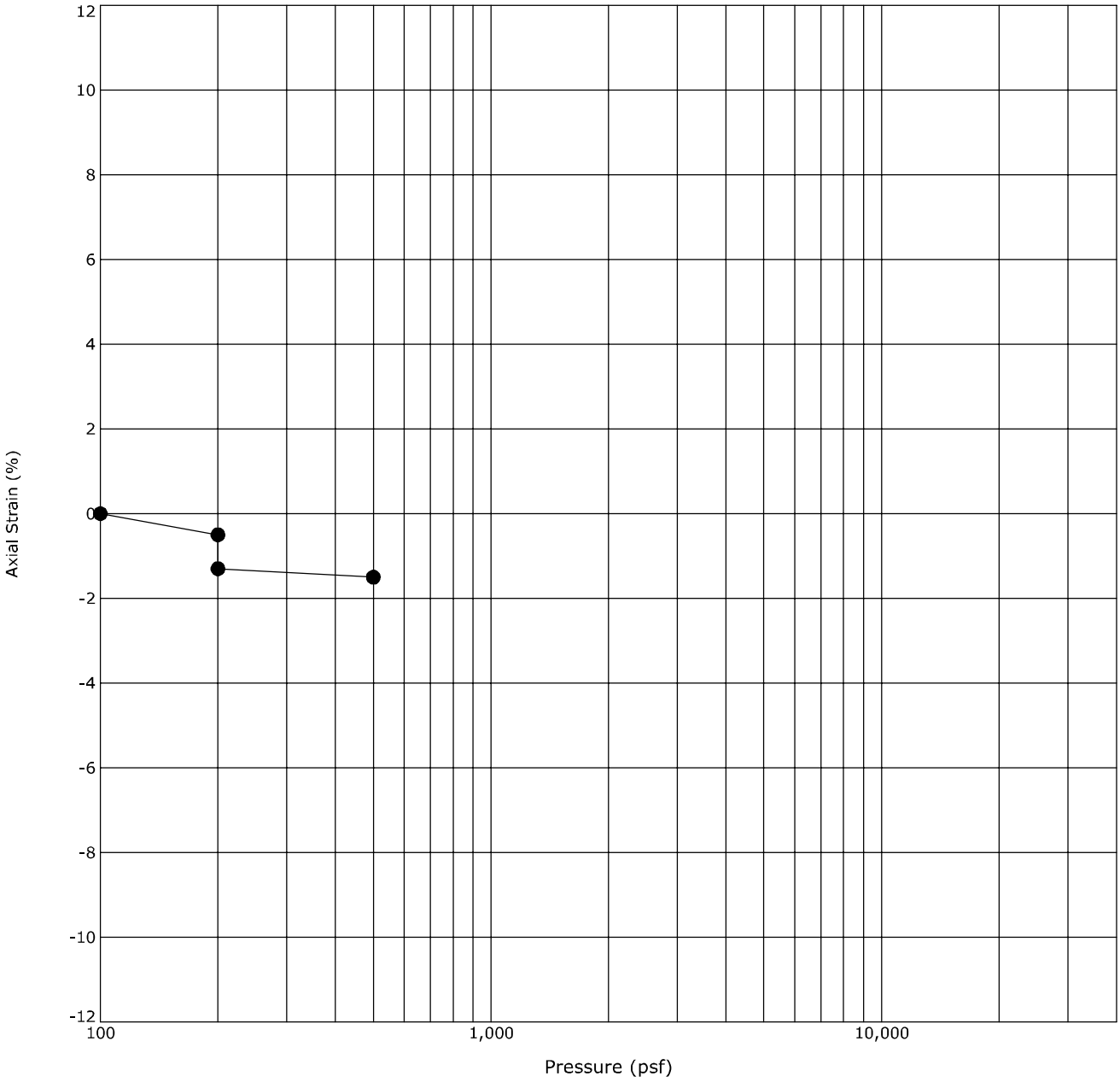
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-43	2 - 3	CLAYEY SAND	SC	108	13.0

Notes: Sample exhibited 0.8 percent compression when wetted at an applied pressure of 200 psf.

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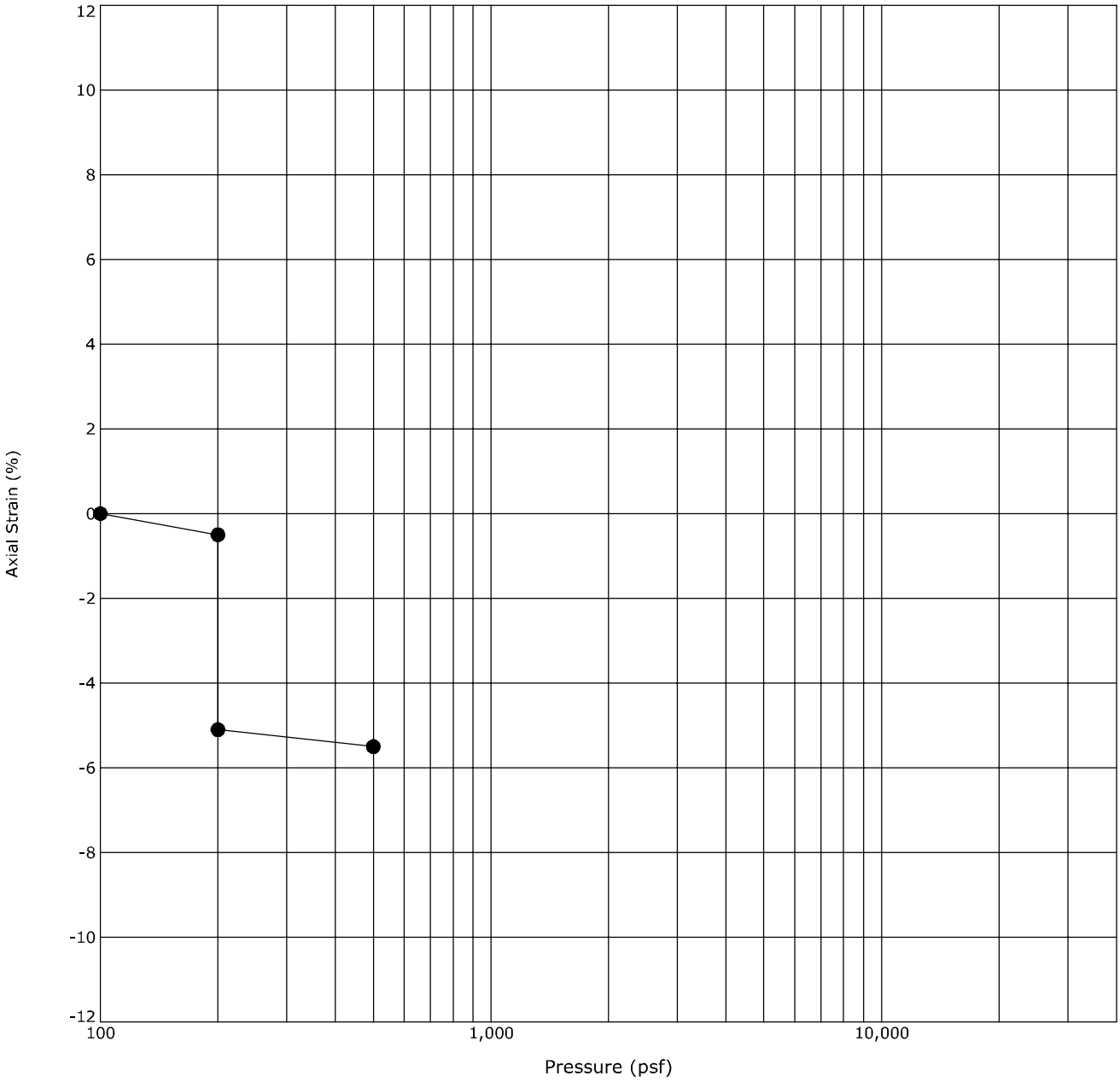
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-44	2 - 3	SILTY SAND	SM	103	5.5

Notes: Sample exhibited 4.6 percent compression when wetted at an applied pressure of 200 psf. (Sample disturbed)

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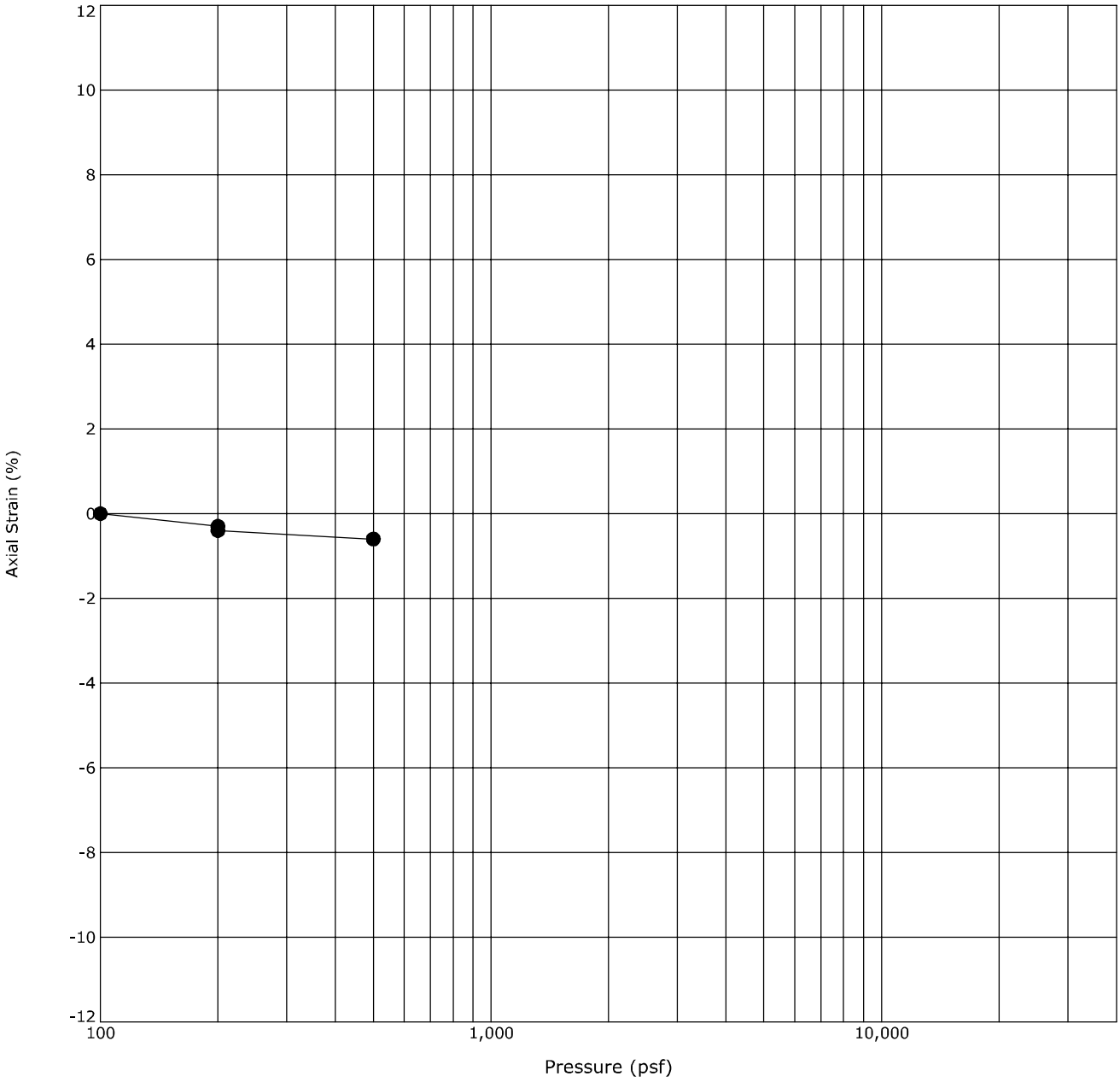
One-Dimensional Swell or Collapse



Boring ID	Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
● B-53	4 - 5	SANDY LEAN CLAY	CL	108	13.8

Notes: Sample exhibited 0.1 percent compression when wetted at an applied pressure of 200 psf.

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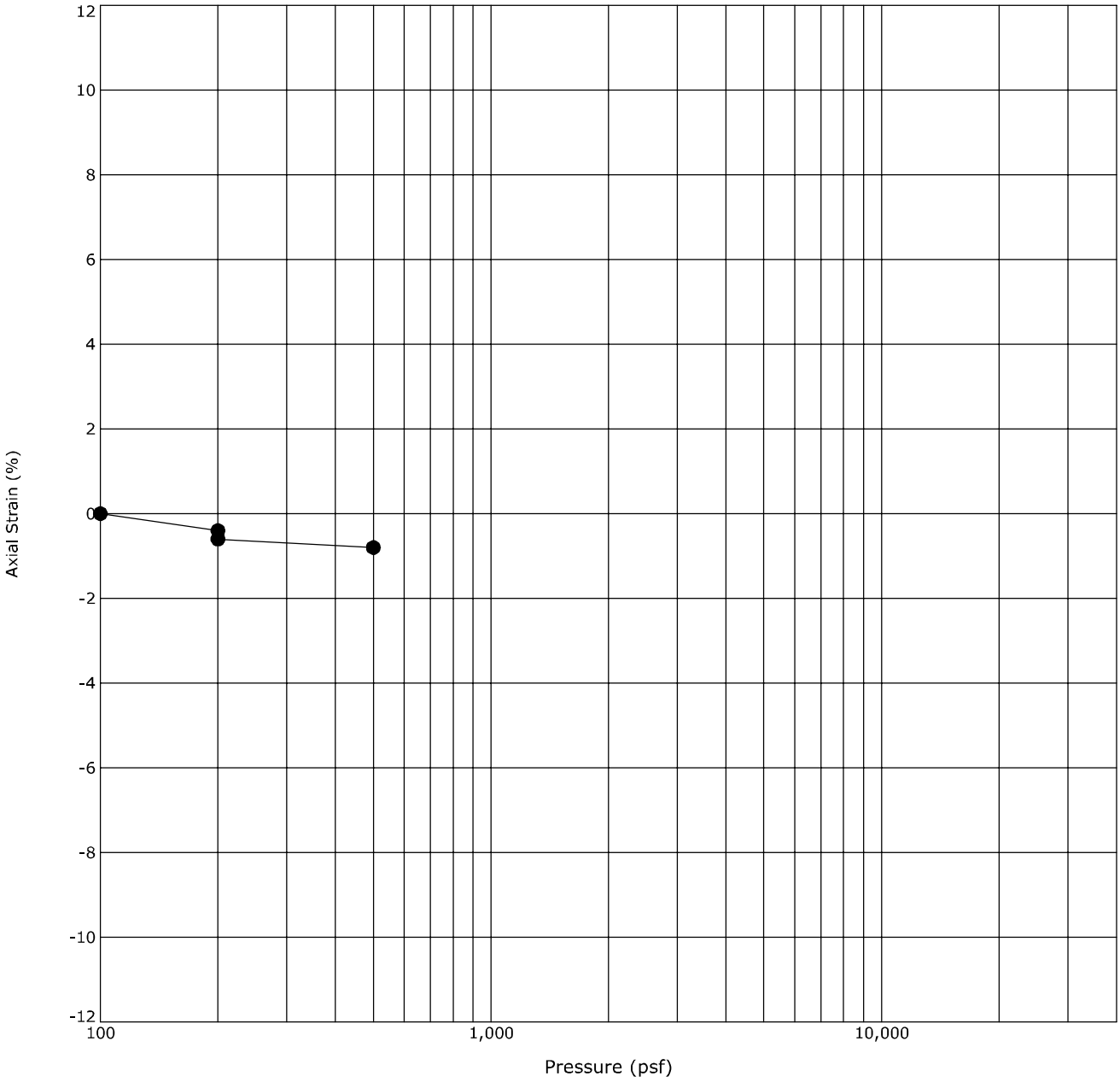
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-58	2 - 3	CLAYEY SAND	SC	114	11.4

Notes: Sample exhibited 0.2 percent compression when wetted at an applied pressure of 200 psf.

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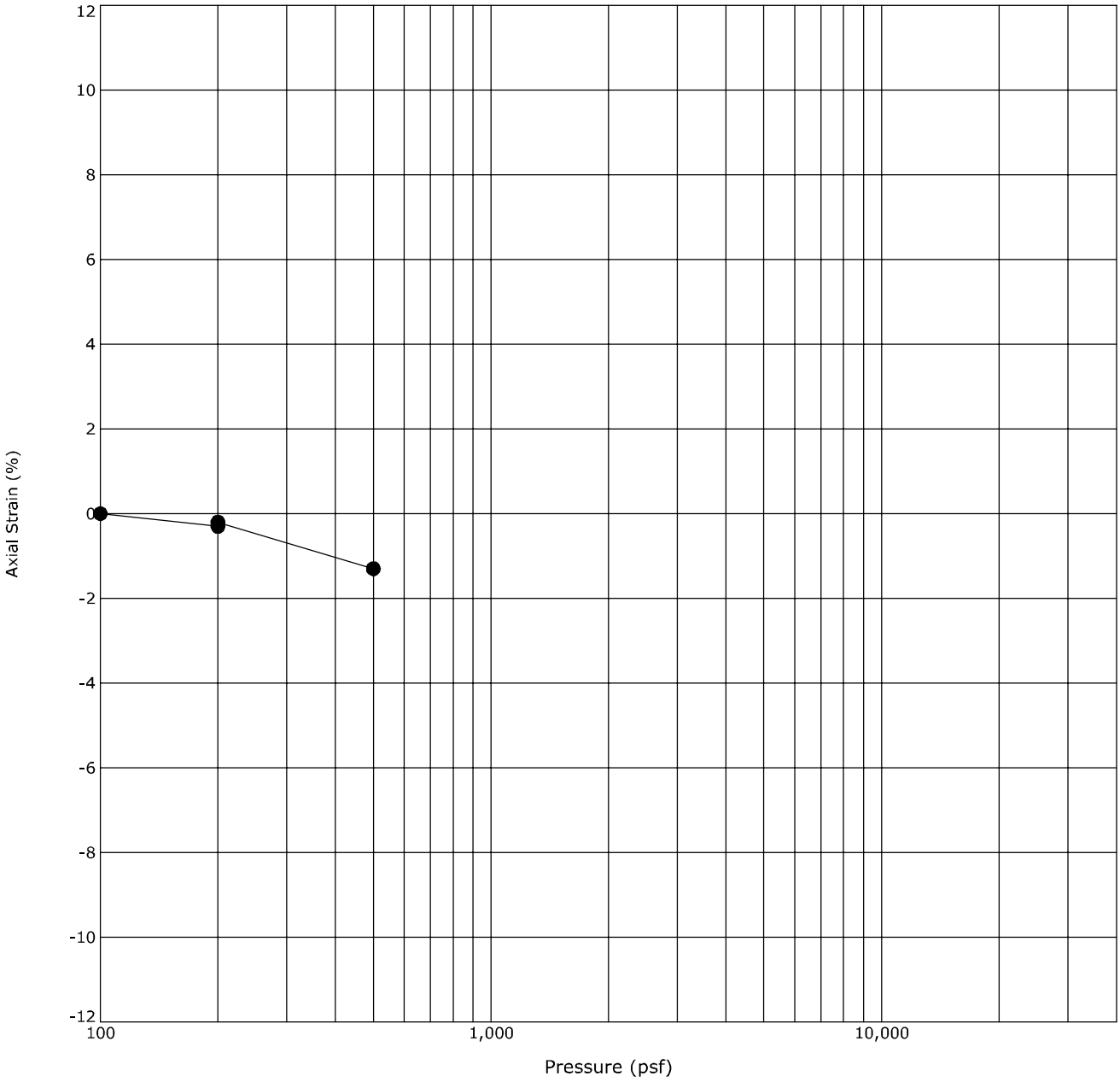
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-59	2 - 3	CLAYEY SAND	SC	113	13.6

Notes: Sample exhibited 0.1 percent expansion when wetted at an applied pressure of 200 psf.

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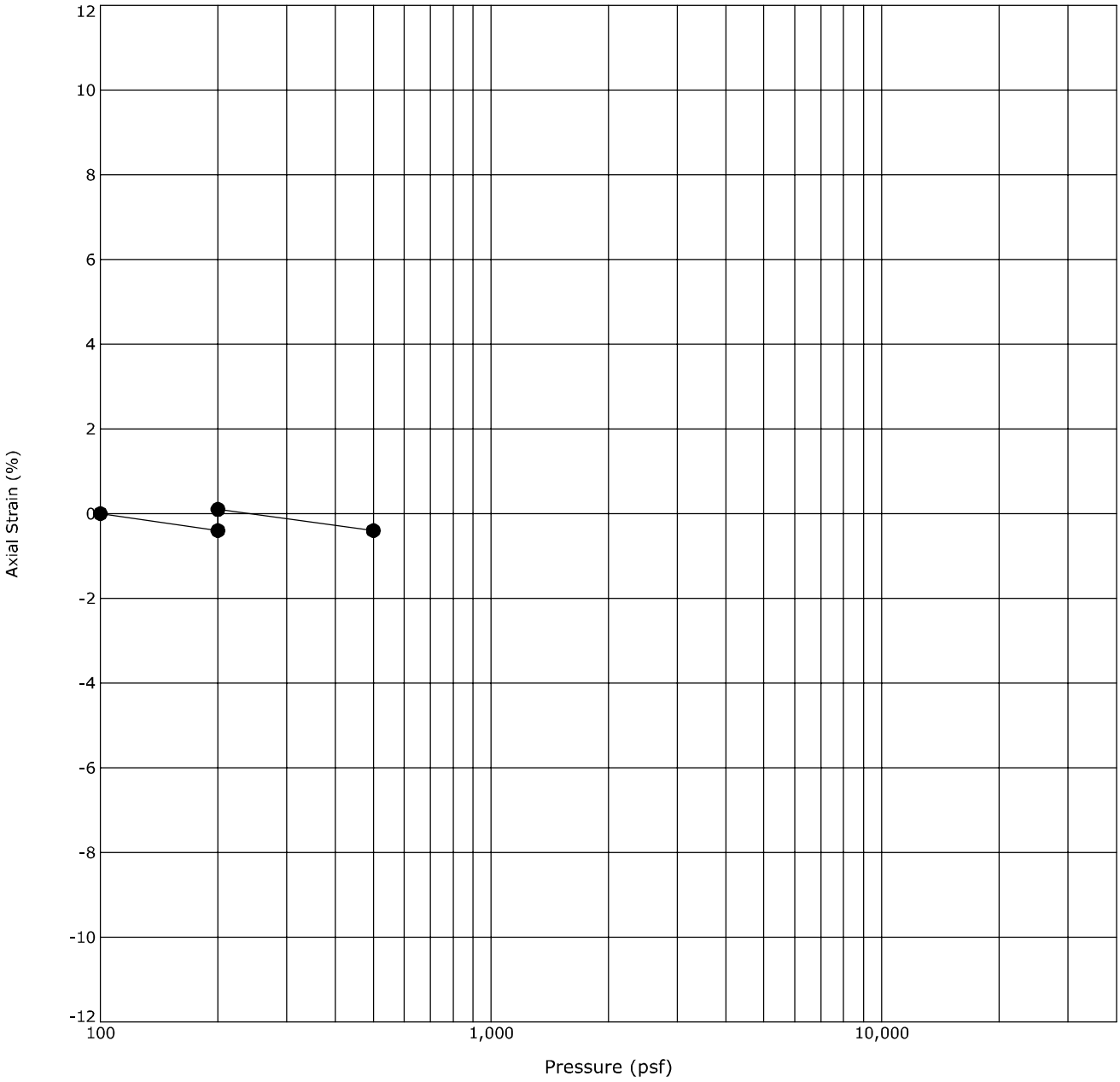
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-61	4 - 5	SANDY LEAN CLAY	CL	108	15.8

Notes: Sample exhibited 0.5 percent expansion when wetted at an applied pressure of 200 psf.

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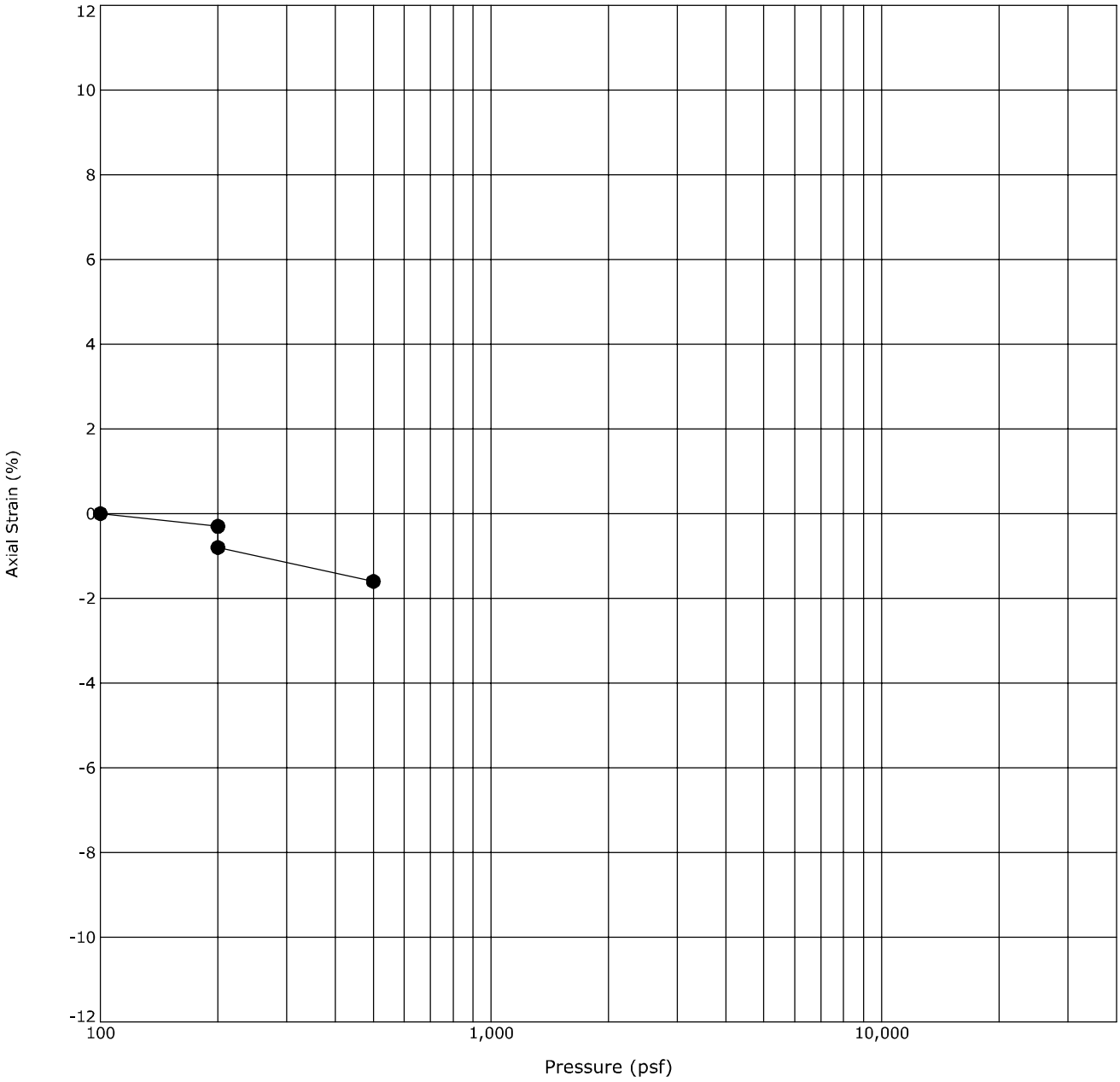
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-68	2 - 3	CLAYEY SAND	SC	105	14.4

Notes: Sample exhibited 0.5 percent compression when wetted at an applied pressure of 200 psf.

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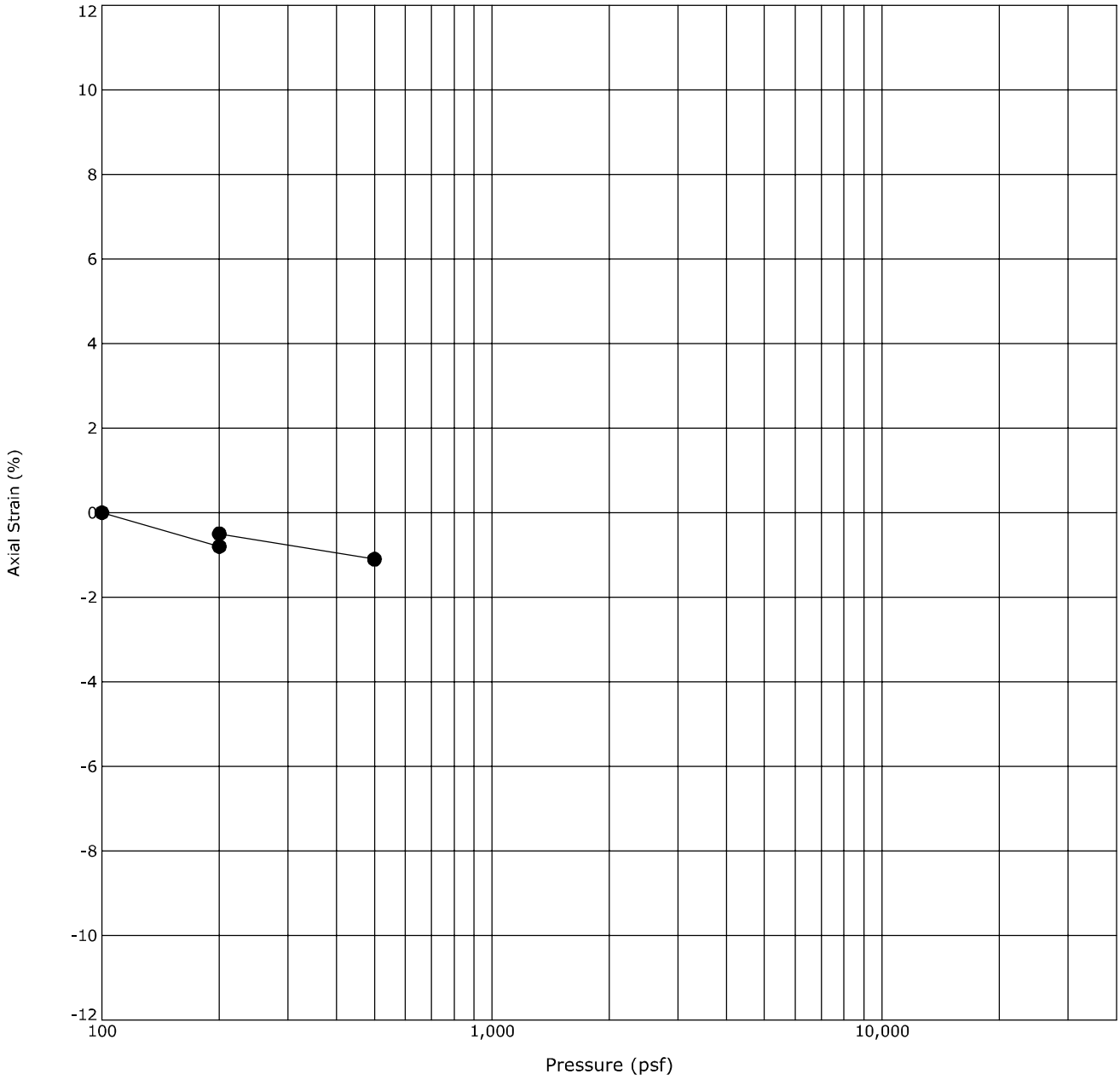
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-70	4 - 5	SANDY LEAN CLAY	CL	115	8.7

Notes: Sample exhibited 0.3 percent expansion when wetted at an applied pressure of 200 psf.

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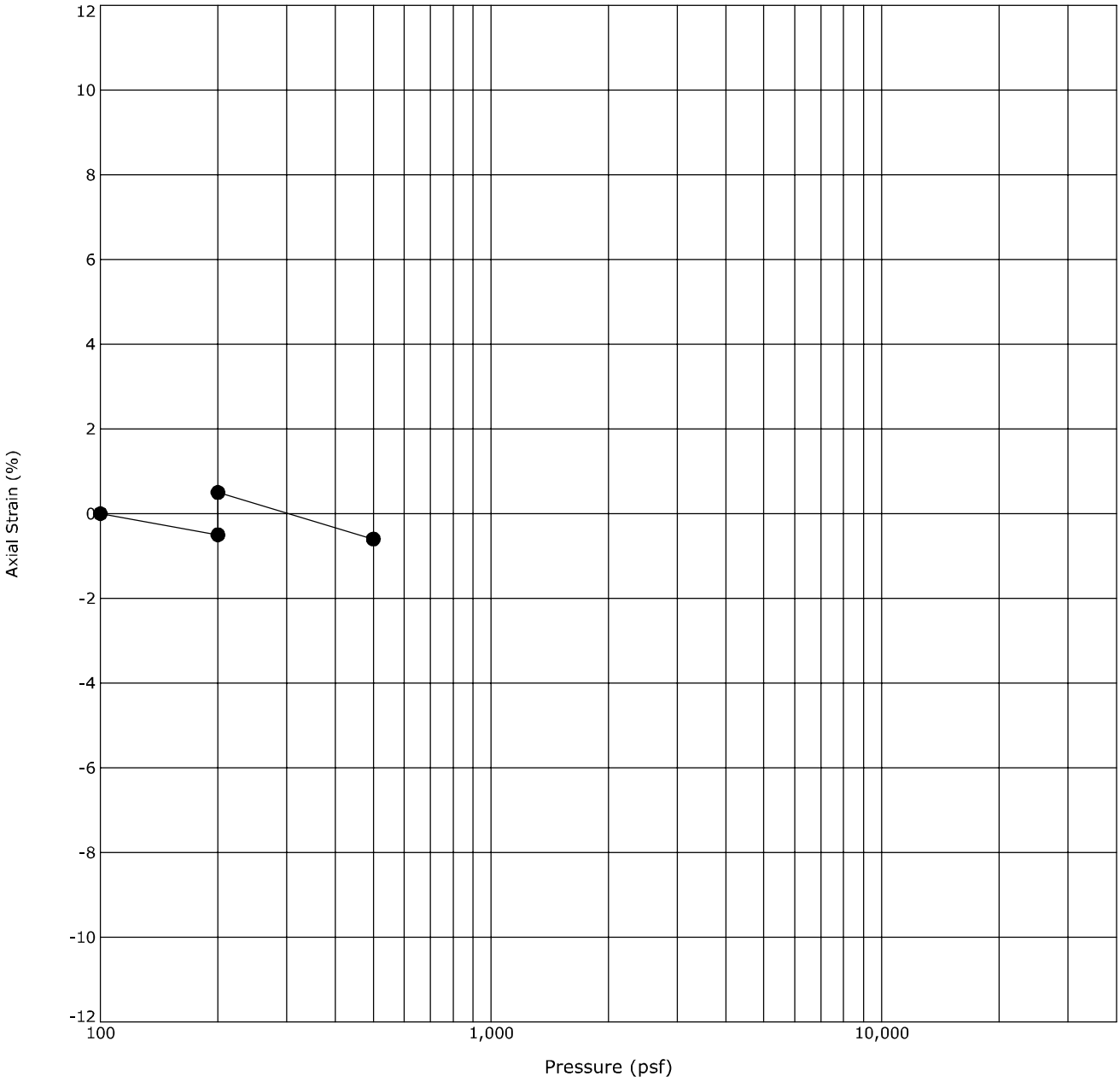
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-75	2 - 3	CLAYEY SAND	SC	107	6.6

Notes: Sample exhibited 1.0 percent expansion when wetted at an applied pressure of 200 psf.

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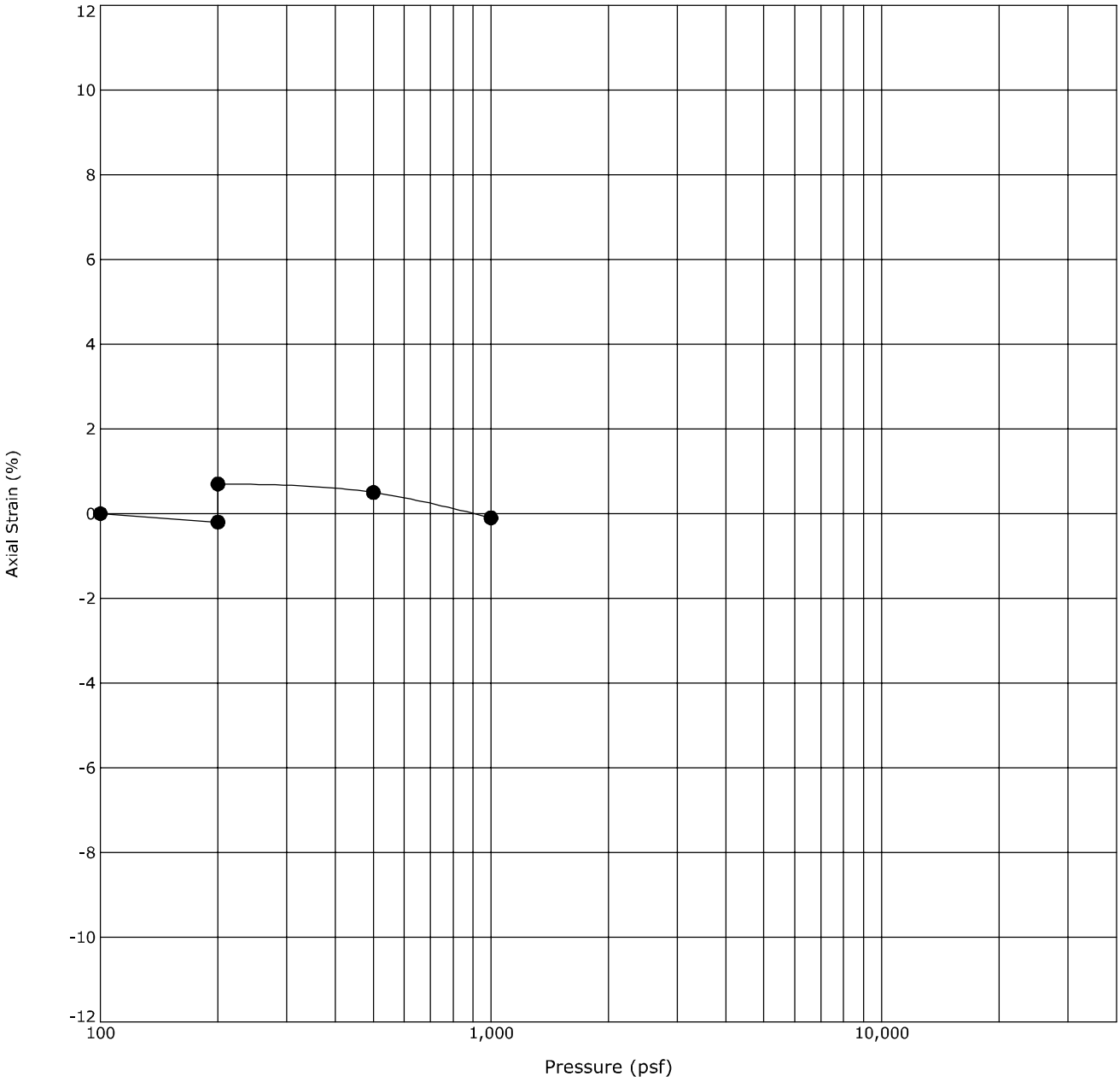
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-76	2 - 3	CLAYEY SAND	SC	121	7.2

Notes: Sample exhibited 0.9 percent expansion when wetted at an applied pressure of 200 psf.

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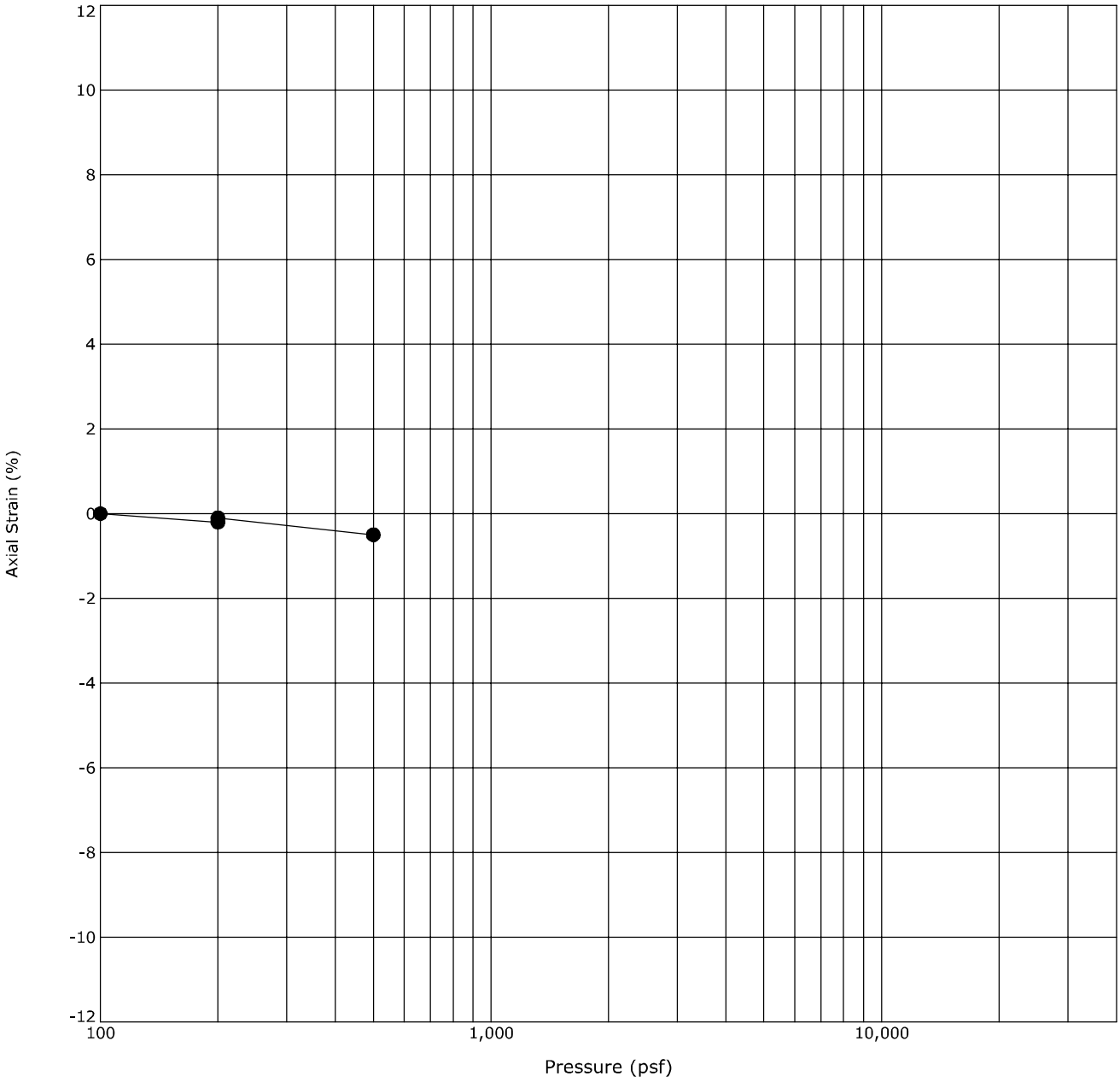
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	B-87	4 - 5	CLAYEY SAND	SC	109	12.1

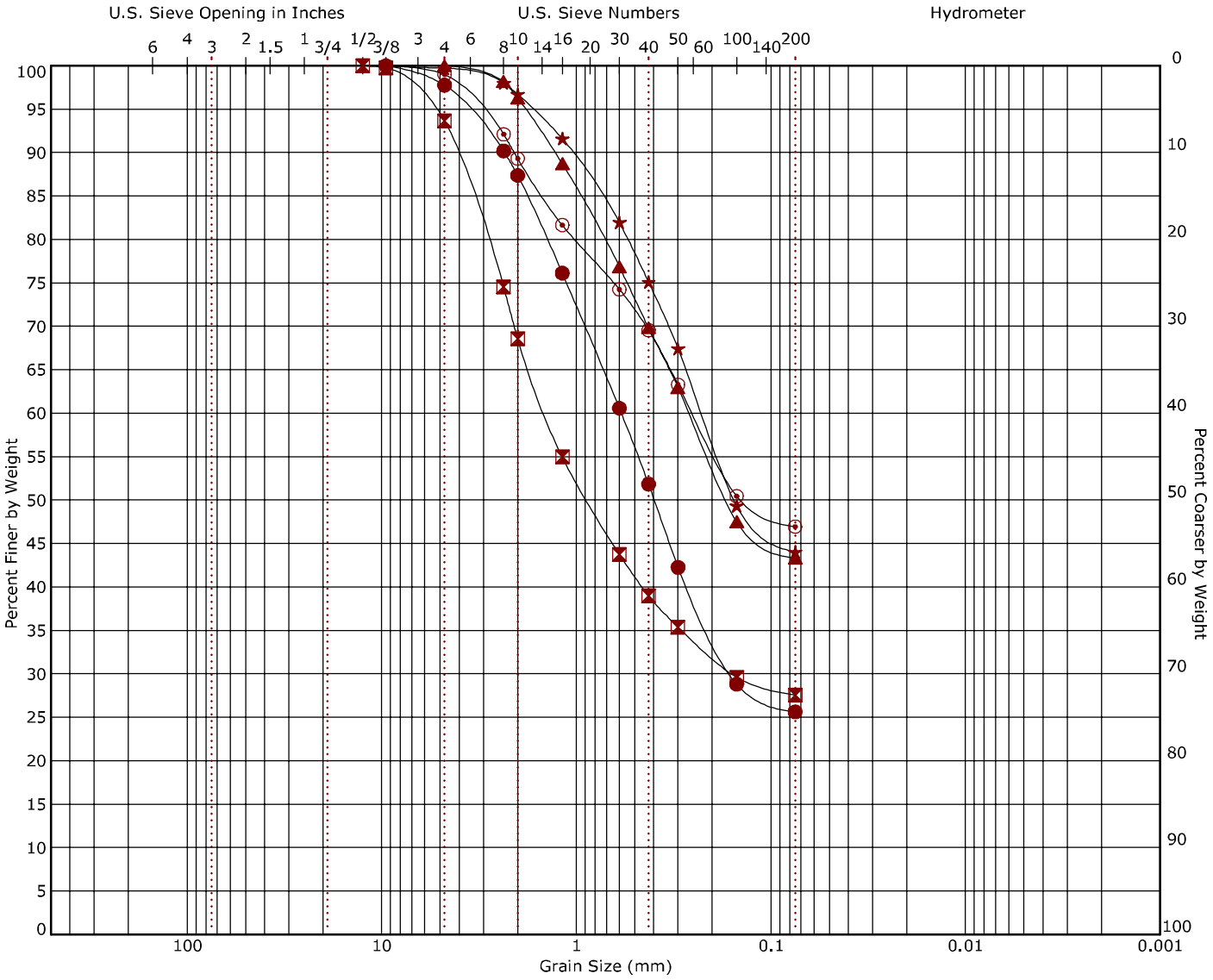
Notes: Sample exhibited 0.1 percent expansion when wetted at an applied pressure of 200 psf.

Buc-ee's Monument
Interstate 25 and Palmer Divide Avenue | Monument, Colorado
Terracon Project No. 23245069

Terracon
4172 Center Park Dr
Colorado Springs, CO

Grain Size Distribution

ASTM D422 / ASTM C136



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-1	14 - 15.5	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊠	B-2	19 - 20	CLAYEY SAND	SC	A-2-6 (1)	38	22	16		
▲	B-3	2 - 3	CLAYEY SAND	SC	A-6 (5)	38	14	24		
★	B-4	9 - 10	CLAYEY SAND	SC	A-6 (2)	29	16	13		
⊙	B-5	1 - 4	CLAYEY SAND	SC	A-6 (3)	29	16	13		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-1	14 - 15.5	9.5	0.587	0.159		0.0	2.2	72.1	25.6		
⊠	B-2	19 - 20	12.5	1.435	0.157		0.0	6.4	66.1	27.5		
▲	B-3	2 - 3	4.75	0.263			0.0	0.0	56.7	43.3		
★	B-4	9 - 10	9.5	0.226			0.0	0.3	55.7	44.0		
⊙	B-5	1 - 4	9.5	0.251			0.0	1.0	52.0	46.9		

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Terracon
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Grain Size Distribution

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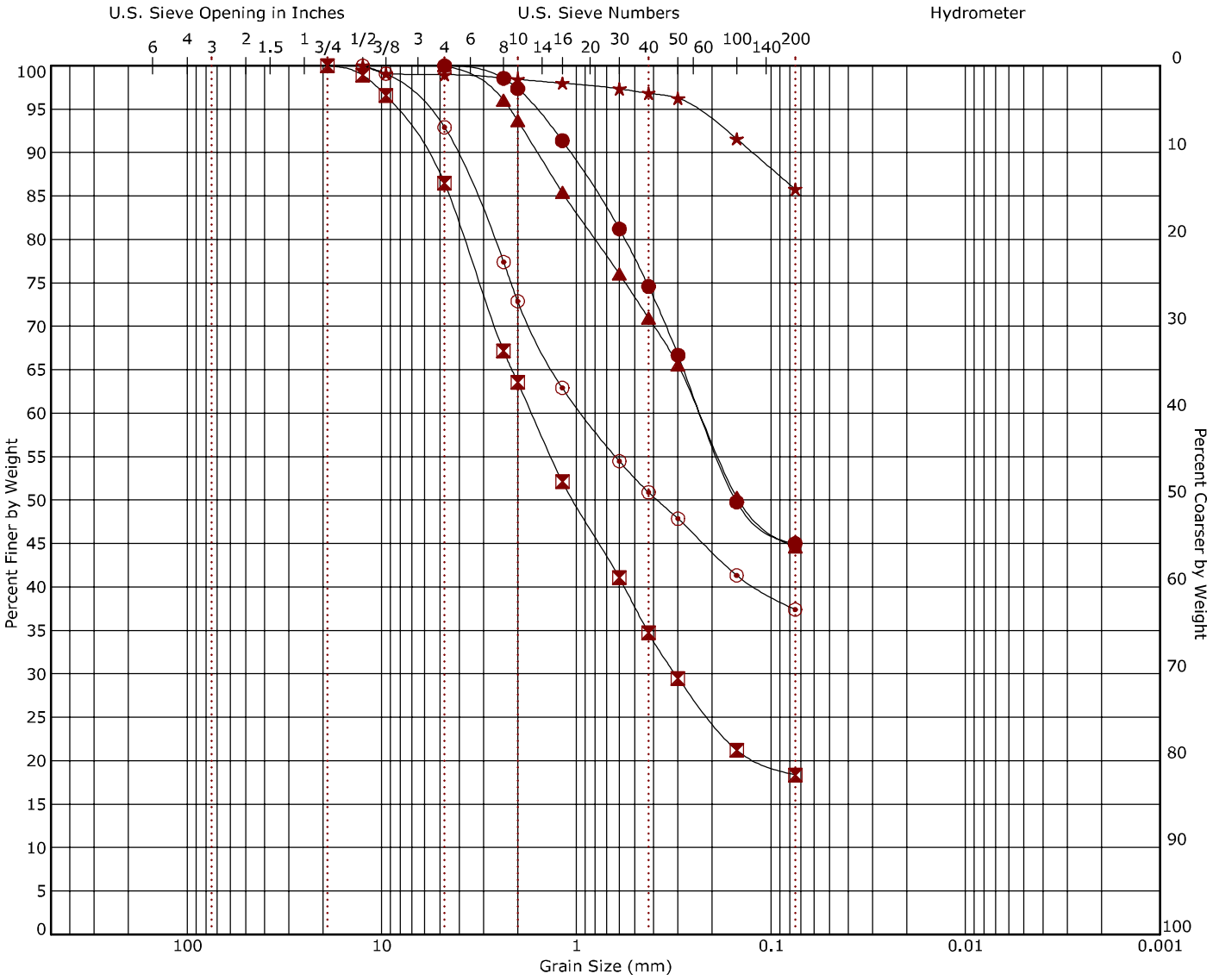

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-6	9 - 10	CLAYEY SAND	SC	A-6 (2)	27	15	12		
⊠	B-7	19 - 20	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
▲	B-8	4 - 5	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
★	B-9	19 - 20	LEAN CLAY	CL	A-6 (13)	38	24	14		
⊙	B-10	14 - 15	CLAYEY SAND	SC	A-7-6 (3)	45	22	23		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-6	9 - 10	4.75	0.228			0.0	0.0	55.0	45.0		
⊠	B-7	19 - 20	19	1.697	0.31		0.0	13.5	68.1	18.4		
▲	B-8	4 - 5	4.75	0.233			0.0	0.0	55.4	44.6		
★	B-9	19 - 20	12.5				0.0	1.0	13.2	85.8		
⊙	B-10	14 - 15	12.5	0.934			0.0	7.1	55.5	37.4		

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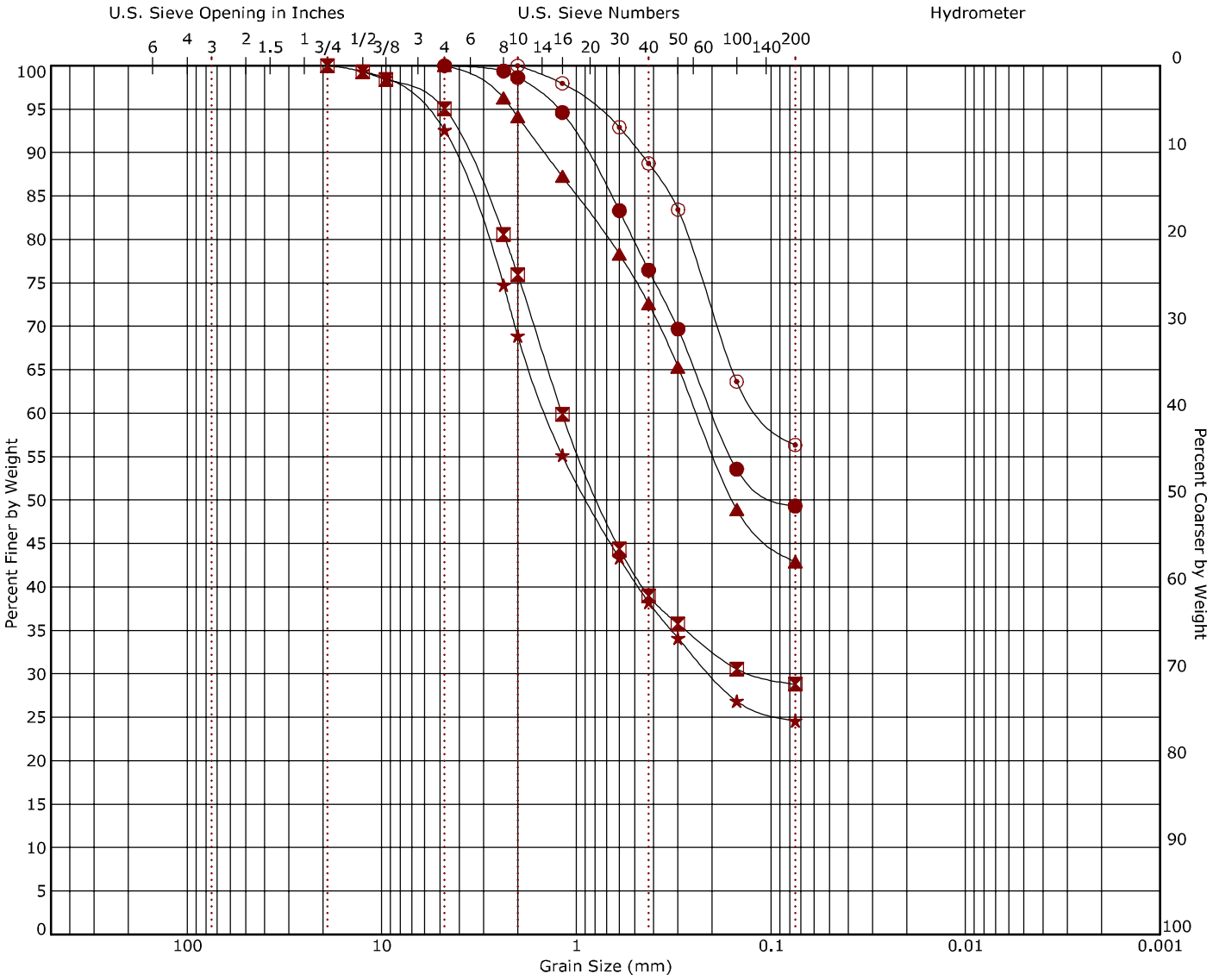

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-11	9 - 10	CLAYEY SAND	SC	A-6 (3)	30	16	14		
⊠	B-12	9 - 10	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
▲	B-13	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
★	B-14	14 - 15	CLAYEY SAND	SC	A-2-6 (1)	37	19	18		
⊙	B-15	4 - 5	SANDY LEAN CLAY	CL	A-6 (4)	30	18	12		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-11	9 - 10	4.75	0.198			0.0	0.0	50.7	49.3		
⊠	B-12	9 - 10	19	1.185	0.12		0.0	4.9	66.2	28.8		
▲	B-13	1 - 4	4.75	0.24			0.0	0.0	57.1	42.9		
★	B-14	14 - 15	12.5	1.421	0.203			6.8	68.0	24.6		
⊙	B-15	4 - 5	2	0.106			0.0	0.0	43.7	56.3		

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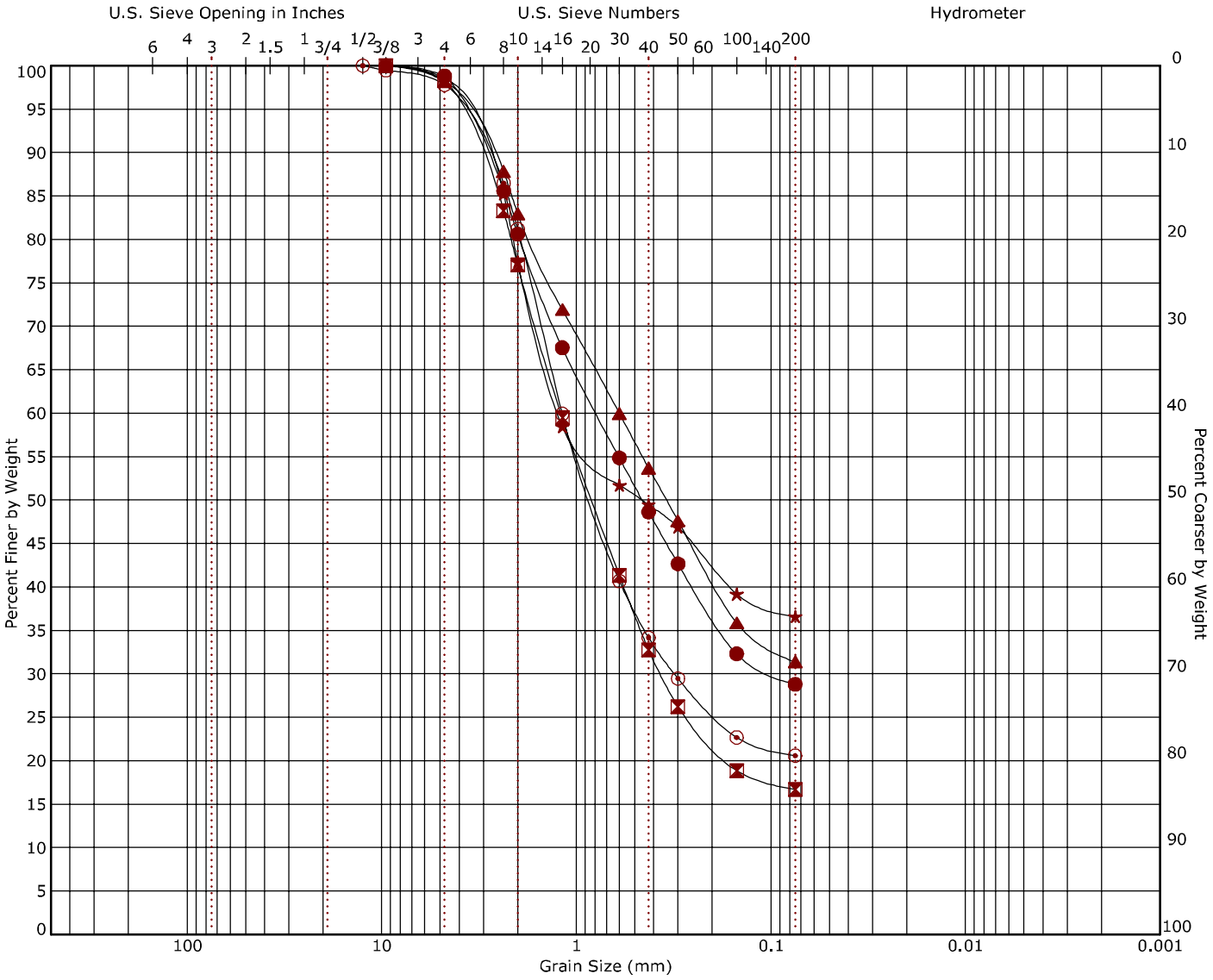

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-16	19 - 20	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊠	B-17	9 - 10	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
▲	B-18	14 - 15.5	CLAYEY SAND	SC	A-2-6 (1)	34	18	16		
★	B-19	9 - 10	CLAYEY SAND	SC	A-6 (2)	33	16	17		
⊙	B-20	14 - 15	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-16	19 - 20	9.5	0.789	0.095		0.0	1.2	70.0	28.8		
⊠	B-17	9 - 10	9.5	1.199	0.367		0.0	1.7	81.6	16.7		
▲	B-18	14 - 15.5	9.5	0.6			0.0	1.8	66.8	31.4		
★	B-19	9 - 10	9.5	1.232			0.0	1.4	61.9	36.6		
⊙	B-20	14 - 15	12.5	1.182	0.312		0.0	2.2	77.2	20.6		

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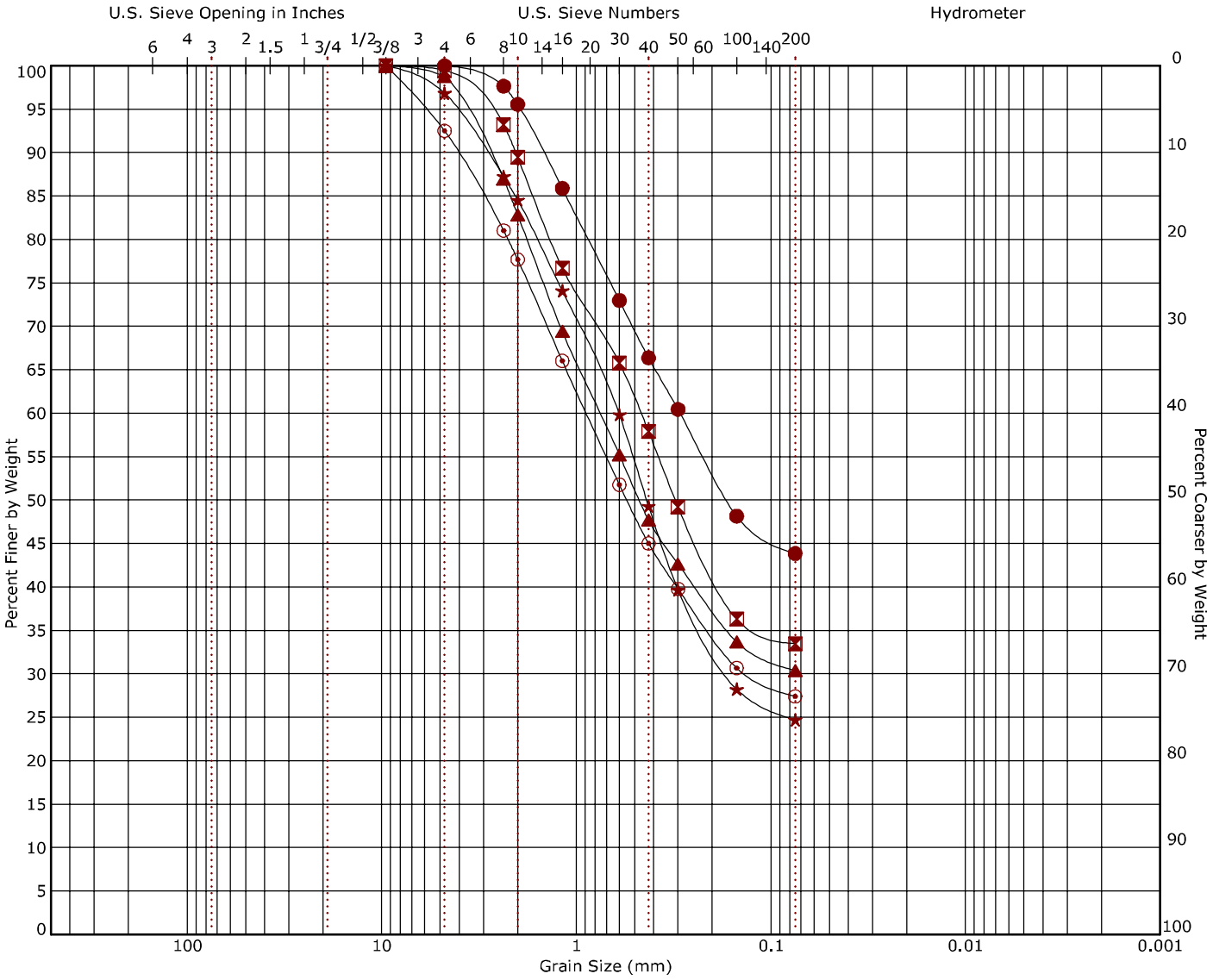

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-21	9 - 10	CLAYEY SAND	SC	A-4 (1)	22	13	9		
⊠	B-22	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
▲	B-23	2 - 3	CLAYEY SAND	SC	A-2-6 (1)	31	16	15		
★	B-24	19 - 20.5	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
⊙	B-25	14 - 15.5	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-21	9 - 10	4.75	0.293			0.0	0.0	56.1	43.9		
⊠	B-22	1 - 4	9.5	0.466			0.0	0.6	66.0	33.5		
▲	B-23	2 - 3	9.5	0.753			0.0	1.2	68.4	30.4		
★	B-24	19 - 20.5	9.5	0.604	0.167		0.0	3.2	72.1	24.7		
⊙	B-25	14 - 15.5	9.5	0.887	0.13		0.0	7.5	65.1	27.4		

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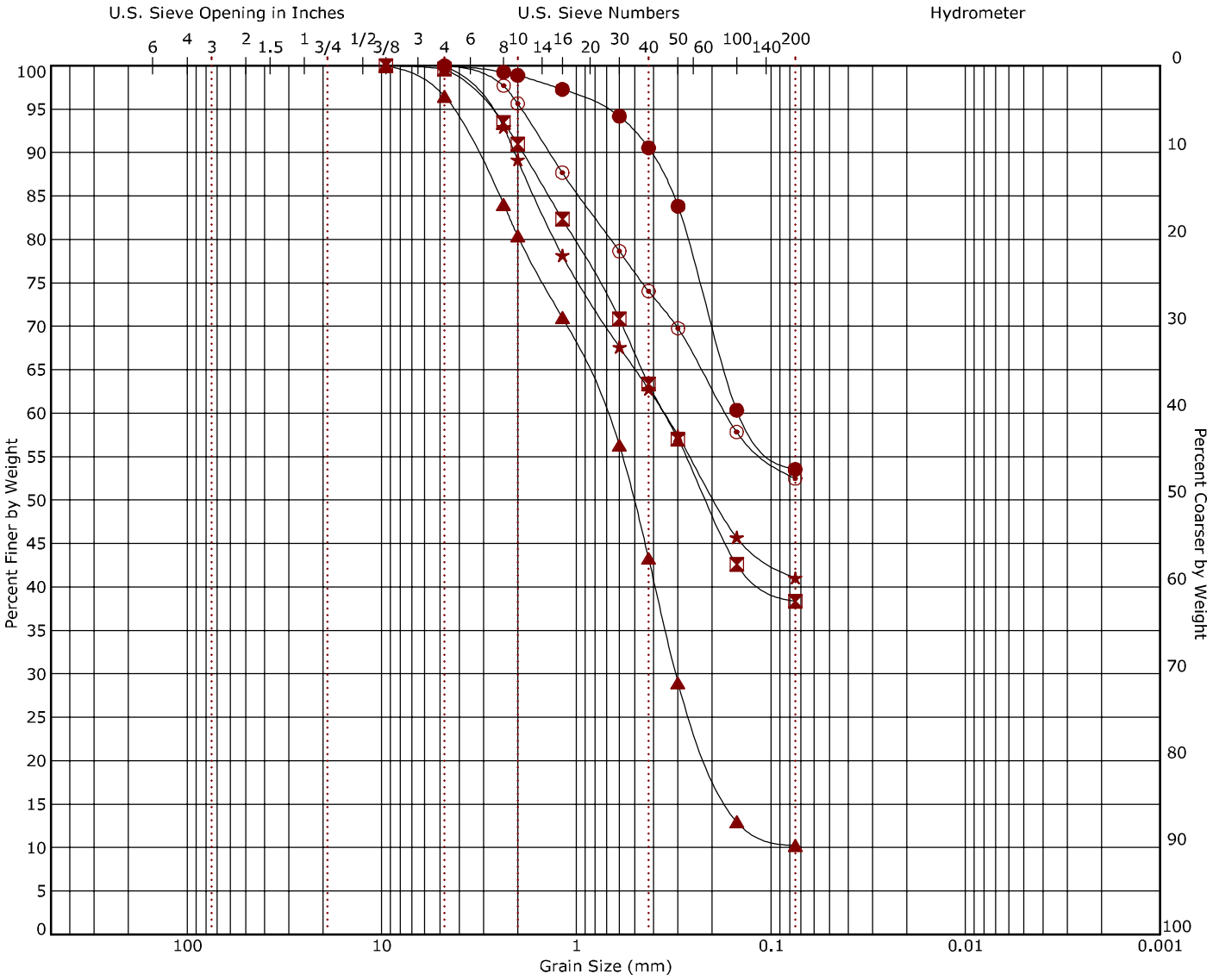

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-26	19 - 20	SANDY LEAN CLAY	CL	A-6 (4)	32	19	13		
⊠	B-27	4 - 5	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
▲	B-28	9 - 10	WELL-GRADED SAND with SILT	SW-SM	A-1-b (0)	NP	NP	NP	1.89	10.06
★	B-29	1 - 4	CLAYEY SAND	SC	A-4 (0)	21	13	8		
⊙	B-30	4 - 5	SANDY LEAN CLAY	CL	A-6 (3)	27	15	12		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-26	19 - 20	4.75	0.145			0.0	0.0	46.5	53.5		
⊠	B-27	4 - 5	9.5	0.353			0.0	0.4	61.2	38.3		
▲	B-28	9 - 10	9.5	0.711	0.308		0.0	3.5	86.2	10.2		
★	B-29	1 - 4	4.75	0.355			0.0	0.0	58.9	41.1		
⊙	B-30	4 - 5	4.75	0.17			0.0	0.0	47.5	52.5		

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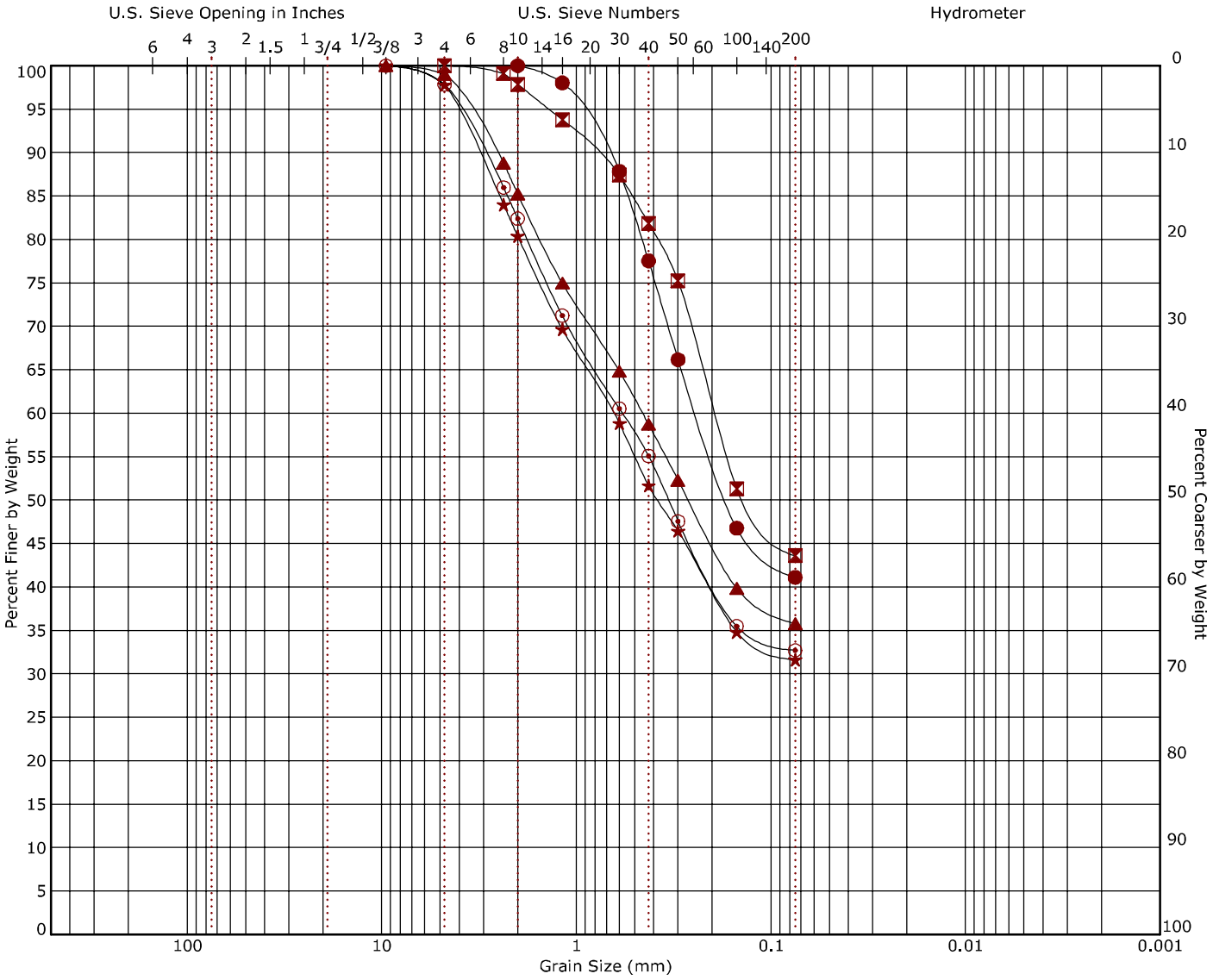

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-31	9 - 10	CLAYEY SAND	SC	A-6 (2)	29	15	14		
⊠	B-32	4 - 5	CLAYEY SAND	SC	A-6 (2)	28	15	13		
▲	B-33	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
★	B-34	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊙	B-35	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-31	9 - 10	2	0.241			0.0	0.0	58.9	41.1		
⊠	B-32	4 - 5	4.75	0.193			0.0	0.0	56.4	43.6		
▲	B-33	1 - 4	9.5	0.457			0.0	1.0	63.2	35.8		
★	B-34	1 - 4	9.5	0.645			0.0	2.2	66.2	31.6		
⊙	B-35	1 - 4	9.5	0.58			0.0	2.2	65.1	32.7		

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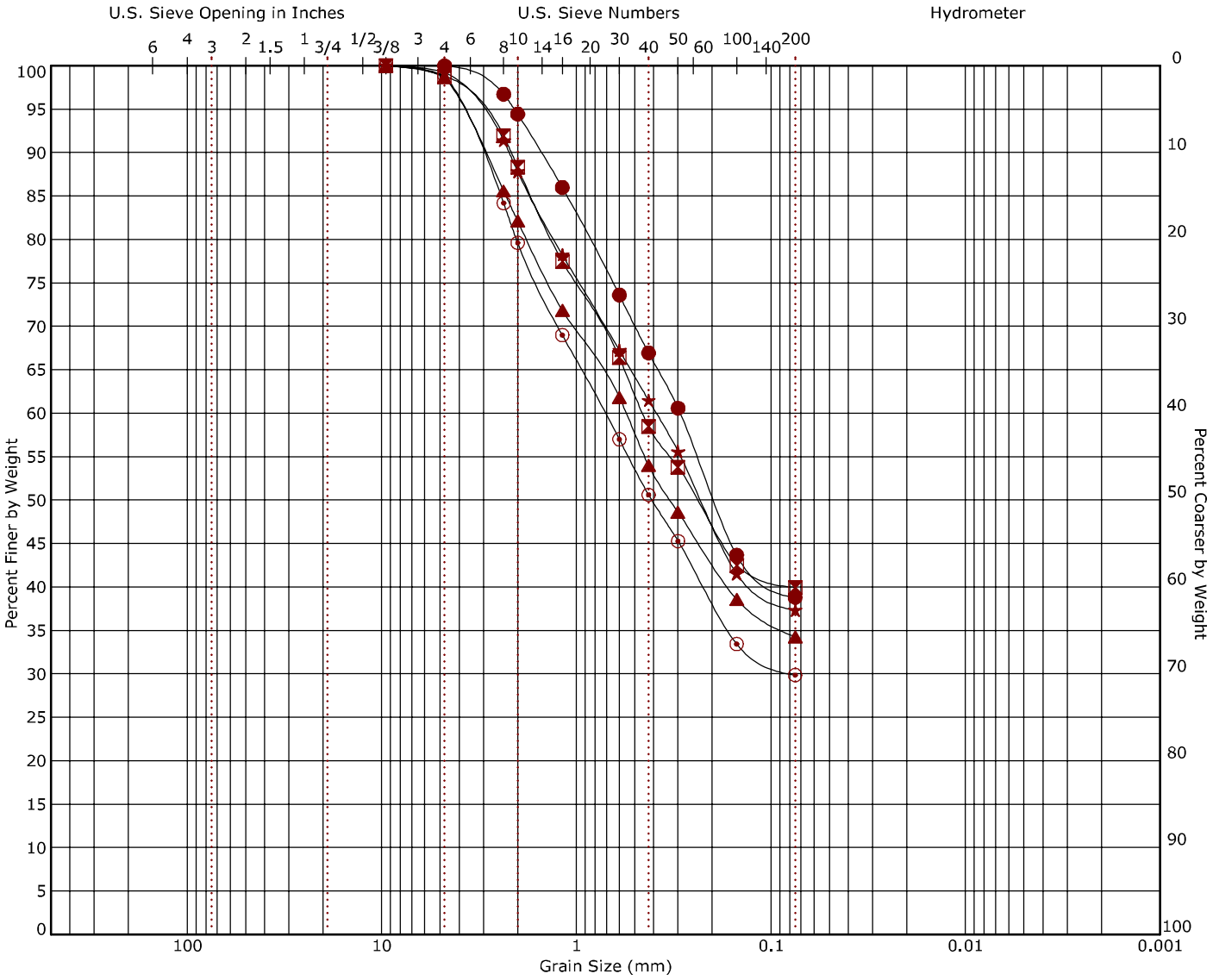

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-36	2 - 3	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
⊠	B-37	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
▲	B-38	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
★	B-39	2 - 3	CLAYEY SAND	SC	A-6 (2)	28	12	16		
⊙	B-40	4 - 5	CLAYEY SAND	SC	A-2-6 (1)	30	14	16		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-36	2 - 3	4.75	0.293			0.0	0.0	61.2	38.8		
⊠	B-37	1 - 4	9.5	0.454			0.0	1.2	58.9	40.0		
▲	B-38	1 - 4	9.5	0.553			0.0	1.4	64.4	34.3		
★	B-39	2 - 3	9.5	0.389			0.0	0.8	61.9	37.3		
⊙	B-40	4 - 5	9.5	0.711	0.077		0.0	1.2	69.0	29.9		

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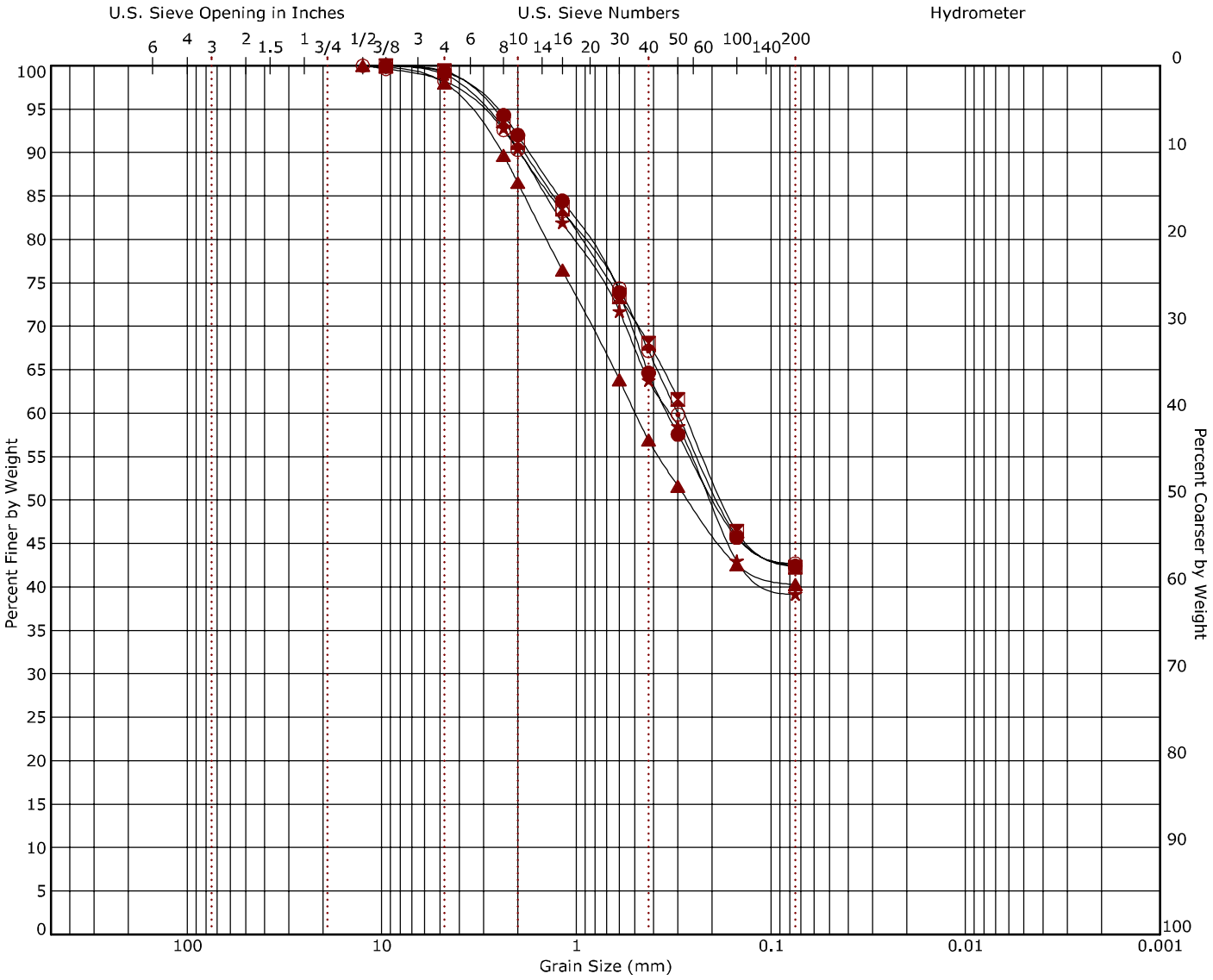

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-41	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
⊠	B-42	1 - 4	CLAYEY SAND	SC	A-6 (3)	29	13	16		
▲	B-43	1 - 4	CLAYEY SAND	SC	A-6 (2)	29	15	14		
★	B-44	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
⊙	B-45	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-41	1 - 4	9.5	0.338			0.0	0.7	56.9	42.4		
⊠	B-42	1 - 4	9.5	0.279			0.0	0.6	57.1	42.3		
▲	B-43	1 - 4	12.5	0.496			0.0	2.0	57.7	40.3		
★	B-44	1 - 4	9.5	0.331			0.0	1.0	59.9	39.2		
⊙	B-45	1 - 4	12.5	0.302			0.0	1.8	55.5	42.7		

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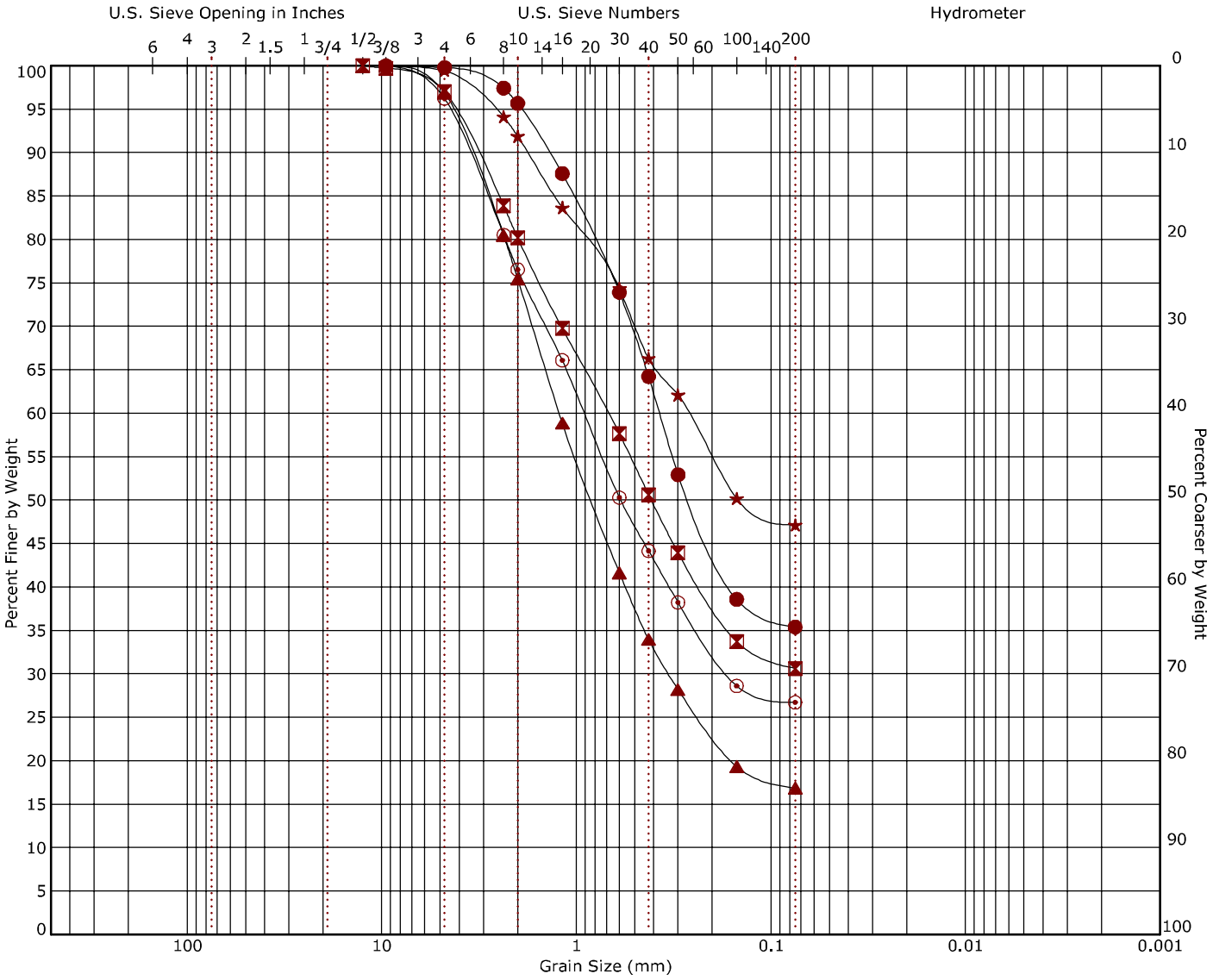

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-46	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊠	B-47	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
▲	B-48	1 - 4	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
★	B-49	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
⊙	B-50	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-46	1 - 4	9.5	0.373			0.0	0.2	64.4	35.4		
⊠	B-47	1 - 4	12.5	0.684			0.0	3.0	66.4	30.6		
▲	B-48	1 - 4	9.5	1.224	0.335		0.0	3.1	80.0	16.9		
★	B-49	1 - 4	9.5	0.265			0.0	0.5	52.3	47.1		
⊙	B-50	1 - 4	9.5	0.91	0.166		0.0	3.8	69.5	26.7		

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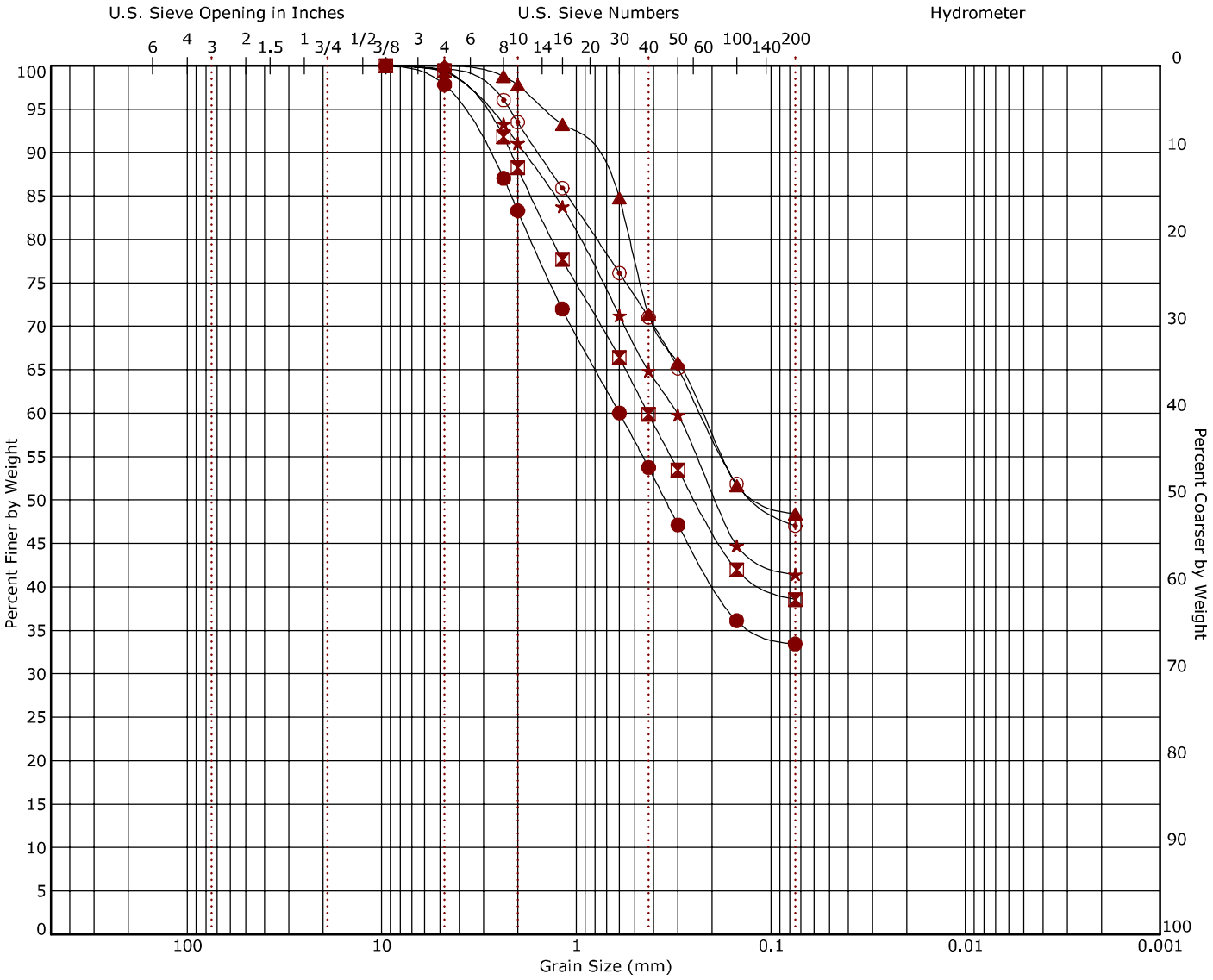

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-51	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊠	B-52	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
▲	B-53	1 - 4	CLAYEY SAND	SC	A-4 (1)	23	14	9		
★	B-54	1 - 4	CLAYEY SAND	SC	A-4 (1)	25	15	10		
⊙	B-55	1 - 4	CLAYEY SAND	SC	A-6 (4)	30	14	16		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-51	1 - 4	9.5	0.599			0.0	2.2	64.4	33.4		
⊠	B-52	1 - 4	9.5	0.428			0.0	0.6	60.9	38.6		
▲	B-53	1 - 4	4.75	0.225			0.0	0.0	51.6	48.4		
★	B-54	1 - 4	9.5	0.304			0.0	0.7	57.9	41.4		
⊙	B-55	1 - 4	9.5	0.229			0.0	0.4	52.6	47.1		

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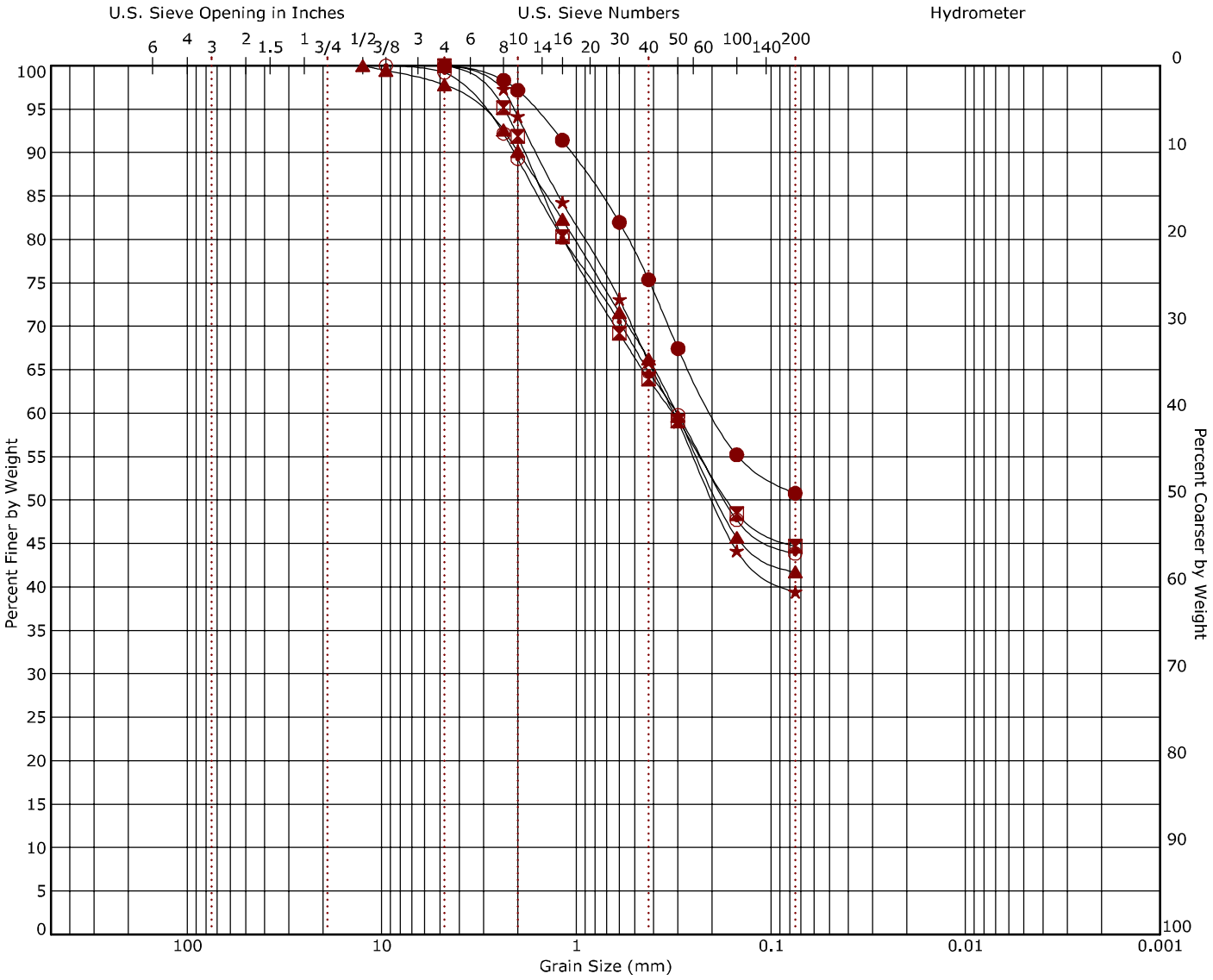

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-56	1 - 4	SANDY SILT	ML	A-4 (0)	NP	NP	NP		
⊠	B-57	1 - 4	CLAYEY SAND	SC	A-4 (1)	22	13	9		
▲	B-58	2 - 3	CLAYEY SAND	SC	A-6 (2)	29	15	14		
★	B-59	2 - 3	CLAYEY SAND	SC	A-6 (2)	32	15	17		
⊙	B-60	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-56	1 - 4	4.75	0.197			0.0	0.0	49.2	50.8		
⊠	B-57	1 - 4	4.75	0.32			0.0	0.0	55.3	44.7		
▲	B-58	2 - 3	12.5	0.306			0.0	2.2	56.1	41.7		
★	B-59	2 - 3	4.75	0.316			0.0	0.0	60.6	39.4		
⊙	B-60	1 - 4	9.5	0.305			0.0	0.8	55.4	43.8		

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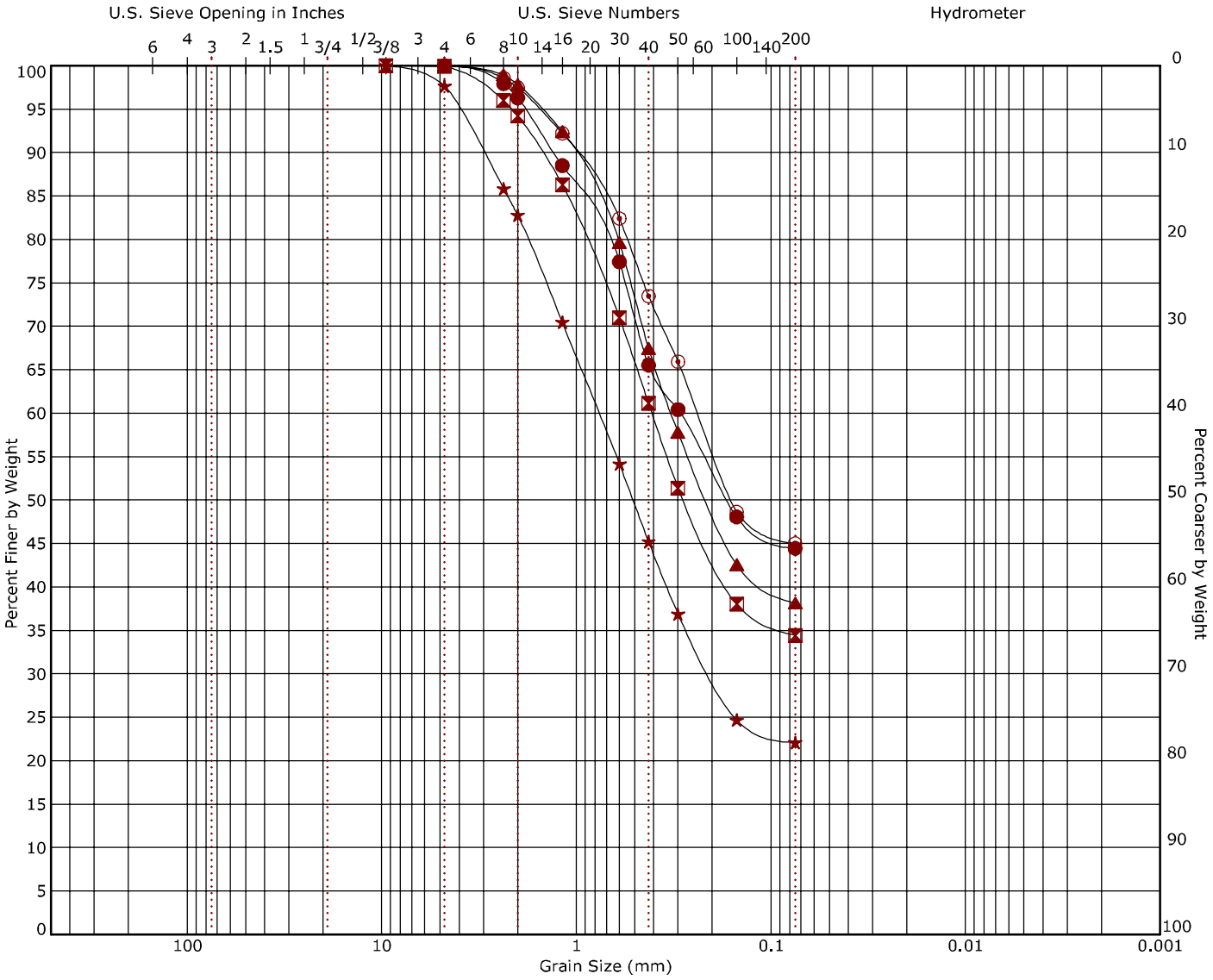

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-61	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
⊠	B-62	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
▲	B-63	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
★	B-64	1 - 4	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
⊙	B-65	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-61	1 - 4	4.75	0.293			0.0	0.0	55.6	44.4		
⊠	B-62	1 - 4	9.5	0.408			0.0	0.1	65.5	34.4		
▲	B-63	1 - 4	4.75	0.325			0.0	0.0	61.8	38.2		
★	B-64	1 - 4	9.5	0.764	0.203		0.0	2.3	75.6	22.1		
⊙	B-65	1 - 4	4.75	0.237			0.0	0.0	55.0	45.0		

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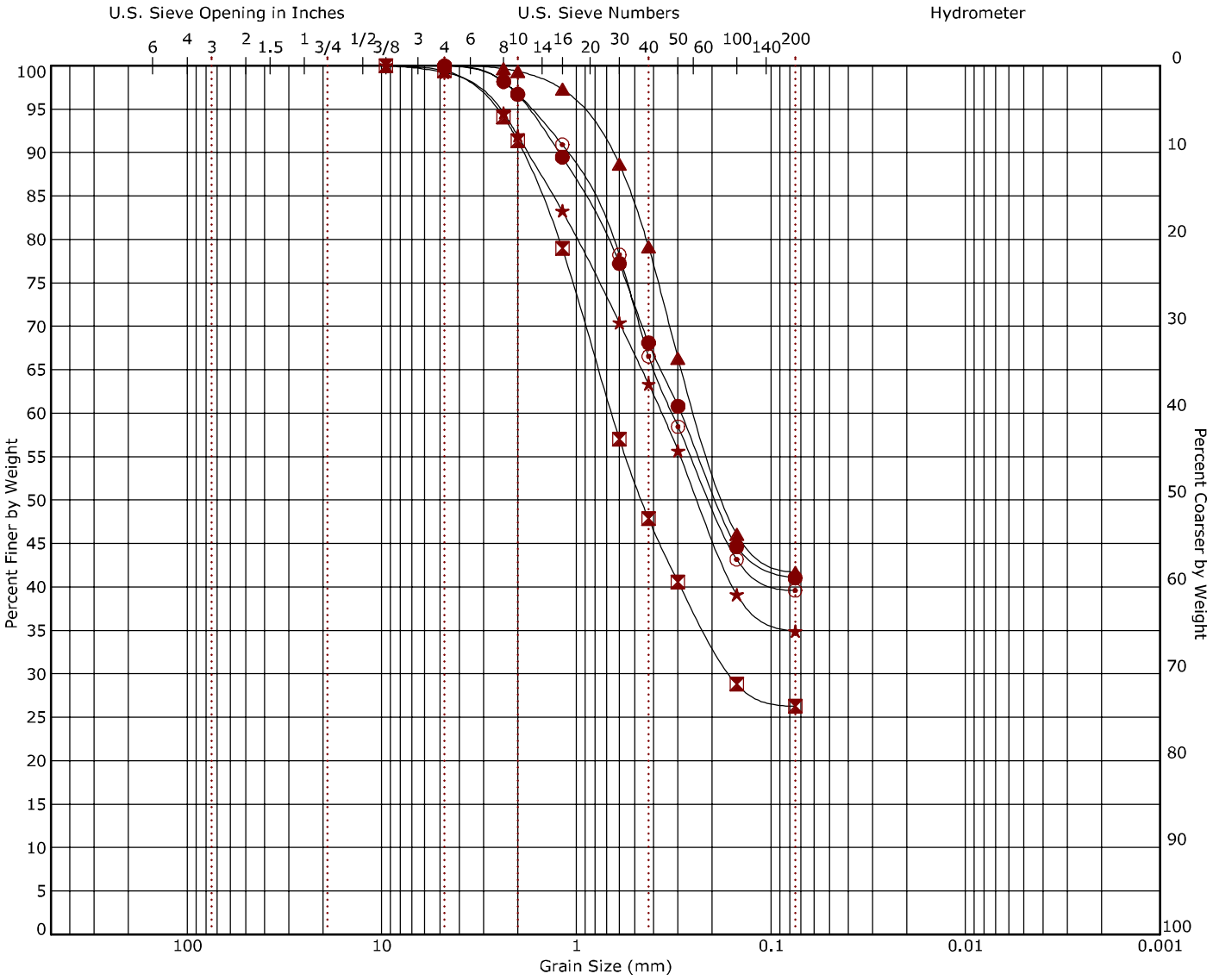

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-66	1 - 4	CLAYEY SAND	SC	A-6 (1)	26	14	12		
⊠	B-67	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
▲	B-68	2 - 3	CLAYEY SAND	SC	A-6 (1)	26	14	12		
★	B-69	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊙	B-70	1 - 4	CLAYEY SAND	SC	A-4 (0)	24	15	9		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-66	1 - 4	4.75	0.29			0.0	0.0	59.0	41.0		
⊠	B-67	1 - 4	9.5	0.658	0.161		0.0	0.6	73.2	26.3		
▲	B-68	2 - 3	4.75	0.242			0.0	0.0	58.3	41.7		
★	B-69	1 - 4	9.5	0.365			0.0	0.8	64.3	34.9		
⊙	B-70	1 - 4	4.75	0.321			0.0	0.0	60.4	39.6		

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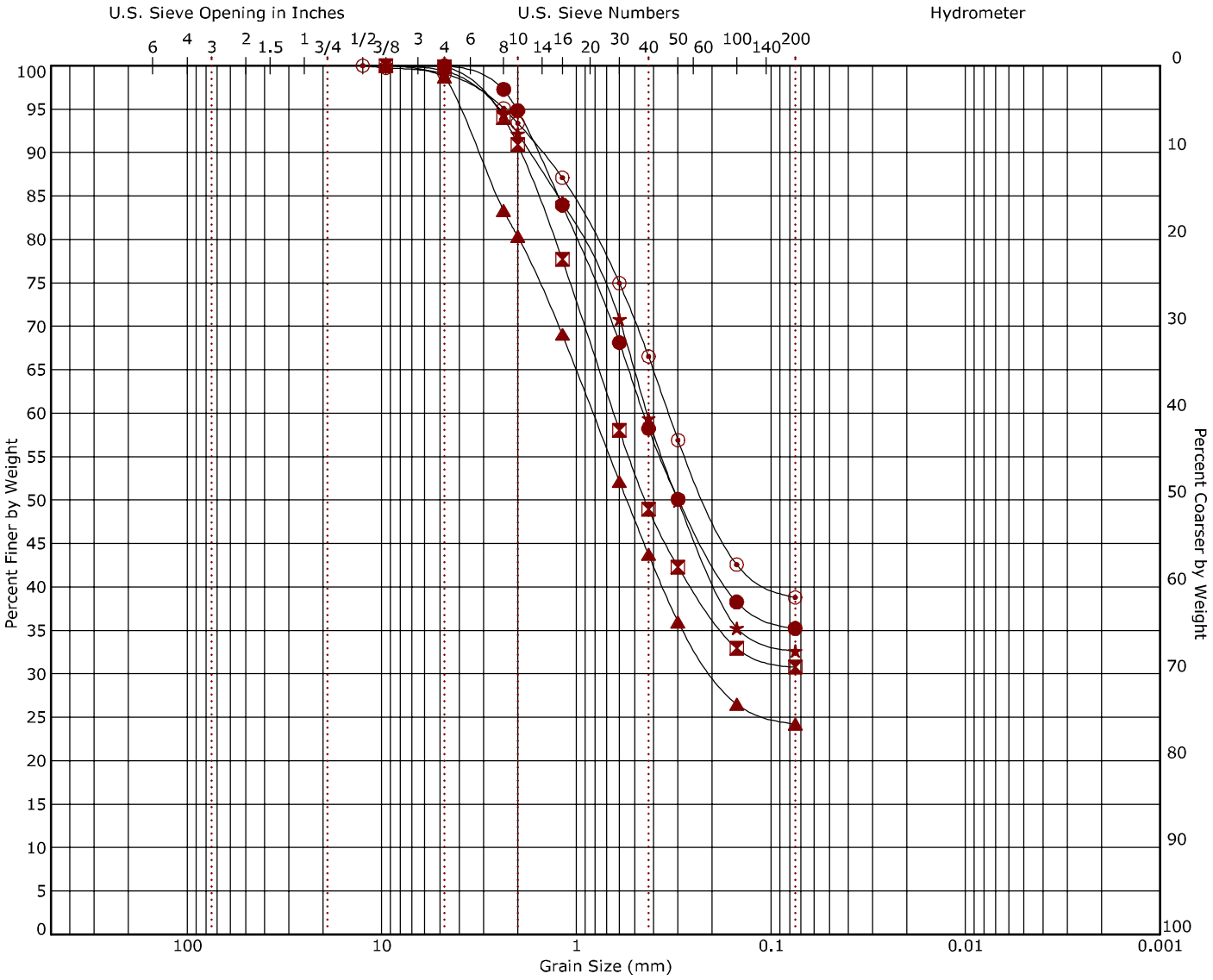

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-71	1 - 4	CLAYEY SAND	SC	A-2-6 (0)	25	13	12		
⊠	B-72	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
▲	B-73	1 - 4	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
★	B-74	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊙	B-75	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-71	1 - 4	4.75	0.452			0.0	0.0	64.8	35.2		
⊠	B-72	1 - 4	9.5	0.642			0.0	0.1	69.1	30.8		
▲	B-73	1 - 4	9.5	0.821	0.193		0.0	1.3	74.5	24.2		
★	B-74	1 - 4	9.5	0.433			0.0	0.6	66.8	32.6		
⊙	B-75	1 - 4	12.5	0.336			0.0	0.9	60.3	38.8		

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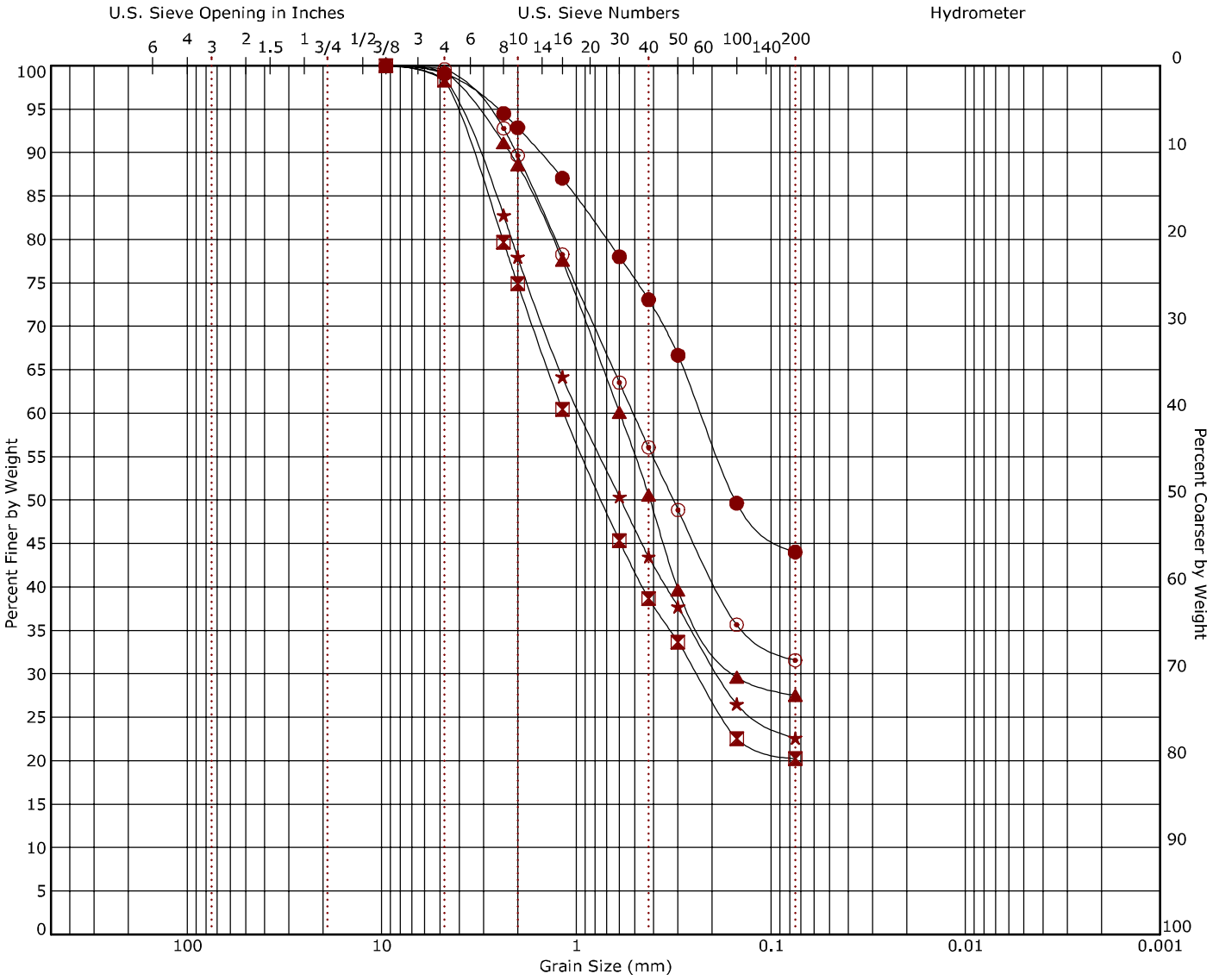

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-76	2 - 3	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
⊠	B-77	1 - 4	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
▲	B-78	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
★	B-79	1 - 4	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
⊙	B-80	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-76	2 - 3	9.5	0.229			0.0	0.9	55.1	44.0		
⊠	B-77	1 - 4	9.5	1.156	0.239		0.0	1.7	78.1	20.2		
▲	B-78	1 - 4	9.5	0.598	0.154		0.0	0.7	71.7	27.5		
★	B-79	1 - 4	9.5	0.961	0.186		0.0	1.5	75.9	22.6		
⊙	B-80	1 - 4	9.5	0.51			0.0	0.4	68.0	31.6		

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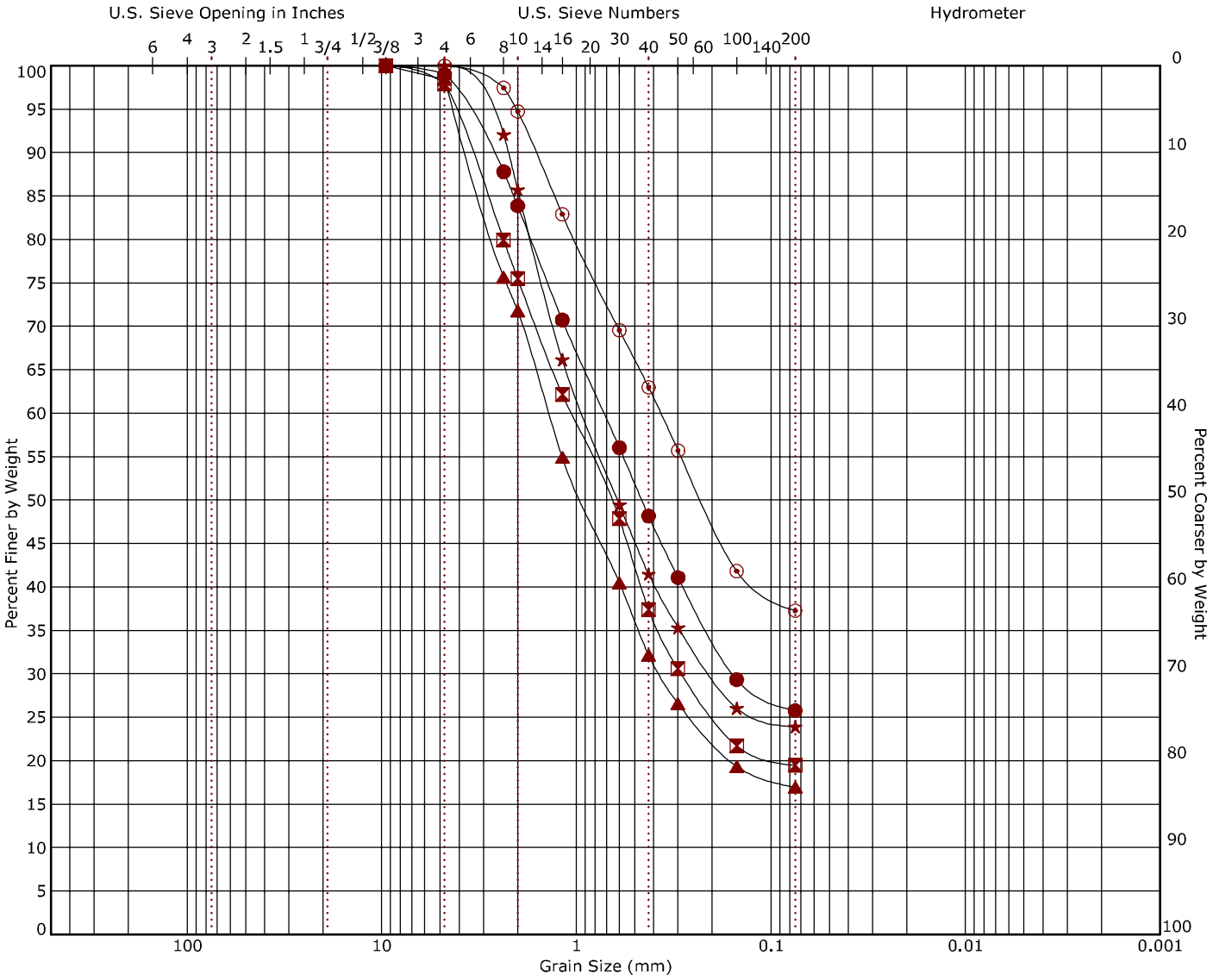

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-81	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊠	B-82	1 - 4	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
▲	B-83	1 - 4	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
★	B-84	1 - 4	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
⊙	B-85	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-81	1 - 4	9.5	0.72	0.156		0.0	1.0	73.2	25.8		
⊠	B-82	1 - 4	9.5	1.065	0.287		0.0	2.1	78.4	19.5		
▲	B-83	1 - 4	9.5	1.384	0.371		0.0	1.6	81.5	17.0		
★	B-84	1 - 4	4.75	0.919	0.202		0.0	0.0	76.1	23.9		
⊙	B-85	1 - 4	4.75	0.368			0.0	0.0	62.7	37.3		

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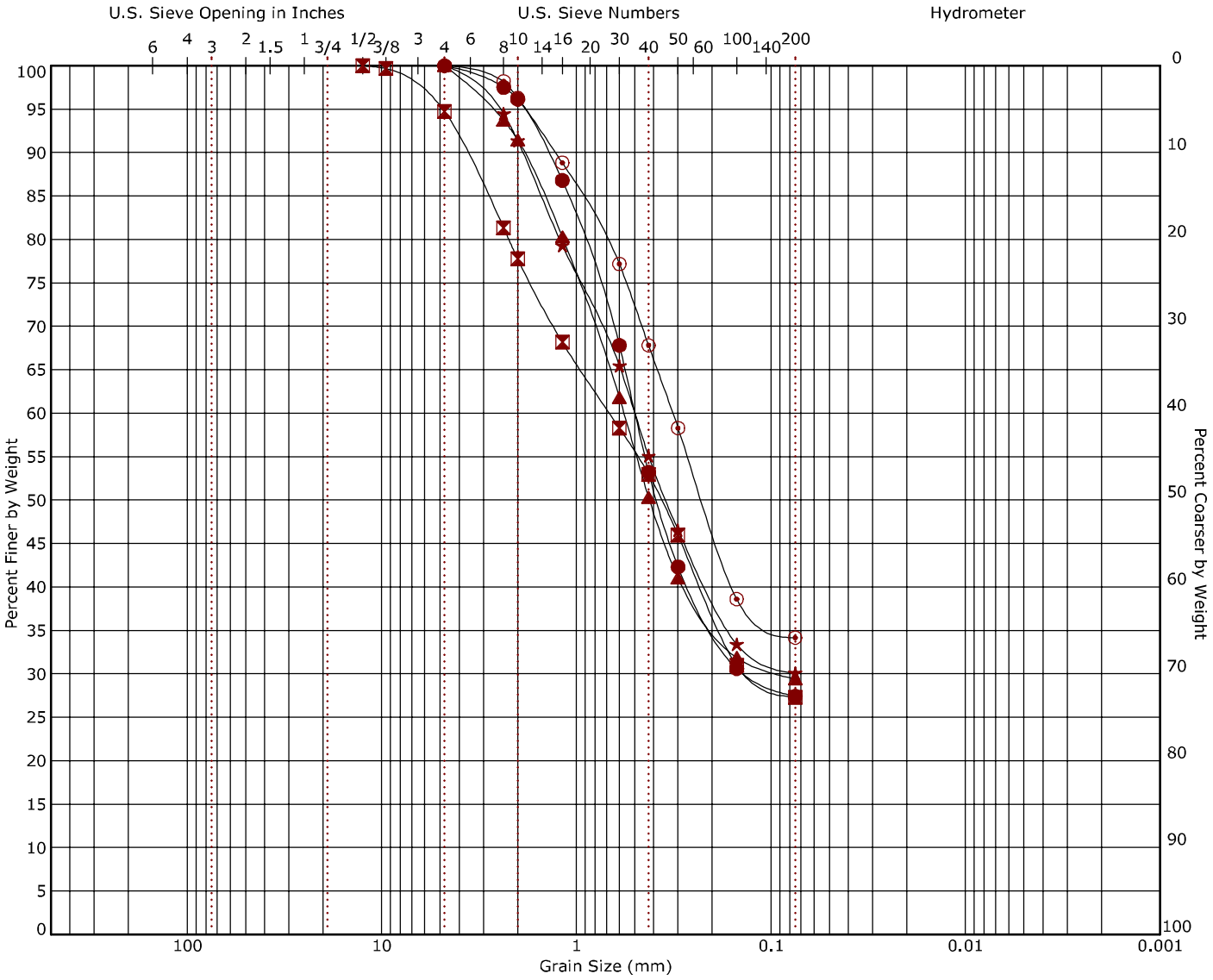

Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-86	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊠	B-87	4 - 5	CLAYEY SAND	SC	A-2-6 (0)	27	15	12		
▲	B-88	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
★	B-89	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊙	B-90	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-86	1 - 4	4.75	0.499	0.132		0.0	0.0	72.6	27.4		
⊠	B-87	4 - 5	12.5	0.674	0.125		0.0	5.3	67.4	27.3		
▲	B-88	1 - 4	4.75	0.568	0.088		0.0	0.0	70.6	29.4		
★	B-89	1 - 4	4.75	0.5			0.0	0.0	69.9	30.1		
⊙	B-90	1 - 4	4.75	0.319			0.0	0.0	65.8	34.2		

Terracon
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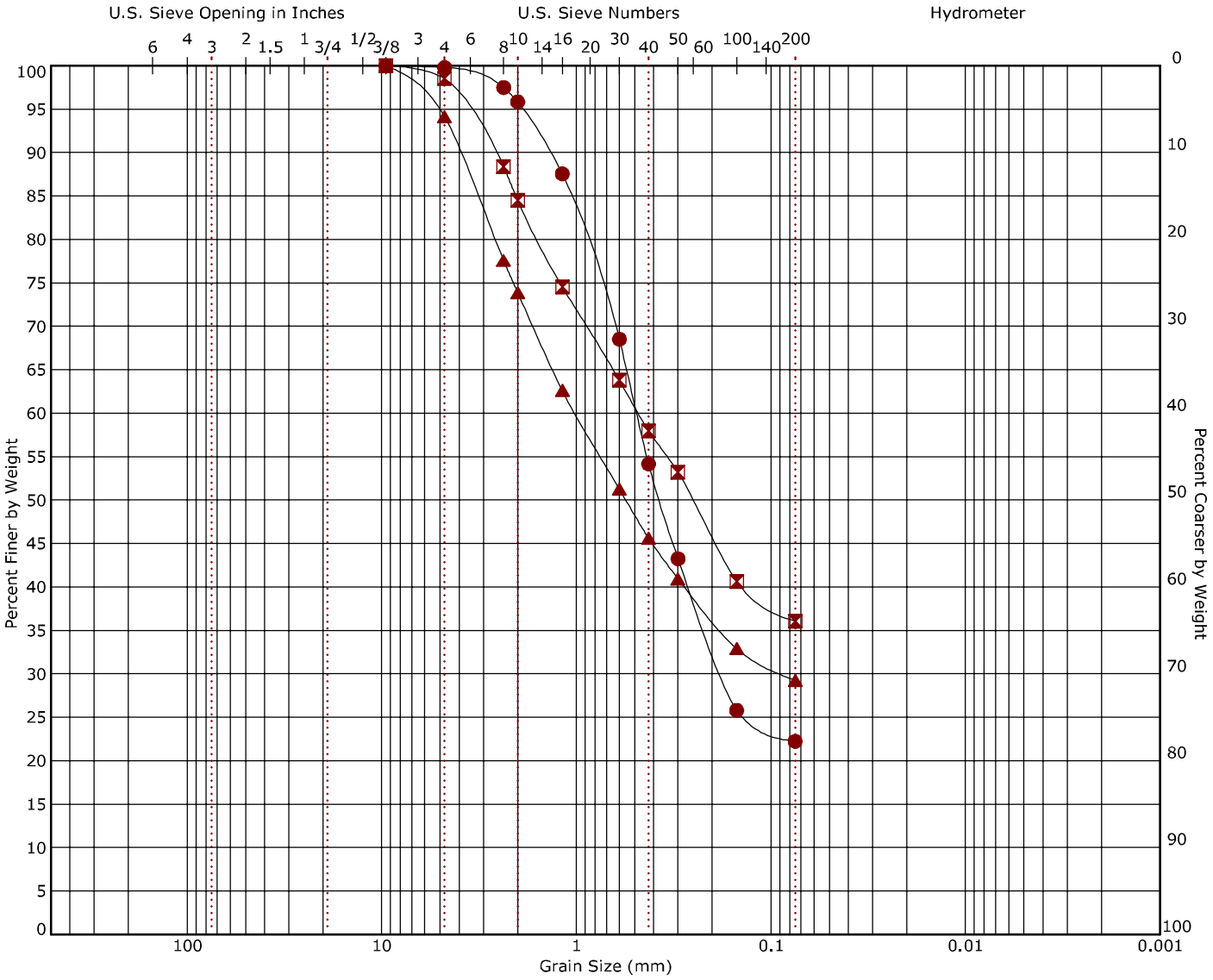
Colorado Springs, CO

Grain Size Distribution

ASTM D422 / ASTM C136



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	B-91	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊠	B-92	1 - 4	SILTY SAND	SM	A-4 (0)	NP	NP	NP		
▲	S-1	1 - 4	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-91	1 - 4	9.5	0.489	0.177		0.0	0.2	77.6	22.2		
⊠	B-92	1 - 4	9.5	0.479			0.0	1.5	62.4	36.1		
▲	S-1	1 - 4	9.5	1.01	0.086		0.0	5.9	64.9	29.3		

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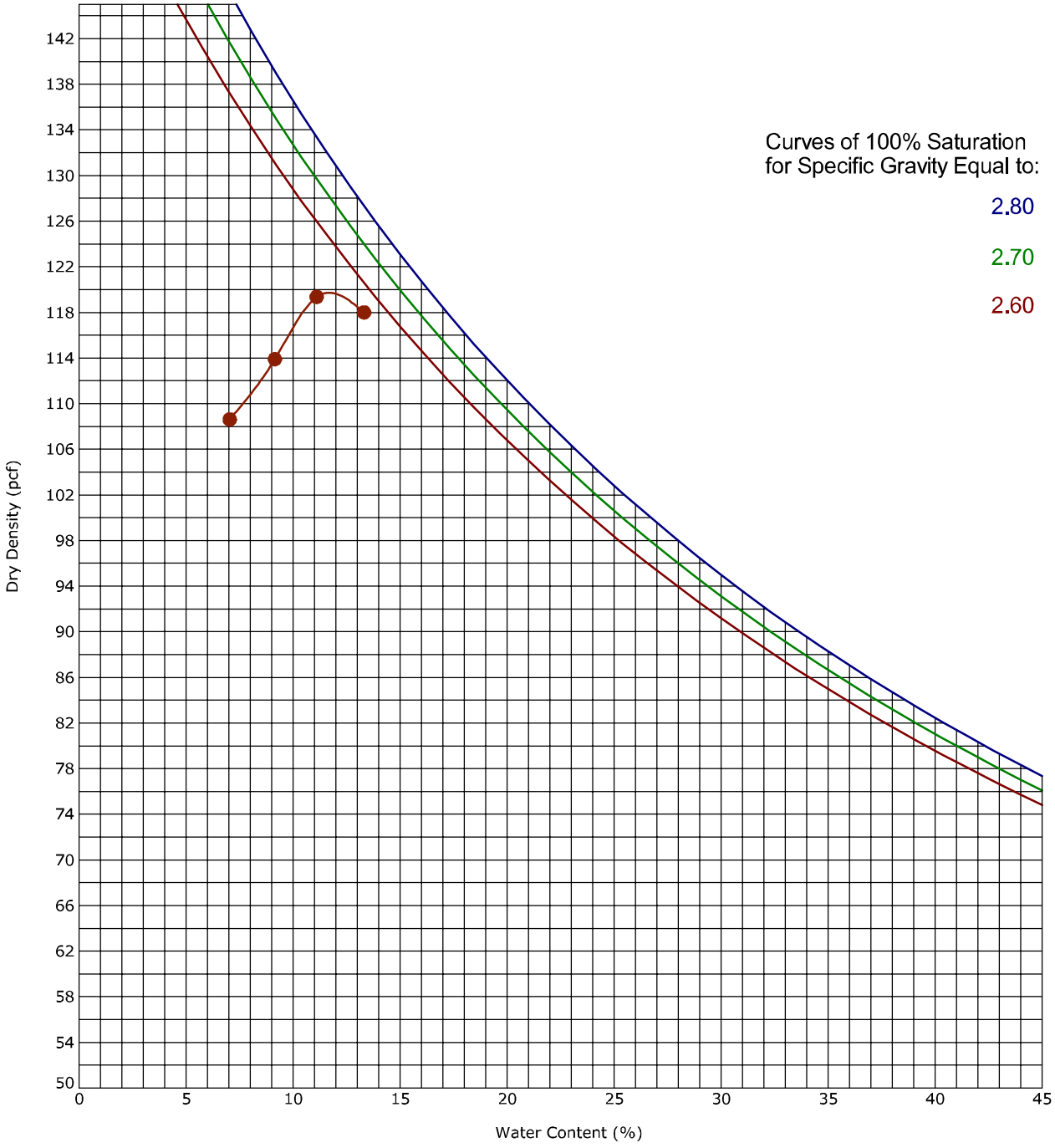
Moisture-Density Relationship

ASTM D698-Method B



Boring ID	Depth (Ft)	Description of Materials
B-43	1 - 4	CLAYEY SAND (SC)

Fines (%)	Fraction > mm size	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
40	0.0	29	15	14	ASTM D698-Method B	119.7	11.7

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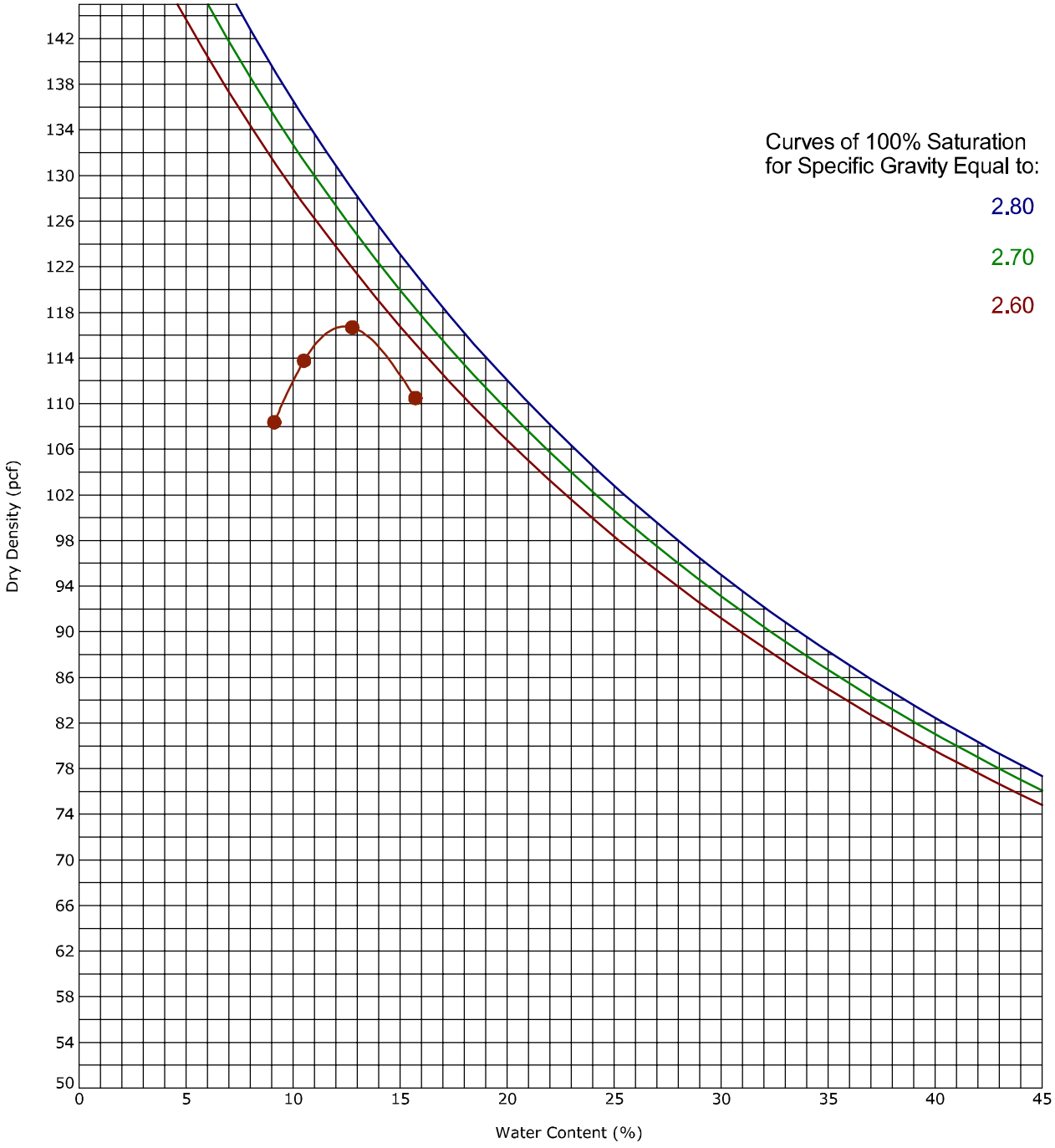
Moisture-Density Relationship

ASTM D698-Method B



Boring ID	Depth (Ft)	Description of Materials
B-55	1 - 4	CLAYEY SAND (SC)

Fines (%)	Fraction > mm size	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
47	0.0	30	14	16	ASTM D698-Method B	116.8	12.4

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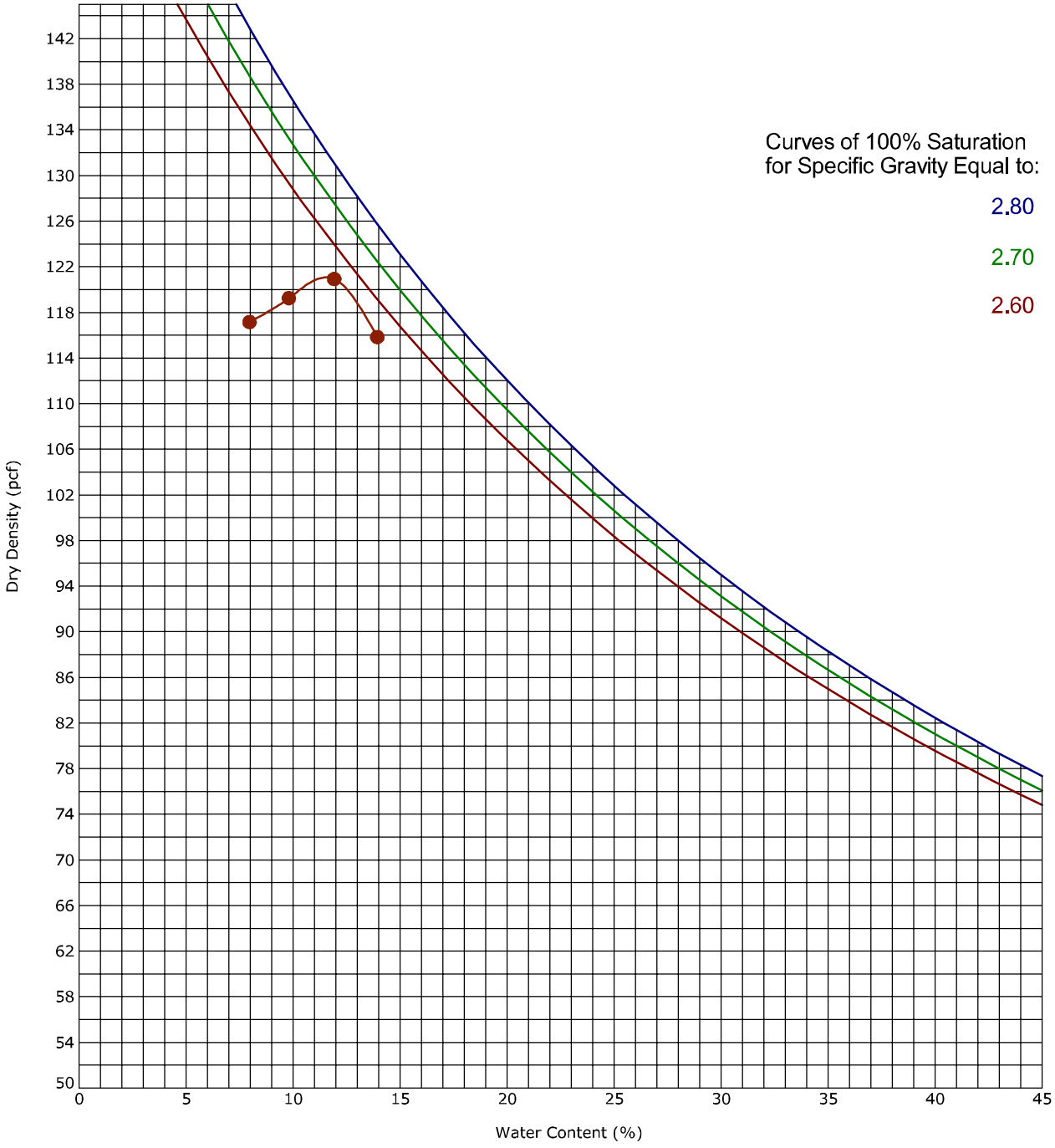
Moisture-Density Relationship

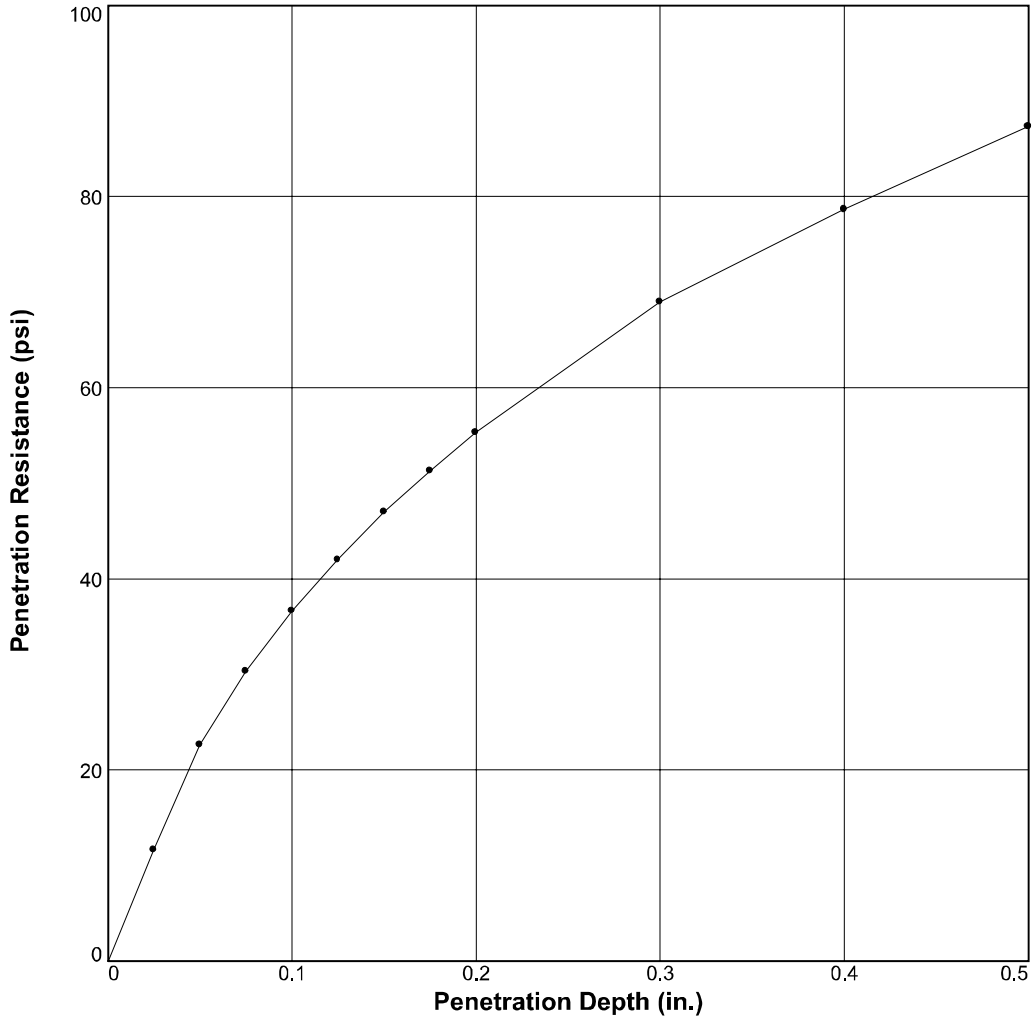
ASTM D698-Method B



Boring ID	Depth (Ft)	Description of Materials
B-75	1 - 4	SILTY SAND (SM)

Fines (%)	Fraction > mm size	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
39	0.0	NP	NP	NP	ASTM D698-Method B	121.1	11.6

BEARING RATIO TEST REPORT
ASTM D1883-16



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	114.0	95.2	13.5	113.3	94.7	14.8	3.7	3.7	0.000	10	0.6
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
SC, Clayey Sand	SC	119.7	11.7	29	14

Project No: 23245069A

Project: Buc-ee's Monument

Location: B-43

Depth: 1' - 4'

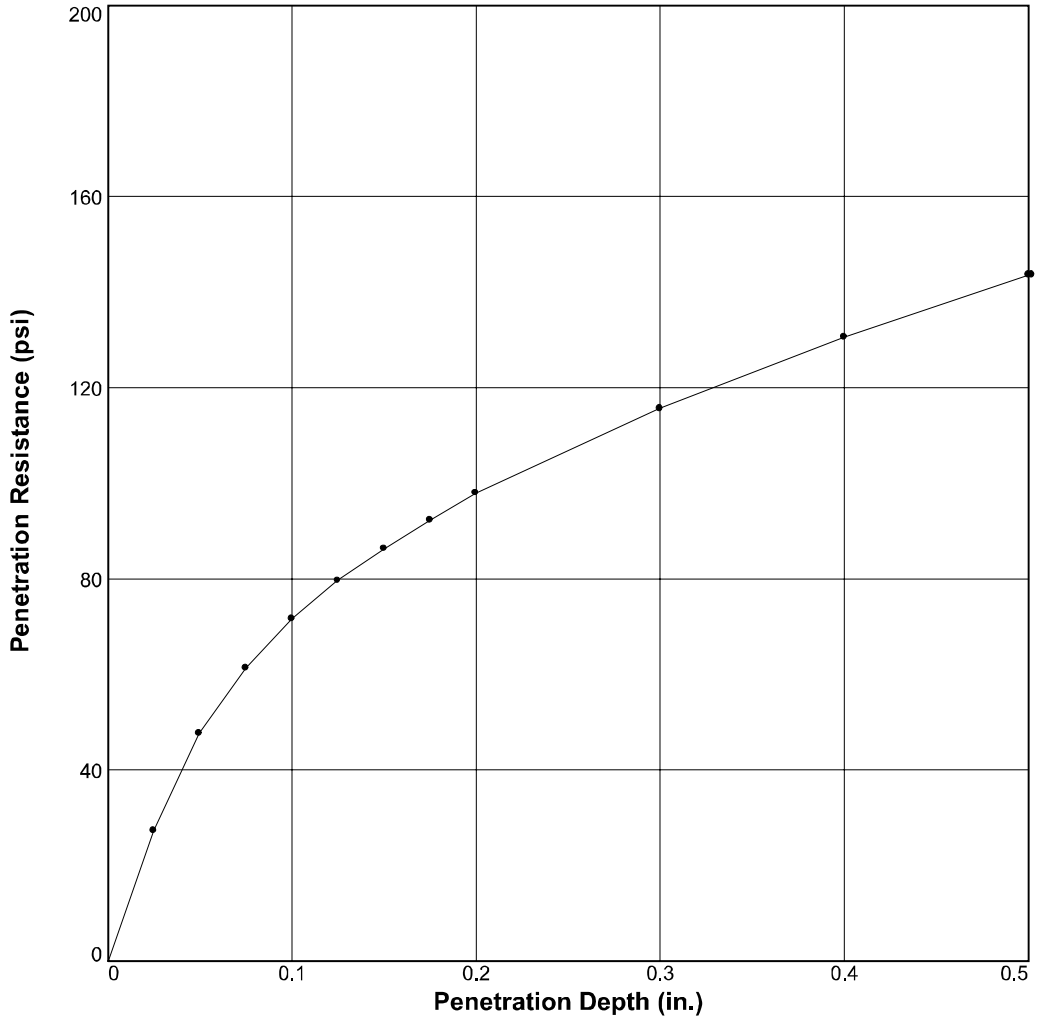
Test Description/Remarks:

Prepared according to D698 compaction efforts.

BEARING RATIO TEST REPORT

Terracon Consultants, Inc.

BEARING RATIO TEST REPORT
ASTM D1883-16



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	114.5	98	12.4	113.7	97.3	15.1	7.2	6.5	0.000	10	0.7
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
SC, Clayey Sand	SC	116.8	12.4	30	16

Project No: 23245069A

Project: Buc-ee's Monument

Location: B-55

Depth: 1' - 4'

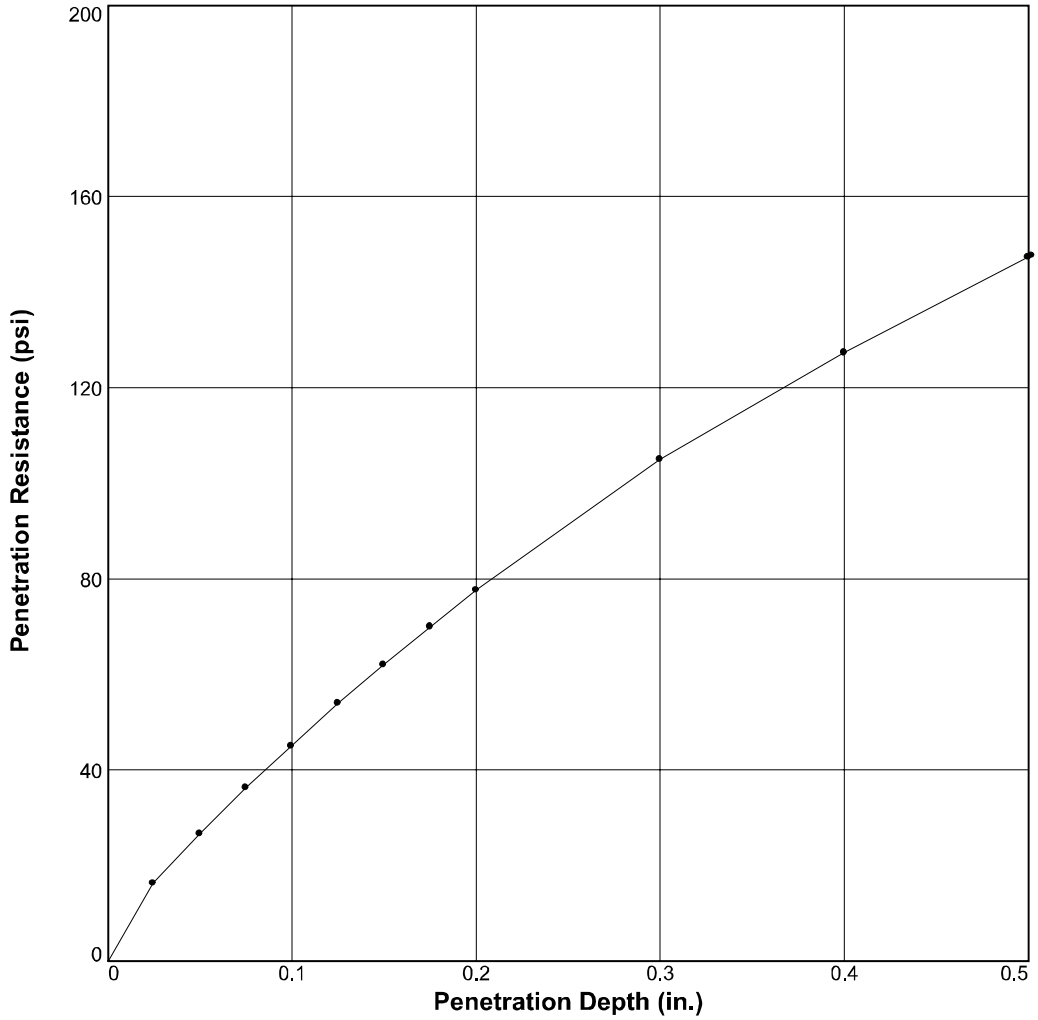
Test Description/Remarks:

Prepared according to D698 compaction efforts.

BEARING RATIO TEST REPORT

Terracon Consultants, Inc.

BEARING RATIO TEST REPORT
ASTM D1883-16



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	115.4	95.2	13.4	115.3	95.1	14.0	4.5	5.2	0.000	10	0.1
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
SM, Silty Sand	SM	121.2	11.6		NP

Project No: 23245069A

Project: Buc-ee's Monument

Location: B-75

Depth: 1' - 4'

Test Description/Remarks:

Prepared according to D698 compaction efforts.

BEARING RATIO TEST REPORT

Terracon Consultants, Inc.

Client
Buc-ee's, Ltd. Lake Jackson, TX

Project
Buc-ee's Monument
23245069

Date Received: 8/12/2024

Results from Corrosion Testing

Sample Location	B-8	B-17	B-20	B-28
Sample Depth (ft.)	1.0-4.0	1.0-4.0	1.0-4.0	1.0-4.0
Water Soluble Sulfate (SO4), AASHTO T290, (%)	<0.10	<0.10	<0.10	<0.10

Analyzed By: Daryl Lee
Laboratory Supervisor

The tests were performed in general accordance with applicable ASTM and AASHTO test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

Client
Buc-ee's, Ltd. Lake Jackson, TX

Project
Buc-ee's Monument
23245069

Date Received: 8/12/2024

Results from Corrosion Testing

Sample Location	B-32	B-52	B-82	
Sample Depth (ft.)	1.0-4.0	1.0-4.0	1.0-4.0	
Water Soluble Sulfate (SO4), AASHTO T290, (%)	<0.10	<0.10	<0.10	

Analyzed By: Daryl Lee
Laboratory Supervisor

The tests were performed in general accordance with applicable ASTM and AASHTO test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

SUMMARY OF LABORATORY TEST RESULTS

Buc-ee's Monument - Monument, Colorado
Terracon Project No. 23245069

Boring No.	Depth (ft)	USCS Class.	Initial Water Content (%)	Initial Dry Density (pcf)	Swell/Consolidation		Moisture-Density Relationship			CBR (%)		Particle Size Distribution, Percent Passing by Weight					Atterberg Limits		Water Soluble Sulfates (%)	Remarks
					Surcharge (ksf)	Swell (%)	Maximum Dry Density (pcf)	Optimum Moisture Density (%)	Test Method	0.10 in.	0.20 in.	3/4"	#4	#10	#40	#200	LL	PI		
B-1	2	SM	3.1	100																4
B-1	9	SM	5.7	100																4
B-1	14	SM										100	98	87	52	26	NV	NP		
B-1	19	SM	6.9																	
B-2	4	SC	7.5	113																4
B-2	9	SC	7.2	117																4
B-2	19		11.7	118								100	94	69	39	28	38	16		4
B-3	2	SC	13.2	113	0.2	+0.2						100	100	96	70	43	38	24		3,4
B-3	9	SC	7.8	114																4
B-3	14	SC	10.9	118																4
B-3	19		8.6	114																4
B-4	4	SC	7.8	102																4
B-4	9	SC	12.0	117								100	100	97	75	44	29	13		4
B-4	19		9.2	106																4
B-5	1 - 4	SC										100	99	89	70	47	29	13		
B-5	4	SC	7.8	113	0.5	-0.6														3,4
B-5	9	SC	7.7	119																4
B-5	14	SP	7.3	120																4
B-5	19		9.1	106																4
B-5	24		9.2																	
B-6	4	SC	6.0	112																4
B-6	9	SC										100	100	97	75	45	27	12		
B-6	19	SC	11.4	121																4
B-6	24		17.2	112																4
B-7	4	SC	11.0	112																4
B-7	9	SP	10.7	111																4
B-7	19		7.7	116								100	86	64	35	18	NV	NP		4
B-8	1 - 4	SC																	<0.10	3,4
B-8	2	SC	7.9	107																4
B-8	4	SM	7.5	117	0.5	-0.8						100	100	94	71	45	NV	NP		3,4
B-8	14	SC	11.8																	
B-8	19		10.6	118																4
B-9	2	CL	11.2	114																4
B-9	9	SC	11.4	115																4
B-9	14		4.1	125																4
B-9	19		18.6	107								100	99	98	97	86	38	14		4
B-10	2	SM	3.5	101																4
B-10	4	SC	6.2	119																4
B-10	9	CL	13.6	111	0.5	-0.5														3,4
B-10	14		9.3	118								100	93	73	51	37	45	23		4
B-11	4	SP	7.3	115																4

Notes:
Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
* = Partially disturbed sample
- = Compression/settlement
NV = no value
NP = non-plastic

Remarks:
1 Remolded Compacted density (about 95% of ASTM D698 maximum density near optimum moisture content)
2 Remolded Compacted density (about 95% of ASTM D1557 maximum density near optimum moisture content)
3 Water added to sample
4 Dry density and/or moisture content determined from one ring of a multi-ring sample
5 Minus #200 Only
6 Moisture-Density Relationship Test Method ASTM D698/AASHTO T99
7 Moisture-Density Relationship Test Method ASTM D1557/AASHTO T180

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SUMMARY OF LABORATORY TEST RESULTS

Buc-ee's Monument - Monument, Colorado
Terracon Project No. 23245069

Boring No.	Depth (ft)	USCS Class.	Initial Water Content (%)	Initial Dry Density (pcf)	Swell/Consolidation		Moisture-Density Relationship			CBR (%)		Particle Size Distribution, Percent Passing by Weight					Atterberg Limits		Water Soluble Sulfates (%)	Remarks
					Surcharge (ksf)	Swell (%)	Maximum Dry Density (pcf)	Optimum Moisture Density (%)	Test Method	0.10 in.	0.20 in.	3/4"	#4	#10	#40	#200	LL	PI		
B-11	9	SC	13.9	110								100	100	99	76	49	30	14		4
B-11	14	SC	11.9	114																4
B-12	2	SC	5.8	124																4
B-12	4	SC	7.5	123																4
B-12	9											100	95	76	39	29	NV	NP		
B-12	14		13.6	115																4
B-12	24		12.2	115																4
B-13	1 - 4	SM										100	100	94	73	43	NV	NP		
B-13	4	SC	12.4	104																4
B-13	9	CL	11.7	111	0.5	-1.8														3,4
B-13	14	SP	16.9	108																4
B-14	4	SP	4.4	122																4
B-14	9	SC	6.6	125																4
B-14	14		11.8	118								100	93	69	38	25	37	18		4
B-15	2	SC	7.1	111																4
B-15	4	CL	15.2	109	0.5	0.0						100	100	100	89	56	30	12		3,4
B-15	14	SP	9.9	113																4
B-16	2	SC	5.7	118																4
B-16	9	SC	11.1	115																4
B-16	14		11.0	116																4
B-16	19											100	99	81	49	29	NV	NP		
B-16	24		7.9																	
B-17	1 - 4	SM																	<0.10	3,4
B-17	2	SM	4.7	112																4
B-17	9		10.6	116								100	98	77	33	17	NV	NP		4
B-17	19		11.4																	
B-18	2	SC	7.7	124																4
B-18	4		8.8	119																4
B-18	14		10.6									100	98	83	54	31	34	16		
B-18	19		9.1	100																4
B-19	4	SC	4.9	110	0.5	-1.6														3,4
B-19	9											100	99	77	49	37	33	17		
B-19	14		8.2	117																4
B-20	1 - 4	SM																	<0.10	3,4
B-20	4	SM	7.1	103																4
B-20	14	SM	8.0	120								100	98	81	34	21	NV	NP		4
B-20	24		8.2	114																4
B-21	4	SP	6.6	109																4
B-21	9		4.9	106								100	100	96	66	44	22	9		4
B-21	19		8.2																	
B-22	1 - 4	SM										100	99	89	58	33	NV	NP		

Notes:
Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
* = Partially disturbed sample
- = Compression/settlement
NV = no value
NP = non-plastic

Remarks:
1 Remolded Compacted density (about 95% of ASTM D698 maximum density near optimum moisture content)
2 Remolded Compacted density (about 95% of ASTM D1557 maximum density near optimum moisture content)
3 Water added to sample
4 Dry density and/or moisture content determined from one ring of a multi-ring sample
5 Minus #200 Only
6 Moisture-Density Relationship Test Method ASTM D698/AASHTO T99
7 Moisture-Density Relationship Test Method ASTM D1557/AASHTO T180

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SUMMARY OF LABORATORY TEST RESULTS

Buc-ee's Monument - Monument, Colorado
Terracon Project No. 23245069

Boring No.	Depth (ft)	USCS Class.	Initial Water Content (%)	Initial Dry Density (pcf)	Swell/Consolidation		Moisture-Density Relationship			CBR (%)		Particle Size Distribution, Percent Passing by Weight					Atterberg Limits		Water Soluble Sulfates (%)	Remarks
					Surcharge (ksf)	Swell (%)	Maximum Dry Density (pcf)	Optimum Moisture Density (%)	Test Method	0.10 in.	0.20 in.	3/4"	#4	#10	#40	#200	LL	PI		
B-22	2	SM	3.3	116																4
B-22	9	SM	6.6	119																4
B-22	19		8.2																	
B-23	2	SC	5.4	111								100	99	83	48	30	31	15		4
B-23	9	SC	11.4	108																4
B-23	19	SP	8.3																	
B-24	2	SP	4.3	113																4
B-24	4	SP	5.9	120																4
B-24	14	SP	8.2																	
B-24	19		8.8									100	97	85	49	25	NV	NP		
B-25	4	SP	5.7	120																4
B-25	14		8.2									100	92	78	45	27	NV	NP		
B-25	19		9.7	123																4
B-25	24		12.7																	
B-26	2	SP	5.7	122																4
B-26	9	SP	10.8	120																4
B-26	14		9.9																	
B-26	19		13.3									100	100	99	91	54	32	13		
B-26	20		13.2																	
B-27	2	SM	5.3	104																4
B-27	4	SM										100	100	91	63	38	NV	NP		
B-27	9		9.9	124																4
B-27	14		13.1																	
B-27	24		11.6																	
B-28	1 - 4																		<0.10	3,4
B-28	4	SP	1.3	112																4
B-28	9	SM	16.7	101								100	96	80	43	10	NV	NP		4
B-28	14	SP	8.0	119																4
B-29	1 - 4	SC										100	100	89	63	41	21	8		
B-29	2	SC	4.7	102																4
B-29	9	SC	3.0	119																4
B-29	19	SC	11.4																	
B-30	4	SP	3.6	119								100	100	96	74	52	27	12		4
B-30	9	SP	3.3	116																4
B-30	14	SP	5.1																	
B-31	2	SC	7.0	107																4
B-31	9	SC	16.7	109	0.5	-0.1						100	100	100	78	41	29	14		3,4
B-31	14	SC	19.4	109																4
B-31	19	SM	16.3	105																4
B-32	1 - 4	SC																	<0.10	3,4
B-32	2	SC	7.6	117																4

Notes:
Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
* = Partially disturbed sample
- = Compression/settlement
NV = no value
NP = non-plastic

Remarks:
1 Remolded Compacted density (about 95% of ASTM D698 maximum density near optimum moisture content)
2 Remolded Compacted density (about 95% of ASTM D1557 maximum density near optimum moisture content)
3 Water added to sample
4 Dry density and/or moisture content determined from one ring of a multi-ring sample
5 Minus #200 Only
6 Moisture-Density Relationship Test Method ASTM D698/AASHTO T99
7 Moisture-Density Relationship Test Method ASTM D1557/AASHTO T180

Terracon
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SUMMARY OF LABORATORY TEST RESULTS

Buc-ee's Monument - Monument, Colorado
Terracon Project No. 23245069

Boring No.	Depth (ft)	USCS Class.	Initial Water Content (%)	Initial Dry Density (pcf)	Swell/Consolidation		Moisture-Density Relationship			CBR (%)		Particle Size Distribution, Percent Passing by Weight					Atterberg Limits		Water Soluble Sulfates (%)	Remarks
					Surcharge (ksf)	Swell (%)	Maximum Dry Density (pcf)	Optimum Moisture Density (%)	Test Method	0.10 in.	0.20 in.	3/4"	#4	#10	#40	#200	LL	PI		
B-32	4	SC	16.7	105	0.2	-0.9						100	100	98	82	44	28	13		3,4
B-32	9	CL	15.2	113																4
B-32	14	SC	7.2	124																4
B-33	1 - 4	SM										100	99	85	59	36	NV	NP		
B-33	2	SM	3.2	122																4
B-33	4	SM	4.8	122																4
B-34	1 - 4	SM										100	98	80	52	32	NV	NP		
B-34	2	SM	2.8	125																4
B-34	4		4.0	123																4
B-35	1 - 4	SM										100	98	82	55	33	NV	NP		
B-35	2		7.6	124																4
B-35	4		5.5	120																4
B-36	2	SM	10.6	100	0.2	-6.2						100	100	94	67	39	NV	NP		3,4
B-36	4	SM	11.9	117																4
B-37	1 - 4	SM										100	99	88	58	40	NV	NP		
B-37	2	SM	8.6	96	0.2	-10.3														3,4
B-37	4	SM	9.4	116																4
B-38	1 - 4	SM										100	99	82	54	34	NV	NP		
B-38	4	SC	11.1	119																4
B-38	9	SC	8.4	127																4
B-39	2	SC	7.6	102	0.2	-1.3						100	99	88	61	37	28	16		3,4
B-39	9	SC	8.2	122																4
B-40	2	SC	7.6	115																4
B-40	4	SC	12.0	116	0.2	-0.7						100	99	80	51	30	30	16		3,4
B-40	9	SC	10.6	113																4
B-41	1 - 4	SM										100	99	92	65	42	NV	NP		
B-41	2	SM	10.5	108																4
B-41	4	SC	8.3	119																4
B-42	1 - 4	SC										100	99	91	68	42	29	16		
B-42	4	SC	8.4	123																4
B-42	9	SC	15.9	112																4
B-43	1 - 4	SC					119.7	11.7	D698B	3.7	3.7	100	98	87	57	40	29	14		1,3,6
B-43	2	SC	13.0	108	0.2	-0.8														3,4
B-43	4	SC	8.6	109																4
B-44	1 - 4	SM										100	99	90	64	39	NV	NP		
B-44	2	SM	3.3	109	0.2	-0.8														3,4
B-44	4	SC	9.5	120																4
B-45	1 - 4	SM										100	98	90	67	43	NV	NP		
B-45	2	SM	7.0	117																4
B-45	4		6.0	122																4
B-46	1 - 4	SM										100	100	96	64	35	NV	NP		

Notes:
Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
* = Partially disturbed sample
- = Compression/settlement
NV = no value
NP = non-plastic

Remarks:
1 Remolded Compacted density (about 95% of ASTM D698 maximum density near optimum moisture content)
2 Remolded Compacted density (about 95% of ASTM D1557 maximum density near optimum moisture content)
3 Water added to sample
4 Dry density and/or moisture content determined from one ring of a multi-ring sample
5 Minus #200 Only
6 Moisture-Density Relationship Test Method ASTM D698/AASHTO T99
7 Moisture-Density Relationship Test Method ASTM D1557/AASHTO T180

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SUMMARY OF LABORATORY TEST RESULTS

Buc-ee's Monument - Monument, Colorado
Terracon Project No. 23245069

Boring No.	Depth (ft)	USCS Class.	Initial Water Content (%)	Initial Dry Density (pcf)	Swell/Consolidation		Moisture-Density Relationship			CBR (%)		Particle Size Distribution, Percent Passing by Weight					Atterberg Limits		Water Soluble Sulfates (%)	Remarks
					Surcharge (ksf)	Swell (%)	Maximum Dry Density (pcf)	Optimum Moisture Density (%)	Test Method	0.10 in.	0.20 in.	3/4"	#4	#10	#40	#200	LL	PI		
B-46	4	SM	7.9	115																4
B-46	9	SC	10.1	122																4
B-47	1 - 4	SM										100	97	80	51	31	NV	NP		
B-47	4	SC	5.8	119																4
B-47	9	CL	9.2	122																4
B-48	1 - 4	SM										100	97	75	34	17	NV	NP		
B-48	2	SM	4.5	105																4
B-48	4	SM	5.6	97																4
B-49	1 - 4	SM										100	99	92	66	47	NV	NP		
B-49	2	SM	7.6	115																4
B-49	4	SC	4.1	100																4
B-50	1 - 4	SM										100	96	77	44	27	NV	NP		
B-50	2	SM	5.1	104																4
B-50	4		6.4	126																4
B-51	1 - 4	SM										100	98	83	54	33	NV	NP		
B-51	2	SM	8.7	120																4
B-51	4	SC	10.7	121																4
B-52	1 - 4	SM										100	99	88	60	39	NV	NP	<0.10	3,4
B-52	2	SM	7.7	121																4
B-52	4	SC	7.7	118																4
B-53	1 - 4	SC										100	100	98	71	48	23	9		
B-53	2	SC	3.7	107																4
B-53	4	CL	13.8	108	0.2	-0.1														3,4
B-54	1 - 4	SC										100	99	91	65	41	25	10		
B-54	2	SC	8.9	119																4
B-54	4	SC	10.5	114																4
B-55	1 - 4	SC					116.8	12.4	D698B	7.2	6.5	100	100	93	71	47	30	16		1,3,6
B-55	2	SC	11.1	112																4
B-55	4	SM	7.1	117																4
B-56	1 - 4	SM										100	100	97	75	51	NV	NP		
B-56	2	SM	9.6	108																4
B-56	4	SC	9.9	115																4
B-57	1 - 4	SC										100	100	92	64	45	22	9		
B-57	4		3.5																	4
B-57	9		10.5	119																4
B-58	2	SC	11.4	114	0.2	-0.2						100	98	90	66	42	29	14		3,4
B-58	4	SC	9.4	114																4
B-58	9	SM	9.4	111																4
B-60	1 - 4	SM										100	100	94	66	44	NV	NP		
B-60	2	SM	4.5	111																4
B-60	4	SM	6.7	120																4

Notes:
Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
* = Partially disturbed sample
- = Compression/settlement
NV = no value
NP = non-plastic

Remarks:
1 Remolded Compacted density (about 95% of ASTM D698 maximum density near optimum moisture content)
2 Remolded Compacted density (about 95% of ASTM D1557 maximum density near optimum moisture content)
3 Water added to sample
4 Dry density and/or moisture content determined from one ring of a multi-ring sample
5 Minus #200 Only
6 Moisture-Density Relationship Test Method ASTM D698/AASHTO T99
7 Moisture-Density Relationship Test Method ASTM D1557/AASHTO T180

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SUMMARY OF LABORATORY TEST RESULTS

Buc-ee's Monument - Monument, Colorado
Terracon Project No. 23245069

Boring No.	Depth (ft)	USCS Class.	Initial Water Content (%)	Initial Dry Density (pcf)	Swell/Consolidation		Moisture-Density Relationship			CBR (%)		Particle Size Distribution, Percent Passing by Weight					Atterberg Limits		Water Soluble Sulfates (%)	Remarks
					Surcharge (ksf)	Swell (%)	Maximum Dry Density (pcf)	Optimum Moisture Density (%)	Test Method	0.10 in.	0.20 in.	3/4"	#4	#10	#40	#200	LL	PI		
B-61	1 - 4	SM										100	99	89	65	44	NV	NP		
B-61	2	SM	2.9	100																4
B-61	4	CL	15.8	108	0.2	+0.5														3,4
B-62	1 - 4	SM										100	100	94	61	34	NV	NP		
B-62	2	SM	2.8	107																4
B-62	4	SC	8.3	120																4
B-63	1 - 4	SM										100	100	98	67	38	NV	NP		
B-63	4	SM	5.7	116																4
B-63	9	CL	11.4	120																4
B-64	1 - 4	SM										100	98	83	45	22	NV	NP		
B-64	2	SM	5.1																	4
B-64	4	SM	3.7	121																4
B-65	1 - 4	SM										100	100	97	73	45	NV	NP		
B-65	2	SM	7.1	115																4
B-65	4	SM	7.4	120																4
B-66	1 - 4	SC										100	100	97	68	41	26	12		
B-66	2	SC	5.1	103																4
B-66	4	SC	10.3	118																4
B-67	1 - 4	SM										100	99	91	48	26	NV	NP		
B-67	2	SM	3.6	99																4
B-67	4	SC	7.3	114																4
B-68	2	SC	14.4	105	0.2	-0.5						100	100	99	79	42	26	12		3,4
B-68	4	SC	10.9	124																4
B-68	9	SC	11.6	120																4
B-69	1 - 4	SM										100	99	92	63	35	NV	NP		
B-69	2	SM	7.2	117																4
B-69	4	SC	6.5	123																4
B-70	1 - 4	SC										100	100	97	67	40	24	9		
B-70	2	SC	6.4	116																4
B-70	4	CL	8.7	115	0.2	+0.3														3,4
B-71	1 - 4	SC										100	100	95	58	35	25	12		
B-71	2	SC	8.9	109																4
B-71	4	SC	8.5	120																4
B-72	1 - 4	SM										100	100	91	49	31	NV	NP		
B-72	2	SM	3.5	105																4
B-72	4	SC	6.6	116																4
B-73	1 - 4	SM										100	99	80	44	24	NV	NP		
B-73	2	SM	2.7																	4
B-73	4	SM	6.1	123																4
B-74	1 - 4	SM										100	99	92	59	33	NV	NP		
B-74	2	SM	8.3	109																4

Notes:
Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
* = Partially disturbed sample
- = Compression/settlement
NV = no value
NP = non-plastic

Remarks:
1 Remolded Compacted density (about 95% of ASTM D698 maximum density near optimum moisture content)
2 Remolded Compacted density (about 95% of ASTM D1557 maximum density near optimum moisture content)
3 Water added to sample
4 Dry density and/or moisture content determined from one ring of a multi-ring sample
5 Minus #200 Only
6 Moisture-Density Relationship Test Method ASTM D698/AASHTO T99
7 Moisture-Density Relationship Test Method ASTM D1557/AASHTO T180

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SUMMARY OF LABORATORY TEST RESULTS

Buc-ee's Monument - Monument, Colorado
Terracon Project No. 23245069

Boring No.	Depth (ft)	USCS Class.	Initial Water Content (%)	Initial Dry Density (pcf)	Swell/Consolidation		Moisture-Density Relationship			CBR (%)		Particle Size Distribution, Percent Passing by Weight					Atterberg Limits		Water Soluble Sulfates (%)	Remarks
					Surcharge (ksf)	Swell (%)	Maximum Dry Density (pcf)	Optimum Moisture Density (%)	Test Method	0.10 in.	0.20 in.	3/4"	#4	#10	#40	#200	LL	PI		
B-74	4	SM	6.2	121																4
B-75	1 - 4	SM					121.1	11.6	D698B	4.5	5.2	100	99	93	67	39	NV	NP		1,3,6
B-75	2	SM	6.6	107	0.2	+1.0														3,4
B-75	4	SC	7.0	116																4
B-75	9	CL	11.6	111																4
B-76	2	SM	7.2	121	0.2	+0.9						100	99	93	73	44	NV	NP		3,4
B-76	4	SM	13.1	111																4
B-77	1 - 4	SM										100	98	75	39	20	NV	NP		
B-77	2	SM	2.9	114																4
B-77	4	SM	4.6	117																4
B-78	1 - 4	SM										100	99	89	51	28	NV	NP		
B-78	2	SM	3.2	110																4
B-78	4	SM	7.2	119																4
B-79	1 - 4	SM										100	98	78	43	23	NV	NP		
B-79	2	SM	2.0	121																4
B-79	4	SP	8.3	119																4
B-80	1 - 4	SM										100	100	90	56	32	NV	NP		
B-80	2	SM	2.6	117																4
B-80	4	SC	4.7	117																4
B-81	1 - 4	SM										100	99	84	48	26	NV	NP		
B-81	4	SC	5.1	121																4
B-81	9	CL	9.7	116																4
B-82	1 - 4	SM										100	98	75	37	19	NV	NP	<0.10	3,4
B-82	2	SM	3.3	110																4
B-82	4	SM	7.3	123																4
B-83	1 - 4	SM										100	98	72	32	17	NV	NP		
B-83	2	SM	1.3																	4
B-83	4	SM	2.8	125																4
B-84	1 - 4	SM										100	100	86	41	24	NV	NP		
B-84	2	SM	1.3																	4
B-84	4	SC	2.4	118																4
B-85	1 - 4	SM										100	100	95	63	37	NV	NP		
B-85	2	SM	3.7	108																4
B-85	9		3.4	119																4
B-86	1 - 4	SM										100	100	96	53	27	NV	NP		
B-86	2	SM	8.7	108																4
B-86	4	SC	9.8	116																4
B-87	2	SM	6.0	117																4
B-87	4	SC	12.1	109	0.2	+0.1						100	95	78	53	27	27	12		3,4
B-87	9	SC	11.3	115																4
B-88	1 - 4	SM										100	100	91	50	29	NV	NP		

Notes:
Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
* = Partially disturbed sample
- = Compression/settlement
NV = no value
NP = non-plastic

Remarks:
1 Remolded Compacted density (about 95% of ASTM D698 maximum density near optimum moisture content)
2 Remolded Compacted density (about 95% of ASTM D1557 maximum density near optimum moisture content)
3 Water added to sample
4 Dry density and/or moisture content determined from one ring of a multi-ring sample
5 Minus #200 Only
6 Moisture-Density Relationship Test Method ASTM D698/AASHTO T99
7 Moisture-Density Relationship Test Method ASTM D1557/AASHTO T180

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SUMMARY OF LABORATORY TEST RESULTS

Buc-ee's Monument - Monument, Colorado
Terracon Project No. 23245069

Boring No.	Depth (ft)	USCS Class.	Initial Water Content (%)	Initial Dry Density (pcf)	Swell/Consolidation		Moisture-Density Relationship			CBR (%)		Particle Size Distribution, Percent Passing by Weight					Atterberg Limits		Water Soluble Sulfates (%)	Remarks
					Surcharge (ksf)	Swell (%)	Maximum Dry Density (pcf)	Optimum Moisture Density (%)	Test Method	0.10 in.	0.20 in.	3/4"	#4	#10	#40	#200	LL	PI		
B-88	2	SM	6.7	121																4
B-88	4	SM	7.9	123																4
B-89	1 - 4	SM										100	100	91	55	30	NV	NP		
B-89	2	SM	2.7	107																4
B-89	4		3.6	125																4
B-90	1 - 4	SM										100	100	96	68	34	NV	NP		
B-90	2	SM	3.8	108																4
B-90	4	SM	4.0	117																4
B-91	1 - 4	SM										100	100	96	54	22	NV	NP		
B-91	2	SM	5.0	111																4
B-91	4	SC	7.2	119																4
B-92	1 - 4	SM										100	99	85	58	36	NV	NP		
B-92	2	SM	4.6	101																4
B-92	4	SM	11.0	119																4
S-1	1 - 4	SM										100	94	74	46	29	NV	NP		
S-1	2	SM	4.3	99																4
S-1	9	SC	14.5	96																4
S-1	14	SC	12.3	93																4
S-1	19		11.9	113																4
S-1	24		6.9																	
S-1	29		15.1																	4
S-1	39		4.2																	4
S-1	49		8.2																	

Notes:
Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
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- = Compression/settlement
NV = no value
NP = non-plastic

Remarks:
1 Remolded Compacted density (about 95% of ASTM D698 maximum density near optimum moisture content)
2 Remolded Compacted density (about 95% of ASTM D1557 maximum density near optimum moisture content)
3 Water added to sample
4 Dry density and/or moisture content determined from one ring of a multi-ring sample
5 Minus #200 Only
6 Moisture-Density Relationship Test Method ASTM D698/AASHTO T99
7 Moisture-Density Relationship Test Method ASTM D1557/AASHTO T180

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Off-Site Pavement Information

Contents:

Off-site Pavement Locations
Exploration Plan with Aerial Image
Exploration Plan with Project Overlay
Boring Logs (Boring Nos. P-1 to P-18)
Swell Consolidation Test (7 pages)
Grain Size Distribution (4 pages)
R-Value (2 pages)
Summary of Laboratory Test Results (2 pages)

Note: All attachments are one page unless noted above.

Off-Site Pavement Locations

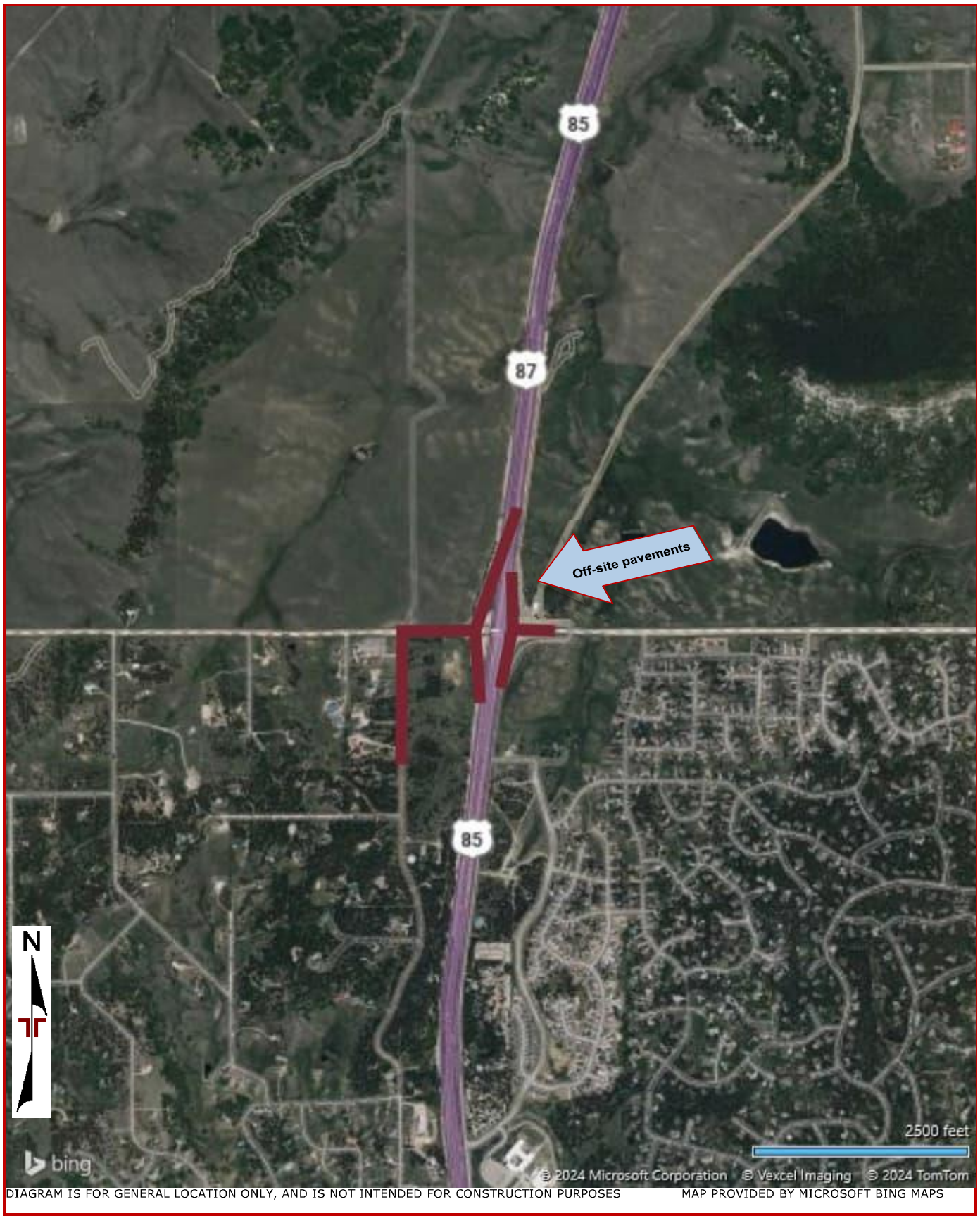


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan with Aerial Image

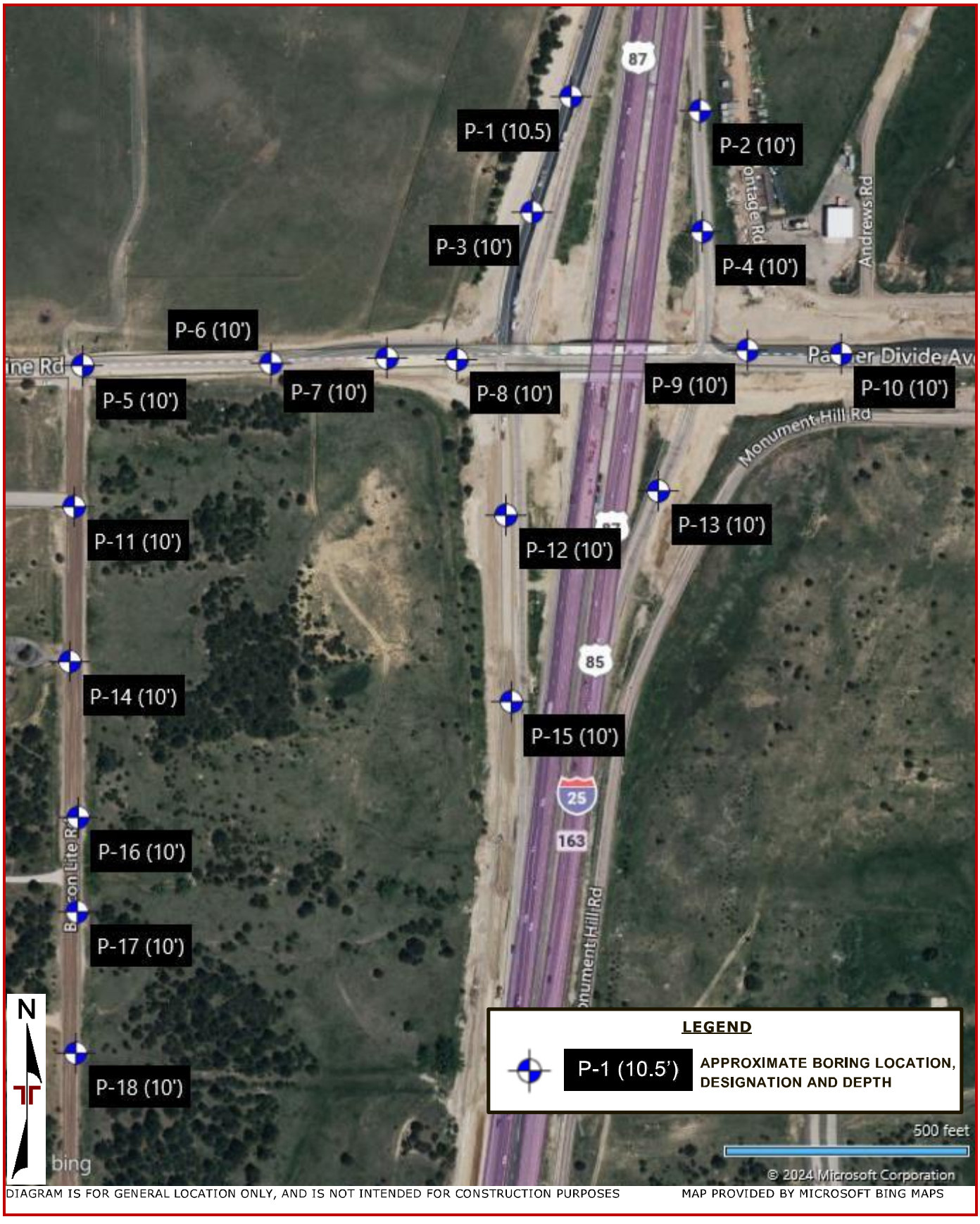


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan with Project Overlay

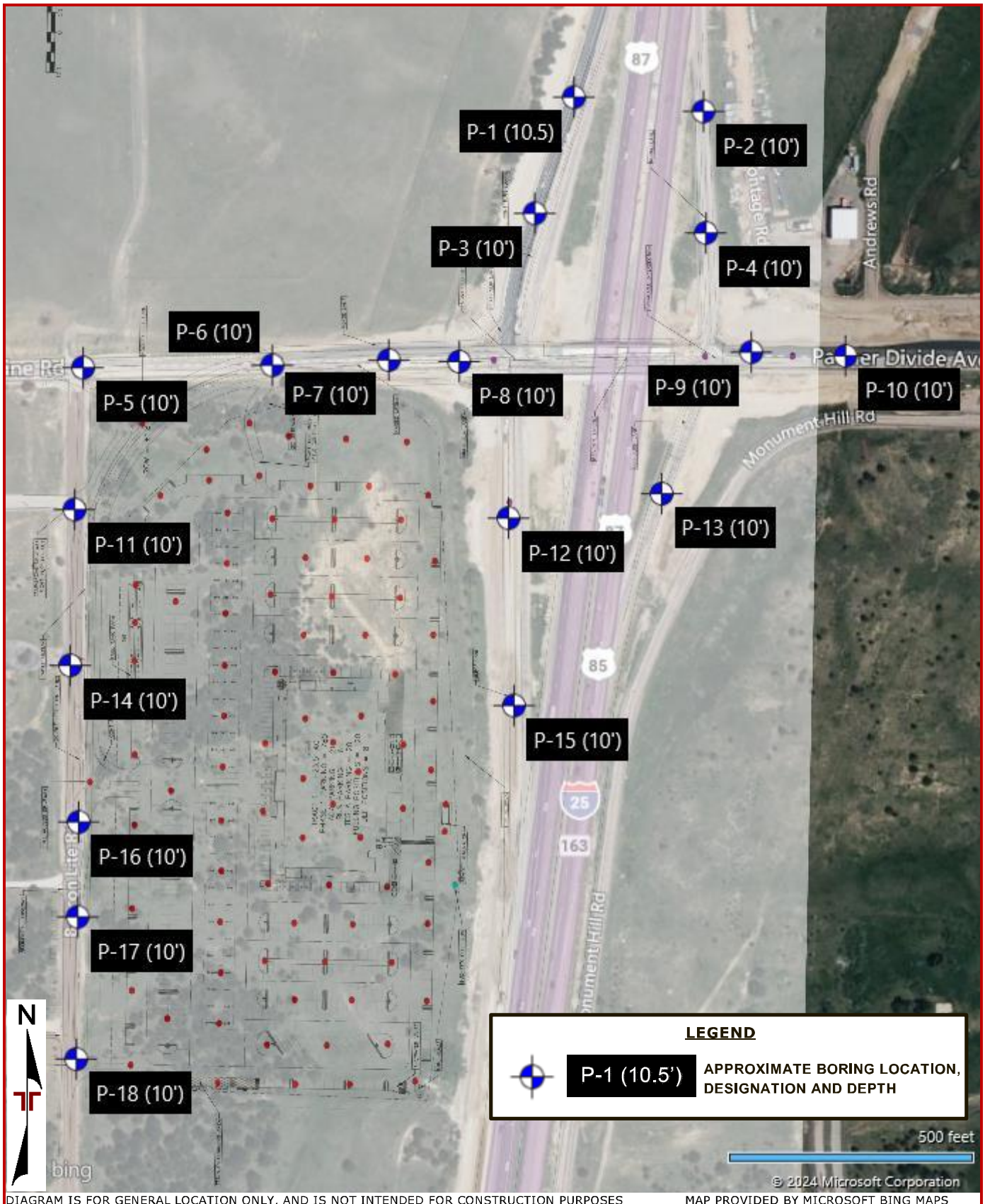


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-1

Location: See Exploration Plan

Latitude: 39.1314° Longitude: -104.8641°

Depth (Ft.) Approximate Elevation: 7309 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.7 **ASPHALT**, approximately 8 inches thick 7308.33								
		1.0 **APPARENT AGGREGATE BASE COURSE**, approximately 4 inches thick 7308								
2		2.0 **FILL - SILTY SAND (A-1-b (0)) (SM)**, fine to coarse grained, brown 7307								
6		**SANDSTONE**, with clay, fine to coarse grained, brown to tan, medium hard			24-35	-0.1 @ 200 psf	12.1	109	NP	22.4
					17-24		10.7	114		
		10.5 7298.5			8-14-20 N=34					
		Boring Terminated at 10.5 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-2

Location: See Exploration Plan

Latitude: 39.1313° Longitude: -104.8632°

Depth (Ft.) Approximate Elevation: 7303 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.7 **ASPHALT**, approximately 8 inches thick 7302.33								
		1.0 **APPARENT AGGREGATE BASE COURSE**, approximately 4 inches thick 7302								
3		**SILTY SAND (A-2-4 (0)) (SM)**, trace gravel, fine to coarse grained, brown, medium dense			13-16		11.0	117	NP	31.4
					14-14		12.0	116		
		5								
		9.0 7294								
4		**SANDY LEAN CLAY (CL)**, brown, very stiff			8-11		12.9	113		
		10.0 7293								
		10								
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-3

Location: See Exploration Plan

Latitude: 39.1307° Longitude: -104.8644°

Depth (Ft.) Approximate Elevation: 7315 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.7 **ASPHALT**, approximately 7.75 inches thick 7314.33								
		1.0 **APPARENT AGGREGATE BASE COURSE**, approximately 4.25 inches thick 7314								
2		**FILL - SILTY SAND (A-1-b (0)) (SM)**, trace gravel, fine to coarse grained, gray to brown, medium dense			18-18				NP	18.3
					12-40		17.1	38		
		6.0 7309								
3		**CLAYEY SAND (SC)**, fine to coarse grained, brown, very loose								
		10.0 7305			3-3		9.5	106		
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-4

Location: See Exploration Plan

Latitude: 39.1306° Longitude: -104.8632°

Depth (Ft.) Approximate Elevation: 7312 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		**ASPHALT**, approximately 9 inches thick 0.8 / 7311.25								
		1.2 **APPARENT AGGREGATE BASE COURSE**, approximately 5 inches thick / 7310.8								
2		**FILL - SILTY SAND (A-2-4 (0)) (SM)**, trace gravel, fine to coarse grained, gray to brown, loose to medium dense			7-9	0.0 @ 200 psf	12.8	107	NP	29.6
					8-12		12.5	112		
		10.0 / 7302			8-16					
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-5

Location: See Exploration Plan

Latitude: 39.1298° Longitude: -104.8677°

Approximate Elevation: 7378 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Description	Elevation	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**ASPHALT**, approximately 4.5 inches thick	7377.67									
		0.8	**APPARENT AGGREGATE BASE COURSE**, approximately 5.5 inches thick	7377.17									
2		2.0	**FILL - SILTY SAND (A-1-b (0)) (SM)**, fine to coarse grained, brown	7376									
6			**SANDSTONE**, with clay, fine to coarse grained, brown to tan, firm to medium hard					14-28	+0.2 @ 200 psf	10.1	117	NP	22.4
					5			25-25		10.6	116		
		10.0		7368				30-50/3"		10.6	123		
			Boring Terminated at 10 Feet		10								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-6

Location: See Exploration Plan

Latitude: 39.1299° Longitude: -104.8663°

Approximate Elevation: 7350 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Description	Elevation	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.3	**ASPHALT**, approximately 8 inches thick	7349.68									
1		1.1	**APPARENT AGGREGATE BASE COURSE**, approximately 5 inches thick	7348.92									
2		2.0	**FILL - SILTY SAND (A-2-4 (0)) (SM)**, fine to coarse grained, brown	7348									
3		8.0	**SILTY SAND (SM)**, trace clay and gravel, fine to coarse grained, brown, medium dense	7342	5			8-18				NP	34.7
								11-22		12.8	114		
6		10.0	**SANDSTONE**, with clay, fine to coarse grained, brown to tan, medium hard	7340	10			24-50/4"		10.0	116		
			Boring Terminated at 10 Feet										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-7

Location: See Exploration Plan

Latitude: 39.1299° Longitude: -104.8655°

Depth (Ft.) Approximate Elevation: 7332 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5 **ASPHALT**, approximately 5.75 inches thick 7331.52								
		0.7 **APPARENT AGGREGATE BASE COURSE**, approximately 2.5 inches thick 7331.31								
2		**FILL - SILTY SAND (A-2-4 (0)) (SM)**, fine to coarse grained, brown 2.0 7330								
3		**SILTY SAND (SM)**, trace clay and gravel, fine to coarse grained, brown to tan, loose to medium dense			16-23		5.8	114	NP	26.9
					14-15					
		10.0 7322			9-9		12.9	108		
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-8

Location: See Exploration Plan

Latitude: 39.1299° Longitude: -104.8649°

Depth (Ft.) Approximate Elevation: 7321 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.2 **ASPHALT**, approximately 2.5 inches thick 7320.79								
		0.7 **APPARENT AGGREGATE BASE COURSE**, approximately 5.5 inches thick 7320.33								
2		**FILL - SILTY SAND (A-2-4 (0)) (SM)**, trace gravel and asphalt fragments, fine to coarse grained, gray to brown, medium dense to dense			17-32	-0.3 @ 200 psf	7.0	122	NP	27.5
					33-50/4"		6.1	121		
		8.0 7313								
3		**POORLY GRADED SAND (SP-SC)**, with clay, trace gravel, fine to coarse grained, brown to tan, medium dense			12-13					
		10.0 7311								
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-9

Location: See Exploration Plan

Latitude: 39.1299° Longitude: -104.8628°

Depth (Ft.) Approximate Elevation: 7302 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.7 **ASPHALT**, approximately 8.25 inches thick 7301.31								
		1.1 **APPARENT AGGREGATE BASE COURSE**, approximately 5.25 inches thick 7300.87								
3		**SILTY SAND (A-1-b (0)) (SM)**, trace gravel, varies to sandy lean clay, fine to coarse grained, brown to tan, medium dense			14-44	-0.2 @ 200 psf	9.2	100	NP	21.8
					19-29		6.5	125		
		5								
		10.0 7292			7-12		13.6	110		
		10 ***Boring Terminated at 10 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-10

Location: See Exploration Plan

Latitude: 39.1299° Longitude: -104.8622°

Depth (Ft.) Approximate Elevation: 7302 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.7 **ASPHALT**, approximately 8.25 inches thick 7301.31								
		1.1 **APPARENT AGGREGATE BASE COURSE**, approximately 4.5 inches thick 7300.94								
2		**FILL - SILTY SAND (A-1-b (0)) (SM)**, trace clay and gravel, fine to coarse grained, brown, medium dense			19-16		8.1	115	NP	24.4
					19-13		8.3	119		
		5.0 7297								
3		**SILTY SAND (SM)**, fine to coarse grained, brown, loose								
		10.0 7292			9-9					
		Boring Terminated at 10 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-11

Location: See Exploration Plan

Latitude: 39.1291° Longitude: -104.8677°

Depth (Ft.) Approximate Elevation: 7375 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.4 **APPARENT AGGREGATE BASE COURSE**, approximately 5 inches thick 7374.58								
2		**FILL - CLAYEY SAND (A-6 (1)) (SC)**, with gravel and asphalt fragments, fine to coarse grained, brown, loose to medium dense			6-7		10.7	106	25-14-11	38.9
					9-15		7.8	122		
3		4.5 7370.5 **CLAYEY SAND (SC)**, fine to coarse grained, brown to tan, medium dense								
		5								
		10.0 7365			12-14					
		10 ***Boring Terminated at 10 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-12

Location: See Exploration Plan

Latitude: 39.1290° Longitude: -104.8646°

Depth (Ft.) Approximate Elevation: 7317 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.8 **ASPHALT**, approximately 9.25 inches thick 7316.23								
		1.1 **APPARENT AGGREGATE BASE COURSE**, approximately 4.25 inches thick 7315.88								
3		**SILTY SAND (A-2-4 (0)) (SM)**, trace gravel, fine to coarse grained, brown to tan, medium dense			12-16				NP	30.9
					17-14		8.1	117		
		5								
					12-12		7.1	114		
		10.0 7307								
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Boring Started
07-25-2024

Boring Completed
07-25-2024

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-13

Location: See Exploration Plan

Latitude: 39.1291° Longitude: -104.8635°

Depth (Ft.) Approximate Elevation: 7305 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.9 7304.08 **ASPHALT**, approximately 11 inches thick								
		1.3 7303.67 **APPARENT AGGREGATE BASE COURSE**, approximately 5 inches thick								
3		**SILTY SAND (A-2-6 (1)) (SM)**, trace gravel, varies to sandy lean clay, fine to coarse grained, brown to light, loose			4-4	-0.2 @ 200 psf	13.5	109	NP	27.2
					5-5					
		10.0 7295			6-10		14.7	114		
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-14

Location: See Exploration Plan

Latitude: 39.1282° Longitude: -104.8678°

Depth (Ft.) Approximate Elevation: 7374 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.6 **APPARENT AGGREGATE BASE COURSE**, approximately 7 inches thick 7373.41								
3		**CLAYEY SAND (A-2-6 (1)) (SC)**, trace gravel, fine to coarse grained, brown, medium dense			10-14		9.1	116	25-11-14	33.8
					10-17		6.3	123		
		5								
		9.0 7365								
6		**SANDSTONE**, fine to coarse grained, redish brown, medium hard, strong cementation 10.0 7364			22-50/6"					
		10 ***Boring Terminated at 10 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-15

Location: See Exploration Plan

Latitude: 39.1280° Longitude: -104.8646°

Depth (Ft.) Approximate Elevation: 7313 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		**ASPHALT**, approximately 8 inches thick 0.7 / 7312.34								
3		1.1 **APPARENT AGGREGATE BASE COURSE**, approximately 5 inches thick / 7311.88 **SILTY SAND (A-2-4 (0)) (SM)**, trace gravel, fine to coarse grained, brown to gray, loose to medium dense			6-9		10.2	106	NP	28.6
					13-26		15.3	109		
		5								
5		9.0 / 7304 **POORLY GRADED GRAVEL (GP-GC)**, with clay and sand, fine to coarse grained, brown to tan, loose			4-4-6 N=10					
		10.0 / 7303								
		10								
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-16

Location: See Exploration Plan

Latitude: 39.1273° Longitude: -104.8677°

Depth (Ft.) Approximate Elevation: 7361 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.6 **APPARENT AGGREGATE BASE COURSE**, approximately 7 inches thick 7360.41								
3		**SILTY SAND (A-2-4 (0)) (SM)**, trace gravel, fine to coarse grained, brown, loose to medium dense			11-7		8.4	113	NP	33.3
					10-17		8.4	126		
		5								
6		9.0 7352 **SANDSTONE**, fine to coarse grained, redish brown, medium hard, strong cementation			28-50/5"					
		10.0 7351								
		10								
		Boring Terminated at 10 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-17

Location: See Exploration Plan

Latitude: 39.1268° Longitude: -104.8677°

Depth (Ft.) Approximate Elevation: 7361 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.6 **APPARENT AGGREGATE BASE COURSE**, approximately 7 inches thick 7360.41								
3		**SILTY SAND (A-2-4 (0)) (SM)**, trace gravel, fine to coarse grained, brown, loose			7-8		7.8	117	NP	26.3
					6-8	-0.3 @ 200 psf	15.4	108		
		5								
6		9.0 7352 **SANDSTONE**, fine to coarse grained, redish brown, soft, moderate cementation			12-14					
		10.0 7351								
		10 ***Boring Terminated at 10 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Boring Started
07-25-2024

Boring Completed
07-25-2024

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Log No. P-18

Location: See Exploration Plan

Latitude: 39.1260° Longitude: -104.8677°

Depth (Ft.) Approximate Elevation: 7366 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Swell (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.4 **APPARENT AGGREGATE BASE COURSE**, approximately 5 inches thick 7365.58								
3		**SILTY SAND (A-1-b (0)) (SM)**, fine to coarse grained, brown to dark brown, loose			7-9		8.4	116	NP	19.1
					3-4		8.9	115		
		5								
6		**SANDSTONE**, with clay, fine to coarse grained, brown to tan, medium hard, moderate cementation 10.0 7356			22-44					
		10 ***Boring Terminated at 10 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Approximate ground surface elevation obtained from Google Earth Aerial Imagery.

Water Level Observations
Groundwater not encountered

Drill Rig
CME-75

Hammer Type
Automatic Hammer efficiency: 77.8%

Driller
Terracon

Logged by
JP

Boring Started
07-25-2024

Boring Completed
07-25-2024

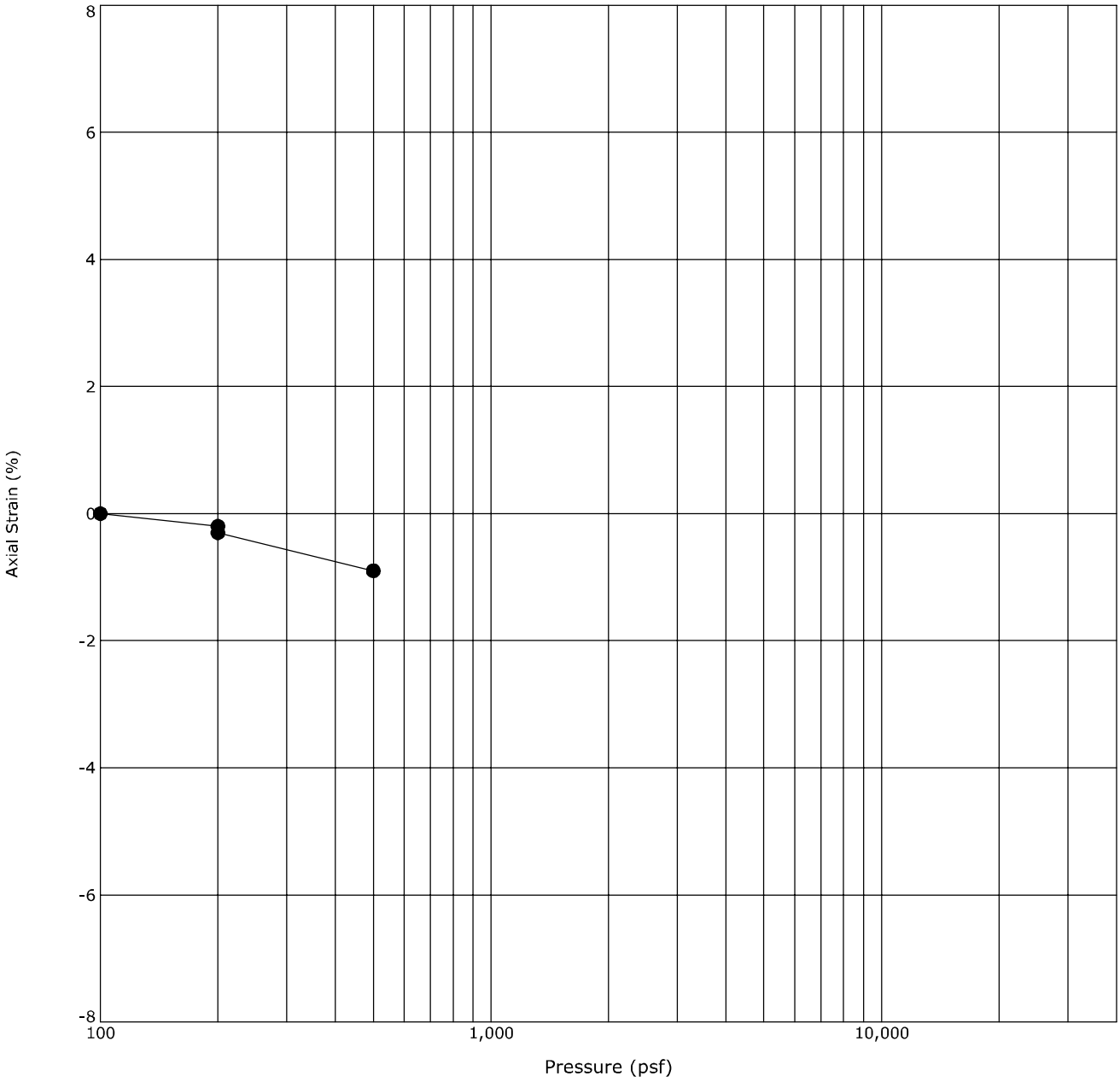
Notes

Advancement Method
6-inch, solid-stem, continuous flight, power auger

Abandonment Method
Boring backfilled with excess auger cuttings

Terracon
4172 Center Park Dr
Colorado Springs, CO

One-Dimensional Swell or Collapse

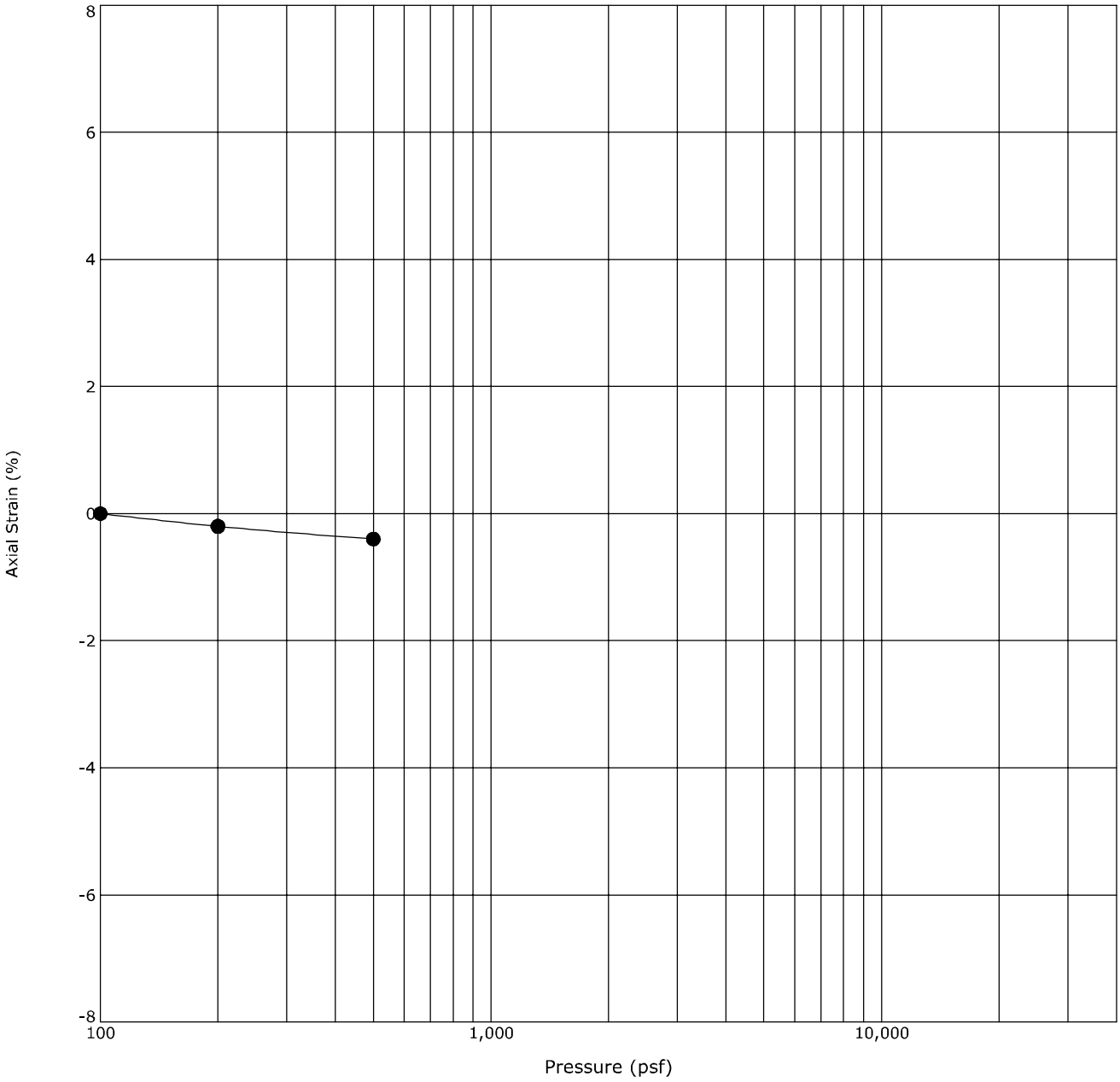


Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	P-1	2 - 3	SANDSTONE		109	12.1

Notes: Sample exhibited 0.1 percent compression when wetted at an applied pressure of 200 psf.

Terracon
4172 Center Park Dr
Colorado Springs, CO

One-Dimensional Swell or Collapse

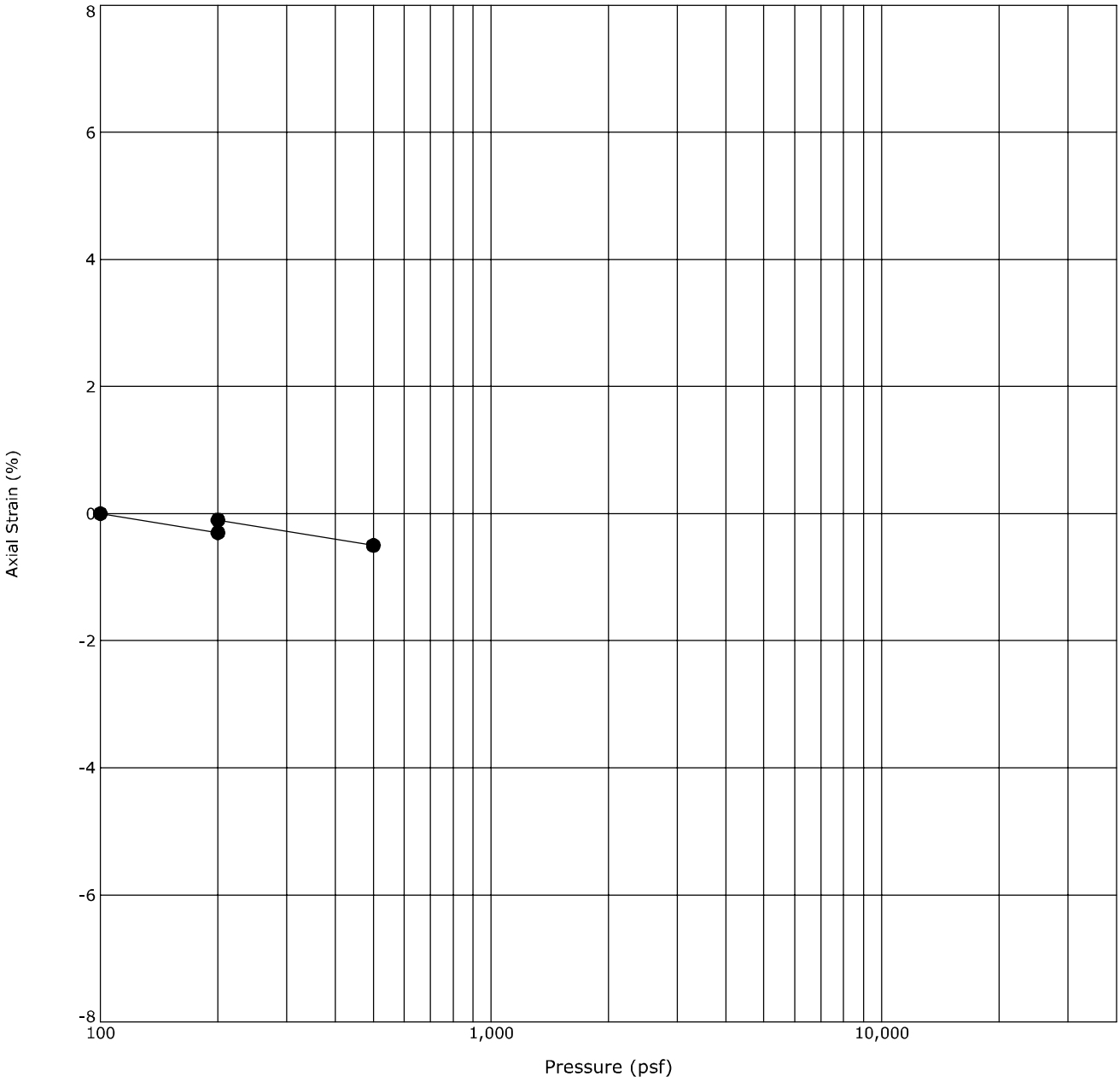


Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	P-4	2 - 3	SILTY SAND	SM	107	12.8

Notes: Sample exhibited 0.0 percent expansion when wetted at an applied pressure of 200 psf.

Terracon
4172 Center Park Dr
Colorado Springs, CO

One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	P-5	2 - 3	SANDSTONE		117	9.3

Notes: Sample exhibited 0.2 percent expansion when wetted at an applied pressure of 200 psf.

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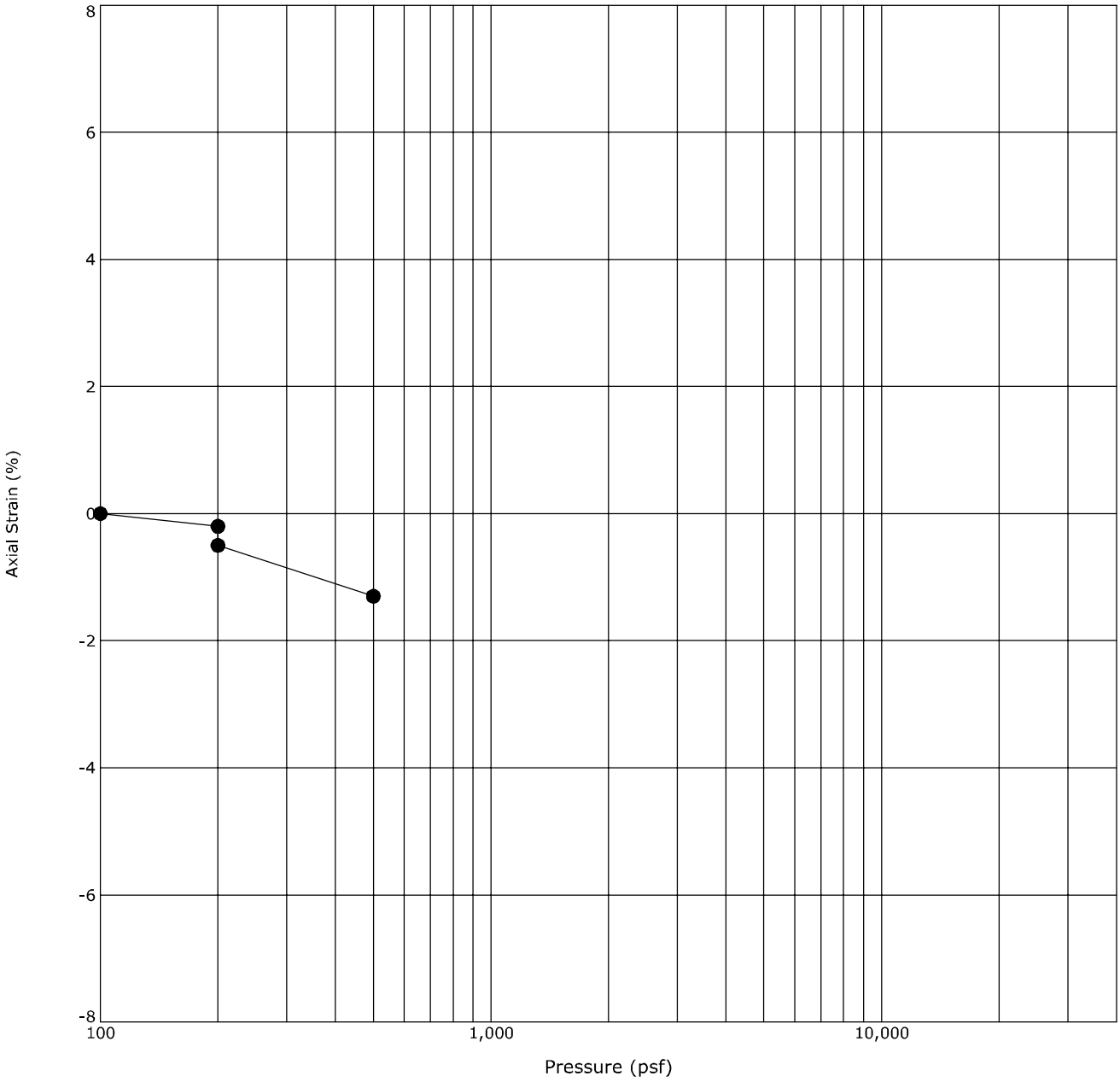
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	P-8	2 - 3	SILTY SAND	SM	122	7.0

Notes: Sample exhibited 0.3 percent compression when wetted at an applied pressure of 200 psf.

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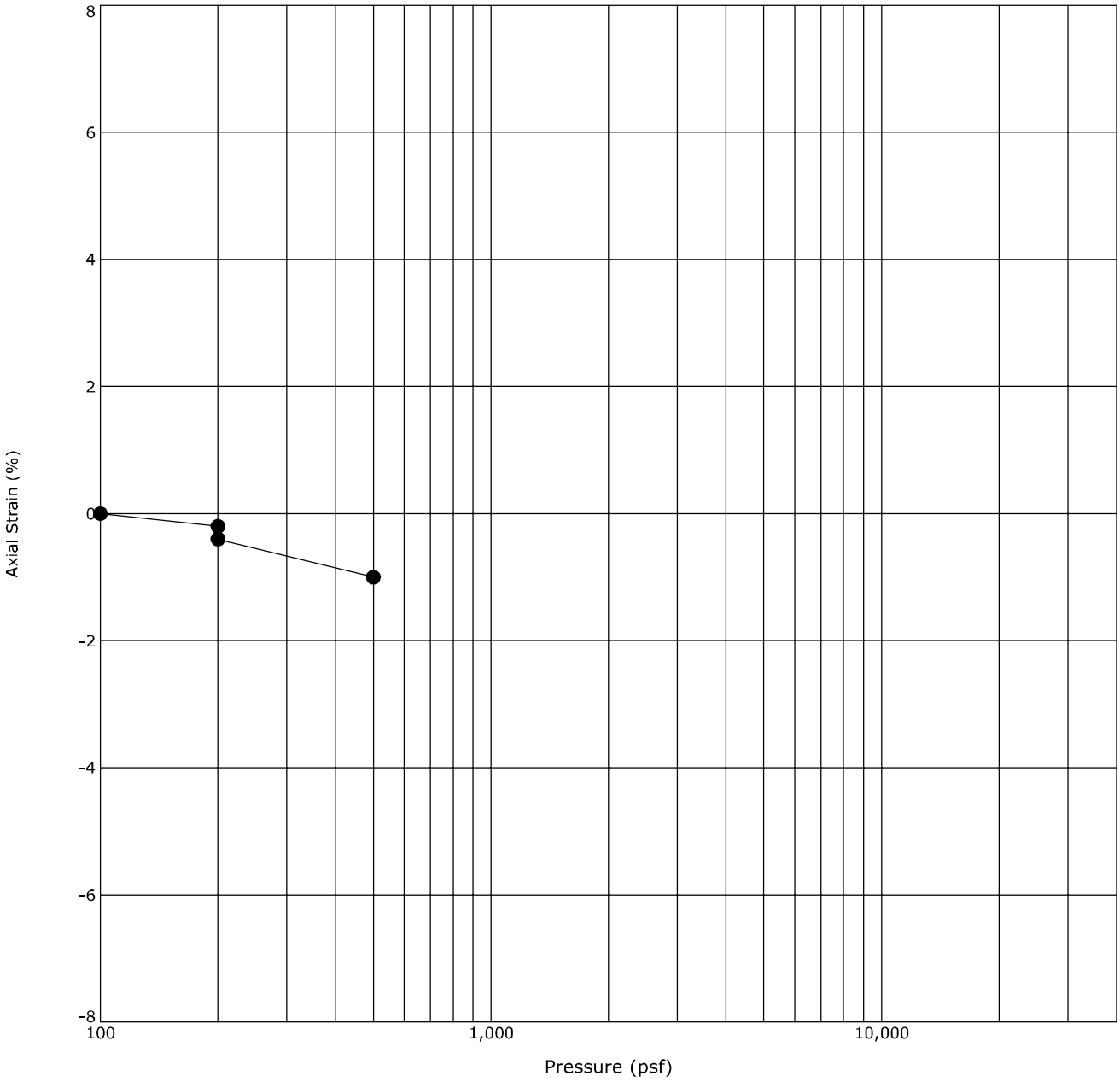
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	P-9	2 - 3	SILTY SAND	SM	100	9.2

Notes: Sample exhibited 0.2 percent compression when wetted at an applied pressure of 200 psf.

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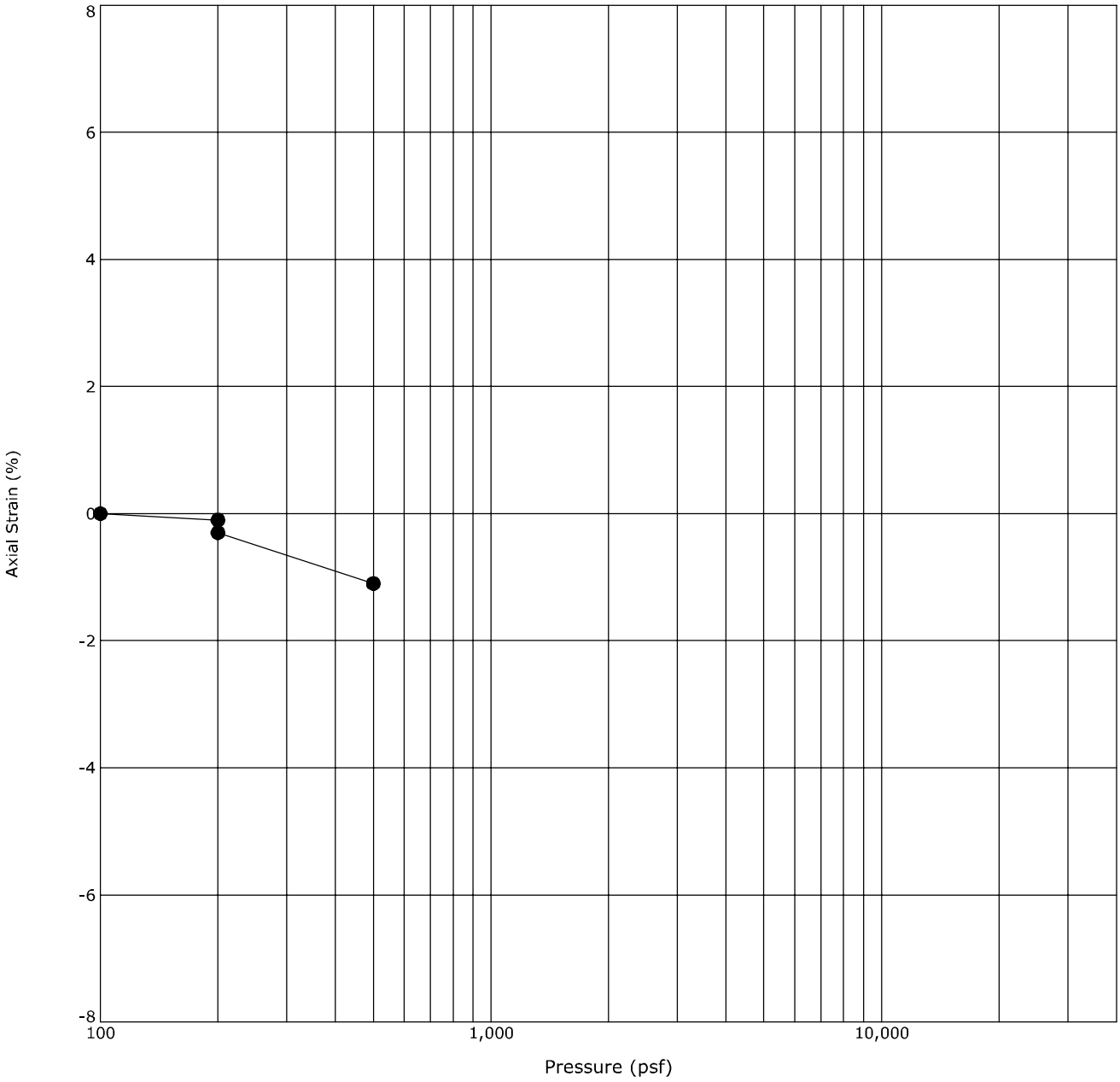
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	P-13	2 - 3	SILTY SAND	SM	103	13.5

Notes: Sample exhibited 0.2 percent compression when wetted at an applied pressure of 200 psf.

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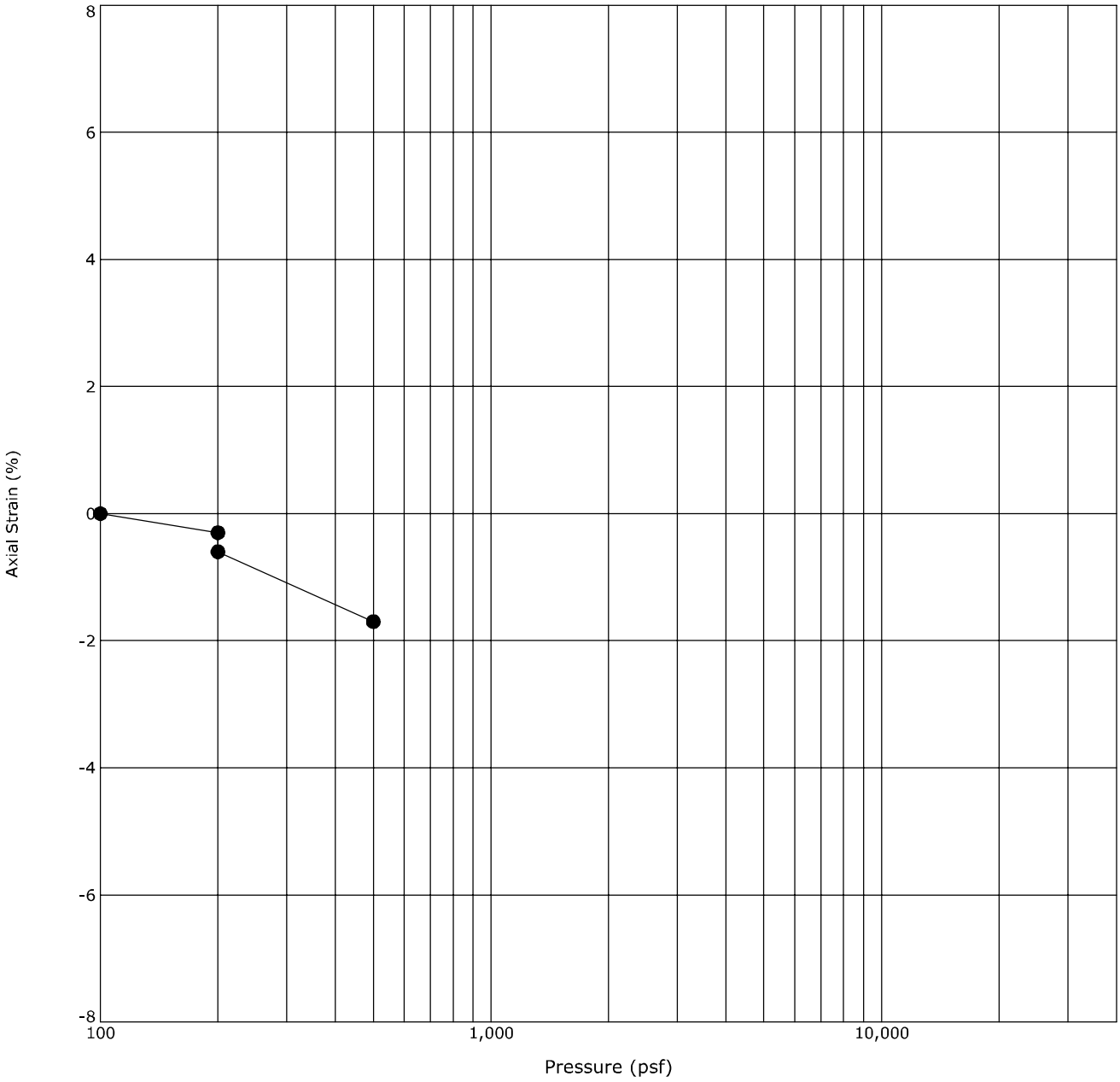
One-Dimensional Swell or Collapse



Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	P-17	4 - 5	SILTY SAND	SM	108	15.4

Notes: Sample exhibited 0.3 percent compression when wetted at an applied pressure of 200 psf.

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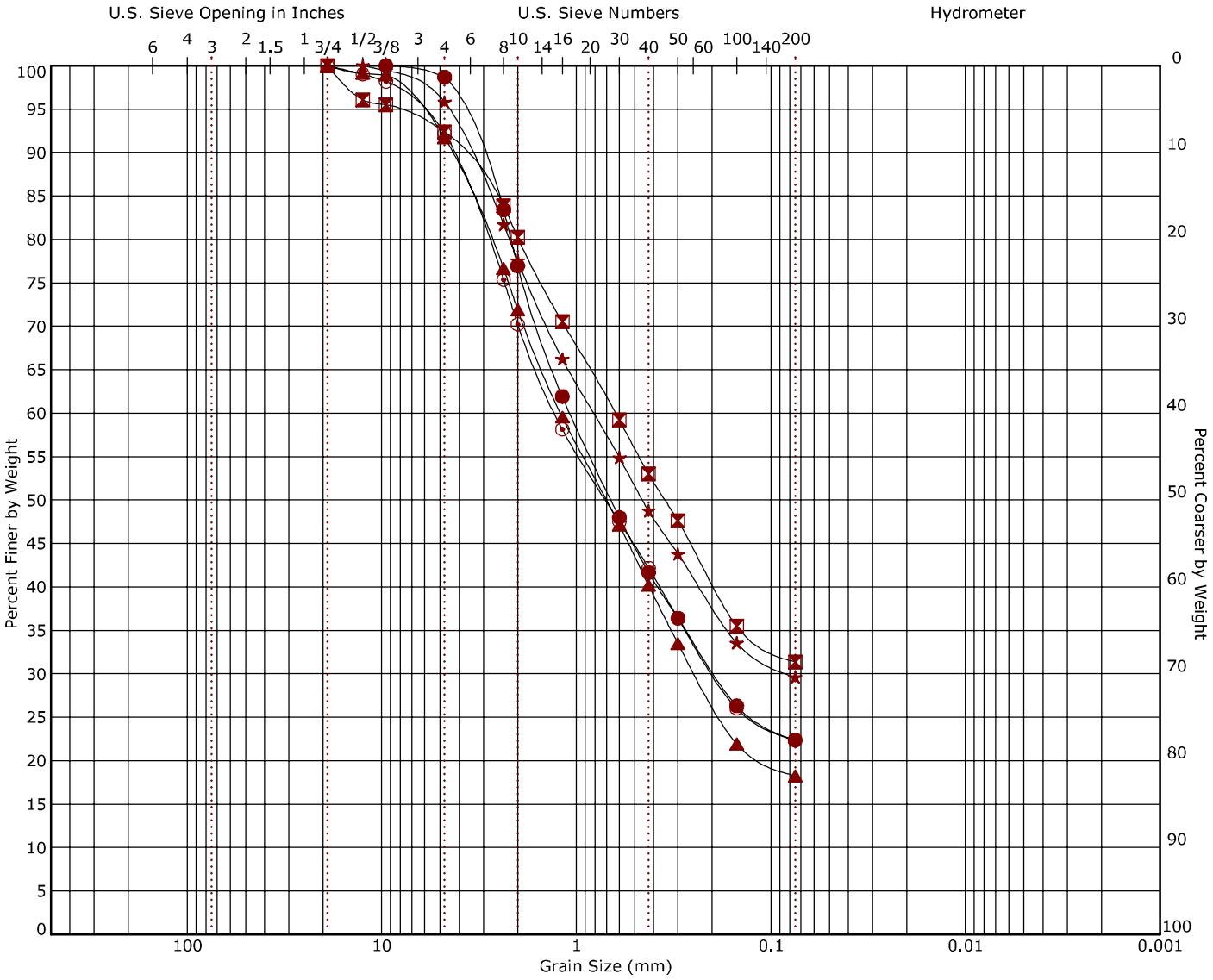
Grain Size Distribution

ASTM D422 / ASTM C136



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	P-1	1 - 6	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
⊠	P-2	1 - 6	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
▲	P-3	1 - 6	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
★	P-4	1 - 6	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊙	P-5	1 - 6	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	P-1	1 - 6	9.5	1.074	0.193		0.0	1.3	76.3	22.4		
⊠	P-2	1 - 6	19	0.627			0.0	7.6	61.0	31.4		
▲	P-3	1 - 6	19	1.203	0.243		0.0	8.3	73.4	18.3		
★	P-4	1 - 6	12.5	0.813	0.08		0.0	4.2	66.2	29.6		
⊙	P-5	1 - 6	19	1.279	0.196		0.0	7.8	69.9	22.4		

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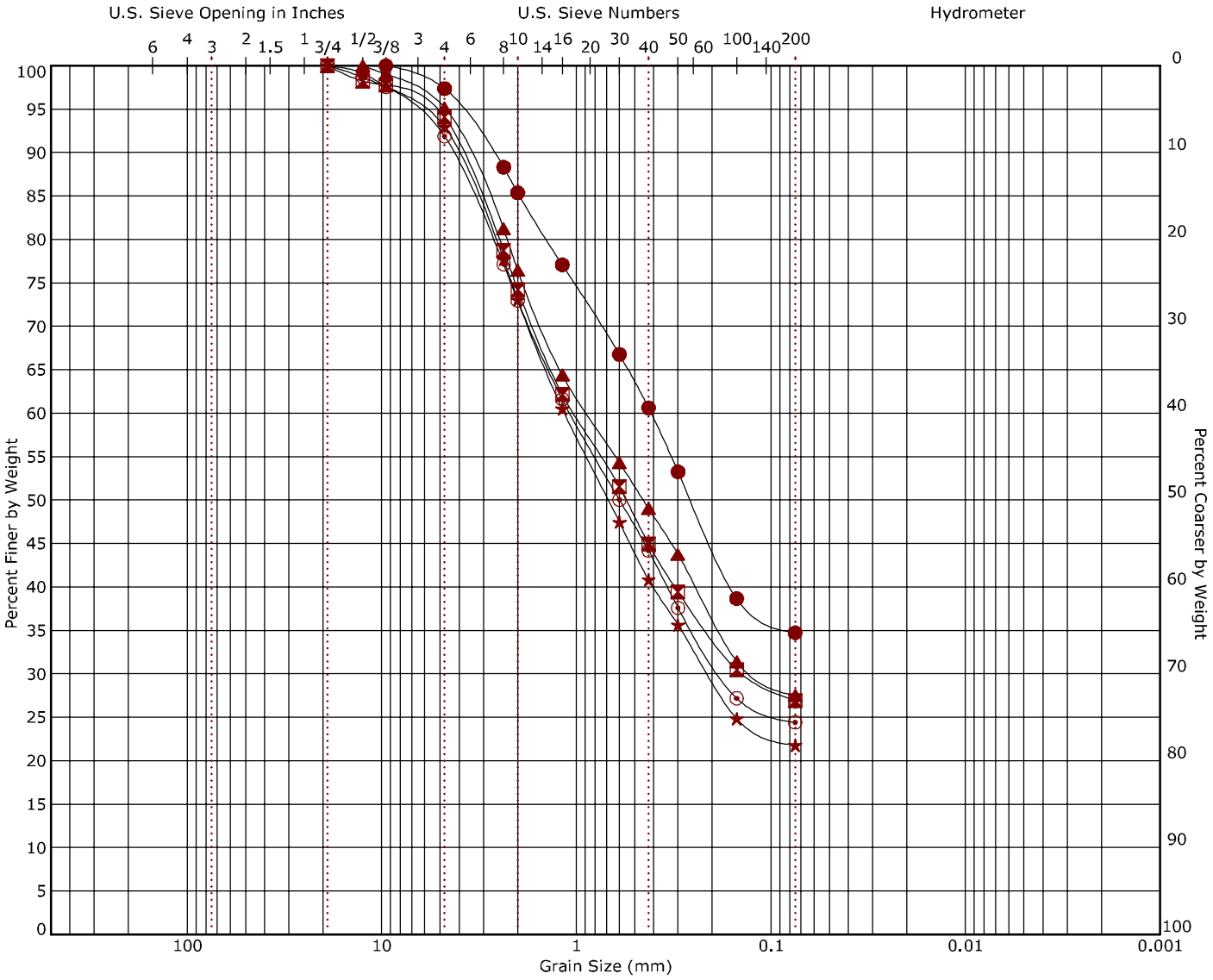
Grain Size Distribution

ASTM D422 / ASTM C136



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	P-6	1 - 6	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊠	P-7	1 - 6	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
▲	P-8	1 - 6	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
★	P-9	1 - 6	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		
⊙	P-10	1 - 6	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	P-6	1 - 6	9.5	0.413			0.0	2.6	62.6	34.7		
⊠	P-7	1 - 6	19	1.028	0.136		0.0	5.9	67.1	26.9		
▲	P-8	1 - 6	12.5	0.878	0.117		0.0	4.9	67.6	27.5		
★	P-9	1 - 6	19	1.149	0.209		0.0	7.0	71.2	21.8		
⊙	P-10	1 - 6	19	1.074	0.181		0.0	8.1	67.5	24.4		

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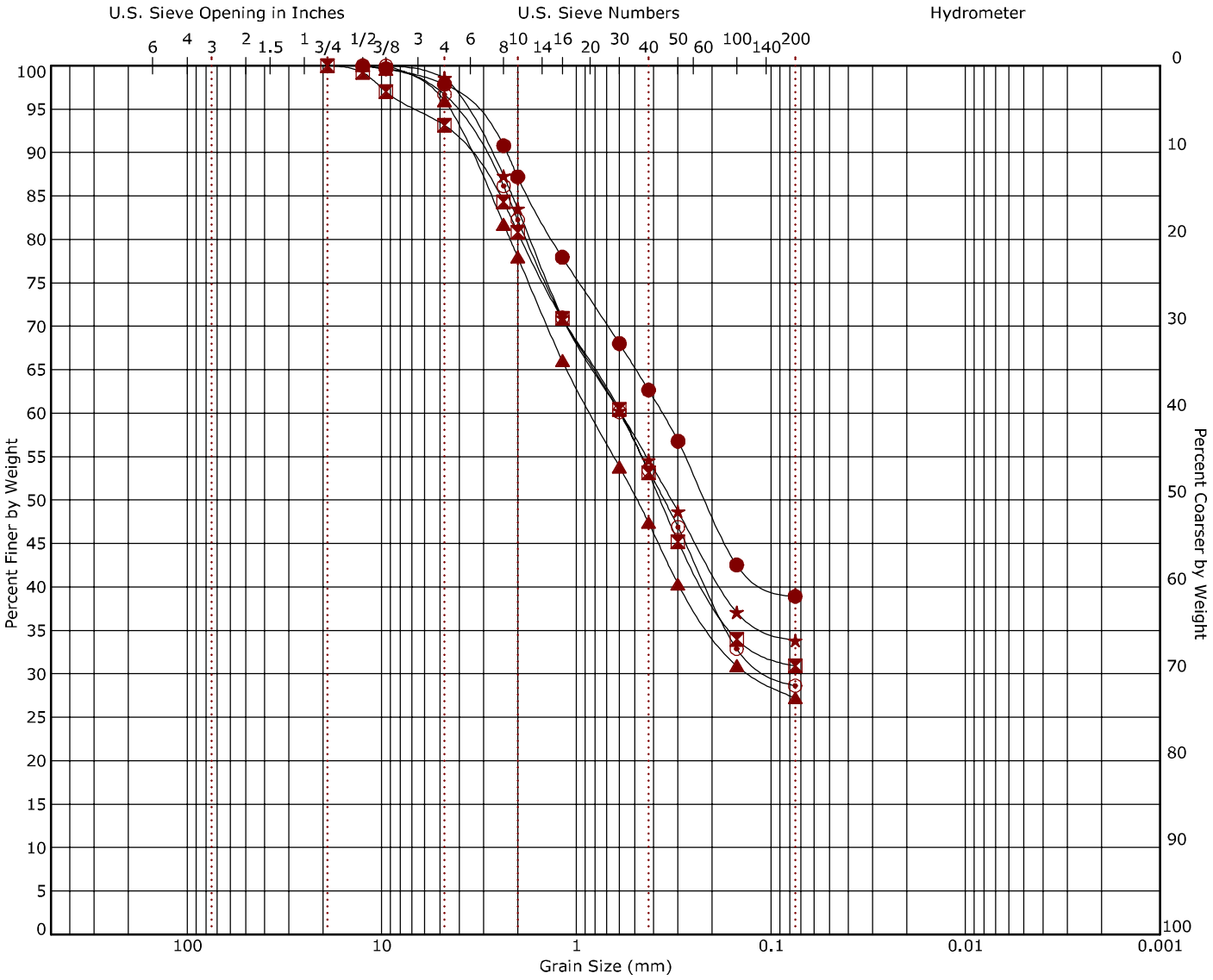
Grain Size Distribution

ASTM D422 / ASTM C136



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	P-11	1 - 6	CLAYEY SAND	SC	A-6 (1)	25	14	11		
⊠	P-12	1 - 6	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
▲	P-13	1 - 6	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
★	P-14	1 - 6	CLAYEY SAND	SC	A-2-6 (1)	25	11	14		
⊙	P-15	1 - 6	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	P-11	1 - 6	12.5	0.363			0.0	2.1	58.9	38.9		
⊠	P-12	1 - 6	19	0.588			0.0	6.9	62.2	30.9		
▲	P-13	1 - 6	12.5	0.844	0.126		0.0	4.1	68.7	27.2		
★	P-14	1 - 6	9.5	0.591			0.0	1.4	64.8	33.8		
⊙	P-15	1 - 6	9.5	0.596	0.094		0.0	3.3	68.0	28.6		

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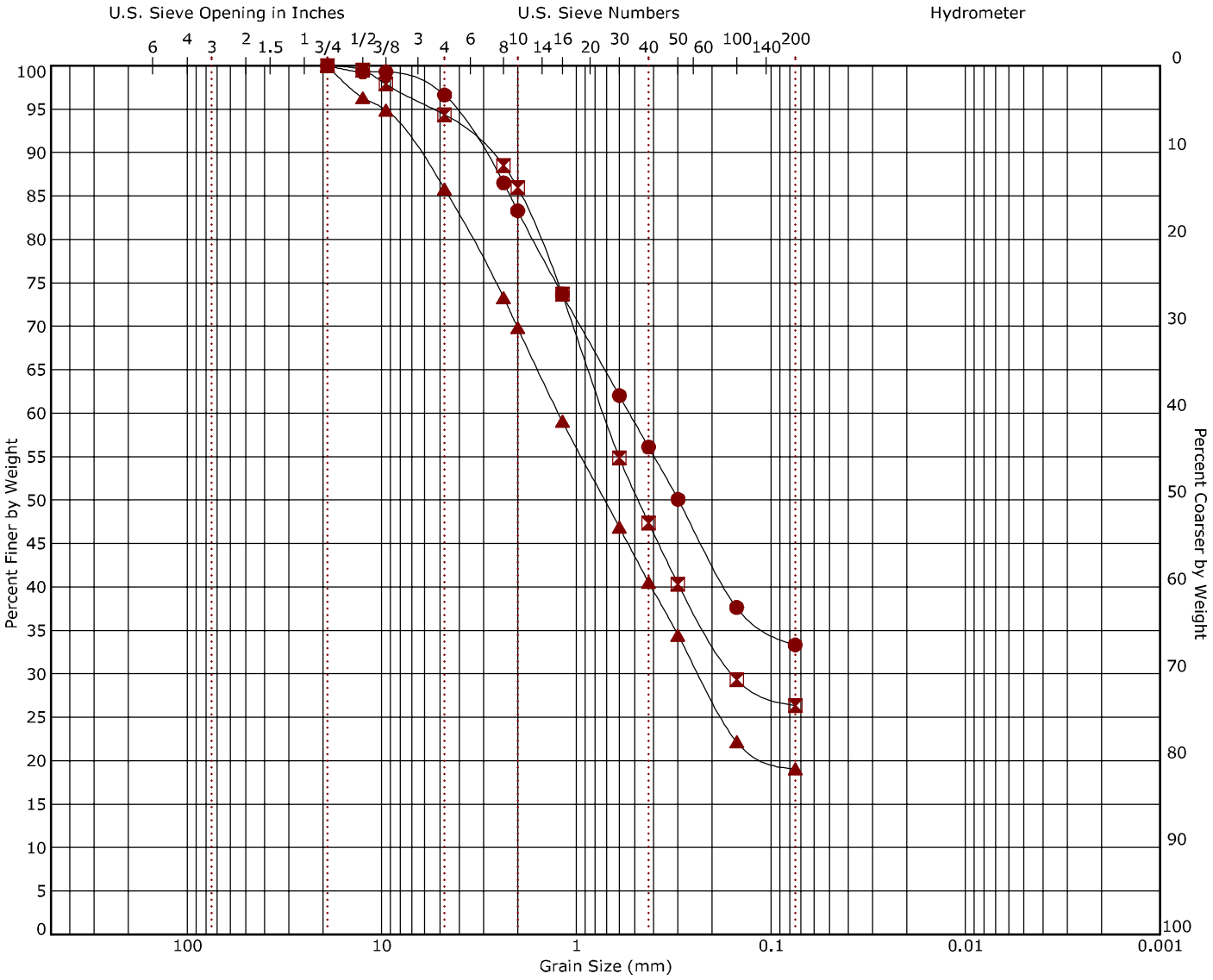
Grain Size Distribution

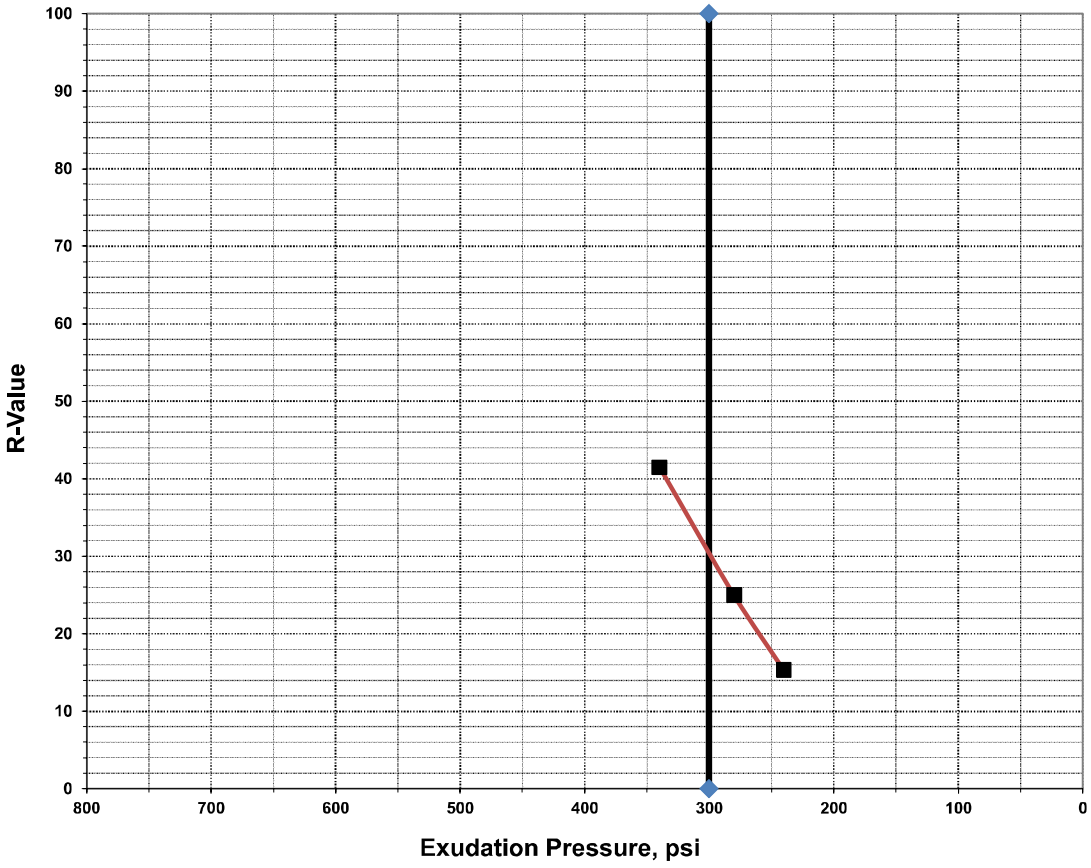
ASTM D422 / ASTM C136



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	USCS	AASHTO	LL	PL	PI	Cc	Cu
●	P-16	1 - 6	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
⊠	P-17	1 - 6	SILTY SAND	SM	A-2-4 (0)	NP	NP	NP		
▲	P-18	1 - 6	SILTY SAND	SM	A-1-b (0)	NP	NP	NP		

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	P-16	1 - 6	19	0.533			0.0	3.4	63.3	33.3		
⊠	P-17	1 - 6	19	0.721	0.157		0.0	5.6	68.0	26.3		
▲	P-18	1 - 6	19	1.234	0.233		0.0	14.2	66.7	19.1		



Specimen Identification	Compaction Pressure (psi)	R-Value at 300 psi
P-2,4,13 @ 1.0-6.0 ft	**186.7**	**30**

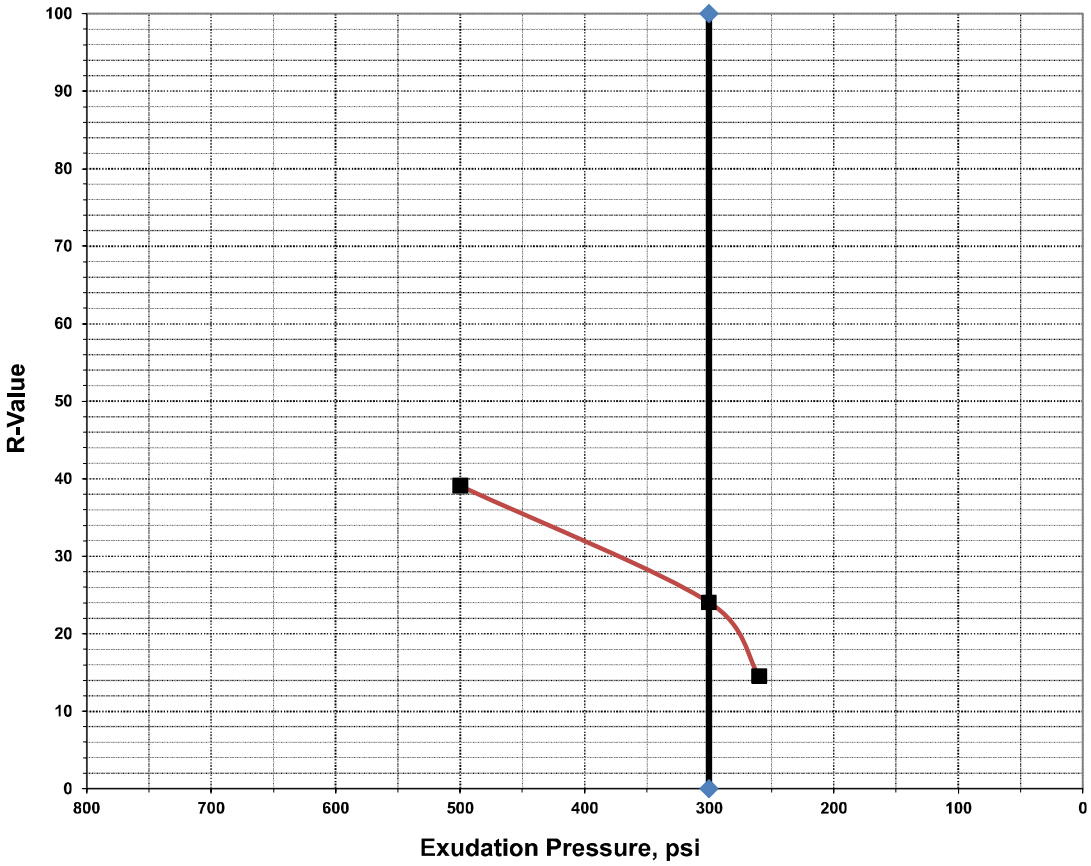
R-Value Test

Client: Buc-ee's, Ltd.

Project: Buc-ee's Monument Off-site Pavement Improvements

Site:

Project No.: 23245069



Specimen Identification	Compaction Pressure (psi)	R-Value at 300 psi
P-6 @ 1.0-6.0 ft	**180.0**	**24**

R-Value Test

Client: Buc-ee's, Ltd.

Project: Buc-ee's Monument Off-site Pavement Improvements

Site:

Project No.: 23245069

SUMMARY OF LABORATORY TEST RESULTS

Buc-ee's Monument Off-site Pavement Improvements - Monument, Colorado
Terracon Project No. 23245069B

Boring No.	Depth (ft)	USCS Class.	AASHTO Class.	Initial Water Content (%)	Initial Dry Density (pcf)	Swell/Consolidation		Particle Size Distribution, Percent Passing by Weight					Atterberg Limits		Remarks
						Surcharge (ksf)	Swell (%)	3/4"	#4	#10	#40	#200	LL	PI	
P-1	1 - 6	SM	A-1-b (0)					100	99	77	42	22	NV	NP	
P-1	2			12.1	109										4
P-1	4			10.7	114										4
P-2	1 - 6	SM	A-2-4 (0)					100	92	80	53	31	NV	NP	
P-2	2	SM		11.0	117										4
P-2	4	SM		12.0	116										4
P-2	9	CL		12.9	113										4
P-3	1 - 6	SM	A-1-b (0)					100	92	72	40	18	NV	NP	
P-3	4	SM		17.1	38										4
P-3	9	SC		9.5	106										4
P-4	1 - 6	SM	A-2-4 (0)					100	96	78	49	30	NV	NP	
P-4	2	SM		12.8	107	0.2	0.0								3,4
P-4	4	SM		12.5	112										4
P-5	1 - 6	SM	A-1-b (0)					100	92	70	42	22	NV	NP	
P-5	2			10.1	117	0.2	+0.2								3,4
P-5	4			10.6	116										4
P-5	9			10.6	123										4
P-6	1 - 6	SM	A-2-4 (0)					100	97	85	61	35	NV	NP	
P-6	4	SM		12.8	114										4
P-6	9			10.0	116										4
P-7	1 - 6	SM	A-2-4 (0)					100	94	74	45	27	NV	NP	
P-7	2	SM		5.8	114										4
P-7	9	SM		12.9	108										4
P-8	1 - 6	SM	A-2-4 (0)					100	95	76	49	28	NV	NP	
P-8	2	SM		7.0	122	0.2	-0.3								3,4
P-8	4	SM		6.1	121										4
P-9	1 - 6	SM	A-1-b (0)					100	93	73	41	22	NV	NP	
P-9	2	SM		9.2	100	0.2	-0.2								3,4
P-9	4	SM		6.5	125										4
P-9	9	SM		13.6	110										4

Notes:
Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
* = Partially disturbed sample
- = Compression/settlement
NV = no value
NP = non-plastic

Remarks:
1 Remolded Compacted density (about 95% of ASTM D698 maximum density near optimum moisture content)
2 Remolded Compacted density (about 95% of ASTM D1557 maximum density near optimum moisture content)
3 Water added to sample
4 Dry density and/or moisture content determined from one ring of a multi-ring sample
5 Minus #200 Only
6 Moisture-Density Relationship Test Method ASTM D698/AASHTO T99
7 Moisture-Density Relationship Test Method ASTM D1557/AASHTO T180

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SUMMARY OF LABORATORY TEST RESULTS

Buc-ee's Monument Off-site Pavement Improvements - Monument, Colorado

Terracon Project No. 23245069B

Boring No.	Depth (ft)	USCS Class.	AASHTO Class.	Initial Water Content (%)	Initial Dry Density (pcf)	Swell/Consolidation		Particle Size Distribution, Percent Passing by Weight					Atterberg Limits		Remarks
						Surcharge (ksf)	Swell (%)	3/4"	#4	#10	#40	#200	LL	PI	
P-10	1 - 6	SM	A-1-b (0)					100	92	73	44	24	NV	NP	
P-10	2	SM		8.1	115										4
P-10	4	SM		8.3	119										4
P-11	1 - 6	SC	A-6 (1)					100	98	87	63	39	25	11	
P-11	2	SC		10.7	106										4
P-11	4	SC		7.8	122										4
P-12	1 - 6	SM	A-2-4 (0)					100	93	81	53	31	NV	NP	
P-12	4	SM		8.1	117										4
P-12	9	SM		7.1	114										4
P-13	1 - 6	SM	A-2-4 (0)					100	96	78	47	27	NV	NP	
P-13	2	SM		13.5	109	0.2	-0.2								3,4
P-13	9	SM		14.7	114										4
P-14	1 - 6	SC	A-2-6 (1)					100	99	84	55	34	25	14	
P-14	2	SC		9.1	116										4
P-14	4	SC		6.3	123										4
P-15	1 - 6	SM	A-2-4 (0)					100	97	82	53	29	NV	NP	
P-15	2	SM		10.2	106										4
P-15	4	SM		15.3	109										4
P-16	1 - 6	SM	A-2-4 (0)					100	97	83	56	33	NV	NP	
P-16	2	SM		8.4	113										4
P-16	4	SM		8.4	126										4
P-17	1 - 6	SM	A-2-4 (0)					100	94	86	47	26	NV	NP	
P-17	2	SM		7.8	117										4
P-17	4	SM		15.4	108	0.2	-0.3								3,4
P-18	1 - 6	SM	A-1-b (0)					100	86	70	41	19	NV	NP	
P-18	2	SM		8.4	116										4
P-18	4	SM		8.9	115										4

Notes:
Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
* = Partially disturbed sample
- = Compression/settlement
NV = no value
NP = non-plastic

Remarks:
1 Remolded Compacted density (about 95% of ASTM D698 maximum density near optimum moisture content)
2 Remolded Compacted density (about 95% of ASTM D1557 maximum density near optimum moisture content)
3 Water added to sample
4 Dry density and/or moisture content determined from one ring of a multi-ring sample
5 Minus #200 Only
6 Moisture-Density Relationship Test Method ASTM D698/AASHTO T99
7 Moisture-Density Relationship Test Method ASTM D1557/AASHTO T180

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Supporting Information

Contents:

General Notes
Unified Soil Classification System
Description of Rock Properties

Note: All attachments are one page unless noted above.

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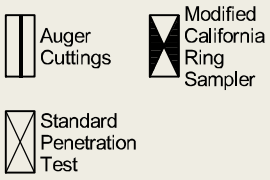
Colorado Springs, CO

General Notes

Sampling



Water Level

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

Field Tests

N	Standard Penetration Test Resistance (Blows/Ft.)
(HP)	Hand Penetrometer
(T)	Torvane
(DCP)	Dynamic Cone Penetrometer
UC	Unconfined Compressive Strength
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance			Consistency of Fine-Grained Soils (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance				Bedrock		
Relative Density	**Standard Penetration or N-Value (Blows/Ft.)**	**Ring Sampler (Blows/Ft.)**	**Consistency**	**Unconfined Compressive Strength Qu (psf)**	**Standard Penetration or N-Value (Blows/Ft.)**	**Ring Sampler (Blows/Ft.)**	**Ring Sampler (Blows/Ft.)**	**Standard Penetration or N-Value (Blows/Ft.)**	**Consistency**
Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3	< 30	< 20	Weathered
Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4	30 - 49	20 - 29	Firm
Medium Dense	10 - 29	19 - 58	Medium Stiff	1,000 to 2,000	4 - 8	5 - 9	50 - 89	30 - 49	Medium Hard
Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15	10 - 18	90 - 119	50 - 79	Hard
Very Dense	> 50	> 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42	> 119	>79	Very Hard
			Hard	> 8,000	> 30	> 42			

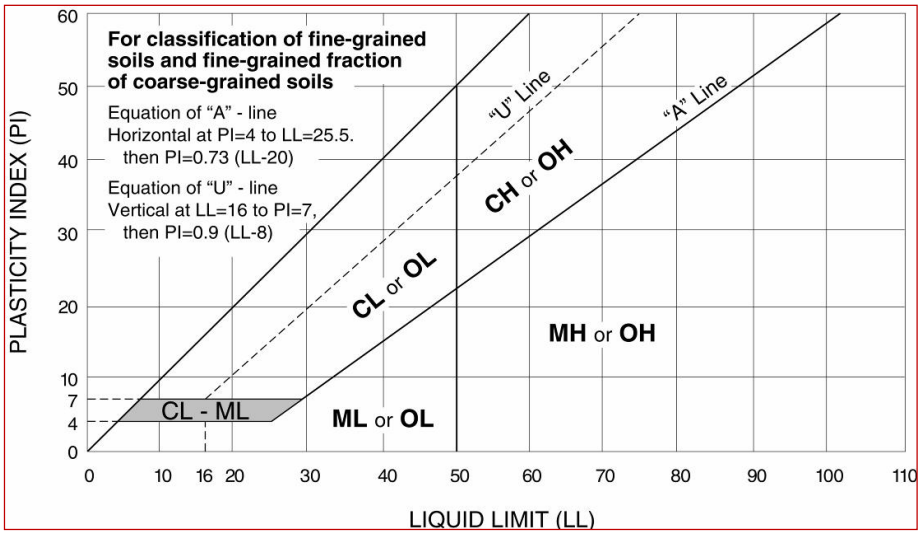
Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OL	Organic clay [K, L, M, N]
					Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OH	Organic clay [K, L, M, P]
					Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.



Rock Classification Notes

WEATHERING	
Term	**Description**
Fresh	Mineral crystals appear bright; show no discoloration. Features show little or now staining on surfaces. Discoloration does not extend into intact rock.
Slightly weathered	Rock generally fresh except along fractures. Some fractures stained and discoloration may extend <0.5 inches into rock.
Moderately weathered	Significant portions of rock are dull and discolored. Rock may be significantly weaker than in fresh state near fractures. Soil zones of limited extent may occur along some fractures.
Highly weathered	Rock dull and discolored throughout. Majority of rock mass is significantly weaker and has decomposed and/or disintegrated; isolated zones of stronger rock and/or soil may occur throughout.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The rock mass or fabric is still evident and largely intact. Isolated zones of stronger rock may occur locally.

STRENGTH OR HARDNESS		
Description	**Field Identification**	**Uniaxial Compressive Strength, psi**
Extremely strong	Can only be chipped with geological hammer. Rock rings on hammer blows. Cannot be scratched with a sharp pick. Hand specimens require several hard hammer blows to break.	>36,000
Very strong	Several blows of a geological hammer to fracture. Cannot be scratched with a 20d common steel nail. Can be scratched with a geologist's pick only with difficulty.	15,000-36,000
Strong	More than one blow of a geological hammer needed to fracture. Can be scratched with a 20d nail or geologist's pick. Gouges or grooves to ¼ inch deep can be excavated by a hard blow of a geologist's pick. Hand specimens can be detached by a moderate blow.	7,500-15,000
Medium strong	One blow of geological hammer needed to fracture. Can be distinctly scratched with 20d nail. Can be grooved or gouged 1/16 in. deep by firm pressure with a geologist's pick point. Can be fractured with single firm blow of geological hammer. Can be excavated in small chips (about 1-in. maximum size) by hard blows of the point of a geologist's pick;	3,500-7,500
Weak	Shallow indent by firm blow with geological hammer point. Can be gouged or grooved readily with geologist's pick point. Can be excavated in pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.	700-3,500
Very weak	Crumbles under firm blow with geological hammer point. Can be excavated readily with the point of a geologist's pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.	150-700

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		**Bedding Spacing (May Include Foliation or Banding)**	
Description	**Spacing**	**Description**	**Spacing**
Intensely fractured	< 2.5 inches	**Laminated**	< ½-inch
Highly fractured	2.5 – 8 inches	**Very thin**	½ – 2 inches
Moderately fractured	8 inches to 2 feet	**Thin**	2 inches – 1 foot
Slightly fractured	2 to 6.5 feet	**Medium**	1 – 3 feet
Very slightly fractured	> 6.5 feet	**Thick**	3 – 10 feet
		Massive	> 10 feet

ROCK QUALITY DESIGNATION (RQD) [1]	
Description	**RQD Value (%)**
Very Poor	0 - 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 - 100

1. The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

APPENDIX E
IDENTIFICATION OF POLLUTANT SOURCES

Outdoor Storage of Materials Log

Identification of Pollutant	Date Onsite	Date Removed	Containment Method

Vehicle Equipment Maintenance and Fueling Log

Identification of Pollutant	Date Onsite	Date Removed	Containment Method

Routine Maintenance Log

Identification of Pollutant	Date Onsite	Date Removed	Containment Method

Onsite Waste Management Log

Identification of Pollutant	Date Onsite	Date Removed	Containment Method

Non-Industrial Waste Sources Log

Identification of Pollutant	Date Onsite	Date Removed	Containment Method

Additional Pollutant Sources Log

Identification of Pollutant	Date Onsite	Date Removed	Containment Method

APPENDIX F
LAND DISTURBANCE / CONTROL MEASURE / STABILIZATION LOG

Land Disturbance / **Control Measure** / Stabilization Log

Date Initiated	Description of Activity	Date Ceased	Identification of BMP / Stabilization Method	Date Implemented	Date Removed

APPENDIX G
CDPHE ENVIRONMENTAL SPILL REPORTING / CONTROL MEASURE

involving a radioactive or infectious material, or there is a release of a marine pollutant.

Spills and incidents that have or may result in a spill along a highway must be reported to the nearest law enforcement agency immediately. The Colorado State Patrol and CDPHE must also be notified as soon as possible. In the event of a spill of hazardous waste at a transfer facility, the transporter must notify CDPHE within 24 hours if the spill exceeds 55 gallons or if there is a fire or explosion.

The National Response Center should be notified as soon as possible after discovery of a release of a hazardous liquid or carbon dioxide from a pipeline system if a person is killed or injured, there is a fire or explosion, there is property damage of $50,000 or more, or any nearby water body is contaminated.

The National Response Center and the Colorado Public Utilities Commission Gas Pipeline Safety Section must be notified as soon as possible, but not more than two hours after discovery of a release of gas from a natural gas pipeline or liquefied natural gas facility if a person is killed or injured, there is an emergency shutdown of the facility, or there is property damage of $50,000 or more. The Colorado Public Utilities Commission should also be notified if there is a gas leak from a pipeline, liquefied natural gas system, master meter system or a propane system that results in the evacuation of 50 or more people from an occupied building or the closure of a roadway.

Oil and Gas Exploration

All Class I major events on federal lands, including releases of hazardous substances in excess of the CERCLA reportable quantity and spills of more than 100 barrels of fluid and/or 500 MCF of gas released, must be reported to the Bureau of Land Management (BLM) immediately. Spills of oil, gas, salt water, toxic liquids and waste materials must also be reported to the BLM and the surface management agency.

Spills of exploration and production (E&P) waste on state or private lands in excess of 20 barrels, and spills of any size that impact or threaten to impact waters of the state, an occupied structure, or public byway must be reported to the Colorado Oil and Gas Conservation Commission as soon as practicable, but not more than 24 hours after discovery. Spills of any size that impact or threaten to impact waters of the state must be reported to CDPHE immediately. Spills that impact or threaten to impact a surface water intake must be reported to the emergency contact for that facility immediately after discovery. Spills of more than five (5) barrels of E&P waste must be reported in writing to the Oil and Gas Conservation Commission within 10 days of discovery.

REPORTING NUMBERS

National Response Center (24-hour)
1-800-424-8802

CDPHE Colorado Environmental Release and Incident Reporting Line (24-hour)
1-877-518-5608

Radiation Incident Reporting Line (24-hour)
303-877-9757

Colorado State Patrol (24-hour)
303-239-4501

Division of Oil and Public Safety
(business hours)
303-318-8547

Oil and Gas Conservation Commission
(business hours)
303-894-2100

Colorado Public Utilities Commission Gas Pipeline Safety Section (business hours)
303-894-2851

Local Emergency Planning Committees
(to obtain list, business hours)
720-852-6603

Colorado Department of Public Health and Environment

Environmental Spill Reporting

Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

http://www.cdphe.state.co.us

January 2009

When a release of a hazardous material or other substance occurs to the environment, there are a number of reporting and notification requirements that must be followed by the company or individual responsible for the release. Most spills are covered by more than one reporting requirement, and **all** requirements must be met. In addition to verbal notification, written reports are generally required. This brochure briefly explains the major requirements. A more detailed description is provided in the “Reporting Environmental Releases in Colorado” Guidance Document, available on the web.

Releases that must be reported to the Colorado Department of Public Health and Environment (CDPHE) may be reported to the Colorado Environmental Release and Incident Reporting Line.

ENVIRONMENTAL SPILL REPORTING

CERCLA, EPCRA and RCRA

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Emergency Planning and Community Right-to-Know Act (EPCRA) require that a release of a reportable quantity or more of a hazardous substance to the environment be reported immediately to the appropriate authorities when the release is discovered.

Under CERCLA, reportable quantities were established for hazardous substances listed or designated under other environmental statutes. These include:

- all hazardous air pollutants (HAPs) listed under Section 112(b) of the Clean Air Act.
- all toxic pollutants designated under Section 307(a) or Section 311(b)(2)(A) of the Clean Water Act.
- all Resource Conservation and Recovery Act (RCRA) characteristic and listed hazardous wastes.
- any element, compound, or substance designated under Section 102 of CERCLA.

EPCRA established a list of extremely hazardous substances (EHS) that could cause serious irreversible health effects from accidental releases. Many substances appear on both the CERCLA and EPCRA lists. EPCRA extremely hazardous substances that are also CERCLA hazardous substances have the same reportable quantity (RQ) as under CERCLA. EPCRA extremely hazardous substances that are not listed under CERCLA have a reportable quantity that is equal to their threshold planning quantity (TPQ). A list of CERCLA reportable quantities is included in 40 CFR Section 302.4. A list of EPCRA threshold planning quantities is included in 40 CFR Part 355 Appendices A & B.

CERCLA-reportable releases must be reported immediately to the National Response Center (NRC), while EPCRA-reportable releases must be reported immediately to the National Response Center, the State Emergency Response Commission (SERC) and the affected Local Emergency Planning Committee (LEPC). If the release is an EPCRA extremely hazardous substance, but not a CERCLA hazardous substance, and there is absolutely no potential to affect off-site persons, then only the State Emergency Planning Commission (represented by CDPHE for reporting purposes) and the Local Emergency Planning Committee need to be notified.

In the case of a release of hazardous waste stored in tanks, RCRA-permitted facilities and large quantity generators must also notify CDPHE within 24 hours of any release to the environment that is greater than one (1) pound.

Radiation Control

Each licensee or registrant must report to the Radiation Incident Reporting Line in the event of lost, stolen or missing licensed or registered radioactive materials or radiation machines, releases of radioactive materials, contamination events, and fires or explosions involving radioactive materials. Releases of radionuclides are reportable under CERCLA.

Clean Water Act

The Clean Water Act requires the person in charge of a facility or vessel to immediately report to the National Response Center all discharges of oil or designated hazardous substances to water. Oil means oil of any kind or form. Designated hazardous substances are included in the CERCLA list.

The Clean Water Act also requires that facilities with a National Pollutant Discharge Elimination System (NPDES) permit report to the National Response Center within 24 hours of becoming aware of any unanticipated bypasses or upsets that cause an exceedance of the effluent limits in their permit and any violations of their maximum daily discharge limits for pollutants listed in their permit.

A release of any chemical, oil, petroleum product, sewage, etc., which may enter waters of the state of Colorado (which include surface water, ground water and dry gullies and storm sewers leading to surface water) must be reported immediately to CDPHE. Any accidental discharge to the sanitary sewer system must be reported immediately to the local sewer authority and the affected wastewater treatment plant. For additional regarding releases to water, please see "Guidance for Reporting Spills under the Colorado Water Quality Control Act and Colorado Discharge Permits" at http://www.cdphe.state.co.us/op/wqcc/Resources/Guidance/spillguidance.pdf.

Clean Air Act

Hazardous air pollutants (HAPs) are designated as hazardous substances under CERCLA. If a facility has an air permit but the permit does not allow for or does not specify the release of a substance, or if the facility does not have an air permit, then all releases in excess of the CERCLA / EPCRA reportable quantity for that substance must be reported to the National Response Center and CDPHE. If the facility releases more of a substance than is allowed under its air permit, the facility must also report the release. Discharges of a substance that are within the allowable limits specified in the facility's permit do not need to be reported.

Regulated Storage Tanks

Owners and operators of regulated storage tank systems must report a release or suspected release of regulated substances to the Division of Oil and Public Safety at the Colorado Department of Labor and Employment within 24 hours. Under this program, the reportable quantity for petroleum releases is 25 gallons or more, or any amount that causes a sheen on nearby surface water. Spills of less than 25 gallons of petroleum must be immediately contained and cleaned up. If cleanup cannot be accomplished within 24 hours, the Division of Oil and Public Safety must be notified immediately.

Spills of hazardous substances from tanks in excess of the CERCLA or EPCRA reportable quantity must be reported immediately to the National Response Center, CDPHE and the local fire authority, and to the Division of Oil and Public Safety within 24 hours.

Transportation and Pipelines

The person in physical possession of a hazardous material must notify the National Response Center as soon as practical, but not to exceed 12 hours after the incident, if as a direct result of the hazardous material, a person is killed or injured, there is an evacuation of the general public lasting more than an hour, a major transportation artery is shut down for an hour or more, the flight pattern of an aircraft is altered, there is fire, spillage or suspected contamination

APPENDIX H
STORM EVENT LOG

Rain Gauge Data		
Date:	**Location:**	**Reading in decimal fraction of inches**

APPENDIX I
INSPECTION AND SAMPLING REPORTS

CONSTRUCTION STORMWATER SITE INSPECTION REPORT

Facility Name		Permittee	
Date of Inspection		Weather Conditions	
Permit Certification #		Disturbed Acreage	
Phase of Construction		Inspector Title	
Inspector Name			

	YES	NO
Is the above inspector a qualified stormwater manager? (permittee is responsible for ensuring that the inspector is a qualified stormwater manager)	☐	☐

INSPECTION FREQUENCY	
Check the box that describes the minimum inspection frequency utilized when conducting each inspection	
At least one inspection every 7 calendar days	☐
At least one inspection every 14 calendar days, with post-storm event inspections conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosions	☐
• This is this a post-storm event inspection. Event Date: _____	☐
Reduced inspection frequency - Include site conditions that warrant reduced inspection frequency	☐
• Post-storm inspections at temporarily idle sites	☐
• Inspections at completed sites/area	☐
• Winter conditions exclusion	☐

	YES	NO
Have there been any deviations from the minimum inspection schedule? If yes, describe below.	☐	☐

INSPECTION REQUIREMENTS*
i. Visually verify all implemented control measures are in effective operational condition and are working as designed in the specifications
ii. Determine if there are new potential sources of pollutants
iii. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges
iv. Identify all areas of non-compliance with the permit requirements, and if necessary, implement corrective action
*Use the attached **Control Measures Requiring Routine Maintenance** and **Inadequate Control Measures Requiring Corrective Action** forms to document results of this assessment that trigger either maintenance or corrective actions

AREAS TO BE INSPECTED

Is there evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system or discharging to state waters at the following locations?

	NO	YES	If "YES" describe discharge or potential for discharge below. Document related maintenance, inadequate control measures and corrective actions **Inadequate Control Measures Requiring Corrective Action** form
Construction site perimeter	☐	☐	
All disturbed areas	☐	☐	
Designated haul routes	☐	☐	
Material and waste storage areas exposed to precipitation	☐	☐	
Locations where stormwater has the potential to discharge offsite	☐	☐	
Locations where vehicles exit the site	☐	☐	
Other: _____	☐	☐	

CONTROL MEASURES REQUIRING ROUTINE MAINTENANCE

Definition: Any control measure that is still operating in accordance with its design and the requirements of the permit, but requires maintenance to prevent a breach of the control measure. These items are not subject to the corrective action requirements as specified in Part I.B.1.c of the permit.

Are there control measures requiring maintenance?	NO	YES	
	☐	☐	If "YES" document below

Date Observed	Location	Control Measure	Maintenance Required	Date Completed

INADEQUATE CONTROL MEASURES REQUIRING CORRECTIVE ACTION

Definition: Any control measure that is not designed or implemented in accordance with the requirements of the permit and/or any control measure that is not implemented to operate in accordance with its design. This includes control measures that have not been implemented for pollutant sources. If it is infeasible to install or repair the control measure immediately after discovering the deficiency the reason must be documented and a schedule included to return the control measure to effective operating condition as possible.

	NO	YES	
Are there inadequate control measures requiring corrective action?	☐	☐	If "YES" document below

	NO	YES	
Are there additional control measures needed that were not in place at the time of inspection?	☐	☐	If "YES" document below

Date Discovered	Location	Description of Inadequate Control Measure	Description of Corrective Action	Was deficiency corrected when discovered? YES/NO if "NO" provide reason and schedule to correct	Date Corrected

REPORTING REQUIREMENTS

The permittee shall report the following circumstances orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall mail to the division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances. The division may waive the written report required if the oral report has been received within 24 hours.

All Noncompliance Requiring 24-Hour Notification per Part II.L.6 of the Permit

a. Endangerment to Health or the Environment

Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident (See Part II.L.6.a of the Permit)

This category would primarily result from the discharge of pollutants in violation of the permit

b. Numeric Effluent Limit Violations

- o Circumstances leading to any unanticipated bypass which exceeds any effluent limitations (See Part II.L.6.b of the Permit)
- o Circumstances leading to any upset which causes an exceedance of any effluent limitation (See Part II.L.6.c of the Permit)
- o Daily maximum violations (See Part II.L.6.d of the Permit)

Numeric effluent limits are very uncommon in certifications under the COR400000 general permit. This category of noncompliance only applies if numeric effluent limits are included in a permit certification.

Has there been an incident of noncompliance requiring 24-hour notification?	NO	YES	
	☐	☐	If "YES" document below

Date and Time of Incident	Location	Description of Noncompliance	Description of Corrective Action	Date and Time of 24 Hour Oral Notification	Date of 5 Day Written Notification *

*Attach copy of 5 day written notification to report. Indicate if written notification was waived, including the name of the division personnel who granted waiver.

After adequate corrective action(s) and maintenance have been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the individual(s) designated as the Qualified Stormwater Manager, shall sign and certify the below statement:

"I verify that, to the best of my knowledge and belief, all corrective action and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit."

Name of Qualified Stormwater Manager	Title of Qualified Stormwater Manager
Signature of Qualified Stormwater Manager	Date

Notes/Comments

APPENDIX J
SWMP AMENDMENT LOG

AMENDMENT LOG

Amendment No.	Date	Brief Description of Amendment	Prepared By

APPENDIX K

BEACON LITE ROAD STOCKPILE PLANS

(FOR REFERENCE ONLY)

BEACON LITE ROAD STOCKPILE

CONSTRUCTION DRAWINGS

EL PASO COUNTY, COLORADO

EDARP FILE NO.: CDR261

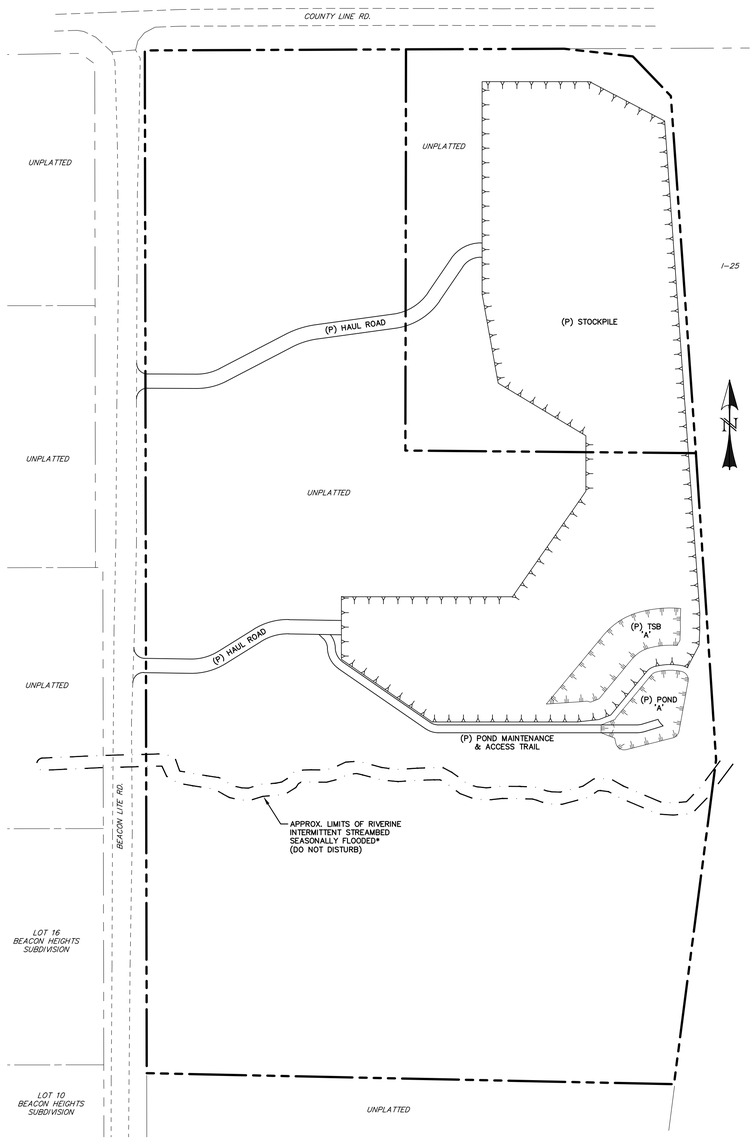
STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS:

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
   A. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   B. CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
   C. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
   D. CDOT M & S STANDARDS
4. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (PCD) – INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS–ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
9. ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
10. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
11. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
12. SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
13. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOT AND MUTCD CRITERIA. [IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.]
14. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DOT, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
15. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.
16. EL PASO COUNTY DOES NOT OWN AND IS NOT RESPONSIBLE FOR THE UNDERDRAINS OR GROUNDWATER DISCHARGE SYSTEMS SHOWN ON THESE PLANS AND ASSUMES NO LIABILITY FOR WATER RIGHTS ADMINISTRATION BY APPROVING THESE PLANS. MAINTENANCE AND WATER RIGHTS ARE THE RESPONSIBILITY OF THE DEVELOPER.

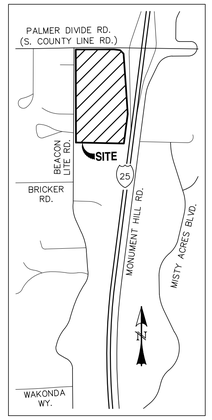
STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS:

1. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE, AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY (EPC) STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE (LDC), THE ENGINEERING CRITERIA MANUAL (ECM), THE DRAINAGE CRITERIA MANUAL (DCM) VOLUME 1 AND 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
2. A PRECONSTRUCTION MEETING BETWEEN THE PERMIT HOLDER(S) AND EL PASO COUNTY SHALL BE HELD PRIOR TO ANY CONSTRUCTION ACTIVITIES. IT IS THE RESPONSIBILITY OF THE PERMIT HOLDER(S) TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF. NO LAND DISTURBANCE OR CONSTRUCTION ACTIVITIES BEYOND THE INSTALLATION OF THE INITIAL CONSTRUCTION CONTROL MEASURES (CCMS), AS INDICATED ON THE APPROVED GEC PLAN OR CDS WITH GEC PLANS, MAY OCCUR PRIOR TO RECEIVING A NOTICE TO PROCEED (NTP) ISSUED BY THE ECM ADMINISTRATOR. FAILURE TO OBTAIN A NOTICE TO PROCEED PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES MAY RESULT IN AN IMMEDIATE STOP WORK ORDER (SWO).
3. CONSTRUCTION CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. STORMWATER RUNOFF FROM ALL DISTURBED AREAS AND SOIL STORAGE AREAS MUST UTILIZE OR FLOW TO ONE OR MORE CCM(S) TO MINIMIZE EROSION OR SEDIMENT IN THE DISCHARGE. THE CCM(S) MUST CONTAIN OR FILTER FLOWS IN ORDER TO PREVENT THE BYPASS OF FLOWS WITHOUT TREATMENT AND MUST BE APPROPRIATE FOR STORMWATER RUNOFF FROM DISTURBED AREAS AND FOR THE EXPECTED FLOW RATE, DURATION, AND FLOW CONDITIONS (E.G., SHEET OR CONCENTRATED FLOW).
4. ALL CCMS SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL FINAL STABILIZATION IS ACHIEVED. THE QUALIFIED STORMWATER MANAGER (QSM) SHALL ASSESS THE ADEQUACY OF CCMS AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CCMS ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CCMS.
5. PRIOR TO CONSTRUCTION THE PERMIT HOLDER(S) SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
6. MANAGEMENT OF THE STORMWATER MANAGEMENT PLAN (SWMP) DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QSM. THE SWMP SHALL BE LOCATED ON-SITE OR DIGITALLY ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION ACTIVITIES AND MUST BE IMPLEMENTED AS WRITTEN FROM THE START OF CONSTRUCTION ACTIVITY UNTIL FINAL STABILIZATION IS ACHIEVED. THE QSM SHALL AMEND THE SWMP WHEN THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE SITE WHICH WOULD REQUIRE THE IMPLEMENTATION OF NEW OR REVISED CCMS OR IF THE SWMP PROVES TO BE INEFFECTIVE IN CONTROLLING POLLUTANTS IN STORMWATER RUNOFF ASSOCIATED WITH CONSTRUCTION ACTIVITY OR WHEN CCMS ARE NO LONGER NECESSARY AND ARE REMOVED. THE QSM SHALL MAINTAIN A RECORD OF AMENDMENTS MADE TO THE SWMP THAT INCLUDES THE DATE AND IDENTIFICATION OF THE CHANGES.
7. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A RECEIVING WATER UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED. IN ADDITION TO MAINTAINING 50 HORIZONTAL FEET OF PRE-EXISTING VEGETATION UPGRADIENT OF A RECEIVING WATER (UNLESS INFEASIBLE AND APPROVED), THE PERMIT HOLDER(S) MUST INSTALL CCMS UPGRADIENT OF THE VEGETATIVE BUFFER.
8. TEMPORARY STABILIZATION MEASURES SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
9. EROSION CONTROL BLANKET (ECB) OR OTHER APPROVED CONTROL MEASURE(S) SHALL BE USED ON SLOPES STEEPER THAN 3:1.
10. VEHICLE TRACKING CONTROLS (VTC) MUST BE IMPLEMENTED TO MINIMIZE VEHICLE TRACKING OF SEDIMENT FROM DISTURBED AREAS. VTCS MUST INCLUDE A STRUCTURE CONTROL MEASURE (E.G., TRACKING PAD) AND MAY INCLUDE A NON-STRUCTURAL CONTROL MEASURE (E.G., SWEEPING). MATERIAL TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
11. ANY TEMPORARY OR PERMANENT CONTROL MEASURE DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF-SITE.
12. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER, PERMANENT CONTROL MEASURES (PCMS), OR DITCHES EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
13. ALL PCMS SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT AFFECT THE DESIGN OR FUNCTION OF PCMS MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
14. SOIL COMPACTION MUST BE MINIMIZED IN AREAS WHERE INFILTRATION PCMS WILL BE INSTALLED OR IN AREAS WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION PCMS SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF SOIL COMPACTION DOES OCCUR IN AREAS WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER OR IN AREAS WHERE INFILTRATION PCMS WILL BE INSTALLED, DECOMPACTION OF THE SOIL MUST BE COMPLETED PRIOR TO PLANTING OR INSTALLATION OF THE PCM(S). AN INFILTRATION TEST MUST BE CONDUCTED FOR ALL INFILTRATION PCMS AND THE INFILTRATION TEST RESULTS SUBMITTED TO EL PASO COUNTY PRIOR TO PRELIMINARY ACCEPTANCE (PA).
15. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND PERMANENT STABILIZATION METHODS ARE COMPLETE. WHEN USING VEGETATIVE COVER AS A PERMANENT STABILIZATION METHOD, THE VEGETATION SHALL BE EVENLY DISTRIBUTED PERENNIAL VEGETATION AND OF THE VARIETY AND SPECIES FOUND IN THE COUNTY-APPROVED SEED MIXES OR IN THE APPROVED GEC PLAN. VEGETATION COVERAGE SHALL BE, AT A MINIMUM, EQUAL TO 70% OF WHAT WOULD HAVE BEEN PROVIDED BY NATIVE VEGETATION IN A LOCAL, UNDISTURBED AREA OR ADEQUATE REFERENCE SITE. ALL TEMPORARY CCMS SHALL BE REMOVED UPON FINAL STABILIZATION AND PRIOR TO STORMWATER PERMIT TERMINATION.
16. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
17. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO BE DISCHARGED OFFSITE OR TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR CONTROL MEASURES. CONCRETE WASHOUT AREAS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK, OR STREAM.
18. DURING CONSTRUCTION DEWATERING OPERATIONS, UNCONTAMINATED GROUNDWATER MAY BE DISCHARGED ON SITE IN ACCORDANCE WITH THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT'S (CDPHE) LOW RISK DISCHARGE GUIDANCE POLICY FOR DISCHARGES OF UNCONTAMINATED GROUNDWATER TO LAND. IF CONSTRUCTION DEWATERING OPERATIONS ARE UNABLE TO MEET ALL CRITERIA, CONDITIONS, AND CONTROL MEASURE REQUIREMENTS OF THE LOW RISK DISCHARGE GUIDANCE POLICY, A COLORADO DISCHARGE PERMIT SYSTEM (CDPS) GENERAL PERMIT COG080000 WILL BE REQUIRED.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTE FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES, OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
20. THE PERMIT HOLDER(S) SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
21. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
22. MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. APPROPRIATE CMS SHALL BE UTILIZED BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
23. BULK STORAGE (I.E., INDIVIDUAL CONTAINERS OF 55 GALLONS OR GREATER) OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT, OR EQUIVALENT PROTECTION, TO CONTAIN ALL SPILLS ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM, OR OTHER FACILITIES.
24. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
25. ON AREAS OF EXPOSED SOIL, MINIMIZE DUST THROUGH THE APPROPRIATE APPLICATION OF WATER OR OTHER DUST SUPPRESSION TECHNIQUES. WATER APPLICATION MUST BE CONDUCTED IN A MANNER TO PREVENT DISCHARGE OFFSITE UNLESS AUTHORIZED BY A CDPS OR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT.
26. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
27. FOR SITES WHERE A SOILS REPORT IS REQUIRED, THE APPROVED SOILS REPORT FOR THIS SITE SHALL BE CONSIDERED A PART OF THESE PLANS.
28. PERMIT HOLDER(S) AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUME 2, AND ENGINEERING CRITERIA MANUAL. ALL APPLICABLE LOCAL, STATE, AND FEDERAL PERMITS MUST BE OBTAINED PRIOR TO CONSTRUCTION. IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE OR LESS THAN 1 ACRE AND PART OF A LARGER COMMON PLAN OF DEVELOPMENT OR SALE THAT WOULD DISTURB 1 OR MORE ACRES, THE PERMIT HOLDER(S) SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE (COR400000 PERMIT) TO THE CDPHE WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A SWMP, OF WHICH THIS GEC PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

    COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
    WATER QUALITY CONTROL DIVISION
    WQCD – PERMITS
    4300 CHERRY CREEK DRIVE SOUTH
    DENVER, CO 80246-1530
    ATTN: PERMITS UNIT



SITE MAP
SCALE: N.T.S.



VICINITY MAP
SCALE: N.T.S.

ENGINEERS STATEMENT:

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLANS AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

COLORADO REGISTERED RAYMOND E. PRICE 37173 PROFESSIONAL ENGINEER

RAYMOND E. PRICE, COLORADO PE #37173

March 09, 2026
DATE

OWNER STATEMENT:

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN AND ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

Donald J. Campbell

OWNER/DEVELOPER NAME: C

3-10-2026
DATE

EL PASO COUNTY:

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/ OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL, AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF ANY REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

3/11/2026
DATE

JOSHUA J. PALMER, P.E.
COUNTY ENGINEER / ECM ADMINISTRATOR

LEGEND

EXISTING	(E)
PROPOSED	(P)
CURB AND GUTTER	C&G
EASEMENT	ESMT
DRAINAGE	DR
PUBLIC	PUB
PRIVATE	PVT
UNDERGROUND	UG
UTILITY	UT
TEMPORARY SEDIMENT BASIN	TSB
DETENTION POND	DP
FLOOD CONTROL ONLY	FCO
BOUNDARY	
RIGHT-OF-WAY	
LOT LINE	
EASEMENT	
(E) CONTOUR, INDEX	7350
(E) CONTOUR	
(E) STORM SEWER	
(P) CONTOUR, INDEX	7350
(P) CONTOUR	
(P) STORM SEWER	

SHEET INDEX:

TITLE SHEET	1 OF 9
GRADING & EROSION CONTROL PLAN – INITIAL	2 OF 9
GRADING & EROSION CONTROL PLAN – INERIM	3 OF 9
GRADING & EROSION CONTROL PLAN – FINAL	4 OF 9
GRADING & EROSION CONTROL DETAILS	5 OF 9
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GRADING & EROSION CONTROL DETAILS	7 OF 9
PERMANENT CONTROL MEASURE PLAN – POND DETAILS	8 OF 9
STORM SEWER PLAN & PROFILES	9 OF 9

REV.	DESCRIPTION	DATE
1	ADDRESS AGENCY COMMENTS	01/26/26
2	ADDRESS AGENCY COMMENTS	02/07/26
3	ADDRESS AGENCY COMMENTS	02/23/26
4	ADDRESS AGENCY COMMENTS	03/06/26

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NOTE:
* EXISTING RIVERINE INTERMITTENT STREAMBED SEASONALLY FLOODED (R4SBC) AS DESCRIBED IN "AQUATIC RESOURCES ASSESSMENT" MEMORANDUM BY WSB ENGINEERING, DATED JULY 28, 2021.

PREPARED FOR:
EL PASO COUNTY
2880 INTERNATIONAL CIRCLE
SUITE 110
COLORADO SPRINGS, CO 80910

PRC ENGINEERING
1685 W. UINTAH STREET, SUITE 114
COLORADO SPRINGS, CO 80904
(719) 291-2744

BEACON LITE ROAD STOCKPILE

CONSTRUCTION DRAWINGS

DRAWN BY:	MGP
SCALE: N/A	DATE: 12/17/25
JOB NUMBER	SHEET
25-005	1 OF 9

P:\Projects\25-005 Beacon Lite Stockpile\Civil\25-005-GEC.dwg - Sheet - Friday, March 6, 2026 4:36:34 PM - Michael Pitts

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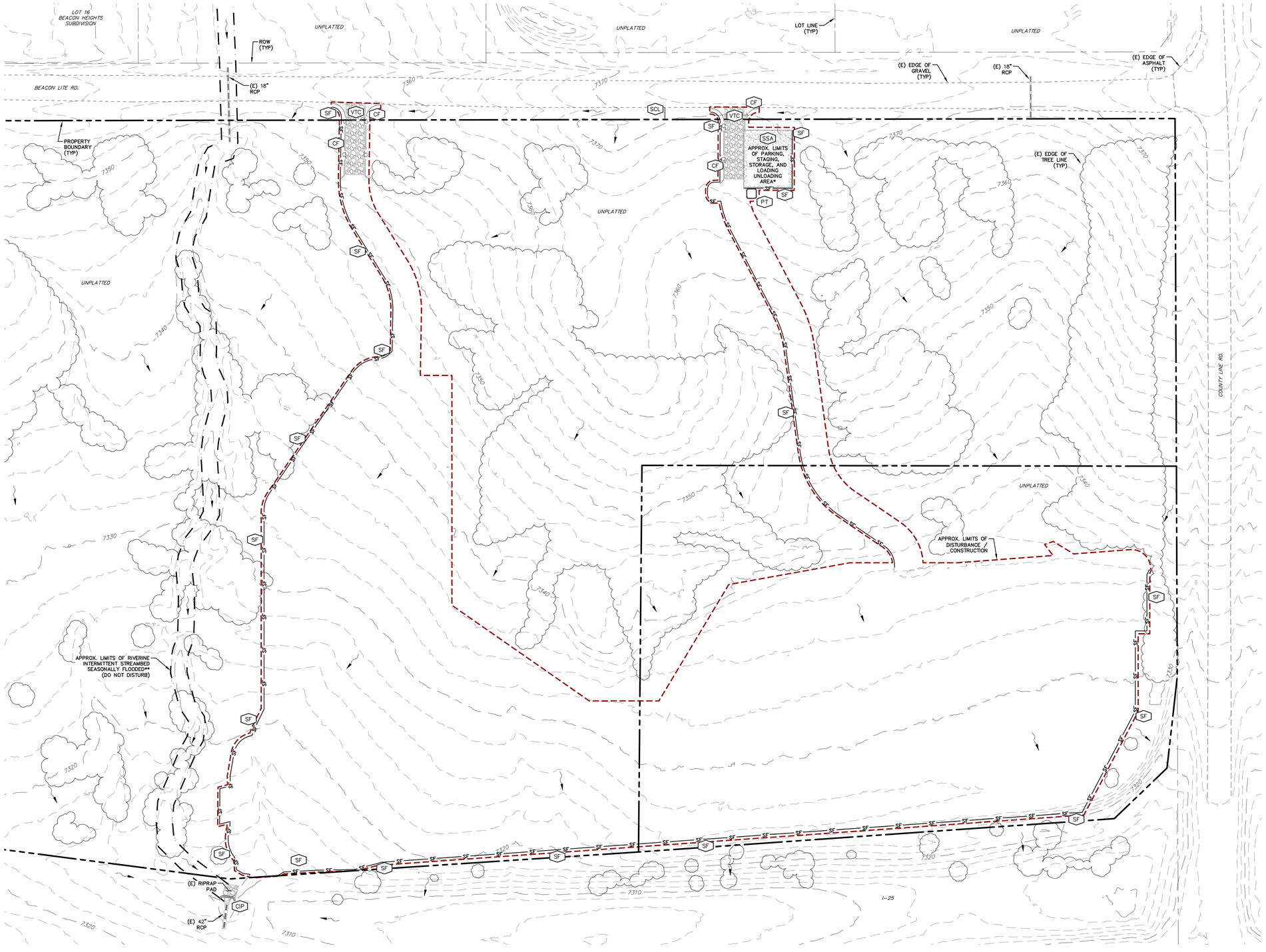

0 50 100

SCALE: 1" = 50'

NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT A PLAN FOR THE MAINTENANCE AND SCHEDULING OF ALL OTHER NON-LOCATION SPECIFIC AND NON-STRUCTURAL CONTROL MEASURES (IE STREET SWEEPING). THIS PLAN SHALL BE UPDATED AS SITE CONDITIONS CHANGE AND AS CONSTRUCTION PROGRESSES. THIS PLAN SHALL REMAIN ON SITE AT ALL TIMES.

2. THE CONTRACTOR SHALL DETERMINE AREAS REQUIRING SEEDING AND MULCHING (IF REQUIRED) THROUGHOUT THE CONSTRUCTION PROCESS. A MAP SHALL INDICATE THESE AREAS AND SHALL BE UPDATED AS SITE CONDITIONS CHANGE AND AS CONSTRUCTION PROGRESSES. THIS MAP SHALL REMAIN ON SITE AT ALL TIMES.

3. EXISTING VEGETATION:
   - NATIVE GRASSES COVER THE ENTIRE SITE.
   - VARIOUS SPECIES OF TREES; SITE COVERAGE = 28.6%

* THE LOCATION OF STAGING AREA, ETC. SHALL BE DETERMINED BY THE CONTRACTOR. APPROPRIATE CONSTRUCTION CONTROL MEASURES SHALL BE FOLLOWED FOR EACH.

** EXISTING RIVERINE INTERMITTENT STREAMBED SEASONALLY FLOODED (R4SBC) AS DESCRIBED IN "AQUATIC RESOURCES ASSESSMENT" MEMORANDUM BY WSB ENGINEERING, DATED JULY 28, 2021.

CONSTRUCTION CONTROL MEASURES INSTALLATION STAGING NOTES (NOT ALL APPLY):

STAGE 1 – PRE-DISTURBANCE
INSTALL INITIAL STORMWATER QUALITY (SWQ) CONSTRUCTION CONTROL MEASURES (CCM'S) AS SHOWN ON THE GRADING AND EROSION CONTROL PLAN PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES. THESE CCM'S CONSIST OF THE PERIMETER CONTROLS OF SILT FENCE, CURB SOCKS, INLET PROTECTION OF EXISTING INLETS, AND THE VEHICLE TRACKING CONTROL PAD.

STAGE 2 – OVERLOT GRADING
COMMENCE THE BULK OF OVERLOT GRADING OPERATIONS AND INSTALL TEMPORARY CCM'S AS SHOWN ON THE GRADING AND EROSION CONTROL PLAN. TEMPORARY CCM'S MAY CONSIST OF ADDITIONAL SILT FENCE AND SURFACE ROUGHENING OF SLOPES.

STAGE 3 – INFRASTRUCTURE & BUILDING CONSTRUCTION
CONSTRUCT SITE IMPROVEMENTS AS SHOWN ON THE APPLICABLE CONSTRUCTION DOCUMENTS. ADDITIONAL TEMPORARY CCM'S CONSISTING OF ADDITIONAL SILT FENCE, CONCRETE WASH-OUT AREA, AND INLET PROTECTION OF PERMANENT DRAINAGE IMPROVEMENTS. ANY STOCKPILED DIRT SHALL BE PROTECTED BY A PERIMETER OF SILT FENCE.

STAGE 4 – PERMANENT STABILIZATION
PERMANENT SWQ CCM'S (IF USED) SUCH AS RIP-RAP, CURB & GUTTER, PAVEMENT, LANDSCAPING, AND SEEDING SHALL BE CONSTRUCTED AT THIS TIME AS OUTLINED ON THE GRADING AND EROSION CONTROL PLAN AND THE LANDSCAPE AND IRRIGATION PLANS, DRAINAGE REPORT, AND/OR CONSTRUCTION DOCUMENTS. ALL DISTURBED AREAS THAT ARE NOT PERMANENTLY PAVED OR LANDSCAPED SHALL BE PERMANENTLY SEEDED.

OTHER NON-STRUCTURAL CCM'S INCLUDE, BUT ARE NOT LIMITED TO, LIMITING DISTURBED AREAS AND STREET SWEEPING.

NON APPLICABLE ITEMS

- NO-BUILD AREAS
- LOCATION OF ASPHALT, CONCRETE BATCH PLANTS AND MASONRY MIX STATIONS
- BOUNDARIES OF 100 YR FLOODPLAIN
- BOUNDARIES OF STREAMSIDE OVERLAY
- BOUNDARIES OF HILLSIDE OVERLAY
- LOCATIONS OF PRESERVATION EASEMENTS

CONSTRUCTION CONTROL LEGEND

SILT FENCE	SF
VEHICLE TRACKING CONTROL	VTC
STABILIZED STAGING AREA*	SSA
PORTABLE TOILET MANAGEMENT*	PT
CONSTRUCTION FENCE	CF
CULVERT INLET PROTECTION	CIP
SEDIMENT CONTROL LOG	SCL

LEGEND

EXISTING	(E)
PROPOSED	(P)
CURB AND GUTTER	C&G
PUBLIC	PUB
PRIVATE	PVT
INLET PROTECTION	IP
PROPERTY BOUNDARY	
RIGHT-OF-WAY	
PROPERTY LINE	
(E) CONTOUR, INDEX	7350
(E) CONTOUR	
(P) CONTOUR, INDEX	7350
(P) CONTOUR	
(E) EDGE OF TREE LINE	
LIMITS OF CONSTRUCTION/ LIMITS OF DISTURBANCE	
APPROX. LIMITS OF WETLANDS (REF: COLORADO WETLAND INVENTORY WEBSITE)	
(E) STORM SEWER	
(P) STORM SEWER	
(P) RIPRAP	
(E) DIRECTION OF OVERLAND FLOW	2.00%
DIRECTION OF FLOW	

REV.	DESCRIPTION	DATE
1	ADDRESS AGENCY COMMENTS	01/26/26
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PREPARED FOR:
EL PASO COUNTY
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SUITE 110
COLORADO SPRINGS, CO 80910

PREPARED UNDER MY DIRECT SUPERVISION FOR AND BEHALF OF PRC ENGINEERING.

COLORADO REGISTERED 37173 PROFESSIONAL ENGINEER

RAYMOND E. PEREZ, COLORADO PE #37173

March 09, 2026
DATE

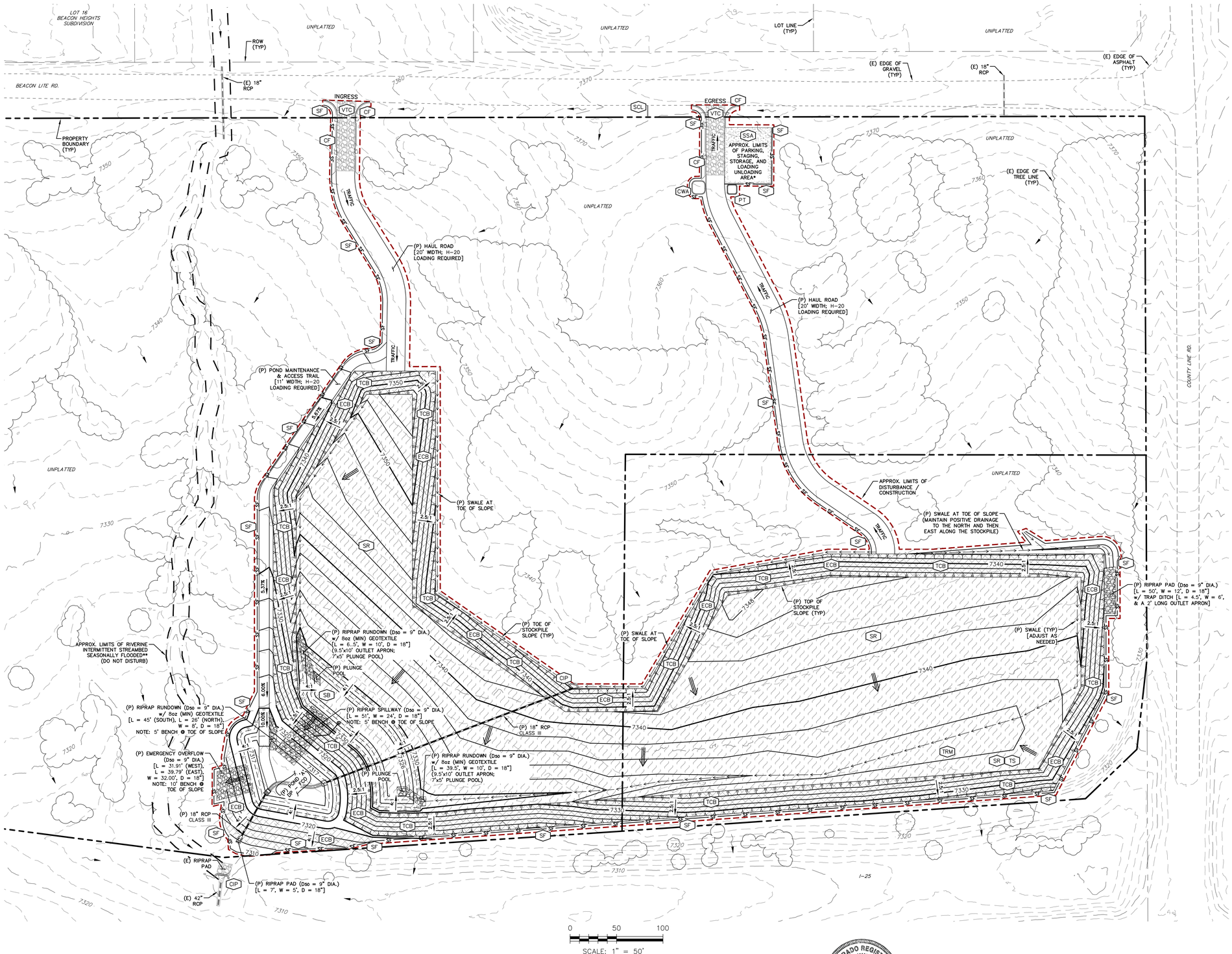
PRC ENGINEERING
1685 W. UINTAH STREET, SUITE 114
COLORADO SPRINGS, CO 80904
(719) 291-2744

BEACON LITE ROAD STOCKPILE

GRADING & EROSION CONTROL PLAN - INITIAL -

DESIGNED BY: MGP	DRAWN BY: MGP
SCALE: 1" = 50'	DATE: 12/17/25
JOB NUMBER: 25-005	SHEET: 2 OF 9

P:\Projects\25-005 Beacon Lite Stockpile\Civil\25-005-GEC10 - Initial - Friday, March 6, 2026 4:09:37 PM - Michael Pitts



NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT A PLAN FOR THE MAINTENANCE AND SCHEDULING OF ALL OTHER NON-LOCATION SPECIFIC AND NON-STRUCTURAL CONTROL MEASURES (IE STREET SWEEPING). THIS PLAN SHALL BE UPDATED AS SITE CONDITIONS CHANGE AND AS CONSTRUCTION PROGRESSES. THIS PLAN SHALL REMAIN ON SITE AT ALL TIMES.
2. THE CONTRACTOR SHALL DETERMINE AREAS REQUIRING SEEDING AND MULCHING (IF REQUIRED) THROUGHOUT THE CONSTRUCTION PROCESS. A MAP SHALL INDICATE THESE AREAS AND SHALL BE UPDATED AS SITE CONDITIONS CHANGE AND AS CONSTRUCTION PROGRESSES. THIS MAP SHALL REMAIN ON SITE AT ALL TIMES.
3. AREAS THAT ARE TO BE VEGETATED WITH SEEDING SHOULD ALSO BE TEMPORARILY STABILIZED VIA SURFACE ROUGHENING OR SOME OTHER MEANS.
3. EXISTING VEGETATION:
   - NATIVE GRASSES COVER THE ENTIRE SITE.
   - VARIOUS SPECIES OF TREES; SITE COVERAGE = 28.6%

* THE LOCATION OF STAGING AREA, ETC. SHALL BE DETERMINED BY THE CONTRACTOR. APPROPRIATE CONSTRUCTION CONTROL MEASURES SHALL BE FOLLOWED FOR EACH.

** EXISTING RIVERINE INTERMITTENT STREAMBED SEASONALLY FLOODED (R4SBC) AS DESCRIBED IN "AQUATIC RESOURCES ASSESSMENT" MEMORANDUM BY WSB ENGINEERING, DATED JULY 28, 2021.

*** PER DCM V2 SECTION 3.2: SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND ARE SHALL BE COMPLETED WITHIN TWENTY-ONE (21) CALENDAR DAYS AFTER FINAL GRADING, OR FINAL EARTH DISTURBANCE, HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE, BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS, SHALL BE MULCHED WITHIN 21 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPS SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.

CONSTRUCTION CONTROL MEASURES INSTALLATION STAGING NOTES (NOT ALL APPLY):

STAGE 1 – PRE-DISTURBANCE
INSTALL INITIAL STORMWATER QUALITY (SWQ) CONSTRUCTION CONTROL MEASURES (CCM'S) AS SHOWN ON THE GRADING AND EROSION CONTROL PLAN PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES. THESE CCM'S CONSIST OF THE PERIMETER CONTROLS OF SILT FENCE, CURB SOCKS, INLET PROTECTION OF EXISTING INLETS, AND THE VEHICLE TRACKING CONTROL PAD.

STAGE 2 – OVERLOT GRADING
COMMENCE THE BULK OF OVERLOT GRADING OPERATIONS AND INSTALL TEMPORARY CCM'S AS SHOWN ON THE GRADING AND EROSION CONTROL PLAN. TEMPORARY CCM'S MAY CONSIST OF ADDITIONAL SILT FENCE AND SURFACE ROUGHENING OF SLOPES.

STAGE 3 – INFRASTRUCTURE & BUILDING CONSTRUCTION
CONSTRUCT SITE IMPROVEMENTS AS SHOWN ON THE APPLICABLE CONSTRUCTION DOCUMENTS. ADDITIONAL TEMPORARY CCM'S CONSISTING OF ADDITIONAL SILT FENCE, CONCRETE WASH-OUT AREA, AND INLET PROTECTION OF PERMANENT DRAINAGE IMPROVEMENTS. ANY STOCKPILED DIRT SHALL BE PROTECTED BY A PERIMETER OF SILT FENCE.

STAGE 4 – PERMANENT STABILIZATION
PERMANENT SWQ CCM'S (IF USED) SUCH AS RIP-RAP, CURB & CUTTER, PAVEMENT, LANDSCAPING, AND SEEDING SHALL BE CONSTRUCTED AT THIS TIME AS OUTLINED ON THE GRADING AND EROSION CONTROL PLAN AND THE LANDSCAPE AND IRRIGATION PLANS, DRAINAGE REPORT, AND/OR CONSTRUCTION DOCUMENTS. ALL DISTURBED AREAS THAT ARE NOT PERMANENTLY PAVED OR LANDSCAPED SHALL BE PERMANENTLY SEEDED.

OTHER NON-STRUCTURAL CCM'S INCLUDE, BUT ARE NOT LIMITED TO, LIMITING DISTURBED AREAS AND STREET SWEEPING.

NON APPLICABLE ITEMS

- NO-BUILD AREAS
- LOCATION OF ASPHALT, CONCRETE BATCH PLANTS AND MASONRY MIX STATIONS
- BOUNDARIES OF 100 YR FLOODPLAIN
- BOUNDARIES OF STREAMSIDE OVERLAY
- BOUNDARIES OF HILLSIDE OVERLAY
- LOCATIONS OF PRESERVATION EASEMENTS

CONSTRUCTION CONTROL LEGEND

SILT FENCE	SF
VEHICLE TRACKING CONTROL	VTC
STABILIZED STAGING AREA*	SSA
TEMPORARY SEDIMENT BASIN	SB
TEMPORARY COMPACTED BERM (H = 10' MAX)	TCB
EROSION CONTROL BLANKET	ECB
SURFACE ROUGHENING***	SR
CULVERT INLET PROTECTION	CIP
CONSTRUCTION FENCE	CF
SEDIMENT CONTROL LOG	SCL
PORTABLE TOILET MANAGEMENT*	PT
CONCRETE WASHOUT*	CWA

LEGEND

EXISTING	(E)
PROPOSED	(P)
CURB AND GUTTER	C&G
PUBLIC	PUB
PRIVATE	PVT
INLET PROTECTION	IP
DETENTION POND	DP
FLOOD CONTROL ONLY	FCO
PROPERTY BOUNDARY	
RIGHT-OF-WAY	
PROPERTY LINE	
(E) CONTOUR, INDEX	7350
(E) CONTOUR	
(P) CONTOUR, INDEX	7350
(P) CONTOUR	
(E) EDGE OF TREE LINE	
LIMITS OF CONSTRUCTION/ LIMITS OF DISTURBANCE	
APPROX. LIMITS OF RIVERINE INTERMITTENT STREAMBED SEASONALLY FLOODED	
(E) STORM SEWER	
(P) STORM SEWER	
(P) RIPRAP	
(E) DIRECTION OF OVERLAND FLOW	
(P) DIRECTION OF OVERLAND FLOW	
DIRECTION OF FLOW	2.00%
(P) SWALE	

REV.	DESCRIPTION	DATE
1	ADDRESS AGENCY COMMENTS	01/26/26
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NOTE: PRIOR TO STOCKPILE BEING FILLED, THE TEMPORARY SEDIMENT BASIN 'A' TO BE CONSTRUCTED AT A MINIMUM. HOWEVER, IT IS RECOMMENDED THAT POND 'A' BE CONSTRUCTION FIRST, THEN THE TEMPORARY SEDIMENT BASIN PRIOR TO THE STOCKPILE BEING FILLED.

PREPARED FOR:
EL PASO COUNTY
2880 INTERNATIONAL CIRCLE
SUITE 110
COLORADO SPRINGS, CO 80910

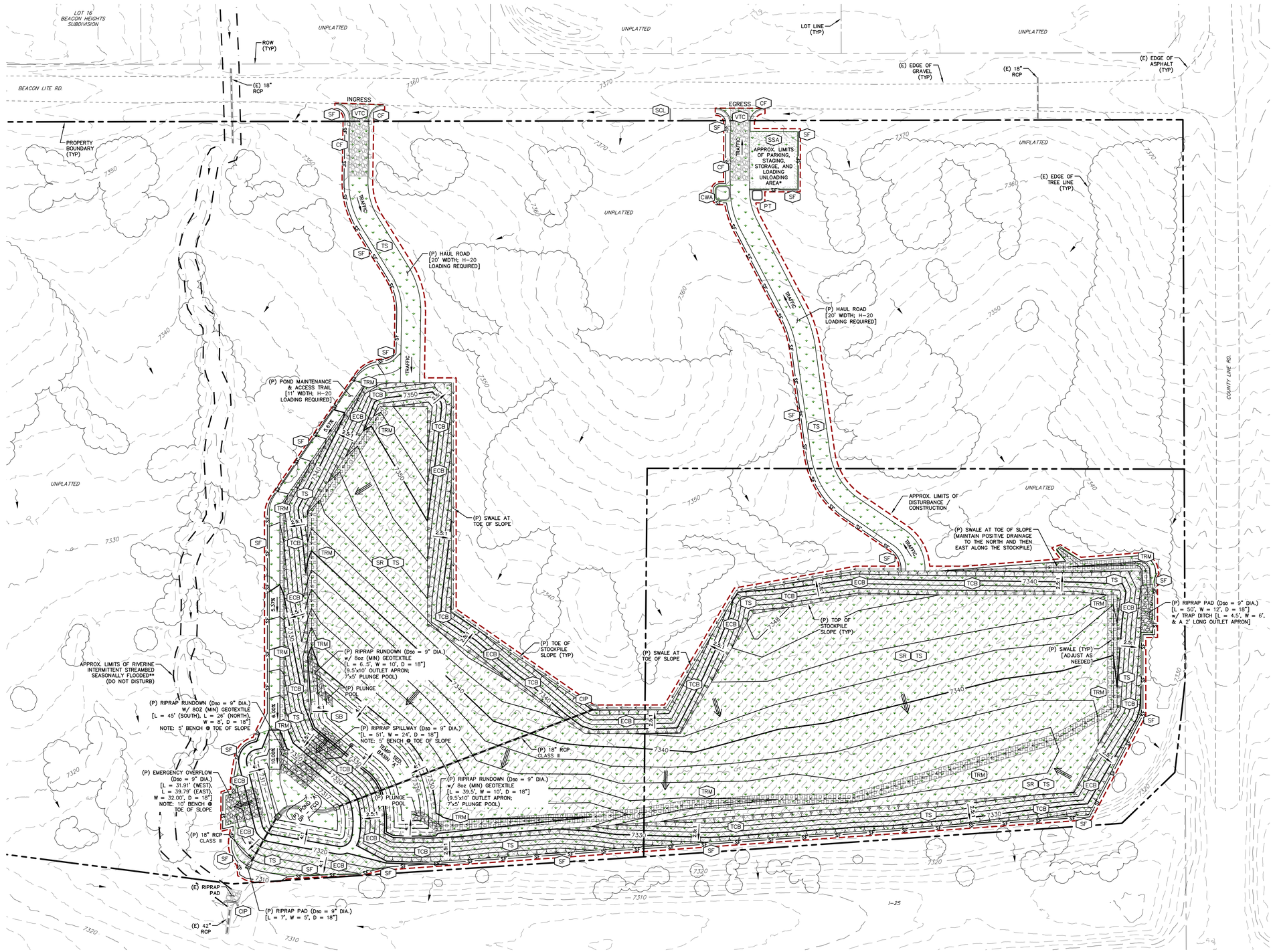
PREPARED UNDER MY DIRECT SUPERVISION FOR AND BEHALF OF PRC ENGINEERING.
COLORADO REGISTERED 37173 PROFESSIONAL ENGINEER
RAYMOND E. PERREY, COLORADO PE #37173
March 09, 2026
DATE

PRC ENGINEERING
1685 W. UINTAH STREET, SUITE 114
COLORADO SPRINGS, CO 80904
(719) 291-2744

BEACON LITE ROAD STOCKPILE

GRADING & EROSION CONTROL PLAN - INTERIM -

SCALE: 1" = 50'
DRAWN BY: MGP
DATE: 12/17/25
JOB NUMBER: 25-005
SHEET: 3 OF 9



NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT A PLAN FOR THE MAINTENANCE AND SCHEDULING OF ALL OTHER NON-LOCATION SPECIFIC AND NON-STRUCTURAL CONTROL MEASURES (IE STREET SWEEPING). THIS PLAN SHALL BE UPDATED AS SITE CONDITIONS CHANGE AND AS CONSTRUCTION PROGRESSES. THIS PLAN SHALL REMAIN ON SITE AT ALL TIMES.
2. THE CONTRACTOR SHALL DETERMINE AREAS REQUIRING SEEDING AND MULCHING (IF REQUIRED) THROUGHOUT THE CONSTRUCTION PROCESS. A MAP SHALL INDICATE THESE AREAS AND SHALL BE UPDATED AS SITE CONDITIONS CHANGE AND AS CONSTRUCTION PROGRESSES. THIS MAP SHALL REMAIN ON SITE AT ALL TIMES.
3. AREAS THAT ARE TO BE VEGETATED WITH SEEDING SHOULD ALSO BE TEMPORARILY STABILIZED VIA SURFACE ROUGHENING OR SOME OTHER MEANS.
3. EXISTING VEGETATION:
   - NATIVE GRASSES COVER THE ENTIRE SITE.
   - VARIOUS SPECIES OF TREES; SITE COVERAGE = 28.6%

* THE LOCATION OF STAGING AREA, ETC. SHALL BE DETERMINED BY THE CONTRACTOR. APPROPRIATE CONSTRUCTION CONTROL MEASURES SHALL BE FOLLOWED FOR EACH.

** EXISTING RIVERINE INTERMITTENT STREAMBED SEASONALLY FLOODED (R4SBC) AS DESCRIBED IN "AQUATIC RESOURCES ASSESSMENT" MEMORANDUM BY WSB ENGINEERING, DATED JULY 28, 2021.

*** PER DCM V2 SECTION 3.2: SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND ARE SHALL BE COMPLETED WITHIN TWENTY-ONE (21) CALENDAR DAYS AFTER FINAL GRADING, OR FINAL EARTH DISTURBANCE, HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE, BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS, SHALL BE MULCHED WITHIN 21 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPS SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.

CONSTRUCTION CONTROL MEASURES INSTALLATION STAGING NOTES (NOT ALL APPLY):

STAGE 1 – PRE-DISTURBANCE
INSTALL INITIAL STORMWATER QUALITY (SWQ) CONSTRUCTION CONTROL MEASURES (CCM'S) AS SHOWN ON THE GRADING AND EROSION CONTROL PLAN PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES. THESE CCM'S CONSIST OF THE PERIMETER CONTROLS OF SILT FENCE, CURB SOCKS, INLET PROTECTION OF EXISTING INLETS, AND THE VEHICLE TRACKING CONTROL PAD.

STAGE 2 – OVERLOT GRADING
COMMENCE THE BULK OF OVERLOT GRADING OPERATIONS AND INSTALL TEMPORARY CCM'S AS SHOWN ON THE GRADING AND EROSION CONTROL PLAN. TEMPORARY CCM'S MAY CONSIST OF ADDITIONAL SILT FENCE AND SURFACE ROUGHENING OF SLOPES.

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CONSTRUCTION CONTROL LEGEND

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VEHICLE TRACKING CONTROL	VTC
STABILIZED STAGING AREA*	SSA
TEMPORARY SEDIMENT BASIN	SB
TEMPORARY COMPACTED BERM (H = 10" MAX)	TCB
EROSION CONTROL BLANKET	ECB
TURF REINFORCEMENT MAT [10" WIDE]	TRM
SURFACE ROUGHENING***	SR
CULVERT INLET PROTECTION	CIP
CONSTRUCTION FENCE	CF
TEMPORARY SEEDING***	TS
SEDIMENT CONTROL LOG	SCL
PORTABLE TOILET MANAGEMENT*	PT
CONCRETE WASHOUT*	CWA

LEGEND

EXISTING	(E)
PROPOSED	(P)
CURB AND GUTTER	C&G
PUBLIC	PUB
PRIVATE	PVT
INLET PROTECTION	IP
DETENTION POND	DP
FLOOD CONTROL ONLY	FCO
PROPERTY BOUNDARY	
RIGHT-OF-WAY	
PROPERTY LINE	
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(P) CONTOUR	
(E) EDGE OF TREE LINE	
LIMITS OF CONSTRUCTION/ LIMITS OF DISTURBANCE	
APPROX. LIMITS OF RIVERINE INTERMITTENT STREAMBED SEASONALLY FLOODED	
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PREPARED UNDER MY DIRECT SUPERVISION FOR AND BEHALF OF PRC ENGINEERING.

STATE OF COLORADO REGISTERED RAYMOND E. PEREZ 37173 PROFESSIONAL ENGINEER

RAYMOND E. PEREZ, COLORADO PE #37173

March 09, 2026
DATE

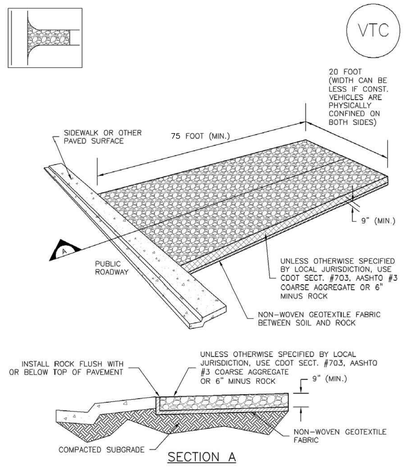
PRC ENGINEERING
1685 W. UINTAH STREET, SUITE 114
COLORADO SPRINGS, CO 80904
(719) 291-2744

BEACON LITE ROAD STOCKPILE

GRADING & EROSION CONTROL PLAN - FINAL -

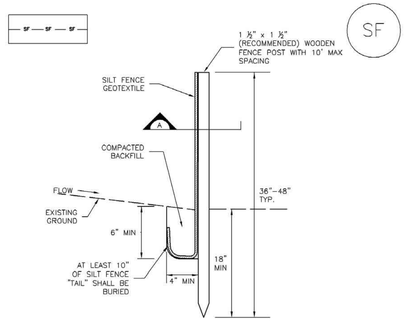
SCALE: 1" = 50'
DRAWN BY: MGP
DATE: 12/17/25
JOB NUMBER: 25-005
SHEET: 4 OF 9

Vehicle Tracking Control (VTC) — SM-4



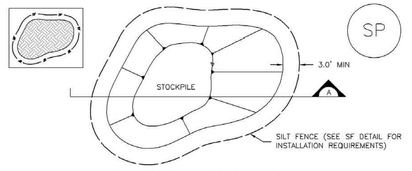
VTC–1. AGGREGATE VEHICLE TRACKING CONTROL

Silt Fence (SF) — SC-1

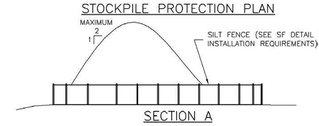


SF–1. SILT FENCE

Stockpile Management (SP) — MM-2



STOCKPILE PROTECTION PLAN



SECTION A

SP–1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

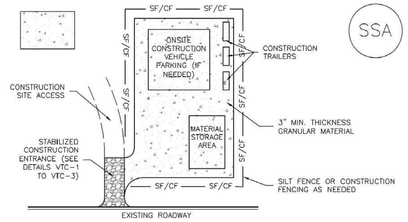
1. SEE PLAN VIEW FOR:
   –LOCATION OF STOCKPILES.
   –TYPE OF STOCKPILE PROTECTION.

2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.

3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30–60 DAYS).

4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

Stabilized Staging Area (SSA) — SM-6



SSA–1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF STAGING AREA(S).
   –CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.

5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

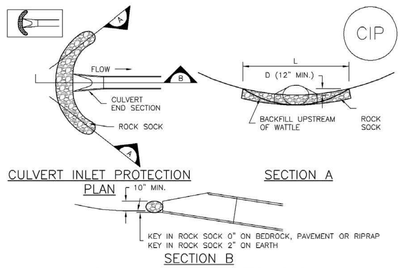
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

Inlet Protection (IP) — SC-6



CIP–1. CULVERT INLET PROTECTION

CULVERT INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF CULVERT INLET PROTECTION.

2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.

CULVERT INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS ½ THE HEIGHT OF THE ROCK SOCK.

5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SC-1 — Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J–HOOK." THE "J–HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' – 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

MM-2 — Stockpile Management (SM)

STOCKPILE PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

STOCKPILE PROTECTION MAINTENANCE NOTES

4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.

5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SM-6 — Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE–ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

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COLORADO SPRINGS, CO 80910

PREPARED UNDER MY DIRECT SUPERVISION FOR AND BEHALF OF PRC ENGINEERING.
COLORADO REGISTERED 37173 PROFESSIONAL ENGINEER
RAYMOND E. PEREZ, COLORADO PE #37173
March 09, 2026
DATE

PRC ENGINEERING
1685 W. UINTAH STREET, SUITE 114
COLORADO SPRINGS, CO 80904
(719) 291–2744

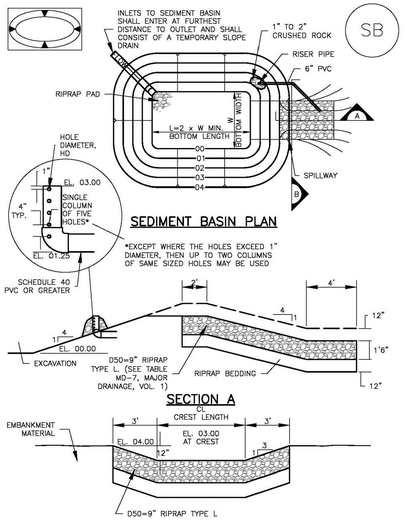
BEACON LITE ROAD STOCKPILE

GRADING & EROSION CONTROL DETAILS

SCALE: N/A	DRAWN BY: MGP
JOB NUMBER 25–005	DATE: 12/17/25
	SHEET 5 OF 9

P:\Projects\25-005 Beacon Lite Stockpile\Civil_CDs\SHEETS\05-01-05 - Details - Details - Friday, March 6, 2026 4:56:37 PM - Michael Pitts

Sediment Basin (SB) SC-7



SC-7 Sediment Basin (SB)

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN			
Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 ½	2	3/16
2	21	3	1/4
3	28	5	5/16
4	33 ½	6	3/8
5	38 ½	8	7/16
6	43	9	1/2
7	47 ¾	11	9/16
8	51	12	5/8
9	55	13	3/4
10	58 ¾	15	13/16
11	61	16	7/8
12	64	18	1"
13	67 ½	19	1 1/16
14	70 ½	21	1 1/8
15	73 ¼	22	1 1/16

SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION OF SEDIMENT BASIN.
   -TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
   -FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
   -FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS AS A STORMWATER CONTROL.
4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
6. PIPE SCH 40 OR GREATER SHALL BE USED.
7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

Sediment Basin (SB) SC-7

SEDIMENT BASIN MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

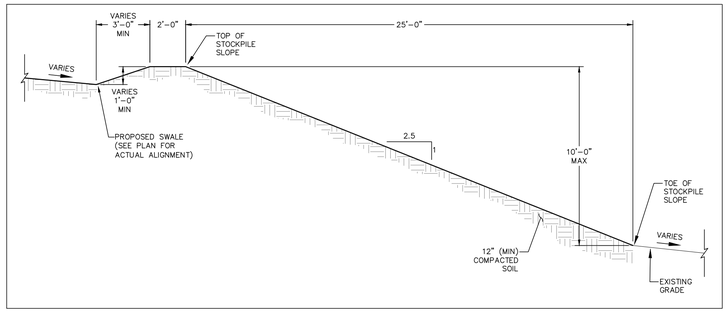
(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

BASIC GRADING, EROSION AND STORMWATER QUALITY REQUIREMENTS AND GENERAL PROHIBITIONS:

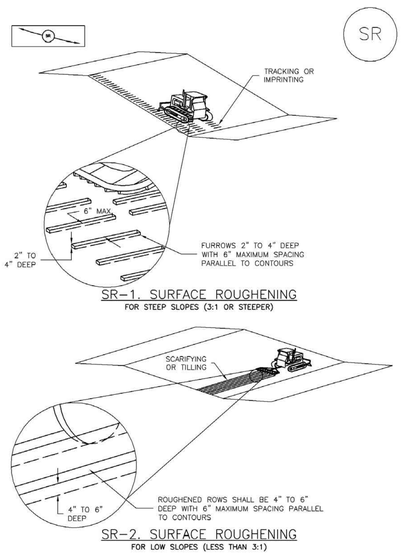
*INFORMATION TAKEN FROM THE EL PASO COUNTY DRAINAGE CRITERIA MANUAL VOLUME 2, HEREIN REFERRED TO AS THE "MANUAL."

1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS.
2. CONCRETE WASH WATER SHALL NOT BE DISCHARGED TO OR ALLOWED TO RUNOFF TO STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM FACILITIES.
3. BUILDING, CONSTRUCTION, EXCAVATION, OR OTHER WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. BMP'S MAY BE REQUIRED BY COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES (E.G., ESTIMATED TIME OF EXPOSURE, SEASON OF THE YEAR, ETC.).
4. VEHICLE TRACKING OF SOILS OFF-SITE SHALL BE MINIMIZED.
5. ALL WASTES COMPOSED OF BUILDING MATERIALS MUST BE REMOVED FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
6. NO CHEMICALS ARE TO BE USED BY THE CONTRACTOR, WHICH HAVE THE POTENTIAL TO BE RELEASED IN STORMWATER UNLESS PERMISSION FOR THE USE OF A SPECIFIC CHEMICAL IS GRANTED IN WRITING BY THE COUNTY ENGINEER. IN GRANTING THE USE OF SUCH CHEMICALS, SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
7. BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE ADEQUATE PROTECTION SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS, INCLUDED ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
8. ALL PERSONS ENGAGED IN EARTH DISTURBANCE SHALL IMPLEMENT AND MAINTAIN ACCEPTABLE SOIL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING BMP'S IN CONFORMANCE WITH THE EROSION CONTROL TECHNICAL STANDARDS OF THE MANUAL AND IN ACCORDANCE WITH THE EROSION AND STORMWATER QUALITY CONTROL PLAN APPROVED THE COUNTY OF EL PASO, IF REQUIRED.
9. ALL TEMPORARY EROSION CONTROL FACILITIES INCLUDING BMP'S AND ALL PERMANENT FACILITIES INTENDED TO CONTROL EROSION OF ANY EARTH DISTURBANCE OPERATIONS, SHALL BE INSTALLED AS DEFINED IN THE APPROVED PLANS AND THE MANUAL AND MAINTAINED THROUGHOUT THE DURATION OF THE EARTH DISTURBANCE OPERATION. THE INSTALLATION OF THE FIRST LEVEL OF TEMPORARY EROSION CONTROL FACILITIES AND BMP'S SHALL BE INSTALLED AND INSPECTED PRIOR TO ANY EARTH DISTURBANCE OPERATIONS TAKING PLACE.
10. ANY EARTH DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY REDUCE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION.
11. ALL EARTH DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED IN SUCH A MANNER SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME.
12. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
13. SUSPENDED SEDIMENT CAUSED BY ACCELERATED SOIL EROSION SHALL BE MINIMIZED IN RUNOFF WATER BEFORE IT LEAVES THE SITE OF THE EARTH DISTURBANCE.
14. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE DESIGNED TO LIMIT THE DISCHARGE TO A NON-EROSIVE VELOCITY.
15. TEMPORARY SOIL EROSION CONTROL FACILITIES SHALL BE REMOVED AND EARTH DISTURBANCE AREAS GRADED AND STABILIZED WITH PERMANENT SOIL EROSION CONTROL MEASURES PURSUANT TO THE STANDARDS AND SPECIFICATIONS PRESCRIBED IN THE MANUAL, AND IN ACCORDANCE WITH THE PERMANENT EROSION CONTROL FEATURES SHOWN ON THE EROSION AND STORMWATER QUALITY CONTROL PLANS APPROVED BY THE COUNTY OF EL PASO, IF REQUIRED.
16. SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN TWENTY-ONE (21) CALENDAR DAYS AFTER FINAL GRADING, OR FINAL EARTH DISTURBANCE, HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED WITHIN 21 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMP'S SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.
17. NO PERSON SHALL CAUSE, PERMIT, OR CONTRIBUTE TO THE DISCHARGE INTO THE MUNICIPAL SEPARATE STORM SEWER POLLUTANTS THAT COULD CAUSE THE COUNTY OF EL PASO TO BE IN VIOLATION OF ITS COLORADO DISCHARGE PERMIT SYSTEM MUNICIPAL STORMWATER DISCHARGE PERMIT.
18. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, AND SAND THAT MAY ACCUMULATE IN THE STORM SEWER OR OTHER DRAINAGE CONVEYANCE SYSTEM AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
19. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE FLOW LINE OF THE CURB AND GUTTER, INCLUDING THE TEMPORARY OR PERMANENT RAMPING WITH MATERIALS FOR VEHICLE ACCESS.
20. INDIVIDUALS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), REGULATIONS PROMULGATED, CERTIFICATIONS OR PERMITS ISSUED, IN ADDITION TO THE REQUIREMENTS INCLUDED IN THE MANUAL. IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND WATER QUALITY CONTROL LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL OR STATE AGENCIES, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
21. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS. MATERIALS SHALL NOT BE STORED IN A LOCATION WHERE THEY MAY BE CARRIED BY STORMWATER RUNOFF INTO A STATE WATER AT ANY TIME.
22. SPILL PREVENTION AND CONTAINMENT MEASURES SHALL BE USED AT STORAGE, AND EQUIPMENT FUELING AND SERVICING AREAS TO PREVENT THE POLLUTION OF ANY STATE WATERS, INCLUDING WETLANDS. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY, OR CONTAINED UNTIL APPROPRIATE CLEANUP METHODS CAN BE EMPLOYED. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE FOLLOWED, ALONG WITH PROPER DISPOSAL METHODS.



TYPICAL SECTION - STOCKPILE SIDE SLOPE & SWALE
SCALE: N.T.S.

Surface Roughening (SR) EC-1



EC-1 Surface Roughening (SR)

SURFACE ROUGHENING INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION(S) OF SURFACE ROUGHENING.
2. SURFACE ROUGHENING SHALL BE PROVIDED PROMPTLY AFTER COMPLETION OF FINISHED GRADING (FOR AREAS NOT RECEIVING TOPSOIL) OR PRIOR TO TOPSOIL PLACEMENT OR ANY FORECASTED RAIN EVENT.
3. AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD WILL BE PLACED WITHOUT DELAY IN THE CONSTRUCTION SEQUENCE, SURFACE ROUGHENING IS NOT REQUIRED.
4. DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.
5. A FARMING DISK SHALL NOT BE USED FOR SURFACE ROUGHENING.

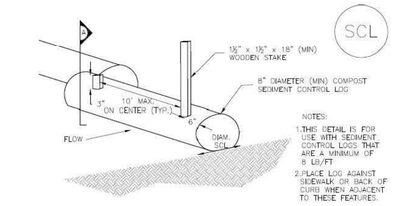
SURFACE ROUGHENING MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACE UPON DISCOVERY OF THE FAILURE.
4. VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
5. IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
6. IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER RILL EROSION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SC-2 Sediment Control Log (SCL)



SC-2 Sediment Control Log (SCL)

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY ⅓ OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING. COMPOST LOGS THAT ARE 8 LB/FT DO NOT NEED TO BE TRENCHED.
6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL OR FILTER MATERIAL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER OR BLOWN IN PLACE.
7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED. COMPOST LOGS SHOULD BE STAKED 10' ON CENTER.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION.COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACE AS LONG AS BAGS ARE REMOVED AND THE AREA SEEDED. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

REV.	DESCRIPTION	DATE
1	ADDRESS AGENCY COMMENTS	01/26/26
2	ADDRESS AGENCY COMMENTS	02/07/26
3	ADDRESS AGENCY COMMENTS	02/23/26
4	ADDRESS AGENCY COMMENTS	03/06/26

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PREPARED FOR:
EL PASO COUNTY
2880 INTERNATIONAL CIRCLE
SUITE 110
COLORADO SPRINGS, CO 80910

PREPARED UNDER MY DIRECT SUPERVISION FOR AND BEHALF OF PRC ENGINEERING.
COLORADO REGISTERED 37173 PROFESSIONAL ENGINEER
RAYMOND E. PEREZ, COLORADO PE #37173
March 09, 2026
DATE

PRC ENGINEERING
1685 W. UINTAH STREET, SUITE 114
COLORADO SPRINGS, CO 80904
(719) 291-2744

BEACON LITE ROAD STOCKPILE
GRADING & EROSION CONTROL DETAILS

DRAWN BY: MGP
SCALE: N/A
DATE: 12/17/25
JOB NUMBER: 25-005
SHEET: 6 OF 9

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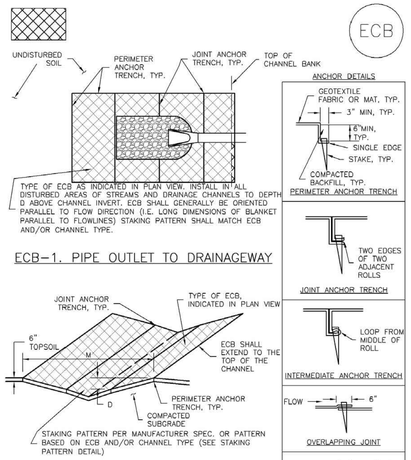


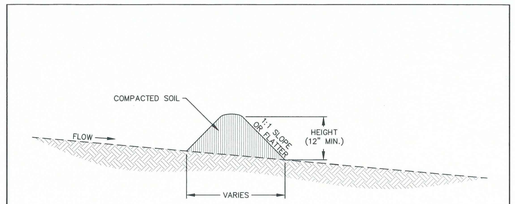
EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF ECB.
   –TYPE OF ECB (STRAW, STRAW–COCONUT, COCONUT, OR EXCELSIOR).
   –AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
3. IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
4. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE–HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
7. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
8. MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB–1.
9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBS SHALL BE RESEEDED AND MULCHED.
10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB–1. ECB MATERIAL SPECIFICATIONS

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**
STRAW*	–	100%	–	DOUBLE/ NATURAL
STRAW–COCONUT	30% MIN	70% MAX	–	DOUBLE/ NATURAL
COCONUT	100%	–	–	DOUBLE/ NATURAL
EXCELSIOR	–	–	100%	DOUBLE/ NATURAL

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNEL.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS



TEMPORARY COMPACTED BERM

INSTALLATION NOTES
1. COMPACTED BERM MUST BE A MINIMUM HEIGHT OF ONE FOOT. BASE WIDTH IS DETERMINED BY HEIGHT.
2. COMPACTED BERMS MUST BE ADEQUATELY COMPACTED. NOT ALL SOILS ARE SUITABLE FOR COMPACTED BERMS.
3. INSTALL COMPACTED BERMS ALONG CONTOUR; DO NOT INSTALL PERPENDICULAR TO SLOPE.
4. THE MAXIMUM TRIBUTARY DRAINAGE AREA PER 100 LINEAR FEET OF COMPACTED BERMS SHALL BE ¼ ACRE.

MAINTENANCE NOTES
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY;
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE BERM.

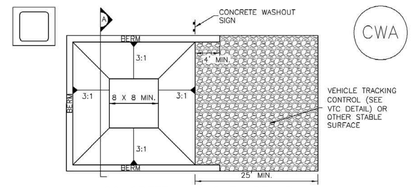
TCB

STORMWATER ENTERPRISE

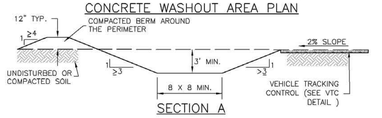
TEMPORARY COMPACTED BERM

APPROVED: SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–TCB



CONCRETE WASHOUT AREA PLAN

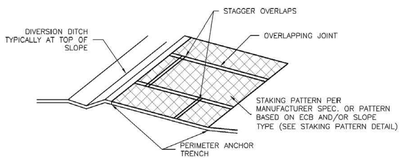


SECTION A

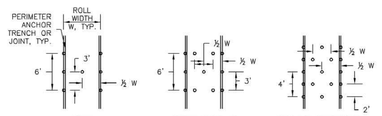
CWA–1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

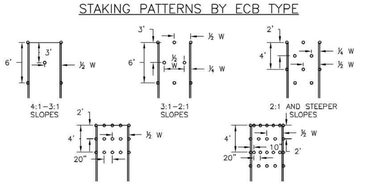
1. SEE PLAN VIEW FOR:
   –CWA INSTALLATION LOCATION.
2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.



ECB–3. OUTSIDE OF DRAINAGEWAY



STAKING PATTERNS BY ECB TYPE



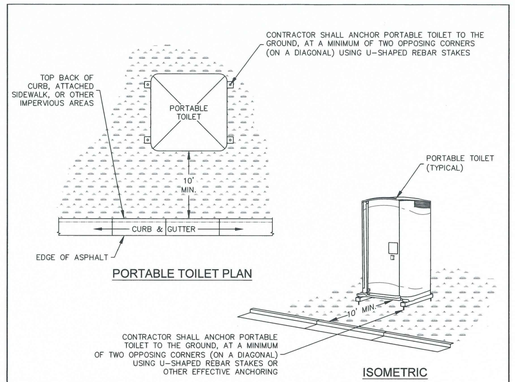
STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

EROSION CONTROL BLANKET MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
5. ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER COLORADO, NOT AVAILABLE IN AUTOCAD)



INSTALLATION NOTES
1. PORTABLE TOILETS SHALL BE PLACED A MINIMUM OF 10 FEET BEHIND ALL CURBS, SIDEWALKS, AND OTHER IMPERVIOUS AREAS; 50 FEET FROM STORM INLETS, AND 100 FEET FROM WATERWAYS.
2. PORTABLE TOILETS IN THE RIGHT–OF–WAY ARE REQUIRED TO BE PLACED ON MOBILE TRAILERS AND MUST BE ANCHORED OR WEIGHTED DOWN. PORTABLE TOILETS MAY BE INSTALLED IN ACCORDANCE WITH NOTE #1 IN STAGING AREAS/YARDS.
3. PORTABLE TOILETS SHALL BE SECURELY ANCHORED TO THE GROUND USING U–SHAPED REBAR STAKES, OR OTHER EFFECTIVE ANCHORING.
4. ANCHORING SHALL BE POSITIONED ON AT LEAST TWO OPPOSING (DIAGONAL) CORNERS.
5. TOILET CONTAINMENT PANS MAY BE USED IN PLACE OF A TRAILER AT THE GEC INSPECTOR'S DISCRETION. TOILET CONTAINMENT PANS MUST BE ANCHORED IN PLACE AND MUST NOT BE USED WITHIN THE CITY R.O.W.

MAINTENANCE NOTES
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. PORTABLE TOILETS SHALL BE SERVICED AT THE NECESSARY INTERVALS TO ELIMINATE THE POSSIBILITY OF OVERFLOW.
3. WHEN THE PORTABLE TOILETS ARE REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE TOILETS MUST BE PERMANENTLY STABILIZED.

PT

PORTABLE TOILET

APPROVED: SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
2/19/19	8/19/2020	900–PTM

Table 5-1. El Paso County Conservation District All-Purpose Mix for Upland, Transition and Permanent Control Measure Areas

Common Name	Scientific Name	Growth Season / Form	% of Mix	Pounds PLS		
				• Irrigated broadcast • Irrigated hydroseeded	• Non-irrigated broadcast • Non-irrigated hydroseeded • Irrigated drilled	• Non-irrigated drilled
				80 seeds/sq ft	40 seeds/sq ft	20 seeds/sq ft
Bluestem, big	*Andropogon gerardii*	Warm, sod	20	4.4	2.2	1.1
Grama, blue	*Bouteloua gracilis*	Warm, bunch	10	0.5	0.25	0.13
Green needlegrass[2]	*Nassella viridula*	Cool, bunch	10	2	1	0.5
Wheatgrass, western[2]	*Pascopyrum smithii*	Cool, sod	20	6.4	3.2	1.6
Grama, sideoats	*Bouteloua curtipendula*	Warm, bunch	10	2	1	0.5
Switchgrass[3]	*Panicum virgatum*	Warm, bunch/sod	10	0.8	0.4	0.2
Prairie sandreed	*Calamovilfa longifolia*	Warm, sod	10	1.2	0.6	0.3
Yellow indiangrass[2]	*Sorghastrum nutans*	Warm, sod	10	2	1	0.5
		Seed rate (lbs PLS/Acre)		19.3	9.7	4.8

[1]For portions of facilities located near or on the bottom or where wet soil conditions occur. Planting of potted nursery stock wetland plants 2-foot on-center is recommended for sites with wetland hydrology.

[2]Species that will do well in the bottom of pond areas.

Table 5-2. El Paso County All-Purpose Low Grow Mix for Upland and Transition Areas

Common Name	Scientific Name	Growth Season / Form	% of Mix	Pounds PLS		
				• Irrigated broadcast • Irrigated hydroseeded	• Non-irrigated broadcast • Non-irrigated hydroseeded • Irrigated drilled	• Non-irrigated drilled
				80 seeds/sq ft	40 seeds/sq ft	20 seeds/sq ft
Buffalograss	*Buchloe dactyloides*	Warm, sod	25	9.6	4.8	2.4
Grama, blue	*Bouteloua gracilis*	Warm, bunch	20	10.8	5.4	2.7
Grama, sideoats	*Bouteloua curtipendula*	Warm, bunch	29	5.6	2.8	1.4
Green needlegrass	*Nassella viridula*	Cool, bunch	5	3.2	1.6	0.8
Wheatgrass, western	*Pascopyrum smithii*	Cool, sod	20	12	6	3
Dropseed, sand	*Sporobolus cryptandrus*	Warm, bunch	1	0.8	0.4	0.2
		Seed rate (lbs PLS/Acre)		42	21	10.3

REV.	DESCRIPTION	DATE
1	ADDRESS AGENCY COMMENTS	01/26/26
2	ADDRESS AGENCY COMMENTS	02/07/26
3	ADDRESS AGENCY COMMENTS	02/23/26
4	ADDRESS AGENCY COMMENTS	03/06/26

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COLORADO REGISTERED 37173 PROFESSIONAL ENGINEER

RAYMOND E. PEREZ, COLORADO PE #37173

March 09, 2026
DATE

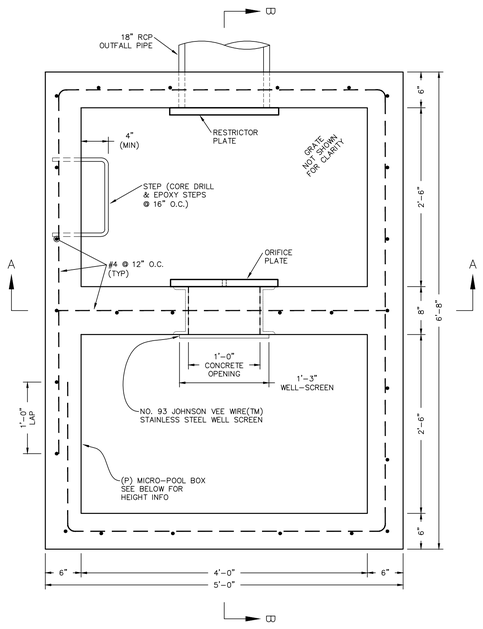
PRC ENGINEERING
1685 W. UINTAH STREET, SUITE 114
COLORADO SPRINGS, CO 80904
(719) 291–2744

BEACON LITE ROAD STOCKPILE

GRADING & EROSION CONTROL DETAILS

DRAWN BY: MGP
SCALE: N/A
DATE: 12/17/25
JOB NUMBER 25–005
SHEET 7 OF 9

A:\Projects\25-005 Beacon Lite Stockpile\Dwgs_GDs\Gr-ESC\25-005-Gr-ESC-07 - Details - Details - Friday, March 6, 2026 4:36:13 PM - Michael Perry



POND OUTFALL STRUCTURE - PLAN VIEW
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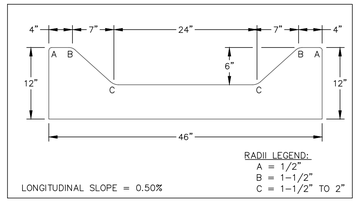

CONCRETE TRICKLE CHANNEL
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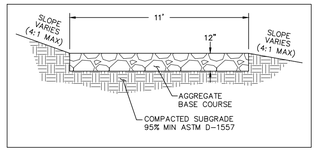

POND MAINTENANCE ACCESS DETAIL
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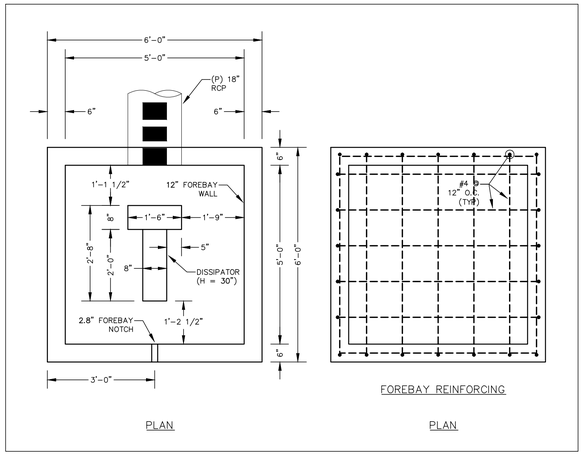

FOREBAY
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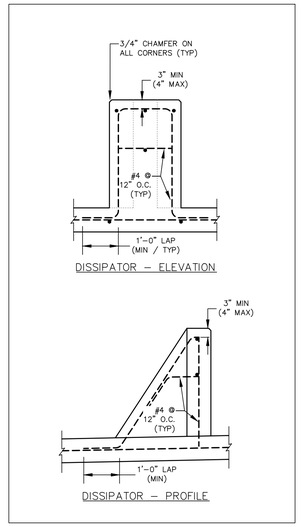

IMPACT STILLING BASIN REINFORCING DETAILS
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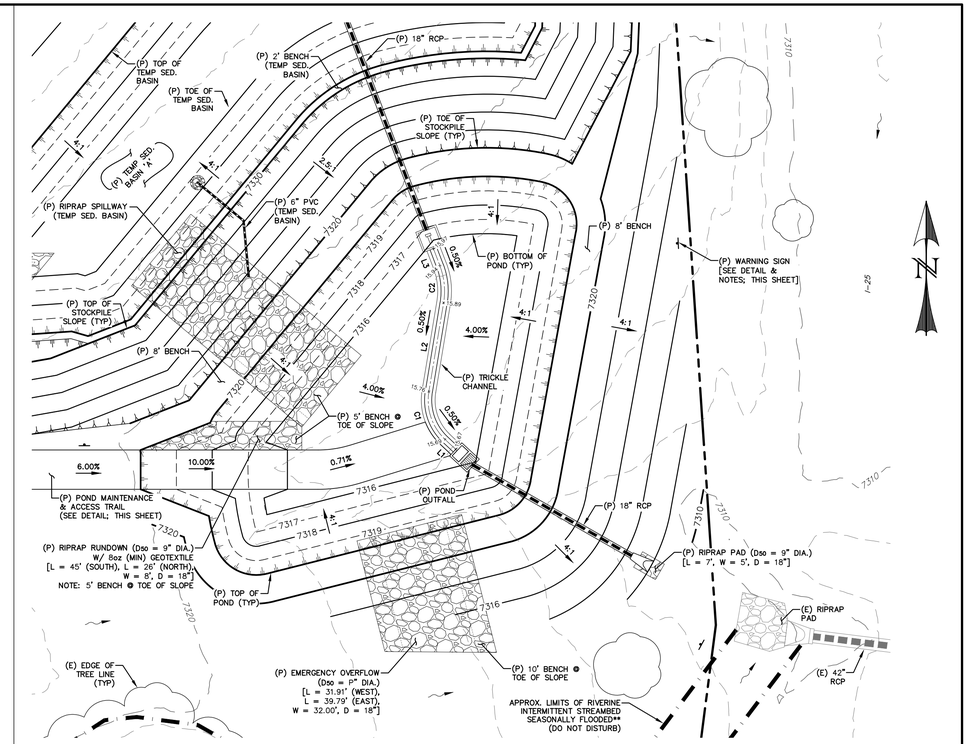
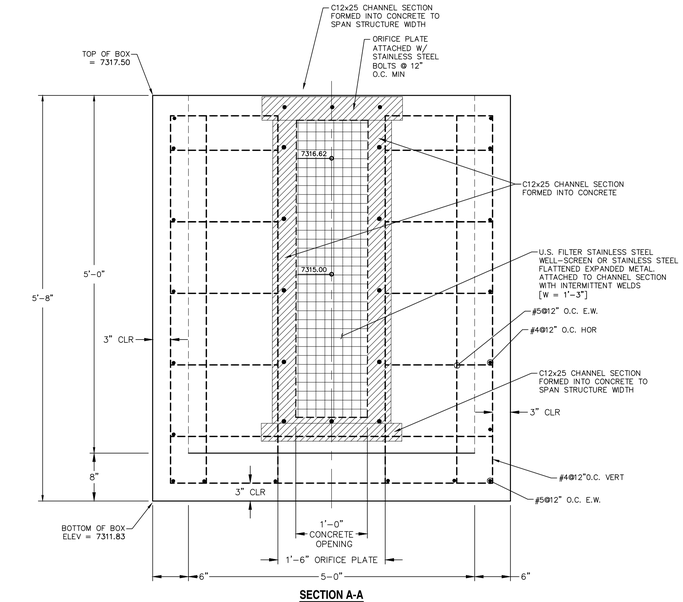


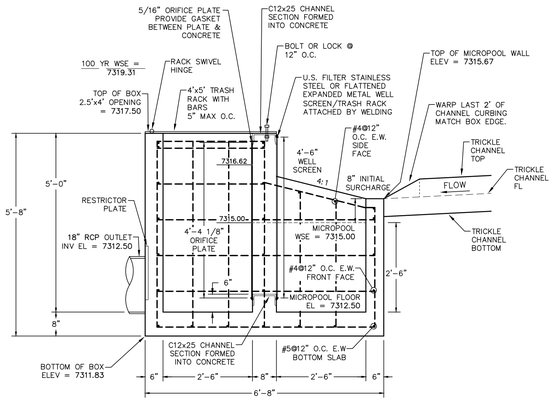
POND 'A' - FULL-SPECTRUM EXTENDED DETENTION BASIN
SCALE: 1" = 20'

LINE TABLE – TRICKLE CHANNEL CL		
LINE	BEARING	DISTANCE
L1	N46° 55' 29"W	4.04
L2	N9° 24' 29"E	25.14
L3	N20° 50' 38"W	5.10

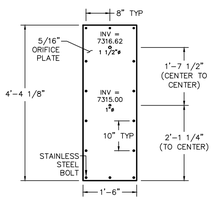
CURVE TABLE – TRICKLE CHANNEL CL			
CURVE	DELTA	RADIUS	LENGTH
C1	56°19'59"	15.00	14.75
C2	30°15'07"	20.00	10.56



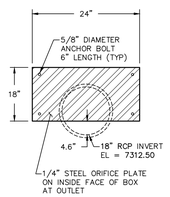
SECTION A-A
SCALE: N.T.S.



SECTION B-B
SCALE: N.T.S.



ORIFICE PLATE
SCALE: N.T.S.



RESTRICTOR PLATE
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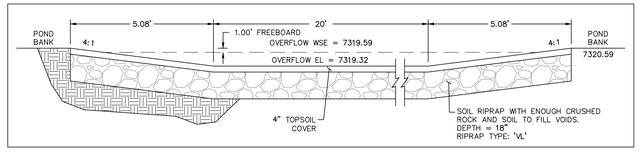

POND OVERFLOW DETAIL
SCALE: N.T.S.

WARNING

THIS AREA IS A STORMWATER FACILITY AND IS SUBJECT TO PERIODIC FLOODING

NOTES:

- SIGN SHALL BE A MINIMUM OF 3 SF.
- SIGN SHALL BE FABRICATED OF DURABLE MATERIALS SUCH AS METAL OR PLASTIC.
- SIGN SHALL HAVE RED LETTERING ON A WHITE BACKGROUND.

WARNING SIGN DETAIL
SCALE: N.T.S.

CDOT GENERAL NOTES:

1. CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
2. REINFORCING BARS SHALL HAVE A MINIMUM 2 IN. CLEARANCE.
3. CONCRETE SLOPE AND DITCH PAVING SHALL CONFORM TO SECTION 507. REINFORCEMENT FOR CONCRETE SLOPE PAVING SHALL BE 6 X 6 – W1.4 X W1.4 OR 6 X 6 – W2.1 X W2.1.
4. STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH 712.06.
5. THE STANDARD INLET GRATES SHALL BE USED ON ALL TYPE C INLETS UNLESS CLOSE MESH GRATES ARE SPECIFIED ON THE PLANS.
6. STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" EXCEEDS 3 FT.–6 IN. AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
7. SEE SHEET M-604-11, INLET, TYPE D, FOR REINFORCEMENT AROUND THE PIPE OPENING.

◆ CONCRETE SLOPE AND DITCH PAVING WILL BE REQUIRED WHEN SHOWN ON PLANS.

REV.	DESCRIPTION	DATE
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3	ADDRESS AGENCY COMMENTS	02/23/26
4	ADDRESS AGENCY COMMENTS	03/06/26

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COLORADO REGISTERED 37773 PROFESSIONAL ENGINEER
RAYMOND E. PEREZ, COLORADO PE #37173
March 09, 2026
DATE

PRC ENGINEERING
1685 W. UINTAH STREET, SUITE 114
COLORADO SPRINGS, CO 80904
(719) 291-2744

BEACON LITE ROAD STOCKPILE
PERMANENT CONTROL MEASURE PLAN

DESIGNED BY:	BES	DRAWN BY:	MGP
SCALE:	VARIES	DATE:	12/17/25
JOB NUMBER		SHEET	
25-005		8 OF 9	

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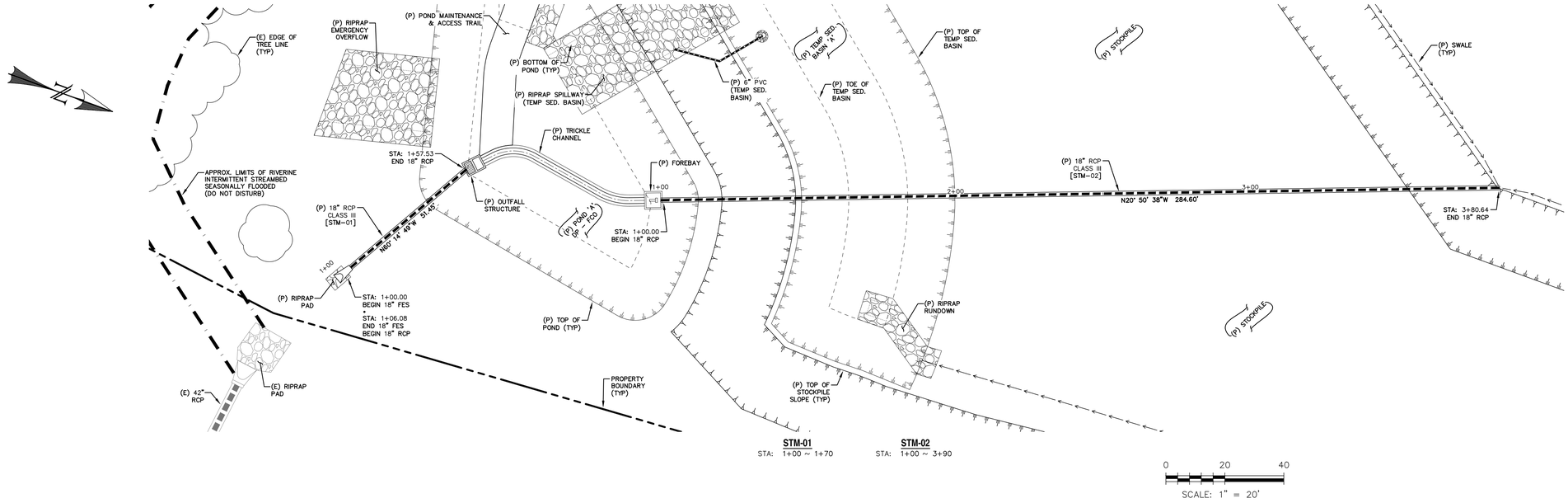

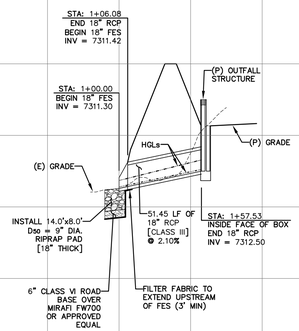

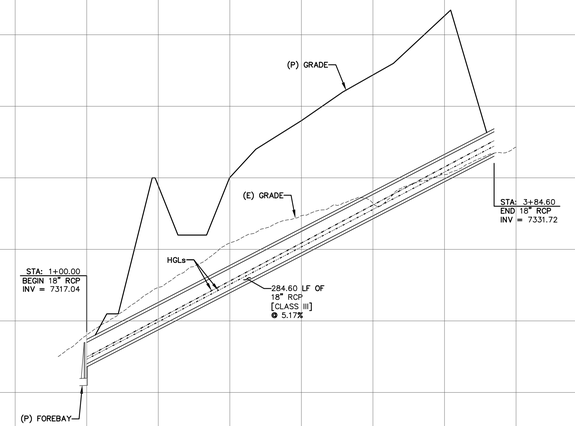

0 50 100
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

STM-01

STM-02

REV.	DESCRIPTION	DATE
1	ADDRESS AGENCY COMMENTS	01/26/26
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COLORADO SPRINGS, CO 80904
(719) 291-2744

BEACON LITE ROAD STOCKPILE

STORM SEWER PLAN & PROFILES

DESIGNED BY:	MGP	DRAWN BY:	MGP
SCALE:	VARIES	DATE:	12/17/25
JOB NUMBER		SHEET	
25-005		9 OF 9	

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