Geotechnical Engineering Report

Walmart Store #4335 Fueling Station
11550 Meridian Market View
Falcon, Colorado
July 14, 2022
Terracon Project No. 23225049

Prepared for:
CEI Engineering Associates Inc
Fresno, California

Prepared by:
Terracon Consultants, Inc.
Colorado Springs, Colorado

July 14, 2022

CEI Engineering Associates Inc
7543 North Ingram Avenue
Fresno, California 93711

Attn: Ms. Jennifer Perkins
P: (479) 254 1457
E: japerkins@ceieng.com

Re: Geotechnical Engineering Report
Walmart Store #4335 Fueling Station
11550 Meridian Market View
Falcon, Colorado
Terracon Project No. 23225049

Ms. Perkins:

We have completed the Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. P35215196 dated November 19, 2021. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs, and pavements for the proposed 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 Consultants, Inc.

Amelia R. Anderson
Field Engineer

William A. Modrall, P.E.
Geotechnical Department Manager

John B. Mancini, P.E. (UT)
Authorized Project Reviewer

REPORT TOPICS

Note: This report was originally delivered in a web-based format. Orange 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 *GeoReport* logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

FIGURES

ATTACHMENTS

Note: Refer to each individual Attachment cover page for a listing of contents.

REPORT SUMMARY

Topic [1]	Overview Statement [2]
Project Description	The project consists of the design and construction of a new Walmart fueling station. We understand the fueling station will include a 1,400 square foot fuel service building, underground fuel storage tanks and fuel canopy. No below grade levels are planned for the proposed service building. Underground storage tanks (USTs) are anticipated to be about 10 to 13 feet below grade.
Geotechnical Characterization	Subsurface conditions consisted of about 4 to 6 inches of asphalt underlain by existing fill encountered about 4 to 9 feet below the existing ground surface. Fill materials consisted of gravel with varying amounts of sand and sand with varying amounts of silt, gravel, and asphalt fragments. Beneath the fill were native fat clay soils and native sand soils with varying amounts of clay, silt, and gravel. Claystone bedrock was encountered from about 9 feet to the maximum depth explored of about 25 feet. Groundwater was encountered between about 7 and 11 feet below the existing ground surface at the time of our exploration.
Earthwork	Remove existing fill where encountered. Conventional excavation equipment should be capable of completing the required excavations.
Foundation Recommendations	The proposed building and canopy can be constructed on shallow foundations bearing on densified native soils or engineered fill.
Pavements	Pavements constructed on the native sand soils will have a low risk of movement. Pavements constructed on prepared existing fill have some risk of movement.
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.

Geotechnical Engineering Report

Walmart Store #4335 Fueling Station
11550 Meridian Market View
Falcon, Colorado

Terracon Project No. 23225049
July 14, 2022

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed Walmart fuel station to be located at 11550 Meridian Market View in Falcon, Colorado.

The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater levels
- Earthwork
- Drainage
- Lateral earth pressures
- Seismic site classification
- Foundation design and construction
- Floor slab design and construction
- Pavement design and construction

The geotechnical engineering Scope of Services for this project included the advancement of 3 test borings to depths of approximately 25 feet below existing site grades. Plans showing the site and boring locations are shown in the **Site Location and Exploration Plans** section. The results of the laboratory testing performed on soil and bedrock samples obtained from the site during the field exploration are included on the boring logs in the **Exploration Results** section.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration.

Item	Description
Parcel Information	The site was located in the parking lot of the existing Walmart at 11550 Meridian Market View in Falcon, Colorado. Site coordinates are Latitude/Longitude: 38.939886° N, 104.610583° W (approximate). See **Site Location**

Item	Description
Existing Improvements	The site is currently developed with an existing paved Walmart parking lot.
Current Ground Cover	Current ground cover consists of asphalt, Portland cement concrete, landscaping, and grass.
Existing Topography	The site is relatively flat with an elevation difference of less than 5 feet.

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	CEI Engineering Associated Inc provided the following documentation: ■ "3082 – Colorado Springs, CO Overall Site Plan CP 1.2" dated December 29, 2021. ■ Walmart Investigation Specifications and Report Requirements
Project Description	The project consists of the design and construction of a new Walmart fueling station. We understand the fueling station will include a 1,400 square foot (32 feet x 45 feet) fuel service building, underground fuel storage tanks and fuel canopy. No below grade levels are planned for the proposed service building. Underground storage tanks (USTs) are anticipated to be about 10 to 13 feet below grade.
Building Construction	The proposed fuel service building will be of light gauge steel framed construction with slab-on-grade floors and shallow foundations. The canopy is anticipated to be metal framed with shallow foundations.
Anticipated Foundation Systems	Shallow spread footings
Finished Floor Elevation	Assumed to be within 2 feet of existing site grade.

Item	Description
Maximum Loads	**Fuel Station Service Building Structural Load Data:** The typical gravity load to an interior column is 12 kips. The estimated maximum gravity load that may occasionally occur due to severe live loading is 25 kips. Maximum column uplift force from wind is estimated at 15 kips. The light gauge steel stud wall gravity loads range from 0.5 to 1.0 kips per lineal foot. Estimated maximum uniform floor slab live load is 100 psf. Estimated maximum floor slab concentrated load is 1.0 kip. **Fuel Station Canopy (typical for multi-column layouts) Structural Load Data**: Isolated column loads consist of axial gravity and uplift loads in conjunction with shear and overturning moments. The typical gravity axial load to a canopy column is 20 kips. The estimated maximum gravity load that may occasionally occur due to severe live loading is 40 kips. Maximum column uplift force from wind is estimated at 25 kips. The estimated maximum shear load from wind is estimated at 8 kips. The estimated maximum overturning moment from wind is estimated at 120 kip-feet.
Grading/Slopes	We have assumed no more than 2 feet of cut/fill will be required to develop final grades.
Below-Grade Areas	We anticipate the proposed USTs will be installed to depths of about 10 to 13 feet below finished grade
Anticipated Excavation Depths	Fuel Station Service Building and Canopy: 30 inches Underground Storage Tanks: 10 to 13 feet
Free-Standing Retaining Walls	None reported as part of site development.
Pavements	Design Criteria: A design life of 20 years, based on a minimum ESAL (18 kip) load as shown below, terminal serviceability = 2.0, reliability = 85%, initial serviceability = 4.2, standard deviation = 0.45 for flexible pavements and 0.35 for rigid pavements. Assumed traffic loads: ■ Standard-Duty: 73,000 ESALS ■ Heavy-Duty: 335,800 ESALS

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 site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs can be found in the

Exploration Results section and the GeoModel can be found in the **Figures** section 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	**Asphalt**	Asphalt concrete; about 4 to 6 inches
2	**Fill**	Fill material consisting of gravel with varying amounts of sand and silt and sand with varying amounts of gravel, silt, and asphalt fragments; variable consistencies.
3	**Native Clay**	Native fat clay; medium stiff
4	**Native Sand**	Native sand with varying amounts of clay, gravel, and silt; very loose to medium dense
5	**Bedrock**	Bedrock consisting of claystone; medium hard to very hard

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**.

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.	Depth to Groundwater
B-1	About 7 feet while drilling [1]
B-2	About 9 feet while drilling and during sample collection[2]
B-3	About 11 feet while drilling [1]

1. Due to safety concerns, borings were backfilled immediately after completion. Therefore, subsequent groundwater measurements were not obtained.
2. A temporary well was installed in order to test for BTEX. The temporary well was abandoned April 22, 2022.

These observations represent groundwater conditions at the time of the field exploration, and may not be indicative of other times or at other locations. Groundwater levels can be expected to fluctuate with varying 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.

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 fuel station.

Existing Fill Materials

Up to about 9 feet of fill materials were encountered in portions of the site. It should be noted that fill depths presented in the boring logs are approximate and the depth, lateral extents, and composition of fill should be expected to vary. We do not possess any information regarding whether the fill was placed under the observation of a geotechnical engineer. Therefore, we recommend undercutting existing fill to native soils in the building area and placing engineered fill. If the owner is willing to accept a higher risk of movement for pavements and exterior slabs, consideration could be given to preparing the existing fill materials below these elements during construction.

The existing fill can be reused as engineered fill below foundations, slabs-on-grade, and pavements, provided the material meets the requirements of imported soils in the **Material Types** subsection in **Earthwork** and any deleterious materials are removed. Some removal and replacement may be required if unsuitable or soft materials are exposed.

Excavations Near Groundwater

Groundwater was encountered as shallow as 7 feet below existing site grades in the exploratory borings. Based on the anticipated buried storage tank elevations and measured groundwater depths, a temporary dewatering system may be necessary in order to excavate safely and install the underground storage tank. We recommend that a specialty dewatering contractor be contacted to consult on the most efficient temporary dewatering recommendations for the proposed project.

EARTHWORK

The following presents 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 pavements, any existing fill materials, 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.

Although evidence of underground facilities such as utility vaults 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.

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.

Depending upon depth of excavation and seasonal conditions, groundwater may be encountered in excavations on the site. Groundwater was encountered as shallow as 7 feet below existing site grades in the exploratory borings during the field exploration. Based on the anticipated buried storage tank elevations and measured groundwater depths, a temporary dewatering system will be necessary for the proposed construction.

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.

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, SM, SP, SW, SW-SM	On-site sand soils are considered suitable for reuse as compacted fill below foundation, slab, and pavement areas and as general fill for this project.
On-site gravel soils	GM, GP, GW	On-site gravel soils are considered suitable for reuse as compacted fill below foundation, slab, and pavement areas and as general fill for this project.
Imported soils	various	Imported soils meeting the gradation outlined herein can be considered acceptable for use as engineered fill beneath slabs and pavements.
Processed Demolition Debris (concrete, brick, and asphalt) [3]	N/A	Properly processed demolition debris consisting of concrete and asphalt is considered suitable for reuse as compacted fill below foundations, slabs-on-grade, and pavement areas, and as general fill for this project.

1. Controlled, compacted 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. Demolition debris (concrete and asphalt) should be processed to a maximum size of 3 inches and blended with on-site soils at a ratio of 50 percent demolition debris (concrete and asphalt) to 50 percent soil prior to reuse. We are aware of instances in which demolition debris had environmental concerns. Assessment of environmental conditions is outside the scope of this exploration.

Imported soils and on-site native materials 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	35-100
No. 200 Sieve	<50

- Liquid Limit ..... 30 (max)
- Plasticity Index..... 15 (max)
- Maximum Expansive Potential (%) 1.0*

*Measured on a sample compacted to approximately 98 percent of the ASTM D698 maximum dry density at optimum water content. The sample is confined under a 500-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 [1,2,3]	Minimum of 98% of the material's standard Proctor maximum dry density (ASTM D698) for sand soils.
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 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.
3. Due to the potential variable nature of soils blended with properly processed demolition debris, additional testing methods may be required at the time of placement in order to determine acceptable compaction effort.

Utility Trench Backfill

It is anticipated that the on-site soils will provide suitable support for underground utilities and piping that may be installed. Any soft and/or unsuitable material encountered at the bottom of excavations should be removed and be replaced with an adequate bedding material. A non-expansive granular material with a sand equivalent greater than 30 is recommended for bedding and shading of utilities, unless otherwise allowed by the utility manufacturer.

On-site materials are considered suitable for backfill of utility and pipe trenches from one foot above the top of the pipe to the final ground surface, provided the material is free of organic matter and deleterious substances.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Where trenches are placed beneath slabs or footings, the backfill should satisfy the gradation and expansion index requirements of engineered fill discussed in this report. Flooding or jetting for placement and compaction of backfill is not recommended.

Excavation

It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment. 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 canopy foundations during construction and maintained throughout the life of the proposed project. Infiltration of water into utility or foundation excavations must be prevented during construction. 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 can infiltrate the fill and/or subgrade.

Asphalt pavement or concrete flatwork should be sloped at a minimum of 2 percent beyond the building perimeters for the life of the building and canopy. 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 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 and canopy 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.

Roof drains should discharge on pavements or be extended away from the structures a minimum of 10 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. As an alternative, geotextiles could also be considered as a stabilization technique.

Construction Observation and Testing

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.

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of adequate removal of vegetation and topsoil, proofrolling, and mitigation of areas delineated by the proofroll to require mitigation.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. If unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

FOUNDATION RECOMMENDATIONS

Based upon the results of the field exploration and laboratory testing program for this exploration, the following design parameters are applicable for shallow foundations.

Spread Footing Foundation Recommendations

Design recommendations for spread footing foundation systems are presented in the following table and paragraphs.

Description	Value
Supporting Stratum	Densified native soils or newly engineered fill
Foundation Subgrade Preparation	All existing fill must be removed to native soils and, replaced with properly moisture conditions and engineered fill. Native soils in the base of foundations should be scarified to a depth of at least 12 inches, moisture conditioned and compacted prior to construction of footings or placement of new engineered fill.
Maximum Allowable Bearing Pressure [1,2]	2,500 psf
Coefficient of Friction (Sliding) [3]	0.35
Minimum Footing Dimensions [4]	Isolated footings: 24 inches Continuous footings: 18 inches
Minimum Embedment Below Finished Grade for Frost Protection [5]	30 inches
Approximate Total Movement [6]	Less than 1 inch
Estimated Differential Movement [6,7]	About ½ to ¾ inch

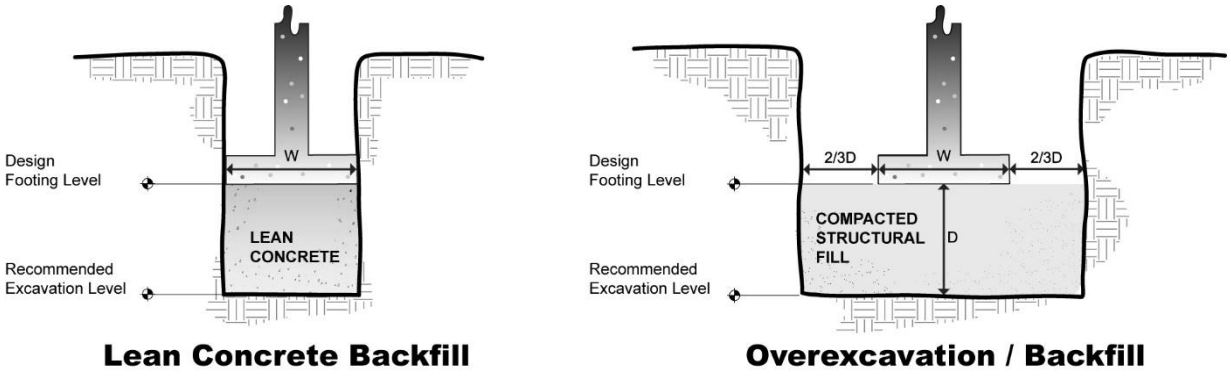
1. The recommended maximum allowable bearing pressure assumes that any existing fill or lower strength soils, if encountered, will be excavated and replaced with engineered fill.
2. The maximum allowable soil bearing pressure can be increased by 1/3 for transient loading conditions.
3. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Neglect for foundations subject to net uplift conditions.
4. Not applicable for mat foundations or stiffened structural slab-on-grade.
5. 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.
6. 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.
7. Footings should be proportioned on the basis of equal total dead load pressure to reduce differential movement between adjacent footings.

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.

Overexcavation of existing fill materials below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. The overexcavation should then be backfilled up to the footing base elevation with approved fill placed in lifts of 9 inches or less in loose thickness (6 inches or less if using hand-guided compaction equipment) and compacted to at least 95 percent of the material's standard effort maximum dry density (ASTM D698). The overexcavation and backfill procedure is described in the following figure.



Lean Concrete Backfill **Overexcavation / Backfill**

NOTE: Excavations in sketches shown vertical for convenience. Excavations should be sloped as necessary for safety.

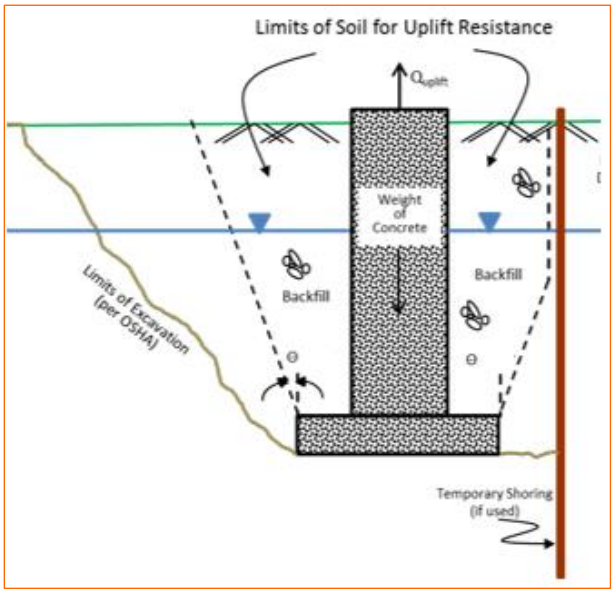
The base of all foundation excavations should be free of water and loose soil prior to concrete placement. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Should the soils at bearing level become excessively dry, disturbed or saturated, or frozen, the affected soil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

Uplift Loads

Uplift resistance of foundations can be developed from the effective weight of the foundation and the overlying soils. As illustrated on the subsequent figure, the effective weight of the soil prism defined by diagonal planes extending up from the top of the perimeter of the foundation to the ground surface at an angle, θ, of 20 degrees from the vertical can be included in uplift resistance. The maximum allowable uplift capacity should be taken as a sum of the effective weight of soil plus the dead weight of the foundation, divided by an appropriate factor of safety. A maximum

total unit weight of 100 pcf should be used for the backfill. This unit weight should be reduced to 40 pcf for portions of the backfill or natural soils below the groundwater elevation.



SEISMIC CONSIDERATIONS

The following table presents the seismic site classification based on the 2018 International Building Code (IBC), and the subsurface conditions encountered within the borings:

Code Used	Site Classification
2018 International Building Code (IBC) [1,2]	D

1. In general accordance with the 2018 International Building Code, Section 1613.2.2.
2. The 2018 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 borings of this exploration extended to a maximum depth of about 25 feet and this seismic site class definition considers that similar subsurface conditions exist below the maximum depth of the subsurface exploration.

FLOOR SLABS

Floor Slab Design Parameters

Item	Description
Floor Slab Support [1]	Densified native sand soils or engineered fill. All existing fill below slabs-on-grade should be removed to native soils. Native soils should be scarified, moisture conditioned and compacted prior to placement of new fill. At least 4

Item	Description
	inches of CDOT class 6 aggregate base course must be placed beneath interior slabs.
Estimated Modulus of Subgrade Reaction [2]	110 pounds per square inch per inch (psi/in) for point loads

1. Floor slabs should be structurally independent of building footings or walls to reduce the possibility of floor slab cracking caused by differential movements between the slab and foundation.
2. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in **Earthwork**, and the floor slab support as noted in this table. It is provided for point loads. For large area loads the modulus of subgrade reaction would be lower.

The use of a vapor retarder should be considered beneath concrete slabs on grade 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 should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks should be sealed with a waterproof, non-extruding compressible compound specifically recommended for heavy-duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing, or other means.

Settlement of floor slabs supported on existing fill materials cannot be accurately predicted, but could be larger than normal and result in some cracking. Mitigation measures, as noted in **Existing Fill** within **Earthwork**, are critical to the performance of floor slabs. In addition to the mitigation measures, the floor slab can be stiffened by adding steel reinforcement, grade beams, and/or post-tensioned elements.

Floor Slab Construction Considerations

Finished subgrade, within and for at least 10 feet beyond the floor slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become damaged or desiccated prior to construction of floor slabs, the affected material should be removed and engineered fill should be added to replace the resulting excavation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab support course.

The Geotechnical Engineer should approve the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

EXTERIOR FLATWORK

We anticipate existing fill materials will be encountered at exterior slab-on-grade elevations. Exterior slabs-on-grade constructed on native soils will have a low qualitative risk of movement, while, slabs-on-grade constructed on the existing fill materials will have a moderate to high risk of movement. To improve performance of exterior flatwork, exterior slab-on-grade subgrade soils should be overexcavated to a depth of at least 2 feet, moisture conditioned, and recompacted 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 110 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:

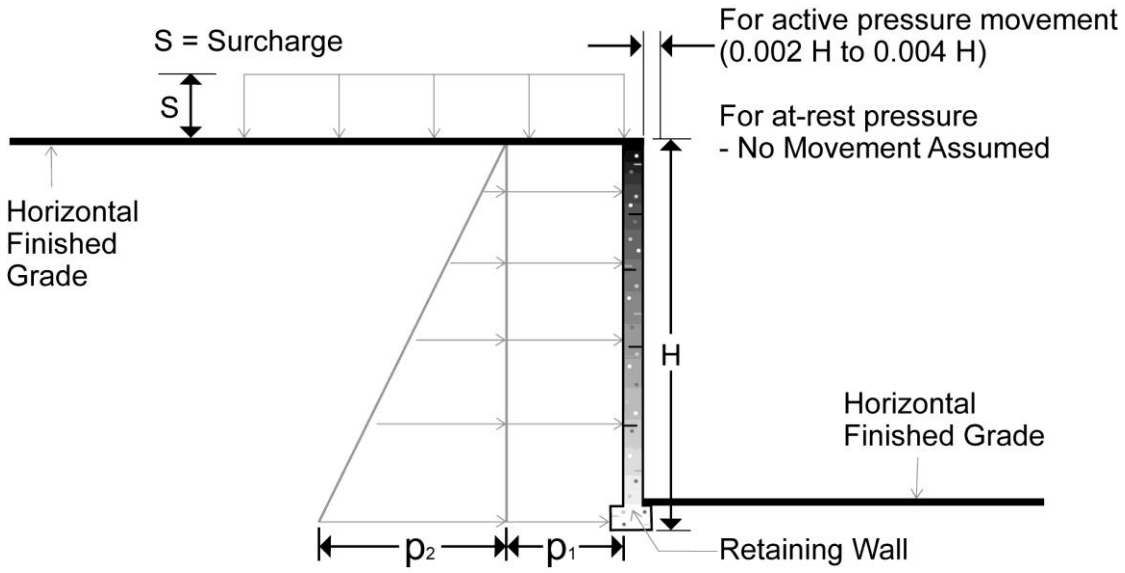
- Minimizing moisture increases in the backfill.
- Controlling moisture-density during placement of backfill.
- Positive separations and/or isolation joints should be provided between exterior slabs and the building to allow independent movement.
- Control joints should be provided in slabs to control 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 slabs-on-grade using the above technique will likely be reduced and tend to be more uniform. Additional movement could occur should the subsurface soils and bedrock become wetted to significant depths, which could result in potential excessive movement causing uneven exterior slabs and severe cracking. This could be due to over watering of landscaping, poor drainage, and/or broken utility lines. Therefore, it is imperative that the recommendations outlined in the **Grading and Drainage** subsection of **Earthwork** be followed.

LATERAL EARTH PRESSURES

Structures 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)	0.31	37	(0.31)S	(37)H
At-Rest (Ko)	0.47	56	(0.47)S	(56)H
Passive (Kp)	3.25	391	---	---

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

Underground Storage Tanks

Boring No. B-2 was completed in the area of the planned underground storages to a depth of approximately 25 feet below existing site grades. Groundwater was encountered at 9 feet below grade in this boring, and as shallow as about 7 feet in other borings. Based on the anticipated buried storage tank elevation, a temporary dewatering system may be necessary in order to excavate safely and install the underground storage tank. We recommend that a specialty dewatering contractor be contacted to consult on the most efficient temporary dewatering recommendations for the proposed project.

Underground storage tank foundations should be designed to resist buoyant forces due to shallow groundwater and seasonal fluctuation of about 2 to 3 feet. The tanks may be to be tied to Deadman anchors or anchored in place by other methods to resist the buoyant pressures for the observed groundwater if a permanent dewatering system is not utilized.

PAVEMENTS

Design of privately maintained pavements for the project has been based on the procedures outlined by the AASHTO 1993 method for pavement design.

Design Traffic

Pavement thickness design has been based on provided ESALs of 73,000 and 335,800 for the proposed Standard Duty and Heavy-Duty pavement areas, respectively over a 20-year design period.

We should be contacted to confirm and/or modify the recommendations contained herein if actual traffic volumes differ from the assumed values shown above.

Subgrade Soils

Existing fill materials will likely be encountered below pavement areas. We recommend complete removal of existing fill materials and replacement with compacted engineered fill below pavement areas. To improve pavement performance, we recommend the top 12 inches of the subgrade be scarified and properly moisture conditioned prior to receiving fill placement. The pavement subgrade should be proofrolled within one day prior to commencement of actual paving operations. Areas not in compliance with the required ranges of moisture or density should be properly moisture conditioned and recompacted. 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 materials with properly compacted fills. If a significant precipitation event occurs after the evaluation of the surface become disturbed, the subgrade should be reviewed by qualified

personnel immediately prior to paving. The subgrade should be in its finished form at the time of final review.

Recommended Minimum Pavement Sections and Materials

Recommended alternatives for flexible and rigid pavements are summarized for each traffic area as follows:

Traffic Area	Alternative	Pavement Thickness[1] (Inches)			
		Asphalt Concrete Surface	Aggregate Base Course	Portland Cement Concrete	Total
Standard Duty Traffic (73,000 ESALS)	A	6	--	--	6
	B	4	6	--	10
	C	--	--	5	5
Heavy Duty Traffic (335,800 ESALS)	A	7½	--	--	7½
	B	5	8	--	13
	C	--	--	7	7

1. The individual and total material thickness values presented herein represent minimum thickness values, not averages.

Each alternative should be investigated with respect to current material availability and economic conditions. A minimum 7-inch thickness of rigid reinforced concrete pavement is recommended at the location of dumpsters where trash trucks park and load, and in areas of tight turning radius.

Concrete pavement joint spacing and reinforcement should be in accordance with specifications in ACI 330R-08.

For analysis of pavement costs, the following specifications should be considered for each pavement component:

Pavement Component	Colorado Department of Transportation Criteria
Asphalt Concrete Surface	Grading S or SX
Aggregate Base Course	Class 5 or 6
Portland Cement Concrete	Class P

Drainage Adjacent to Pavements

Subgrade materials may lose stability with increases in moisture content. To reduce pavement distress due to wetting of the subgrade in areas of water intensive landscaping or other nearby

water sources (or if aggregate base course is used) located adjacent to pavements, edge drains should be considered.

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. 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.

CORROSIVITY

The following table lists the results of laboratory water-soluble sulfate, chlorides, pH, organic content and electrical resistivity testing performed on samples obtained during our field exploration. These values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Boring No.	Sample Depth (feet)	Water-Soluble Sulfate [1] (ppm)	Chlorides (ppm)	pH	Organic Content (%)	Electrical Resistivity (ohm-cm)
B-1	7 to 8	-	-	8.69	-	5,820
B-2	2 to 3	56	97	8.24	1.0	1,164
B-3	4 to 5	-	-	8.42	-	3,104

1. 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 Table 19.3.1.1 of 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, Section 318, Chapter 19.

BTEX GROUNDWATER ANALYSIS

The following table lists the results of BTEX, petroleum chemicals commonly added to gasoline, sampling per the Terracon proposal P35215196 in accordance with Walmart Investigation Specifications. Laboratory testing was performed on a groundwater sample collected April 22, 2022 obtained from the temporary well installed during field exploration. These values may be

used to estimate the amount of volatile organic compounds in the groundwater and are representative of the top of the groundwater table. After sampling was completed the well was abandoned and the bore hole was backfilled with auger cuttings and capped with asphalt.

Boring No.	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)		
				(S) Toluen-d8	(S) 4-Bromofluorobenzene	(S) 1,2-Dichloroethane-64
B-2	ND	ND	ND	109	111	88.8

ND = non-detection

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. Natural 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 or collaboration through this system 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 impact 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.

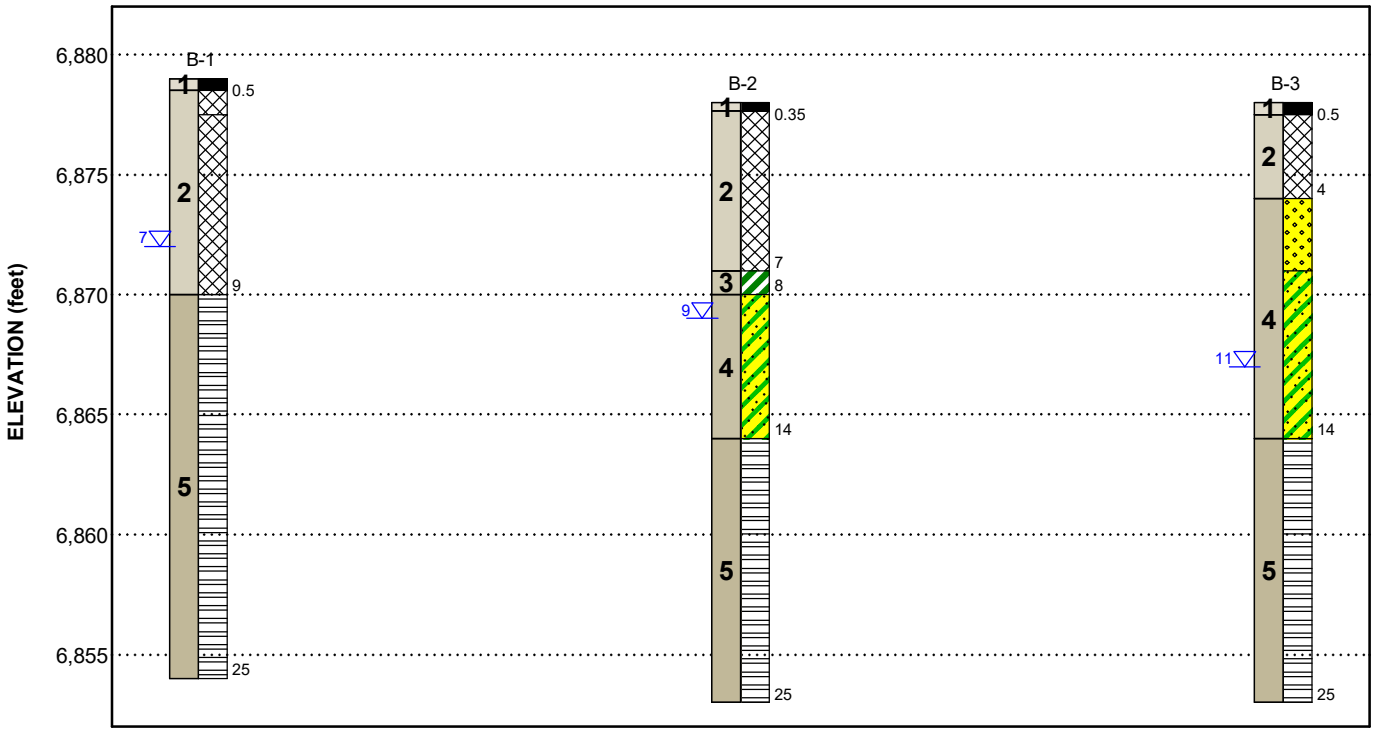
Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

FIGURES

Contents:

GEOMODEL

Walmart Store #4335 Fueling Station ■ Falcon, Colorado
July 14, 2022 ■ Terracon Project No. 23225049



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	**Asphalt**	Asphalt; about 4 to 6 inches
2	**Fill**	Fill material consisting of gravel with varying amounts of sand and silt and sand with varying amounts of gravel, silt and asphalt fragments; variable consistencies
3	**Native Clay**	Native fat clay; medium stiff
4	**Native Sand**	Native sand with varying amounts of clay, gravel and silt; very loose to medium dense
5	**Bedrock**	Bedrock consisting of claystone; medium hard to very hard

LEGEND

- Asphalt
- Fill
- Claystone
- Fat Clay
- Clayey Sand
- Well-graded Sand

▽ First 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. Elevations at the borings were obtained 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-55 truck-mounted with solid-stem augers. During the drilling operations, lithologic logs of the borings were recorded by the field engineer. Samples were obtained at selected intervals utilizing a 3-inch outside diameter Dames and Moore ring 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 soils 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. A temporary piezometer was installed in Boring No. B-2 for the purpose of BTEX testing. After 24 hours, the piezometer was observed for groundwater, and if present a groundwater sample was collected

for BTEX testing. The temporary piezometer was then abandoned with auger cuttings. Boring Nos. B-1 And B-3 were backfilled with auger cuttings, immediately after completion of drilling.

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**.

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 unit weight
- Grain size distribution
- Atterberg limits
- Swell/consolidation
- Organic Content
- BTEX sample and groundwater analysis
- Water-soluble sulfate content
- pH
- Electrical resistivity
- Chloride Ion

SITE LOCATION AND EXPLORATION PLANS

Contents:

Note: All attachments are one page unless noted above.

SITE LOCATION

Proposed Falcon Walmart Store #4335 Fueling Station ■ Falcon, Colorado
July 14, 2022 ■ Terracon Project No. 23225049

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

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

Proposed Falcon Walmart Store #4335 Fueling Station ■ Falcon, CO
July 14, 2022 ■ Terracon Project No. 23225049

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

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN WITH PROJECT OVERLAY

Proposed Falcon Walmart Store #4335 Fueling Station ■ Falcon, CO
July 14, 2022 ■ Terracon Project No. 23225049

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

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

Contents:

Note: All attachments are one page unless noted above.

BORING LOG NO. B-1

PROJECT: Walmart Store #4335 Fueling Station

CLIENT: CEI Engineering Associates Inc

SITE: 11550 Meridian Market View
Falcon, Colorado

LOCATION See Exploration Plan

Latitude: 38.9399° Longitude: -104.6106°

Approximate Surface Elev.: 6879 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (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	6878.5+/-									
		ASPHALT CONCRETE, about 6 inches										
		1.5	6877.5+/-									
		FILL - POORLY GRADED GRAVEL (GP-GM), with silt and sand, fine to coarse grained, tan, medium dense					19-18		2.6	115	NP	8
							9-14		7.3	115		
2		**FILL - WELL GRADED SAND (SW)**, with gravel, fine to coarse grained, tan, loose to medium dense					12-14	-0.5 @ 500 psf	10.3	118		
				5	▽		6-11		14.1	109		
		9.0	6870+/-									
5		**CLAYSTONE**, gray, medium hard to very hard		10			14-50/6"		10.6	128		
				15			17-50/3"		10.7	114		
				20			50/8"		8.2	123		
		25.0	6854+/-	25			27-44		11.2	124		
		Boring Terminated at 25 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power auger

Abandonment Method:
Boring backfilled with auger cuttings and surface capped with asphalt upon completion.

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.

Elevations obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

▽ *7 feet while drilling*

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 04-21-2022 | Boring Completed: 04-21-2022

Drill Rig: CME 55 | Driller: Terracon

Project No.: 23225049

BORING LOG NO. B-2

PROJECT: Walmart Store #4335 Fueling Station

CLIENT: CEI Engineering Associates Inc

SITE: 11550 Meridian Market View
Falcon, Colorado

LOCATION See Exploration Plan

Latitude: 38.9401° Longitude: -104.6103°

Approximate Surface Elev.: 6878 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	LOG	INSTALLATION DETAILS	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	6877.7+/-	**ASPHALT CONCRETE**, about 4 inches										
2		7.0	6871+/-	**FILL - POORLY GRADED SAND (SP)**, medium to coarse grained, dark brown to black, medium dense	Soil Backfill	5			9-20 9-14 9-14		11.8	104		
3		8.0	6870+/-	**FAT CLAY (CH)**, gray, medium stiff					2-3		49.2	64	52-15-37	97
4		14.0	6864+/-	**CLAYEY SAND (SC)**, trace gravel, fine to coarse grained, gray, very loose to loose	Bentonite Seal Sand Pack	10	▽		6-5		16.8	110	31-14-17	17
5		25.0	6853+/-	**CLAYSTONE**, gray, hard	Slotted Screen in Sand Pack	15 20			50/6" 50/6"		12.9 11.0	109 109		
				Boring Terminated at 25 Feet		25			50/6"		8.2	122		

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power auger

Abandonment Method:
Temporary well installed. After 24 hour groundwater reading, well was abandoned in place with auger cutting, and capped with asphalt upon completion

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.

Elevations obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

▽ *9 feet while drilling*

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 04-21-2022 | Boring Completed: 04-21-2022

Drill Rig: CME 55 | Driller: Terracon

Project No.: 23225049

BORING LOG NO. B-3

PROJECT: Walmart Store #4335 Fueling Station

CLIENT: CEI Engineering Associates Inc

SITE: 11550 Meridian Market View
Falcon, Colorado

LOCATION See Exploration Plan

Latitude: 38.9398° Longitude: -104.6103°

Approximate Surface Elev.: 6878 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (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	6877.5+/-									
		ASPHALT CONCRETE, about 6 inches										
2		**FILL - SILTY SAND (SM)**, trace gravel and asphalt fragments, fine to coarse grained, tan to brown, medium dense					14-16					
							12-13	-0.5 @ 200 psf	5.8	113	NP	12
		4.0	6874+/-									
		WELL GRADED SAND (SW-SM), with silt and gravel, fine to coarse grained, tan to brown, medium dense					15-16		8.5		NP	7
		7.0	6871+/-	5								
4		**CLAYEY SAND (SC)**, fine to coarse grained, gray, loose to medium dense					4-5		21.4	101		
							7-16		14.8	110		
		14.0	6864+/-	10	▽							
5		**CLAYSTONE**, gray, very hard					37-50/5"		10.4	123		
				15								
							50/3"		18.6			
				20								
		25.0	6853+/-				50/2"		19.7	103		
		Boring Terminated at 25 Feet		25								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power auger

Abandonment Method:
Boring backfilled with auger cuttings and surface capped with asphalt upon completion.

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.

Elevations obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

▽ *11 feet while drilling*

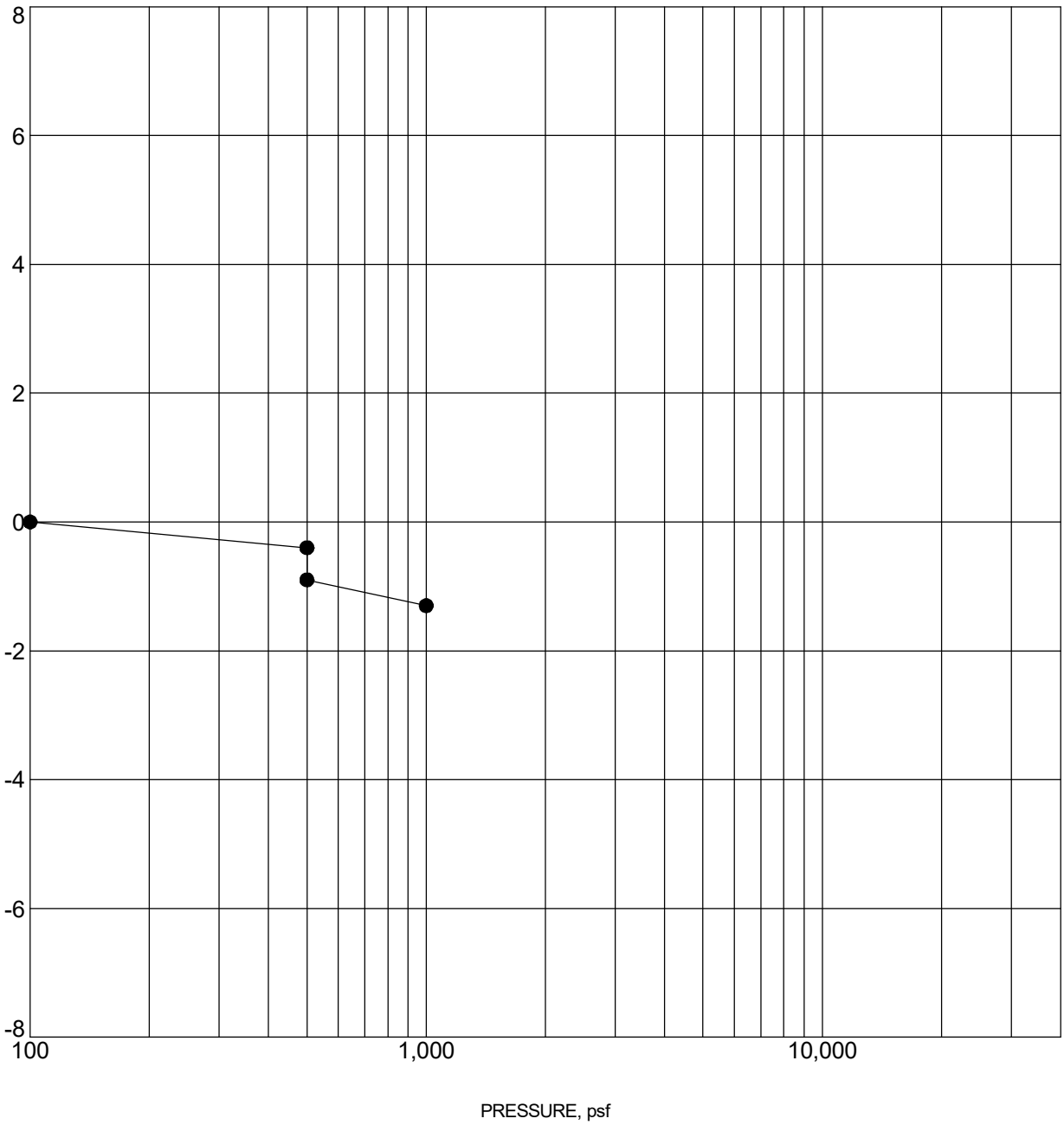
Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 04-21-2022 | Boring Completed: 04-21-2022

Drill Rig: CME 55 | Driller: Terracon

Project No.: 23225049

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	B-1	4 - 5 ft	FILL - WELL GRADED SAND with GRAVEL (SW)	117	10.3

NOTES: Water was added at 500 psf.

PROJECT: Walmart Store #4335 Fueling Station

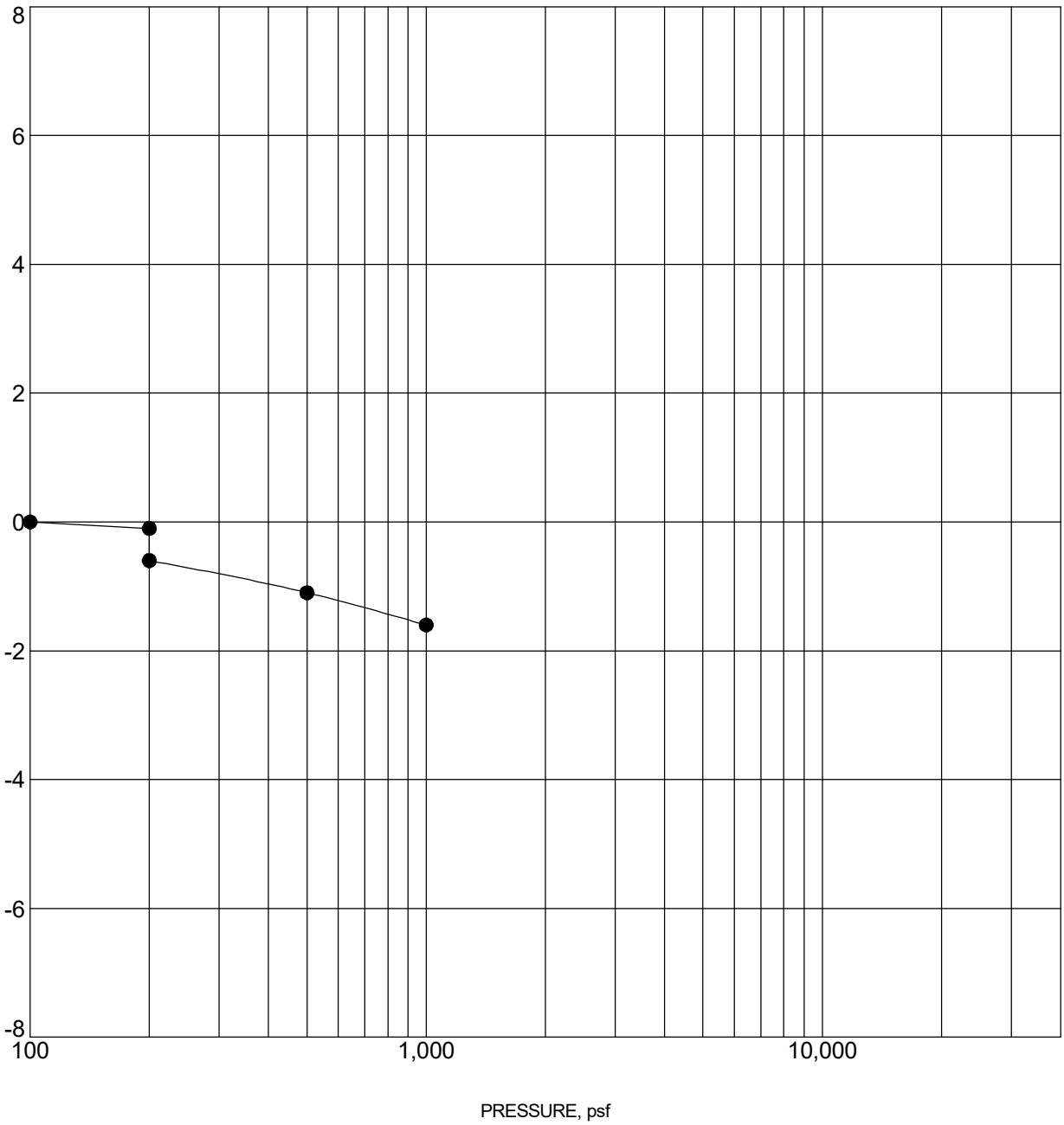
SITE: 11550 Meridian Market View
Falcon, Colorado

Terracon
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23225049

CLIENT: CEI Engineering Associates Inc

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	B-3	2 - 3 ft	FILL - SILTY SAND (SM)	113	5.8

NOTES: Water was added at 500 psf.

PROJECT: Walmart Store #4335 Fueling Station

SITE: 11550 Meridian Market View
Falcon, Colorado

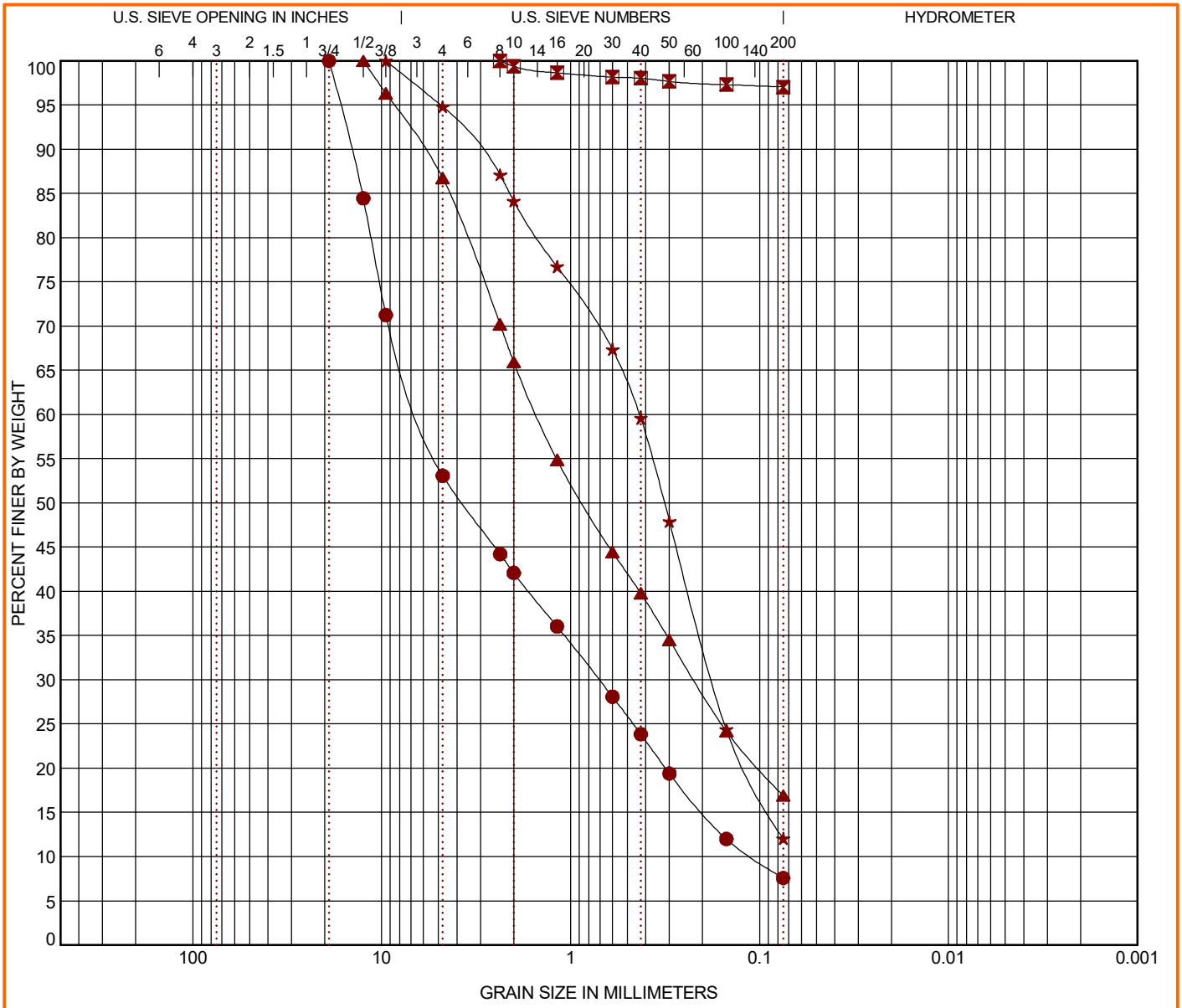
Terracon
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23225049

CLIENT: CEI Engineering Associates Inc

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	WC (%)	LL	PL	PI	Cc	Cu
●	B-1	0.5 - 1.5	POORLY GRADED GRAVEL with SILT and SAND (GP-GM)	A-1-a (0)	2.6	NP	NP	NP	0.74	56.39
⊠	B-2	7 - 8	FAT CLAY (CH)	A-7-6 (38)	49.2	52	15	37		
▲	B-2	9 - 10	CLAYEY SAND (SC)	A-2-6 (0)	16.8	31	14	17		
★	B-3	2 - 3	SILTY SAND (SM)	A-2-4 (0)	5.8	NP	NP	NP	1.08	6.47

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	B-1	0.5 - 1.5	19	6.186	0.706	0.11	46.9	45.5		7.6	
⊠	B-2	7 - 8	2.36				0.0	2.9		97.1	
▲	B-2	9 - 10	12.5	1.507	0.222		13.3	69.8		16.9	
★	B-3	2 - 3	9.5	0.433	0.177		5.2	82.8		12.0	

PROJECT: Walmart Store #4335 Fueling Station

SITE: 11550 Meridian Market View
Falcon, Colorado

Terracon
4172 Center Park Dr
Colorado Springs, CO

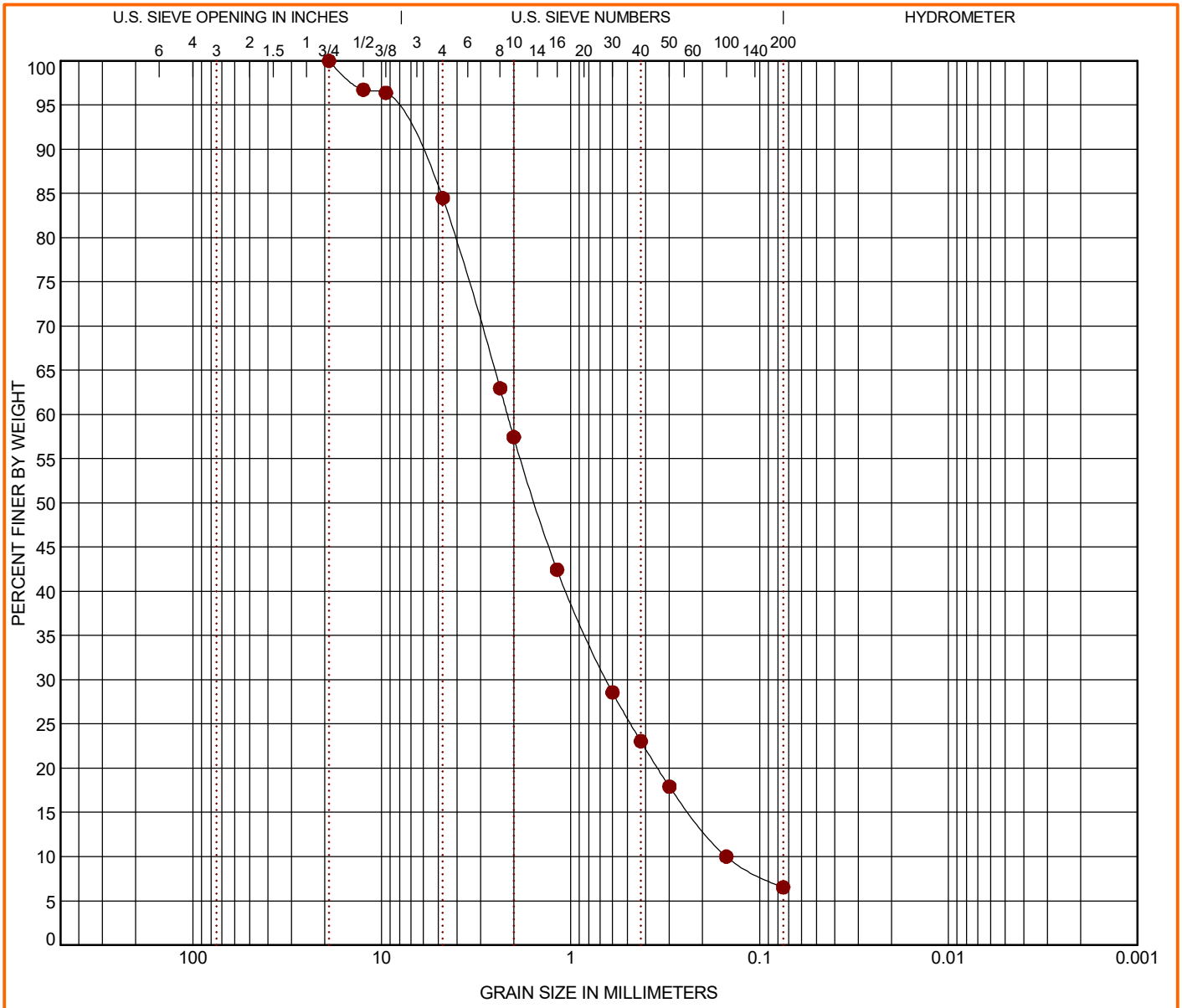
PROJECT NUMBER: 23225049

CLIENT: CEI Engineering Associates Inc

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS & AASHTO DESC COMBINED 23225049 PROPOSED FALCON W.GPJ TERRACON_DATATEMPLATE.GDT 5/18/22

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	WC (%)	LL	PL	PI	Cc	Cu
●	B-3	4 - 5	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-b (0)	8.5	NP	NP	NP	1.28	14.39

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	B-3	4 - 5	19	2.159	0.643	0.15	15.5	78.0		6.5	

PROJECT: Walmart Store #4335 Fueling Station

SITE: 11550 Meridian Market View
Falcon, Colorado

Terracon
4172 Center Park Dr
Colorado Springs, CO

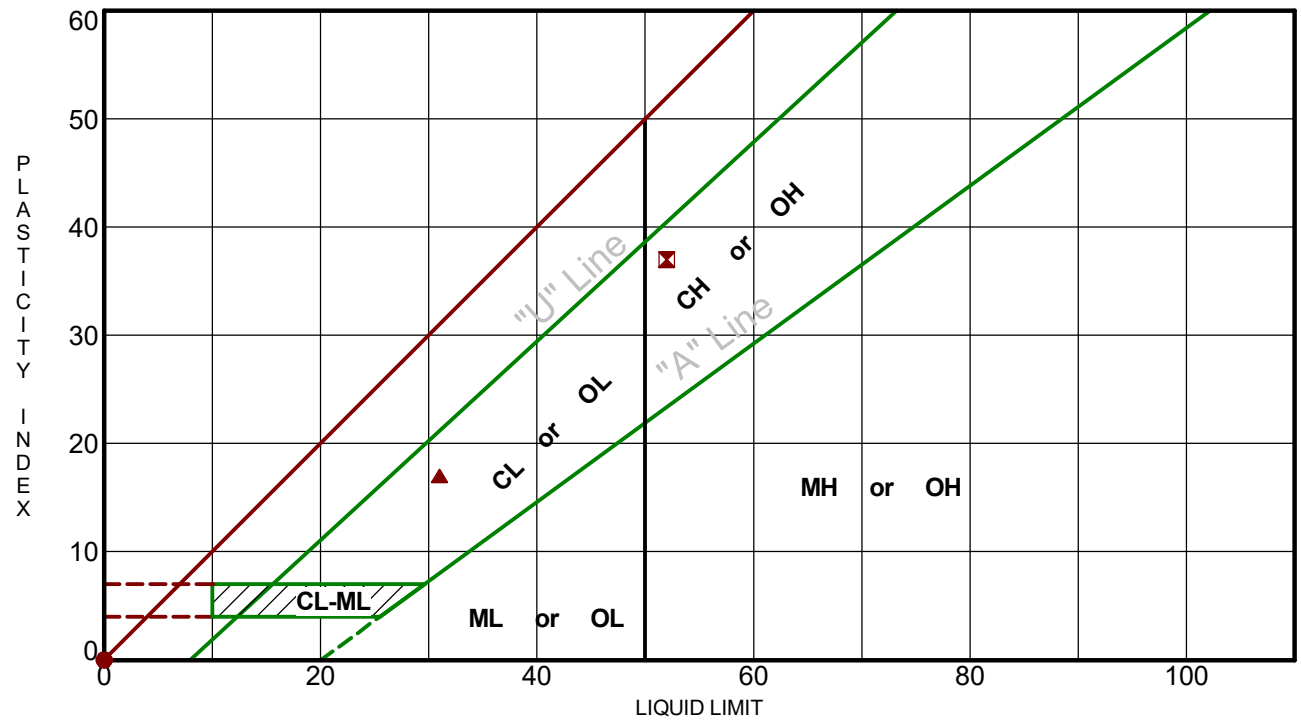
PROJECT NUMBER: 23225049

CLIENT: CEI Engineering Associates Inc

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS & AASHTO DESC COMBINED 23225049 PROPOSED FALCON W.GPJ TERRACON_DATATEMPLATE.GDT 5/18/22

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID		Depth	LL	PL	PI	Fines	USCS	Description
●	B-1	0.5 - 1.5	NP	NP	NP	7.6	GP-GM	POORLY GRADED GRAVEL with SILT and SAND
⊠	B-2	7 - 8	52	15	37	97.1	CH	FAT CLAY
▲	B-2	9 - 10	31	14	17	16.9	SC	CLAYEY SAND
★	B-3	2 - 3	NP	NP	NP	12.0	SM	FILL - SILTY SAND (SM)
⊙	B-3	4 - 5	NP	NP	NP	6.5	SW-SM	WELL-GRADED SAND with SILT and GRAVEL

PROJECT: Walmart Store #4335 Fueling Station

SITE: 11550 Meridian Market View
Falcon, Colorado

Terracon
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23225049

CLIENT: CEI Engineering Associates Inc

750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client
CEI Engineering Associates Inc.

Project
Proposed Falcon Walmart Store #4335 Fueling Station

Sample Submitted By: Terracon (23) **Date Received:** 5/31/2022 **Lab No.: 22-0406**

Results of Corrosion Analysis

Sample Number	--	--	--
Sample Location	B-1	B-2	B-3
Sample Depth (ft.)	7.0	2.0	4.0
pH Analysis, ASTM G 51	8.69	8.24	8.42
Water Soluble Sulfate (SO4), ASTM D516 (mg/kg)	56	--	--
Chlorides, ASTM D 512, (mg/kg)	97	--	--
Resistivity (Saturated), ASTM G 57, (ohm-cm)	5820	1164	3104
Organic Content by Loss on Ignition, ASTM D 2974 (percent, %)	--	1.0	--

Analyzed By:

Nathan Campo
Engineering Technician II

SUMMARY OF LABORATORY TEST RESULTS

Walmart Store #4335 Fueling Station - Falcon, Colorado
Terracon Project No. 23225049

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		Water Soluble Sulfates (%)	Water Soluble Chlorides (%)	pH	Organic Content	Resistivity (ohm.cm)	Remarks
						Surcharge (ksf)	Swell (%)	3/4"	#4	#10	#40	#200	LL	PI						
B-1	0.5	GP-GM	A-1-a	2.6	115			100	53	42	24	8	NV	NP						4
B-1	2	SW		7.3	115															4
B-1	4	SW		10.3	118	0.5	-0.5													3,4
B-1	7	SW		14.1	109										56	97	8.69		5,820	4
B-1	9			10.6	128															4
B-1	14			10.7	114															4
B-1	19			8.2	123															4
B-1	24			11.2	124															4
B-2	2	SP		11.8	104												8.24	1.0	1,164	4
B-2	7	CH	A-7-6	49.2	64			100	100	99	98	97	52	37						4
B-2	9	SC	A-2-6	16.8	110			100	87	66	40	17	31	17						4
B-2	14			12.9	109															4
B-2	19			11.0	109															4
B-2	24			8.2	122															4
B-3	2	SM	A-2-4	5.8	113	0.2	-0.5	100	95	84	60	12	NV	NP						3,4
B-3	4	SW-SM	A-1-b	8.5				100	84	57	23	7	NV	NP			8.42		3,104	
B-3	7	SC		21.4	101															4
B-3	9	SC		14.8	110															4
B-3	14			10.4	123															4
B-3	19			18.6																
B-3	24			19.7	103															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

ANALYTICAL REPORT

April 28, 2022

Revised Report

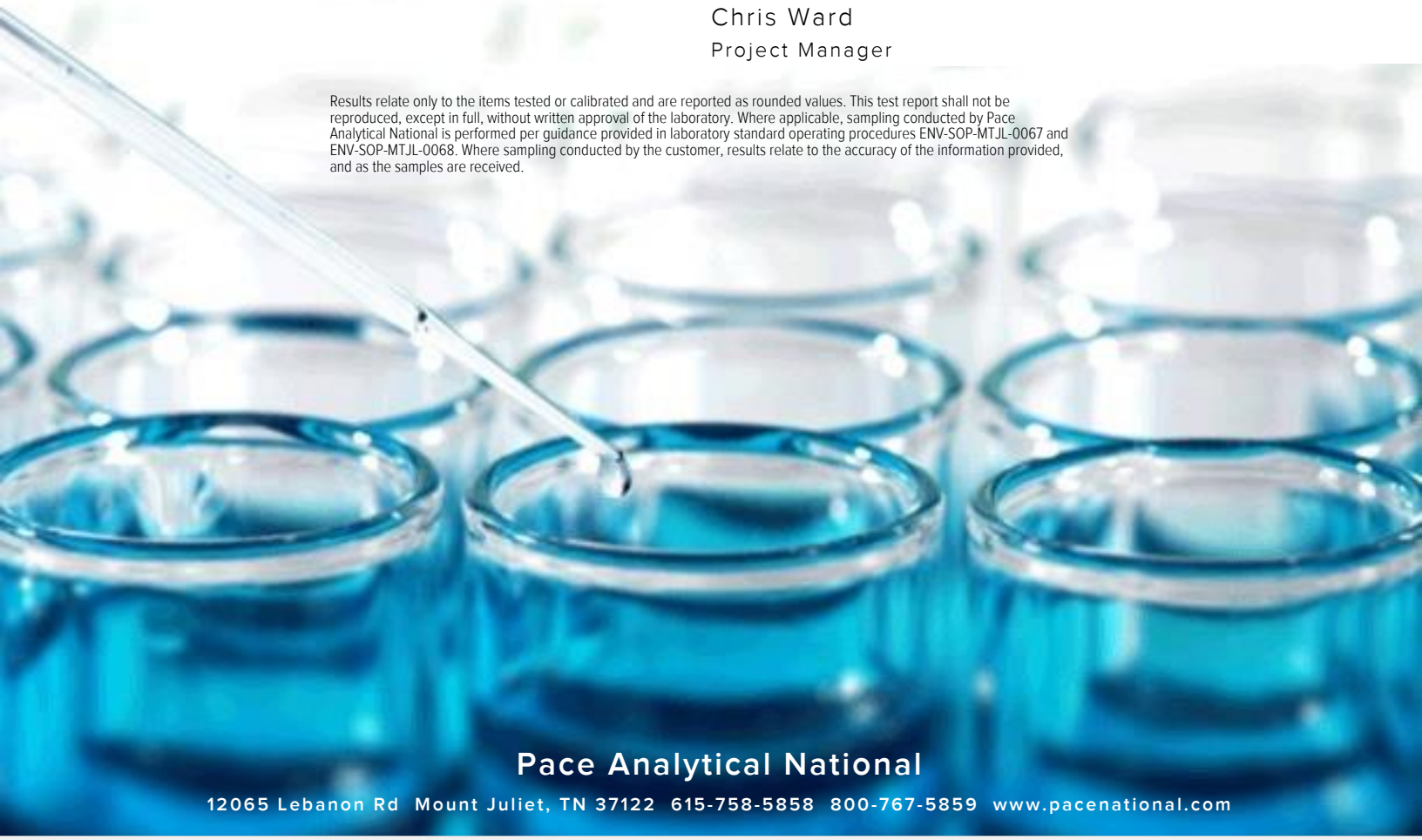
Terracon - Colorado Springs, CO

Sample Delivery Group:	L1486463
Samples Received:	04/25/2022
Project Number:	23225049
Description:	23225049 Walmart - Falcon
#4335 Site:	WALMART 4335
Report To:	Jared Geissler
	4172 Center Park Drive
	Colorado Springs, CO 80916

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

B-1 L1486463-01 GW

Collected by: Ian Johnson
Collected date/time: 04/22/22 11:15
Received date/time: 04/25/22 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1855062	1	04/27/22 14:04	04/27/22 14:04	BMB	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Chris Ward
Project Manager

Report Revision History

Level II Report - Version 1: 04/28/22 10:10

Project Narrative

Sample received out of temp due to FedEx delay - Chris Ward
Rerun to update project info

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	04/27/2022 14:04	WG1855062
Toluene	ND		1.00	1	04/27/2022 14:04	WG1855062
Ethylbenzene	ND		1.00	1	04/27/2022 14:04	WG1855062
Total Xylenes	ND		3.00	1	04/27/2022 14:04	WG1855062
(S) Toluene-d8	*109*		*80.0-120*		*04/27/2022 14:04*	WG1855062
(S) 4-Bromofluorobenzene	*111*		*77.0-126*		*04/27/2022 14:04*	WG1855062
(S) 1,2-Dichloroethane-d4	*88.8*		*70.0-130*		*04/27/2022 14:04*	WG1855062

Method Blank (MB)

(MB) R3785774-3 04/27/22 11:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	U		0.0941	1.00
Toluene	U		0.278	1.00
Ethylbenzene	U		0.137	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	*107*			*80.0-120*
(S) 4-Bromofluorobenzene	*112*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*92.8*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3785774-1 04/27/22 09:25 • (LCSD) R3785774-2 04/27/22 09:44

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Benzene	5.00	4.45	4.64	89.0	92.8	70.0-123			4.18	20
Toluene	5.00	5.07	5.30	101	106	79.0-120			4.44	20
Ethylbenzene	5.00	5.62	5.92	112	118	79.0-123			5.20	20
Xylenes, Total	15.0	17.8	18.0	119	120	79.0-123			1.12	20
(S) Toluene-d8				*108*	*108*	*80.0-120*				
(S) 4-Bromofluorobenzene				*115*	*113*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*93.7*	*92.2*	*70.0-130*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Terracon - Colorado Springs, CO

4172 Center Park Drive
Colorado Springs, CO 80916

Billing Information:
Jared Geissler
4172 Center Park Drive
Colorado Springs, CO 80916

Report to: Jared Geissler

Email To: Jared.geissler@Terracon.com

Project Description: Walmart - Woodland Park - 3805

City/State Collected: Woodland Park Colorado

Please Circle: PT MT CT ET

Phone: 719-572-7705
Fax: 719-597-2117

Client Project # 23225051

Lab Project #

Collected by (print): Ian Johnson

Site/Facility ID # Walmart 3805

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Immediately
Packed on Ice N___ Y X

Analysis / Container / Preservative

Pres Chk

BTEX (8260)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Remarks	Sample # (lab only)
B-1	Grab	Water Groun		22/4/22	11:15	3 X		-01

22/4/22

4/22/22

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 5117 4433 8310 SAT PO

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	22/4/22	14:00	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR
TOTO

Temp: 21.2°C to 21.2°C Bottles Received: 3VP

Date: 4-25-22 Time: 0920

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1486463

Table # #8

Acctnum: TERRCSCO

Template:

Prelogin:

PM: 824 - Chris Ward

PB:

Shipped Via:

4/25-NCF-L1486463 TERRCSCO TD

R5

Time estimate: oh **Time spent:** oh

Members

Troy Dunlap (responsible) Chris Ward

- [ ] Parameter(s) past holding time
- [x] Temperature not in range
- [ ] Improper container type
- [ ] pH not in range
- [ ] Insufficient sample volume
- [ ] Sample is biphasic
- [ ] Vials received with headspace
- [ ] Broken container
- [ ] Sufficient sample remains
- [ ] If broken container: Insufficient packing material around container
- [ ] If broken container: Insufficient packing material inside cooler
- [ ] If broken container: Improper handling by carrier:_____
- [ ] If broken container: Sample was frozen
- [ ] If broken container: Container lid not intact
- [ ] Client informed by Call
- [x] Client informed by Email
- [ ] Client informed by Voicemail
- [x] Date/Time:_____4/26/22@1519_____
- [x] PM initials:_____CMW_____
- [x] Client Contact:_____Jared Geissler_____

Comments

Troy Dunlap *25 April 2022 1:24 PM*

Received out of temperature at 21.2°c.

Chris Ward *26 April 2022 3:21 PM*

Please proceed with analysis.

Troy Dunlap *27 April 2022 9:31 AM*

Done.

Chris Ward

From: Geissler, Jared C. <Jared.Geissler@terracon.com>
Sent: Thursday, April 28, 2022 10:45 AM
To: Chris Ward
Cc: Modrall, Will; Johnson, Ian
Subject: RE: Pace Analytical National Level II Report & EDD for 23225051 Walmart-Woodland Park-3805 L1486463

CAUTION: This email originated from outside Pace Analytical. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hey Chris,

Sounds like we mislabeled this site can you change the project name and site location to:

23225049 Walmart - Falcon #4335

Let me know if you need additional information from us to make these changes.

Sincerely,

Jared C. Geissler; PE, MBA, PMP, CHMM
Environmental Department Manager
Senior Associate

From: chris.ward@pacelabs.com <chris.ward@pacelabs.com>
Sent: Thursday, April 28, 2022 9:11 AM
To: Geissler, Jared C. <Jared.Geissler@terracon.com>; Deal, Robert L. <Rob.Deal@terracon.com>; Foss, Josh J <Josh.Foss@terracon.com>
Subject: Pace Analytical National Level II Report & EDD for 23225051 Walmart-Woodland Park-3805 L1486463
Importance: High

"Privileged and Confidential"

Thank you for choosing Pace National!

Please find enclosed PDF report containing your laboratory analysis & chain of custody, and electronic data deliverable file(s).

Pace Analytical® is the first commercial laboratory in the US to offer testing of wastewater for SARS-COV2 (the virus that causes COVID-19).
https://www.pacelabs.com/environmental-sciences/testing-services/specialty-services/covid-19-wastewater-testing.html

Pace National is leading the laboratory industry with our On-line Data Management tools. Please contact your Project Manager to learn how to create historical Excel tables or access data in real time using powerful and intuitive software that is only available at https://www.pacenational.com.

SUPPORTING INFORMATION

Contents:

Note: All attachments are one page unless noted above.