Geotechnical Engineering Report

CarMax Redlands
Redlands, San Bernardino County, California
October 26, 2022
Terracon Project No. 60225109

Prepared for:
CenterPoint Integrated Solutions, LLC
Lakewood, Colorado

Prepared by:
Terracon Consultants, Inc.
Laguna Hills, California

October 26, 2022

CenterPoint Integrated Solutions, LLC
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Attn: Ms. Katharine Ayerst
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Re: Geotechnical Engineering Report
CarMax Redlands
New York Street
Redlands, San Bernardino County, California
Terracon Project No. 60225109

Dear Ms. Ayerst:

We have completed the Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. P60225109 dated August 3, 2022. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork, the design and construction of foundations and floor slabs 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.

Smriti Dhital, P.E.*
Senior Staff Engineer
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Keith Askew, P.E., G.E.
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REGISTERED PROFESSIONAL ENGINEER
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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 Terracon GeoReport logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
SITE LOCATION AND EXPLORATION PLANS
EXPLORATION RESULTS (Boring Logs and Laboratory Data)
SUPPORTING INFORMATION (General Notes and Unified Soil Classification System)

Geotechnical Engineering Report

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New York Street

Redlands, San Bernardino County, California

Terracon Project No. 60225109

October 26, 2022

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed CarMax facility, which includes a single-story building with associated parking and drive areas to be located at New York Street in Redlands, San Bernardino County, California. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Infiltration design and considerations
- Foundation design and construction
- Floor slab design and construction
- Seismic site classification per CBC
- Pavement design and construction

The geotechnical engineering Scope of Services for this project included the advancement of twenty test borings to depths ranging from approximately 6½ to 51½ feet below existing site grades. Four of these borings were used for percolation testing (B-1, B-3, B-4, and B-7). Our scope also included laboratory testing on samples retrieved from the borings, and preparation of this report.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and as separate graphs 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 and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project site is located west of New York Street and south of Lugonia Avenue in Redlands, San Bernardino County, California and is approximately 18.6-acres in size. Approximate coordinates for the center of the site are 34.0669°N, 117.1972°W
Existing Improvements	The site is currently undeveloped. There is an existing Home Depot bordering the northwest side of the site and an automobile dealership bordering the south side of the site. To the west of the property is Interstate 210 (I-210) with a slope (ascending from outside the site boundary to the freeway) varying in height from 15 to 20 feet, and an inclination on the order of 2:1 (horizontal:vertical). A drainage channel is also present outside of the western property boundary and adjacent/parallel to the I-210 toe of slope. The drainage channel and the slope are not part of the property and are separated by a fence; improvements to the channel or slope are not proposed. A sewer line extends east to west on the southern portion of the site and north to south on the western portion along the fence line.
Current Ground Cover	Exposed soil and vegetation.
Existing Topography (from Google Earth)	Majority of the site is relatively flat and has an approximate elevation ranging between 1297 feet and 1291 feet. To the west of the property is Interstate 210 (I-210) with a slope (ascending from outside the site boundary to the freeway) varying in height from 15 to 20 feet, and an inclination on the order of 2:1 (horizontal:vertical). A drainage channel is also present outside of the western property boundary and adjacent/parallel to the I-210 toe of slope.

PROJECT DESCRIPTION

Item	Description
Proposed Structure	According to the updated site plan dated September 2, 2022, the project will consist of developing a CarMax facility. The facility will include a 936 square-foot (SF) carwash building, staging and sales display areas of approximately 11.63 acres, and employee parking with light poles across the site.
Building Construction	Structural steel framing, metal studs with masonry veneer and load bearing reinforced CMU.
Maximum Loads	Buildings ■ Columns: 120 kips maximum ■ Walls: 4 kips per linear foot (klf) maximum ■ Slabs (assumed): 150 pounds per square foot (psf)
Finished Floor Elevation	Assumed within one foot of existing grade.
Grading/Slopes	Minimal cut/fill – assumed to be less than one foot (excluding remedial grading). Modifications to the existing slope and the drainage facility west of the property are not planned for the project.

Item	Description
Infiltration Systems	Based on our experience given the footprint of the site, a shallow infiltration system is anticipated.
Pavements	New pavements will be constructed and geotechnical recommendations for pavements are included in this project.
Traffic Loading[1]	Both rigid (concrete) and flexible (asphalt) pavement sections are to be considered. Anticipated traffic is as follows based on a design life of 20-years: ■ Light Duty Paving – 7,500 ESAL's (Traffic Index ~ 5) ■ Heavy Duty Paving – 75,000 ESAL's (Traffic Index ~ 6.5)

[1]Based on our local experience flexible pavement thickness design will be performed in accordance with Caltrans Methodology.

GEOTECHNICAL CHARACTERIZATION

Site Geology

The site is located on a broad terrace plain of the Santa Ana River in the San Bernardino Valley. The San Bernardino Valley in this area is bounded on the north by the San Bernardino Mountains, from which the Santa Ana River emanates.

The site is mapped as younger alluvial valley deposits of Holocene age. The Holocene-age alluvium was encountered in our exploratory borings and consists of interbeded sands with silts, silty sand and gravel lenses.

Subsurface Profile

We have developed a general characterization of the subsurface soil and groundwater conditions based upon our review of the data and our understanding of the geologic setting and planned construction. The general characterization of the subsurface soil is as follows:

In general, the subsurface soil was characterized as loose to dense sand with varying amount of silt and loose to dense gravel with varying amount of silt and sand.

The geotechnical characterization forms the basis of our geotechnical calculations and evaluation of site preparation, foundation options and pavement options. As noted in **General Comments**, the characterization is based upon widely spaced exploration points across the site, and variations are likely.

Conditions encountered at each boring location are indicated on the individual boring logs shown in the **Exploration Results** section and are attached to this report. Stratification boundaries on the boring logs represent the approximate location of changes in native soil types; in situ, the transition between materials may be gradual.

Groundwater

Groundwater was not observed in the borings while drilling, or for the short duration the boring remained open. 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 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. Therefore, groundwater levels during construction or at other times in the life of the structure 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.

According to data collected from the Water Data Library for the State of California from a nearby well, located approximately 0.5 mile northeast of the site in State Well Number 01S03W21H007S, historic groundwater levels between January 1, 2012 and June 04, 2019 were recorded at greater than 100 feet bgs.[1]

SEISMIC CONSIDERATIONS

The 2019 California Building Code (CBC) Seismic Design Parameters have been generated using the SEAOC/OSHPD Seismic Design Maps Tool. This web-based software application calculates seismic design parameters in accordance with ASCE 7-16 and 2019 CBC. The 2019 CBC requires that a site-specific ground motion study be performed in accordance with Section 11.4.8 of ASCE 7-16 for Site Class D sites with a mapped S_1 value greater than or equal 0.2.

However, Section 11.4.8 of ASCE 7-16 includes an exception from such analysis for specific structures on Site Class D sites. The commentary for Section 11 of ASCE 7-16 (Page 534 of Section C11 of ASCE 7-16) states that “In general, this exception effectively limits the requirements for site-specific hazard analysis to very tall and or flexible structures at Site Class D sites.” Based on our understanding of the proposed structures, it is our assumption that the exception in Section 11.4.8 applies to the proposed structure. However, the structural engineer should verify the applicability of this exception.

Based on this exception, the spectral response accelerations presented below were calculated using the site coefficients (F_a and F_v) from Tables 1613.2.3(1) and 1613.2.3(2) presented in Section 16.4.4 of the 2019 CBC.

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[1] *Groundwater elevation was obtained from the Water Data Library for the State of California Well ID01S03W21H007S (http://wdl.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=37361).*

Description	Value
2019 California Building Code Site Classification (CBC) [1]	D [2]
Site Latitude (°N)	34.0669
Site Longitude (°W)	117.1972
S_s Spectral Acceleration for a 0.2-Second Period	1.795
S_1 Spectral Acceleration for a 1-Second Period	0.716
F_a Site Coefficient for a 0.2-Second Period	1.0
F_v Site Coefficient for a 1-Second Period	1.7

1. Seismic site classification in general accordance with the *2019 California Building Code*.
2. The 2019 California Building Code (CBC) utilizes a site soil profile extending to a depth of 100 feet for seismic site classification. The current scope does not include the 100-foot soil profile determination. Borings were extended to a maximum depth of 50½ feet, and this seismic site class definition considers that similar or denser soils continue below the maximum depth of the subsurface exploration. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of exploration.

Typically, a site-specific ground motion study may generate less conservative coefficients and acceleration values which may reduce construction costs. We recommend consulting with a structural engineer to evaluate the need for such study and its potential impact on construction costs. Terracon should be contacted if a site-specific ground motion study is desired.

Faulting and Estimated Ground Motions

The site is located in the seismically active southern California area. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. As calculated using the USGS Unified Hazard Tool, the San Andreas Fault (San Bernardino segment), which is considered to have the most significant effect at the site from a design standpoint, has a maximum earthquake magnitude of 8.2 and is located approximately 7.6 kilometers from the site.

Based on the USGS Design Maps Summary Report, using the American Society of Civil Engineers (ASCE 7-16) standard, the design peak ground acceleration (PGA_M) at the project site is 0.83g. Based on the USGS Unified Hazard Tool, the project site has a de-aggregated modal magnitude of 7.9. The site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of the State Fault Hazard Maps.

LIQUEFACTION

Liquefaction is a mode of ground failure that results from the generation of high pore water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils exist below groundwater. The California Geological Survey (CGS) has designated certain areas as potential liquefaction hazard zones. These are

areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table.

Based on review of the County of San Bernardino Land use plan, the site is not located within a liquefaction risk zone. Other geologic hazards related to liquefaction, such as lateral spreading, are therefore also considered low; however, the site is subject to dry sand seismic settlement due to the potential for seismic shaking. To determine the magnitude of dry sand seismic settlement, we utilized the software "LiquefyPro" by CivilTech Software. The analysis was based on the soil data from the soil borings, a Peak Ground Acceleration (PGA) of 0.83g, and the deaggregated magnitude of 7.41 for the project site. Calculations assumed the groundwater was greater than the depth of our analysis based on the available data. Settlement analysis used the Tokimatsu M-correction method, and the fines percentage were corrected for liquefaction using the Stark/Olson method.

Based on calculation results, seismically induced total settlement of dry sands is estimated to be less than 1½ inches. Differential seismic dry sand settlement is anticipated to be less than 1 inch.

CORROSIVITY

The table below lists the results of laboratory soluble sulfate, soluble chloride, electrical resistivity, and pH testing. The 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.

Corrosivity Test Results Summary									
Boring	**Sample Depth (ft)**	**Soil Description**	**Soluble Sulfate (%)**	**Sulfides (ppm)**	**Chlorides (ppm)**	**Red-Ox Potential (mV)**	**Electrical Resistivity (Ω-cm)**	**Total Salts (ppm)**	**pH**
B-4	0-5	Silty Sand	0.01	--	80	726	13580	301	7.61

Results of soluble sulfate testing indicate samples of the on-site soils tested possess negligible sulfate concentrations when classified in accordance with Table 19.3.1.1 of the ACI Design Manual. Concrete should be designed in accordance with the exposure class S0 provisions of the ACI Design Manual, Section 318, Chapter 19.

STORMWATER MANAGEMENT

Four in-situ percolation tests were performed to approximate depths of 5 and 10 feet bgs. A 2-inch-thick layer of gravel was placed in the bottom of each boring after the borings were drilled to investigate the soil profile. A 3-inch diameter perforated pipe was installed on top of the gravel layer in each boring. Gravel was used to backfill between the perforated pipes and the boring

sidewall. At the beginning of the test, the pipes were refilled with water and readings were taken at standardized time intervals. Percolation rates are provided in the following table:

TEST RESULTS			
Test Location (depth, feet bgs)	**Soil Classification**	**Average of the Last Three Measured Percolation Rate (in/hr.)**	**Correlated Infiltration Rate[1] (in/hr.)**
B-1 (0 to 10 ft)	Poorly graded sand	178.5	4.9
B-3 (0 to 5 ft)	Poorly graded sand with silt	219	4.7
B-4 (0 to 5 ft)	Silty Sand	73.5	1.5
B-7 (0 to 5 ft)	Silty Sand	225.8	4.6

1. If proposed infiltration system will mainly rely on vertical downward seepage, the correlated infiltration rates should be used. The infiltration rates were correlated using the Porchet method.

The permeability tests were performed with clear water, whereas the storm water will likely not be clear, but may contain organics, fines, and grease/oil. The presence of these deleterious materials will tend to decrease the rate that water percolates from the infiltration systems. Design of the storm water infiltration systems should account for the presence of these materials and should incorporate structures/devices to remove these deleterious materials.

Infiltration testing should be performed after construction to verify the design infiltration rates. It should be noted that siltation and vegetation growth along with other factors may affect the infiltration rates of on-site soils. The actual infiltration rate may vary from the values reported here.

GEOTECHNICAL OVERVIEW

The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, provided that the recommendations provided in this report are implemented in the design and construction phases of this project.

We assume the existing sewer line will be left in place. If so, special care should be taken while performing any earthwork or placement of new pavement above the sewer line.

Due to the presence of loose subgrade soils we recommend remedial grading consisting of the removal and replacement of the upper existing soils within the footprint of the building pads. Conventional shallow foundations may be used for the proposed sales and carwash buildings, and should bear on engineered fill placed as recommended in the Earthwork section of this report.

Estimated movements described in this report are based on effective drainage for the life of the structure and cannot be relied upon if effective drainage is not maintained. Exposed ground, extending at least 10 feet from the perimeter, should be sloped a minimum of 5% away from the building to provide positive drainage away from the structure. Grades around the structure should be periodically inspected and adjusted as part of the structure's maintenance program.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the **Exploration Results** section), engineering analyses, and our current understanding of the proposed project.

The **General Comments** section provides an understanding of the report limitations.

EARTHWORK

The following recommendations include site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented for design and construction of earth supported elements including foundations, slabs, and pavements are contingent upon following the recommendations outlined in this section.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

Site Preparation

Strip and remove existing topsoil and other deleterious materials from proposed building and pavement areas. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction. The site should be initially graded to create a relatively level surface to receive fill and provide for a relatively uniform thickness of fill beneath proposed building structures.

We assume the existing sewer line will be left in place. If so, special care should be taken while performing any earthwork or placement of new pavement above the sewerline. Although evidence of underground facilities such as septic tanks, cesspools, or basements was not observed during the site reconnaissance, such features could be encountered during construction. If unexpected fills, utilities, or underground facilities are encountered, such features should be removed, and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Subgrade Preparation

Due to the relatively loose condition of the near surface soils, we recommend the subsurface soils within the proposed building pads be removed to a minimum depth of 4 feet below existing site grades, or 2 feet below bottom of proposed foundations, whichever is greater. Deeper removals may be required if loose soils are still encountered at a depth of 4 feet bgs. Grading for the proposed structures should incorporate the limits of the footings plus 3 feet beyond the outside edge of perimeter footings. Bottoms of excavations should be probed to determine if it is firm and unyielding. Localized deeper removals may be needed where soft soils at encountered at the excavation bottom. Compacted engineered fill should then be placed to design finish grade elevations.

Subgrade soils beneath exterior slabs and pavements should be removed to a depth of 1 foot below the proposed pavement section, including bottom of proposed aggregate base materials. Compacted engineered fill should then be placed to design elevations.

Exposed areas which will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of 10 inches, moisture conditioned, and compacted per the compaction requirements in this report.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable. However, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying.

Excavation

It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment.

The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

Individual contractors are responsible for designing and constructing stable, temporary excavations. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current OSHA excavation and trench safety standards.

Fill Materials and Placement

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than 6 inches in size. Pea gravel or other similar non-cementitious, poorly-graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer.

Clean on-site soils or approved imported materials may be used as fill material for the following:

- general site grading
- foundation areas
- interior floor slab areas
- foundation backfill
- pavement areas
- exterior slab areas

Imported soils for use as fill material within proposed building and structure areas should conform to low volume change materials as indicated in the following specifications:

Gradation	Percent Finer by Weight (ASTM C 136)
3”	100
No. 4 Sieve	50-100
No. 200 Sieve	10-40

- Liquid Limit ..... 30 (max)
- Plasticity Index ..... 15 (max)
- Maximum expansion index* ..... 20 (max)

*ASTM D 4829

The contractor shall notify the Geotechnical Engineer of import sources sufficiently ahead of their use so that the sources can be observed and approved as to the physical characteristic of the import material. For all import material, the contractor shall also submit current verified reports from a recognized analytical laboratory indicating that the import has a "not applicable" (Class S0) potential for sulfate attack based upon current ACI criteria and is "mildly corrosive" to ferrous metal and copper. The reports shall be accompanied by a written statement from the contractor that the laboratory test results are representative of all import material that will be brought to the job.

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. Fill lifts should not exceed 10 inches loose thickness.

Compaction Requirements

Recommended compaction and moisture content criteria for engineered fill materials are as follows:

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement (%)	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
On-site soils and low volume change imported fill:			
Beneath foundations:	90	0%	+3%
Beneath interior slabs:	90	0%	+3%

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement (%)	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
Fill greater than 5 feet in depth	95	0%	+3%
Miscellaneous backfill and behind retain walls:	90	0%	+3%
Beneath pavements:	95	0%	+3%
Utility Trenches*:	90	0%	+3%
Bottom of excavation receiving fill:	90	0%	+3%
Aggregate base (beneath pavements):	95	0%	+3%

* Upper 12 inches should be compacted to 95% within pavement and structural areas. Low-volume change imported soils should be used in structural areas.

Grading and Drainage

Positive drainage should be provided during construction and maintained throughout the life of the development. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Planters and other surface features which could retain water in areas adjacent to the building or pavements should be sealed or eliminated. In areas where sidewalks or paving do not immediately adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration.

Roof drainage should discharge into splash blocks or extensions when the ground surface beneath such features is not protected by exterior slabs or paving. Sprinkler systems and landscaped irrigation should not be installed within 5 feet of foundation walls.

Utility Trenches

It is anticipated that the on-site soils and fill materials 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 should be used for bedding and shading of utilities, unless allowed or specified otherwise 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. Imported low volume change soils should be used for trench backfill in structural areas.

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.

Exterior Slab Design and Construction

Exterior slabs-on-grade, exterior architectural features, and utilities founded on, or in backfill may experience some movement due to the volume change of the backfill. To reduce the potential for damage caused by movement, we recommend:

- minimizing moisture increases in the backfill;
- controlling moisture-density during placement of backfill;
- using designs which allow vertical movement between the exterior features and adjoining structural elements;
- placing effective control joints on relatively close centers

Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab and pavement construction.

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 subgrade preparation, proof-rolling, placement and compaction of controlled compacted fills, backfilling of excavations to the completed subgrade.

The exposed subgrade and 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 at a frequency of at least one test for every 2,500 square feet of compacted fill in the building areas and 5,000 square feet in pavement areas. One density and water content test for every 50 linear feet of compacted utility trench backfill. This testing frequency criteria may be adjusted during construction as specified by the Geotechnical Engineer of record.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. In the event that 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.

SHALLOW FOUNDATIONS

Provided the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

Shallow Foundation Design Recommendations

DESCRIPTION	RECOMENDATION
Foundation Type	Spread footing foundations
Bearing Material	Engineered fill extended to minimum depth of 4 feet below the ground surface or 2 feet below the foundation.
Allowable Bearing Pressure	2,000 psf
Minimum Dimensions	Columns: 24 inches
Minimum Embedment Depth Below Finished Grade	18 inches
Total Estimated Settlement	1 inch
Estimated Differential Settlement	½ inch across 40 feet

Finished grade is defined as the lowest adjacent grade within five feet of the foundation for perimeter (or exterior) footings. The allowable foundation bearing pressure applies to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions. The weight of the foundation concrete below grade may be neglected in dead load computations.

Foundations should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement. Foundation excavations should be observed by the geotechnical engineer. If the soil conditions encountered differ significantly from those presented in this report, supplemental recommendations will be required.

FLOOR SLABS

DESCRIPTION	RECOMMENDATION
Interior floor system	Slab-on-grade concrete
Floor slab support	Engineered fill extending to a minimum depth of 2 feet below the corresponding footing, or 4 feet below the existing ground surface.
Subbase	Minimum 4-inches of Aggregate Base
Modulus of subgrade reaction	200 pounds per square inch per inch (psi/in) (The modulus was obtained based on estimates obtained from NAVFAC 7.1 design charts). This value is for a small, loaded area (1 Sq. ft or less) such as for forklift wheel loads or point loads and should be adjusted for larger loaded areas.

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 water-proof, 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.

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.

Pavement Design Parameters

R-value testing conducted on a near-surface soil (0 to 5 feet) sample resulted in an R-value of 50 which was used to calculate the asphalt concrete pavement sections and the Portland cement concrete pavement sections. Additional R-value testing should be completed prior to pavement construction to verify the design R-value.

Assuming the pavement subgrades will be prepared as recommended within this report, the following pavement sections should be considered minimums for this project for the traffic indices assumed in the table below. As more specific traffic information becomes available, we should be contacted to reevaluate the pavement calculations.

Pavement Section Thicknesses

The following table provides options for AC and PCC Sections:

	Recommended Pavement Section Thickness (inches) [1]	
	Light (Automobile) Parking Assumed Traffic Index (TI) = 5	**Heavy Duty (Driveways and Delivery Areas) Assumed TI = 6.5**
Section I Portland Cement Concrete (600 psi Flexural Strength)	5.0-inches PCC over 4-inches Class II Aggregate Base	5-inches PCC over 4-inches Class II Aggregate Base
Section II Asphaltic Concrete	3-inches AC over 5-inches Class II Aggregate Base	4-inches AC over 4-inches Class II Aggregate Base

1. All materials should meet the Caltrans Standard Specifications for Highway Construction.

These pavement sections are considered minimal sections based upon the expected traffic and the existing subgrade conditions. The project civil engineer should confirm minimum sections are in accordance with requirements from local agencies and jurisdictions. The pavement sections are expected to be functional with periodic maintenance and overlays if good drainage is provided and maintained.

All materials should meet the Caltrans Standard Specifications for Highway Construction. Aggregate base materials should meet the gradation and quality requirement of Class 2 Aggregate Base (¾ inch maximum) in Caltrans Standard Specifications, latest edition, Sections 25 through 29.

All concrete for rigid pavements should have a minimum flexural strength of 600 psi (4,250 psi Compressive Strength) and be placed with a maximum slump of four inches. Proper joint spacing will also be required to prevent excessive slab curling and shrinkage cracking. All joints should be sealed to prevent entry of foreign material and dowelled where necessary for load transfer.

Preventative maintenance should be planned and provided for through an on-going pavement management program in order to enhance future pavement performance. Preventative maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment.

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 and provides the highest return on investment for pavements.

Pavement Construction Considerations

Materials and construction of pavements for the project should be in accordance with the requirements and specifications of the State of California Department of Transportation, or other approved local governing specifications.

Base course or pavement materials should not be placed when the surface is wet. Surface drainage should be provided away from the edge of paved areas to minimize lateral moisture transmission into the subgrade.

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. The findings and recommendations presented in this report were prepared in a manner consistent with the standards of care and skill ordinarily exercised by members of its profession completing similar studies and practicing under similar conditions in

the geographic vicinity and at the time these services have been performed. No warranty or guarantee, express or implied, is made. 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.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Borings	Boring Depth (feet)	Location
B-02, B-05, B-06, B-08, B-09 and B-10	21.5 to 51.5	Proposed carwash and service building
B-01, B-03, B-04 and B-07	6.5 to 11.5	Pavement and Percolation boring
B-11 to B-20	6.5 to 21.5	Pavement borings

Boring Layout and Elevations: Unless otherwise noted, Terracon personnel provided the boring layout. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±10 feet) and approximate elevations were obtained by interpolation from Google Earth Pro. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: We advanced the borings with a truck-mounted drill rig using continuous hollow stem flight augers. Four samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. Soil sampling were collected during drilling in general accordance with the appropriate ASTM methods using Standard Penetration Testing (SPT) and sampling using either standard split-spoon method or Modified California Samplers. A sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. The samples were placed in appropriate containers, taken to our soil laboratory for testing, and classified by a geotechnical engineer. In addition, we observed and recorded groundwater levels (or absence thereof) during drilling and sampling. The building borings (B-02, B-05, B-06, B-08 to B-10) were backfilled with cement grout. Pavement borings (B-01, B-03, B-04, B-07, B-11 to B-20) were backfilled with auger cuttings after their completion.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D7263 Standard Test Methods for Laboratory Determination of Dry Density (Unit Weight) of Soil Specimens
- ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM C136 Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing
- ASTM D2844-01 Standard Test Method for Resistance R-Value and Expansion Pressure of Compacted Soils
- Corrosivity Testing included pH, chlorides, sulfates, sulfides, Redox potential, and electrical lab resistivity

The laboratory testing program included examination of soil samples by an engineer. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

SITE LOCATION

CarMax- Redlands, CA ■ Redlands, CA
October 6, 2022 ■ Terracon Project No. 60225109

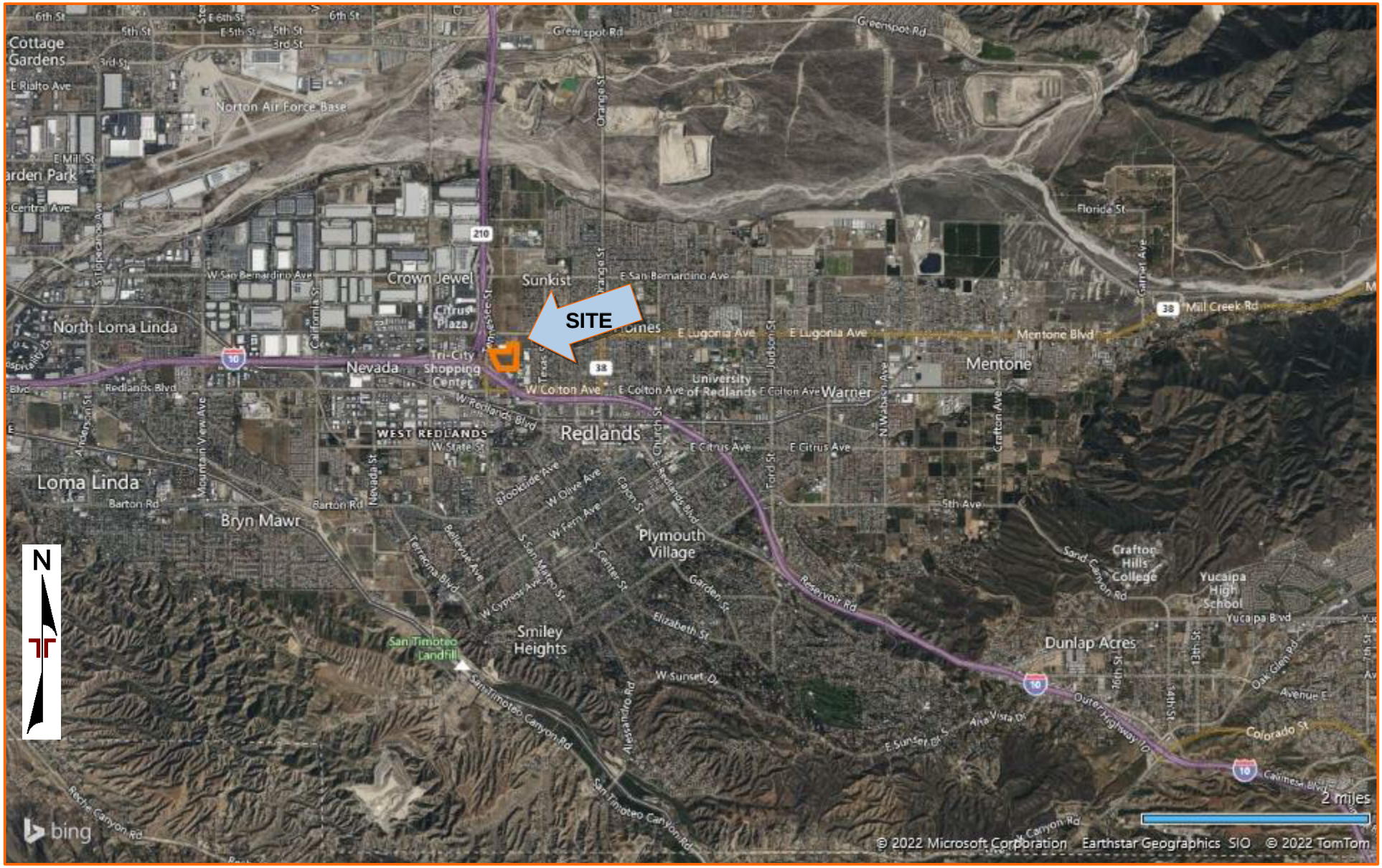


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
QUADRANGLES INCLUDE: .

EXPLORATION PLAN

CarMax- Redlands, CA ■ Redlands, CA
October 6, 2022 ■ Terracon Project No. 60225109

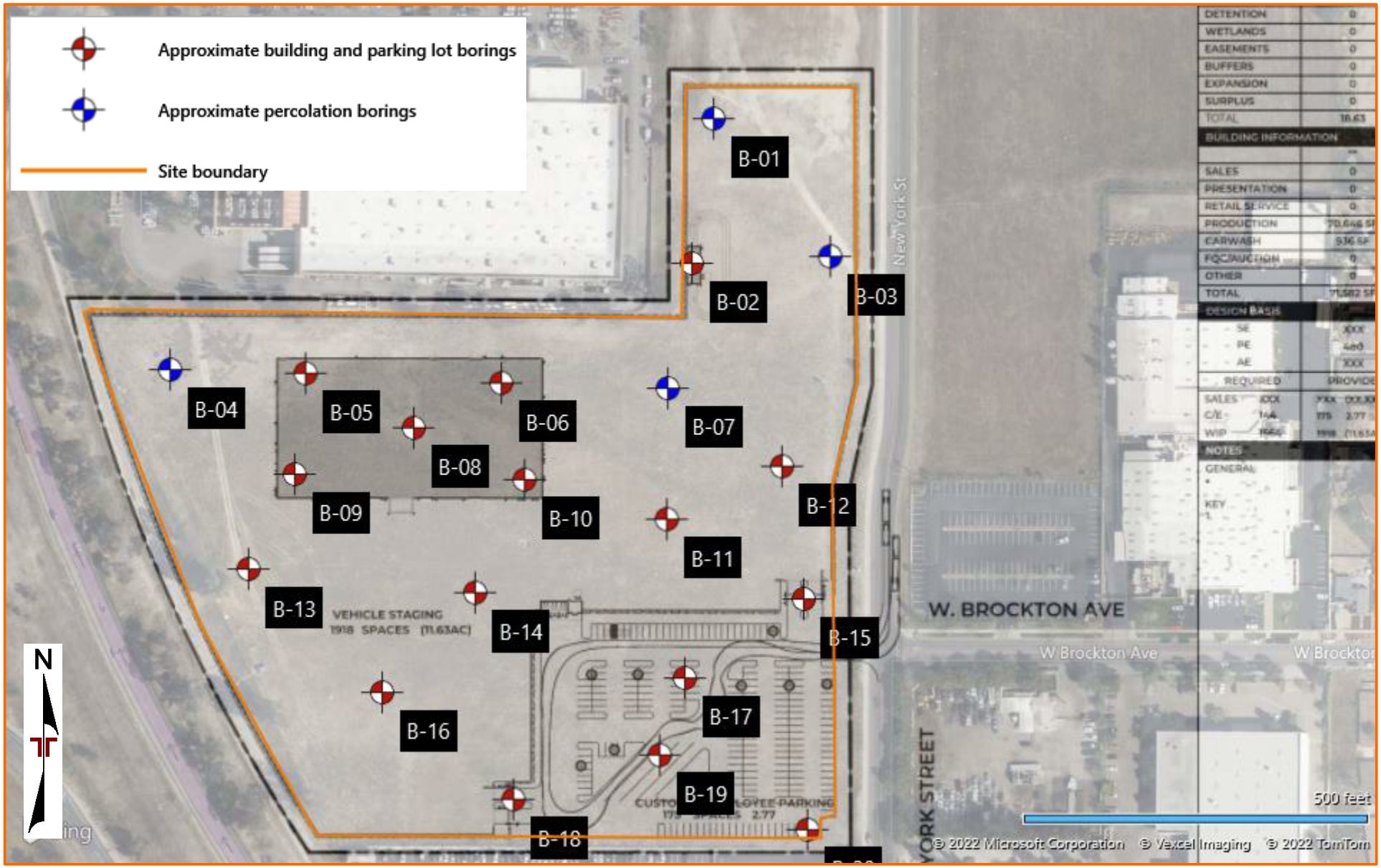


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE PLAN PROVIDED BY THE CLIENT

EXPLORATION RESULTS

BORING LOG NO. B-1

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0686° Longitude: -117.1964°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SILTY SAND (SM), trace gravel, light brown								
	medium dense			X	1-6-7 N=13				
	5.0	5							
	POORLY GRADED SAND (SP), trace silt, light brown, medium dense			X	3-5-9 N=14				4
	dense			X	14-16-18 N=34				
	11.5	10		X	5-17-20 N=37				
	Boring Terminated at 11.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-2

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0680° Longitude: -117.1965°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SILTY SAND (SM), light gray								
	medium dense				8-7-15	1.4	109		
	5.0	5							
	POORLY GRADED SAND (SP), trace silt and gravel, light gray with brown, medium dense				7-11-18	2.3	104		
					5-9-21	2.7			
		10			9-13-13				
	light greenish gray and brown	15			5-11-18 N=29				
	light gray with brown, dense	20			8-17-22 N=39				
	21.5								
	Boring Terminated at 21.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-3

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.0681° Longitude: -117.1958° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	POORLY GRADED SAND WITH SILT (SP-SM), light brown								
	loose				3-3-4 N=7				
	medium dense	5			3-5-6 N=11				5
	6.5								
	Boring Terminated at 6.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-4

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0676° Longitude: -117.1990°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SILTY SAND (SM), brown								
	medium dense				5-5-5 N=10				
	loose	5			3-4-3 N=7				20
	6.5								
	Boring Terminated at 6.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-5

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0676° Longitude: -117.1983°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SILTY SAND (SM), light brown								
		medium dense				5-10-12	1.8			
			5			7-10-16	1.5	108		
7.5		**POORLY GRADED SAND (SP)**, light gray, medium dense				7-14-19	1.6			
			10			7-14-20	1.6			
15.0		**SILTY SAND (SM)**, light gray, medium dense	15			5-6-6 N=12				
			20			3-6-7 N=13				
21.5		***Boring Terminated at 21.5 Feet***								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-6

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0676° Longitude: -117.1974°

DEPTH	GRAPHIC LOG		WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SILTY SAND (SM), light brown							
		loose			5-5-7	2.3	103		
5.0		**SILTY GRAVEL (GM)**, brown and gray, loose			5-7-8				
7.5		**POORLY GRADED SAND WITH GRAVEL (SP)**, trace silt, light gray, medium dense			7-8-12	3.7	107		
10					7-4-19				3
15.0		**POORLY GRADED SAND (SP)**, light gray, medium dense			4-8-10 N=18				
20					5-11-15 N=26				
21.5		***Boring Terminated at 21.5 Feet***							

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-7

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0675° Longitude: -117.1966°

GRAPHIC LOG	DEPTH		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SILTY SAND (SM), light brown								
		soft				2-2-2 N=4				
			5			2-1-2 N=3				21
	6.5	***Boring Terminated at 6.5 Feet***								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-8

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0674° Longitude: -117.1978°

DEPTH	GRAPHIC LOG	DESCRIPTION	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SILTY SAND (SM), light brown and gray							
		medium dense			5-8-11	2.5	103		
5					6-6-12				
7.5		**POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM)**, trace silt and gravel, light gray, medium dense			3-15-16	1.8	100		
10					8-14-18				5
15.0		**SILTY SAND (SM)**, trace gravel, light gray, loose			4-4-4 N=8				31
15									
		medium dense							
20					4-6-6 N=12				
25									

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-8

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0674° Longitude: -117.1978°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SILTY SAND (SM), trace gravel, light gray, loose *(continued)* light gray and brown				5-10-10 N=20				
		30			4-5-12 N=17				
	35.0								
	POORLY GRADED SAND WITH SILT (SP-SM), light grayish brown, dense	35			7-14-18 N=32				6
	light gray, medium dense	40			9-9-12 N=21				7
	gray	45			7-11-16 N=27				8
		50							

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-8

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.0674° Longitude: -117.1978° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	POORLY GRADED SAND WITH SILT (SP-SM), light grayish brown, dense *(continued)* 51.5 dense				12-20-20 N=40				
	Boring Terminated at 51.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-9

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0672° Longitude: -117.1984°

DEPTH	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
POORLY GRADED SAND (SP), trace silt, light gray									
loose					4-4-8				3
trace silt and gravel, light gray, medium dense		5			7-9-11	1.6	99		
white and black, loose					4-7-8	1.9	105		
10.0		10							
WELL GRADED SAND WITH SILT (SP-SM), gray, medium dense					8-12-18				6
15.0		15							
POORLY GRADED SAND (SP), trace silt, light brownish gray, medium dense					5-8-6 N=14				
brownish gray, loose		20			3-3-6 N=9				
21.5									
Boring Terminated at 21.5 Feet									

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-15-2022 | Boring Completed: 09-15-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-10

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0672° Longitude: -117.1973°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SILTY SAND (SM), trace gravel, brown loose				4-5-5				
	5.0 **POORLY GRADED SAND WITH GRAVEL (SP)**, trace silt, light gray, loose	5			3-6-7	1.9	111		
	7.5 **POORLY GRADED SAND (SP)**, trace silt, light gray, medium dense				6-4-14				
		10			5-14-22	1.2	108		
	loose	15			3-3-5 N=8				
	medium dense	20			5-6-6 N=12				1
	21.5 ***Boring Terminated at 21.5 Feet***								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-11

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0670° Longitude: -117.1966°

GRAPHIC LOG	DEPTH		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SILTY SAND (SM), light brown								
		loose				2-2-3 N=5				
	5.0		5							
		POORLY GRADED SAND (SP), trace silt, light gray, loose				3-4-4 N=8				
	6.5	***Boring Terminated at 6.5 Feet***								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-12

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.0672° Longitude: -117.1960° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	POORLY GRADED SAND (SP), light brown loose	5			2-3-4 3-4-5				4
	6.5 ***Boring Terminated at 6.5 Feet***								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-13

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0668° Longitude: -117.1986°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SILTY SAND (SM), light brown loose	5		X	3-2-4 N=6				
	6.5			X	3-4-4 N=8				
	Boring Terminated at 6.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-15-2022 | Boring Completed: 09-15-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-14

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0667° Longitude: -117.1975°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SILTY SAND (SM), light brown, loose				2-3-4 N=7			NP	
	5.0 **POORLY GRADED SAND (SP)**, trace silt, light gray, medium dense	5			3-5-6 N=11				
	6.5 ***Boring Terminated at 6.5 Feet***								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-14-2022 | Boring Completed: 09-14-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-15

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.0667° Longitude: -117.1959° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SILTY GRAVEL WITH SAND (GM), gray medium dense				4-5-5 N=10				
	5.0 **POORLY GRADED SAND WITH SILT (SP-SM)**, gray with brown, loose	5			3-4-5 N=9				6
	6.5 ***Boring Terminated at 6.5 Feet***								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-15-2022 | Boring Completed: 09-15-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-16

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.0663° Longitude: -117.1979° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	POORLY GRADED SAND (SP), trace silt, light brown								
	medium dense				4-5-5 N=10				
	gray, loose	5			3-3-5 N=8				
	6.5								
	Boring Terminated at 6.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-15-2022 | Boring Completed: 09-15-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-17

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0664° Longitude: -117.1965°

DEPTH	GRAPHIC LOG	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SILTY SAND (SM), light brown								
		loose				5-5-9	1.4	110		
			5			5-6-7	2.5	114		
7.5						7-8-16	1.0			
		POORLY GRADED SAND (SP), trace silt, gray and white, medium dense								
10.0			10			7-10-11				
		SILTY SAND (SM), brown, medium dense								
		loose	15			2-3-5 N=8				
		medium dense	20			4-5-5 N=10				
21.5										
		Boring Terminated at 21.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-15-2022 | Boring Completed: 09-15-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-18

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.0659° Longitude: -117.1973° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SILTY SAND (SM), light brown loose				2-2-2 N=4				
	5.0 **POORLY GRADED SAND (SP)**, trace silt, gray, medium dense	5			3-4-6 N=10				
	6.5 ***Boring Terminated at 6.5 Feet***								

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-15-2022 | Boring Completed: 09-15-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-19

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0661° Longitude: -117.1966°

DEPTH	GRAPHIC LOG		WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SILTY SAND (SM), light brown							
		loose			4-6-7	1.1	106		
5.0									
		POORLY GRADED SAND (SP), trace silt, grayish brown, loose			4-5-7	2.4	105		4
7.5									
		POORLY GRADED SAND WITH GRAVEL (SP), trace silt, grayish brown, medium dense			5-7-25	1.5	118		
10.0									
		POORLY GRADED SAND (SP), trace silt, gray, medium dense			6-9-11				
		loose			4-4-5 N=9				
		medium dense			4-6-8 N=14				
21.5		***Boring Terminated at 21.5 Feet***							

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-15-2022 | Boring Completed: 09-15-2022

Drill Rig: CME-75 | Driller: 2R

Project No.: 60225109

BORING LOG NO. B-20

PROJECT: CarMax- Redlands

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

SITE: New York St
Redlands, CA

LOCATION See Exploration Plan

Latitude: 34.0658° Longitude: -117.1959°

DEPTH	GRAPHIC LOG		SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		POORLY GRADED SAND (SP), trace silt, gray						
		loose		4-7-9	0.9			
5		medium dense		6-9-15				
		trace cobbles		8-15-33	1.9	123		
10		light gray and brown		14-23-24				
15		trace silt, gray, dense		8-18-18 N=36				
20		trace silt and gravel, gray, medium dense		7-11-14 N=25				
21.5		***Boring Terminated at 21.5 Feet***						

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

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings 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.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 09-15-2022 | Boring Completed: 09-15-2022

Drill Rig: CME-75 | Driller: 2R

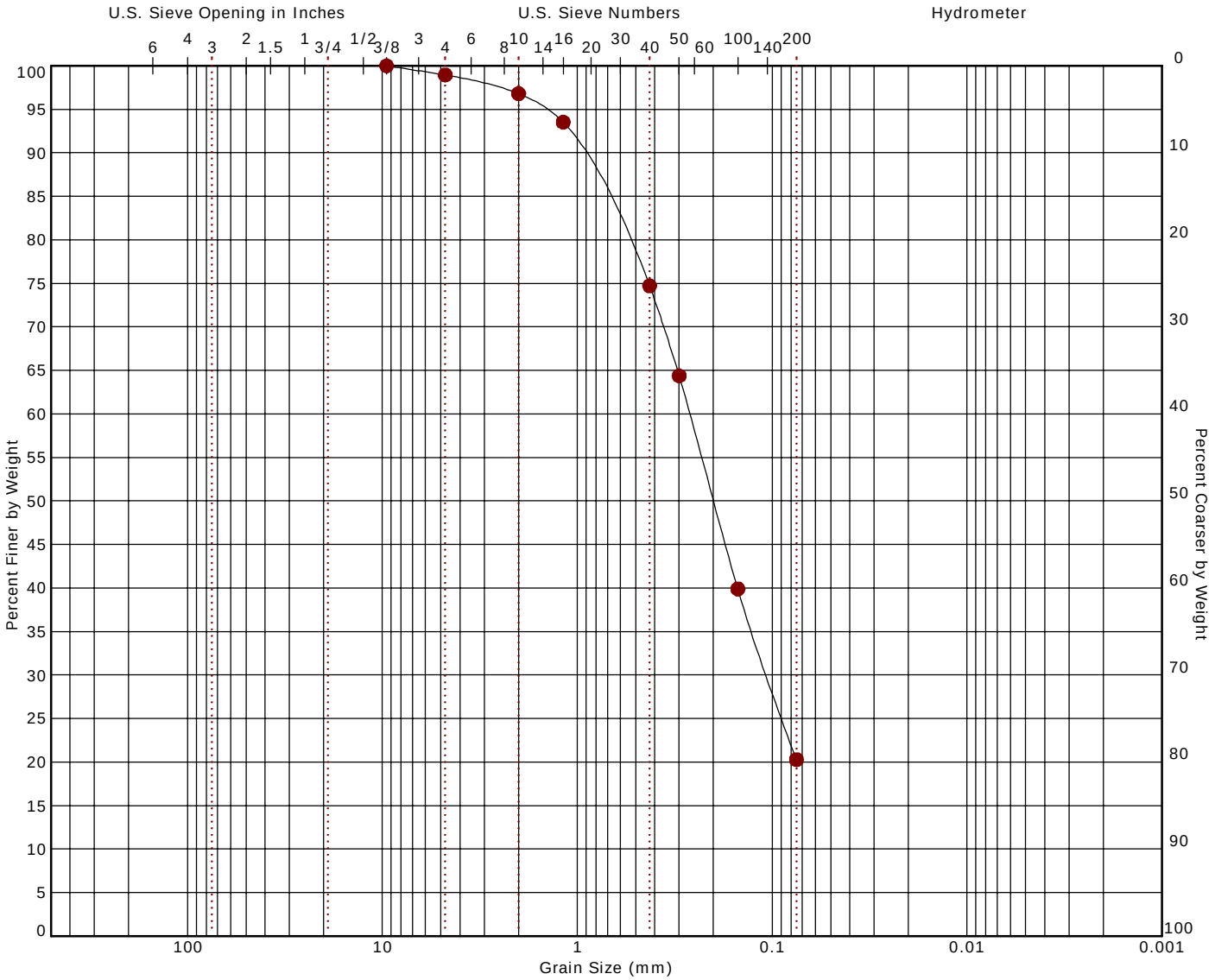
Project No.: 60225109

CarMax- Redlands
New York St | Redlands, CA
Terracon Project No. 60225109

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Grain Size Distribution

ASTM D422 / ASTM C136



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID	Depth (Ft)	Description		LL	PL	PI	Cc	Cu
B-4	5 - 6.5	Silty sand						

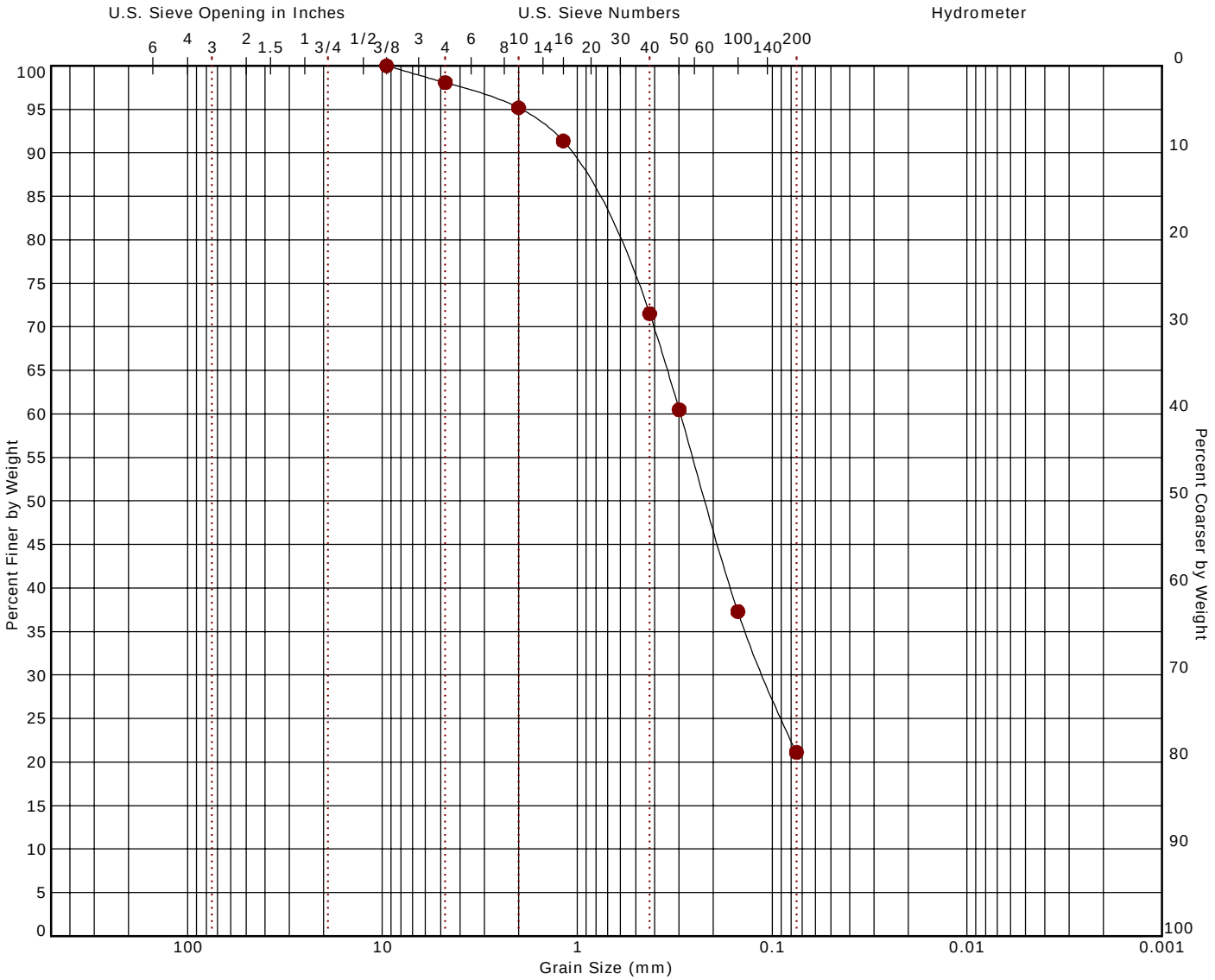
Boring ID	Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
B-4	5 - 6.5	9.5	0.265	0.106		0.0	1.1	78.7	20.3		

CarMax- Redlands
New York St | Redlands, CA
Terracon Project No. 60225109

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Grain Size Distribution

ASTM D422 / ASTM C136



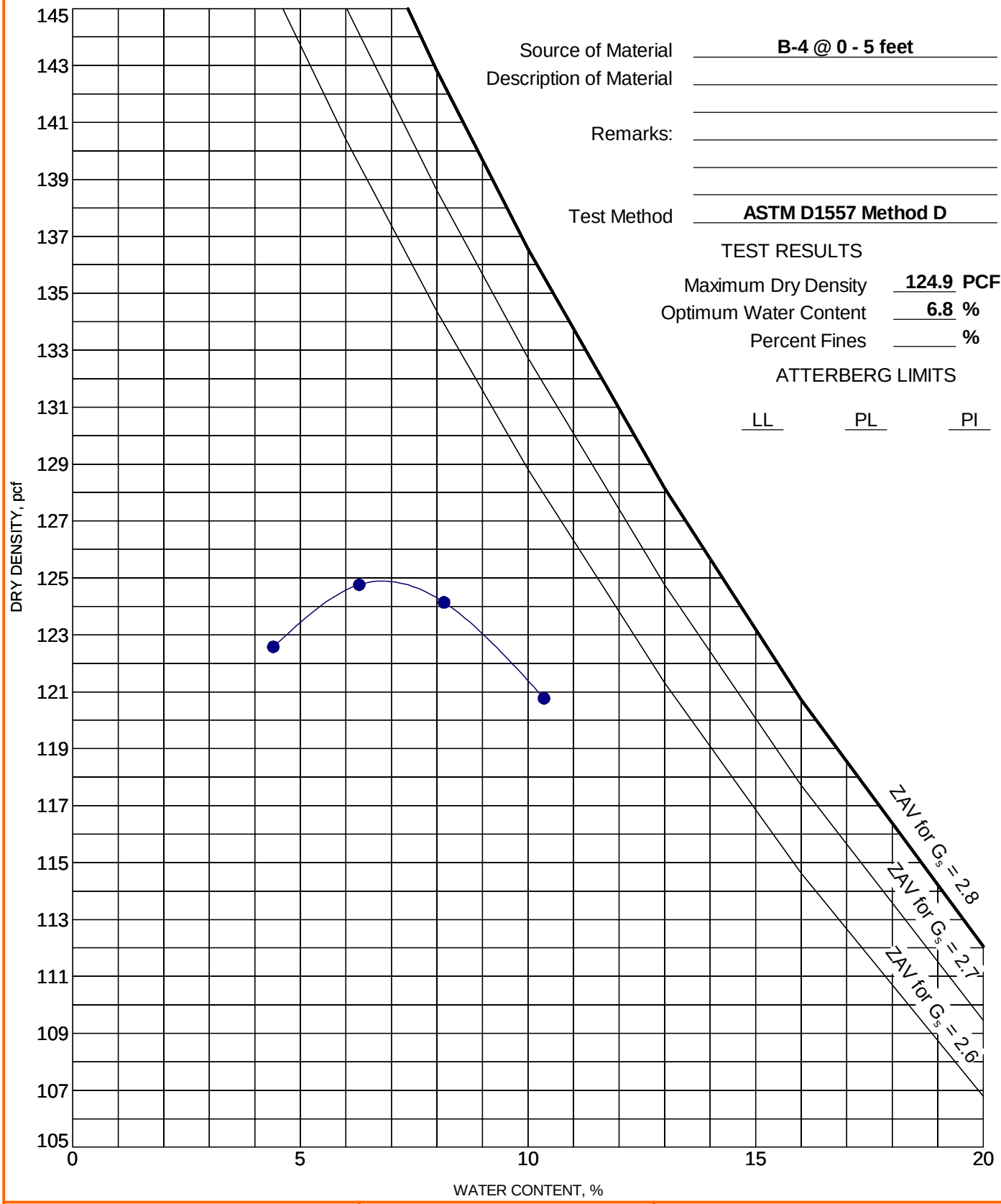
Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID	Depth (Ft)	Description		LL	PL	PI	Cc	Cu
B-7	5 - 6.5	Silty sand						

Boring ID	Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
B-7	5 - 6.5	9.5	0.296	0.11		0.0	1.9	77.0	21.1		

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-4 @ 0 - 5 feet**

Description of Material:

Remarks:

Test Method: **ASTM D1557 Method D**

TEST RESULTS

Maximum Dry Density	**124.9**	**PCF**
Optimum Water Content	**6.8**	**%**
Percent Fines		**%**

ATTERBERG LIMITS

LL	PL	PI

PROJECT: CarMax- Redlands

PROJECT NUMBER: 60225109

SITE: New York St
Redlands, CA

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

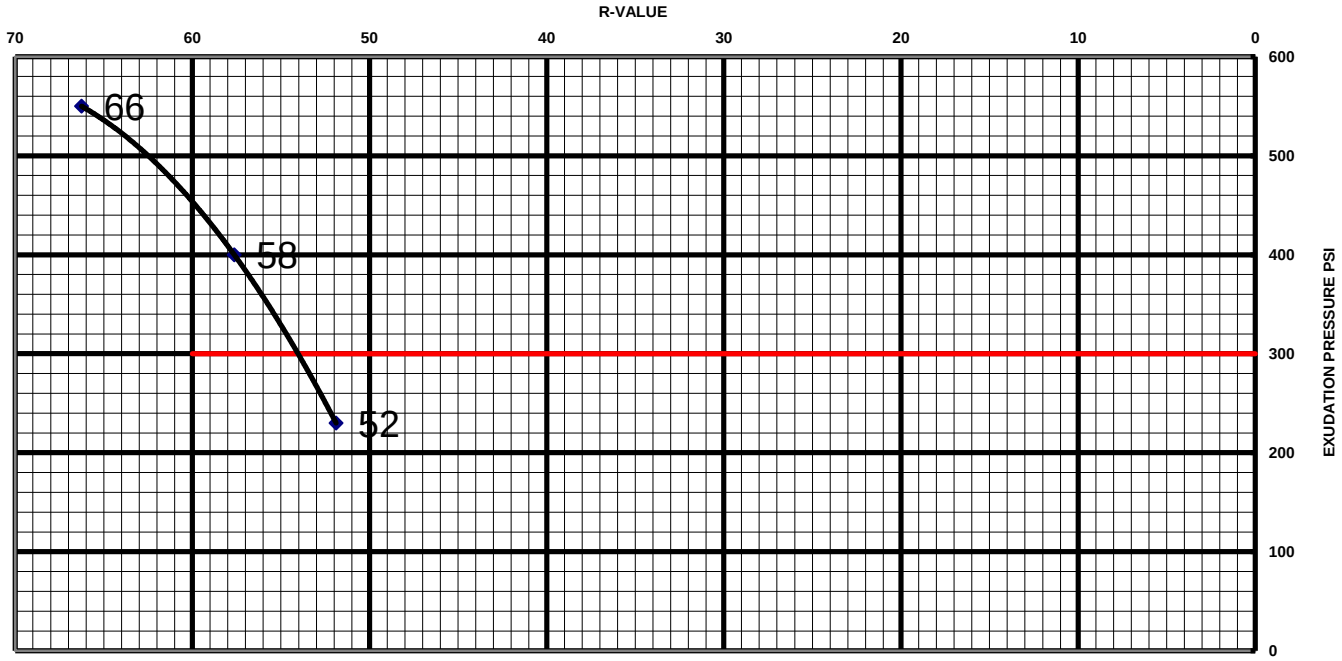
Job No. 60225109
Date. 9/30/2022

LABORATORY RECORD OF TESTS MADE ON BASE, SUBBASE, AND BASEMENT SOILS

CLIENT: **CenterPoint Integrated Solutions, LLC**
PROJECT **Carmax-Redlands**
LOCATION: **Redlands, CA**
R-VALUE # : **B3A**
T.I. :

	A	B	C	D
COMPACTOR AIR PRESSURE P.S.I.	350	350	350	
INITIAL MOISTURE %	1.1	1.1	1.1	
WATER ADDED, ML	80	77	75	
WATER ADDED %	7.7	7.4	7.2	
MOISTURE AT COMPACTION %	8.8	8.5	8.3	
HEIGHT OF BRIQUETTE	2.50	2.47	2.48	
WET WEIGHT OF BRIQUETTE	1052	1049	1054	
DENSITY LB. PER CU.FT.	117.2	118.6	118.9	
STABILOMETER PH AT 1000 LBS.	33	27	20	
2000 LBS.	50	43	33	
DISPLACEMENT	5.10	5.00	4.90	
R-VALUE	52	58	66	
EXUDATION PRESSURE	230	400	550	
THICK. INDICATED BY STAB.	0.00	0.00	0.00	
EXPANSION PRESSURE	0	0	0	
THICK. INDICATED BY E.P.	0.00	0.00	0.00	

EXUDATION CHART



R-Value: **54**

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

Client
CenterPoint Integrated Sp;itopms. LLC

Project
CarMax
Redlands, CA

Sample Submitted By: Terracon (60) **Date Received:** 9/28/2022 **Lab No.: 22-0683**

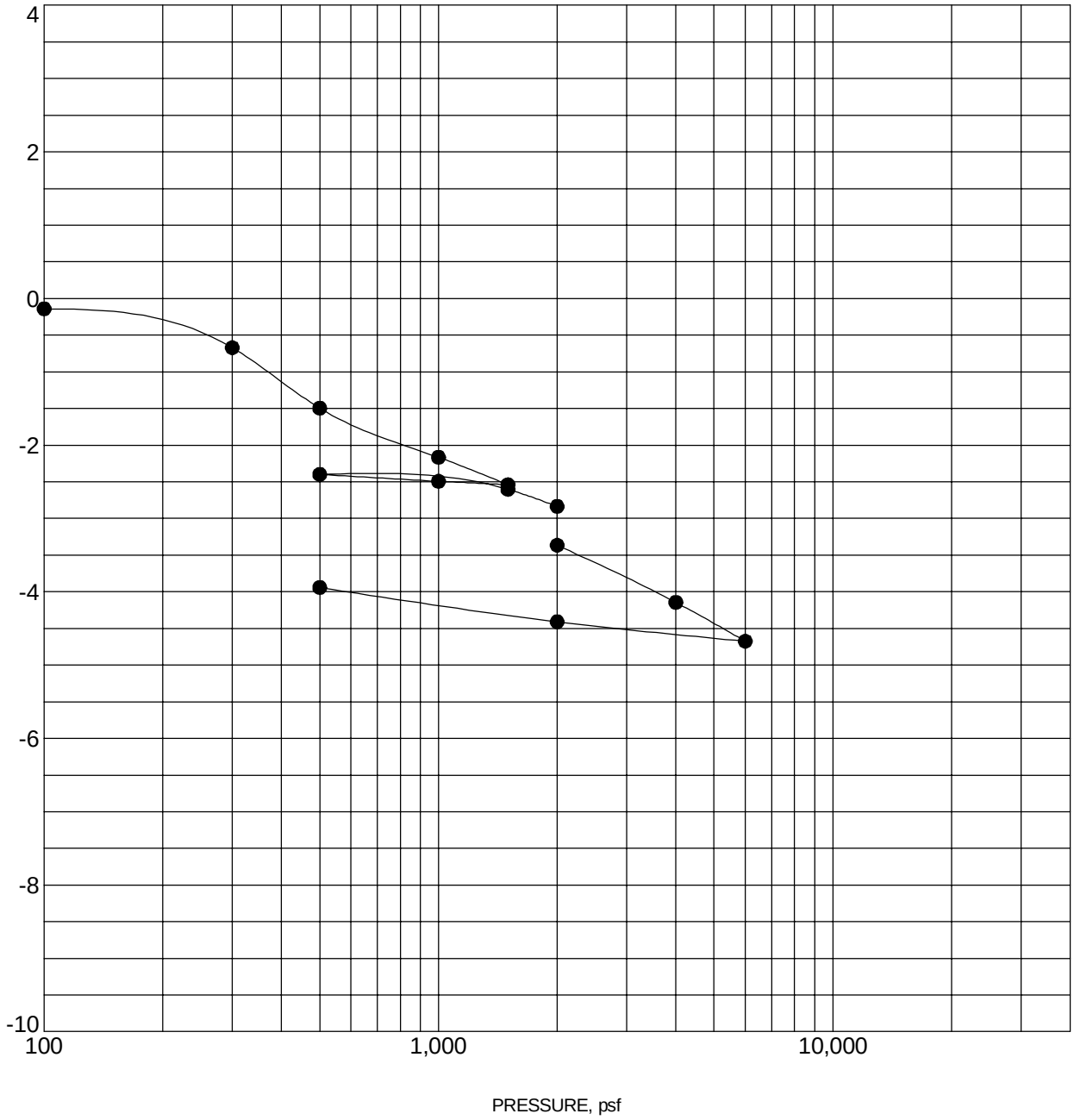
Results of Corrosion Analysis

Sample Number	B-4A
Sample Location	B-4
Sample Depth (ft.)	--
pH Analysis, ASTM G 51	7.61
Water Soluble Sulfate (SO4), ASTM C 1580 (percent %)	0.01
Sulfides, AWWA 4500-S D, (mg/kg)	Nil
Chlorides, ASTM D 512, (mg/kg)	80
Red-Ox, ASTM G 200, (mV)	+726
Total Salts, AWWA 2540, (mg/kg)	301
Resistivity, ASTM G 57, (ohm-cm)	13580

Analyzed By:
Nathan Campo
Engineering Technician II

SWELL CONSOLIDATION TEST

ASTM D2435



Specimen Identification			Classification	γ_d, pcf	WC, %
●	B-8	5 - 6.5 ft	Silty sand	91	9.5

NOTES:

PROJECT: CarMax- Redlands

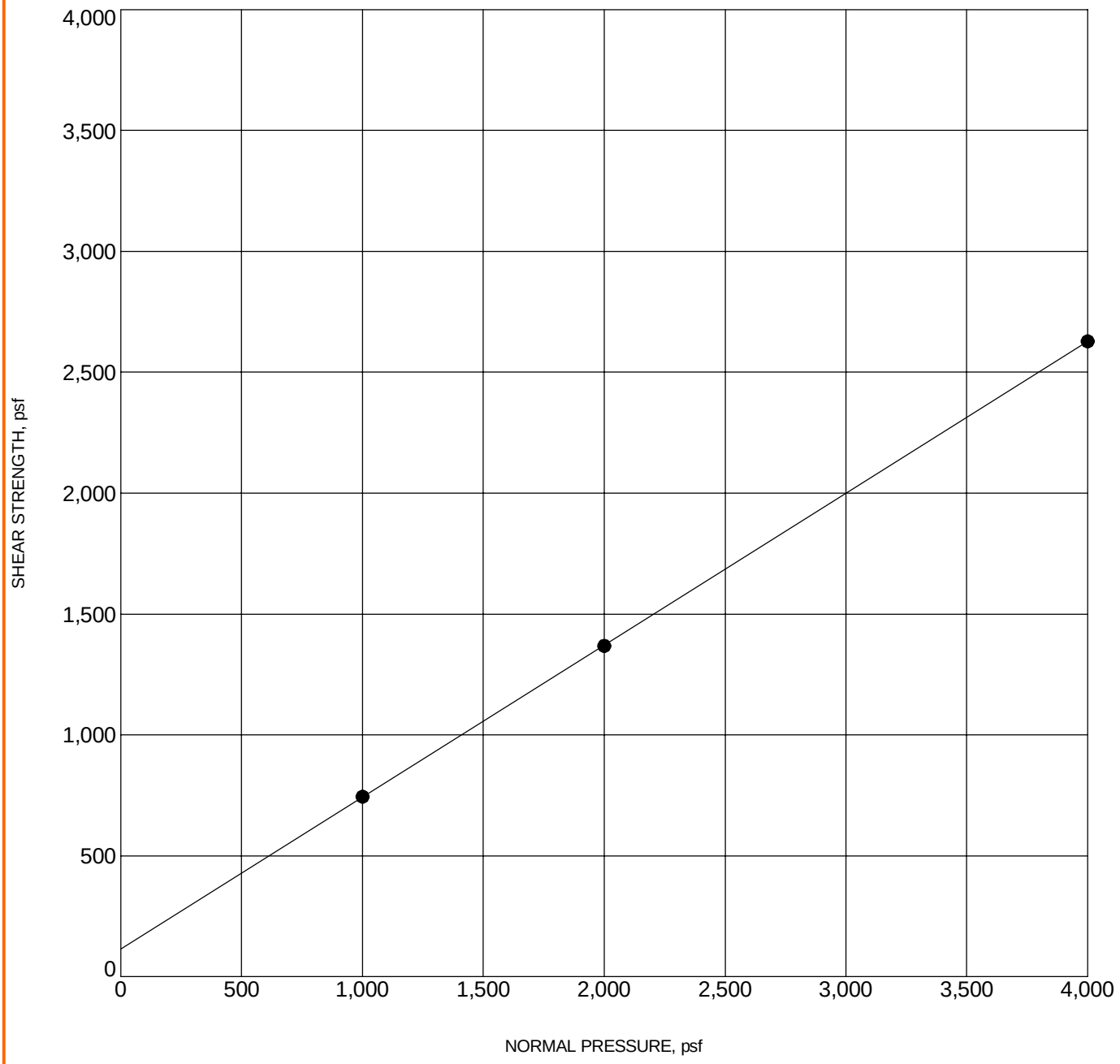
SITE: New York St
Redlands, CA

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

PROJECT NUMBER: 60225109

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

DIRECT SHEAR TEST ASTM D3080



Specimen Identification		Classification	γ_d, pcf	WC,%	c, psf	$\phi°$
● B-10	2.5ft	Silty sand (SM)	105	0	114	32

PROJECT: CarMax- Redlands

PROJECT NUMBER: 60225109

SITE: New York St
Redlands, CA

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

CLIENT: CenterPoint Integrated Solutions, LLC
Lakewood, CO

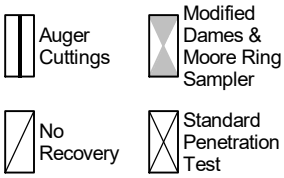
SUPPORTING INFORMATION

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS
CarMax- Redlands ■ Redlands, CA
Terracon Project No. 60225109

Terracon GeoReport

SAMPLING



WATER LEVEL

Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Cave In Encountered

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		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM

Terracon GeoReport

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]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [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]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [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 on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			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:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			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] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[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.