Geotechnical Engineering Report

Patterson Avenue Industrial Center
Perris, Riverside County, California

August 10, 2021

Terracon Project No. CB215068

Prepared for:

CGU Capital Management
San Pedro, California

Prepared by:

Terracon Consultants, Inc.
Colton, California

Terracon
GeoReport

August 10, 2021

CGU Capital Management
302 W. Fifth Street Suite 103
San Pedro, California 90731

Attn: Mr. Dale Ulman
P: (310) 241-2992
E: dale@linklogistics.com

Re: Geotechnical Engineering Report
Patterson Avenue Industrial Center
Nandina Avenue and Patterson Avenue
Perris, Riverside County, California
Terracon Project No. CB215068

Dear Mr. Ulman:

We have completed the Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Proposal No.: PCB215068 dated May 7, 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.

Tabatabaei

Ali Tabatabaei, Ph.D., G.E.
Geotechnical Project Engineer

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 *GeoReport* logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

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

Geotechnical Engineering Report

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Nandina Avenue and Patterson Avenue
Perris, Riverside County, California
Terracon Project No. CB215068
August 10, 2021

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed Patterson Avenue Industrial Center to be located at Nandina Avenue and Patterson Avenue in Perris, Riverside County, California. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions and historic high groundwater
- 2019 California Building Code (CBC) seismic design parameters
- Seismic settlement
- Subgrade preparation/earthwork recommendations
- Foundation design and concrete slabs-on-grade
- Preliminary pavement section design
- On-site infiltration rate

The geotechnical engineering Scope of Services for this project included the advancement of thirteen (13) test borings to depths ranging from approximately 6 ½ to 51½ feet below existing site grades, laboratory testing, and preparation of this report. Our scope also included excavating 2 test pits, approximately 5 feet deep and performing double ring infiltrometer testing.

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/or 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 approximately 4.84-acre tract of land located at Nandina Avenue and Patterson Avenue in Perris, Riverside County, California. The approximate coordinates of the site are: 33.8639°N/117.2538°W See Site Location
Existing Improvements	Based on aerial photos available through Google Earth, the site is a generally vacant tract of land. Old abandoned buildings can be seen at the southwest corner of the property. Containers, old cars, and lumber piles appear stored in the southern portion of the property. The project site is surrounded by the following improvements: East side: Patterson Avenue North side: Vacant tract of land West side: Basic Occupational Training Center South side: Vacant tract of land
Current Ground Cover	The site is covered with soil and patches of weeds.
Existing Topography	The project site is relatively flat.

PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Proposed Development	Two adjoining warehouses including loading docks and office buildings with a total approximate footprint area of 100,000 square feet (sf) will be constructed at the project site. The industrial development will also include car parking spaces, trailer parking spaces and associated driveways. We have been requested to conduct infiltration testing in the proposed front drive area of the proposed buildings. On-site stormwater infiltration system will have a bottom at approximately 5 feet below proposed grade and the locations were provided by the client.
Proposed Structures	Two warehouse facilities with a total approximate footprint area of 100,000 sf.
Building Construction	We anticipate that the proposed buildings will be supported on conventional strip and spread footings with slab-on-grade floors.
Finished Floor Elevation	Anticipated to be within 5 feet of existing grade.

Item	Description
Structural Loads (assumed)	Structural loads were not provided at the time of this report. We assume that the proposed structures will have the following loads: ■ Columns: 50 to 150 kips ■ Walls: 2 to 4 kips per linear foot (klf) ■ Slabs: 100 to 250 pounds per square foot (psf)
Grading Requirements	Expected to be within 5 feet of existing grades, excluding remedial grading requirements.
Below Grade Structures	None
Infiltration Systems	An on-site stormwater retention/infiltration system is planned and may consist of either a basin or chamber.
Free-Standing Retaining Wall	None
Pavements	Paved driveway and parking will be constructed on site. We assume both rigid (concrete) and flexible (asphalt) pavement sections should be considered. Please confirm this assumption. Anticipated traffic indices (TIs) are as follows for asphalt pavement: ■ Auto Parking Areas: TI=5.0 ■ Drive Lanes TI=5.5 ■ Truck Parking areas: TI=7.0 ■ Truck Delivery Areas: TI=8.0 ■ The pavement design period is 20 years. Anticipated average daily truck traffic (ADTT) is as follows for concrete pavement: ■ Light Duty: ADTT=1 (Category A) ■ Medium Duty: ADTT=25 (Category B) ■ Dumpster Pad: ADTT=700 (Category C)

GEOTECHNICAL CHARACTERIZATION

Site Geology

The site is located in the northern portion of the Perris Block, part of the Peninsular Ranges Geomorphic Province. The northern Perris Block is bounded on the southwest by the Chino-Elsinore fault, on the north by the Cucamonga fault, and on the northeast by the San Jacinto fault. The Perris Block is largely underlain by granitic rocks of the Peninsular Ranges batholith. These rocks consist mostly of varied granitic types such as exist in the Lakeview Mountains, east of the site.

Morton and others (2002, https://ngmdb.usgs.gov/Prodesc/proddesc_46484.htm) mapped the site and vicinity as very old alluvial fan deposits of early Pleistocene age. As part of a relatively stable structural block, these materials have been subjected to a long period of subaerial exposure (at least 25,000 years). The in-situ weathering of the alluvium has resulted in a strong reddish-brown color and elevated clay content associated with argillic soil horizons.

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 following table provides our geotechnical characterization.

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.

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency/Relative Density
Stratum I	51 ½	Interbeded layers of sandy lean clay, silty clayey sand, sandy silty clay and silty sand, brown and olive gray	---

Groundwater Conditions

The borings were advanced using continuous flight auger drilling techniques that allow short-term groundwater observations to be made while drilling. Groundwater was observed within borings B-4 and B-5 at 26 and 37 feet bgs at completion of drilling, respectively. Our review of historical information regarding groundwater levels indicates that historical groundwater levels are deeper than 50 feet bgs. 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. Rising groundwater has been noted around March Air Reserve Base for several years. The cause of this is uncertain and could be related to several factors, including decreased pumping for agricultural uses and increased infiltration of runoff into the subsurface.

Hydroconsolidation

To evaluate the potential deformation that may be caused by the addition of water to subsurface soils, hydroconsolidation testing was performed on a selected, representative relatively undisturbed sample (B-4 at 7.5 feet). The result is shown in Exploration Results section. The test result indicate collapse potential of 0.6% for the sample tested when saturated under a confining pressure of 2,000 psf.

SEISMIC CONSIDERATIONS

Based on the soil properties encountered at the site and as described on the exploration logs and results, it is our opinion that the Seismic Site Classification is D. 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.

Description	Value
Site Classification (CBC) [1]	D [2]
Site Latitude (°N)	33.8639
Site Longitude (°W)	117.2538
S_s Spectral Acceleration for a 0.2-Second Period	1.5
S_1 Spectral Acceleration for a 1-Second Period	0.583
F_a Site Coefficient for a 0.2-Second Period	1.0
F_v Site Coefficient for a 1-Second Period	1.72
Site Modified Peak Ground Acceleration	0.55g
De-aggregated Mean Magnitude [3]	6.99

Description	Value

1. Seismic site classification in general accordance with the *2019 California Building Code*.
2. The 2019 California Building Code (CBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100-foot soil profile determination. Our borings were extended to a maximum depth of 51½ feet. 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.
3. These values were obtained using on-line Unified Hazard Tool by the USGS (https://earthquake.usgs.gov/hazards/interactive/) for return period of 2% in 50 years accessed

A site-specific ground motion study may reduce design values and consequently 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 Jacinto (San Jacinto Valley segment) Fault, which is considered to have a significant effect at the site from a design standpoint, has a maximum earthquake magnitude of 8.00 and is located approximately 13.6 kilometers from the site. The San Jacinto Fault forms the northeast boundary of Moreno Valley and the Perris Block. The USGS fault modeling for this area of the Perris Block includes gridded seismic sources with a larger total seismic hazard contribution than the San Jacinto fault.

Based on the USGS Design Maps Summary Report, using the American Society of Civil Engineers (ASCE 7-16) standard, the peak ground acceleration (PGA_M) at the project site is expected to be 0.55 g. Based on the USGS Unified Hazard Tool, the project site has a de-aggregated modal magnitude of 8.1. The site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of the State Fault Hazard Maps. The Perris Block is relatively stable, with a low potential for primary surface fault rupture.

LIQUEFACTION AND SEISMIC SETTLEMENT

Liquefaction Potential

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, and is typically a hazard where loose sandy soils exist below groundwater. County of Riverside 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.

The subsurface materials generally consist of interbeded layers of sandy lean clay, silty clayey sand, sandy silty clay and silty sand extending to the maximum depth of the borings approximately 51½ feet bgs. Groundwater was observed within borings B-4 and B-5 at 26 and 37 feet bgs at completion of drilling, respectively, and has historically been deeper than 50 feet bgs.

According to the County of Riverside geologic hazard GIS map, the site is located within an area having low liquefaction potential. Based on the County mapping and the age and density of the subsurface soils, it is our opinion that the liquefaction potential is low.

Seismic Settlement

To determine the amount of seismic settlement we utilized the software “LiquefyPro” by CivilTech Software, seismic settlement was estimated using the soil profile from exploratory boring B-4. A Peak Ground Acceleration (PGA) of 0.55g and a de-aggregated mean magnitude (Mw) of 6.99 were utilized as input into the liquefaction analysis program. Settlement analysis used the Ishihara / Yoshimine method and the fines percentage were corrected for liquefaction using the Modify Stark/Olson method. Historical high ground water of 50 feet bgs was used in the analysis.

Based on the calculation results, seismically induced settlement (dry sand settlement) is estimated to be less than 1 inch. The maximum differential seismic settlement could be on the order of half of total seismic settlement over a distance of 40 feet.

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.

Geotechnical engineering recommendations for foundation systems and other earth connected phases of the project are outlined below. The recommendations contained in this report are based upon the results of field and laboratory testing, engineering analyses, and our current understanding of the proposed project.

The subsurface materials generally consist of interbeded layers of sandy lean clay, silty clayey sand, sandy silty clay and silty sand extending to the maximum depth of the borings approximately 51½ feet bgs.

Based on the conditions encountered, the proposed buildings can be supported on shallow foundations, such as spread footings.

Groundwater was observed within borings B-4 and B-5 at 26 and 37 feet bgs at completion of drilling, respectively. Groundwater is not expected to affect shallow foundation construction on this site.

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 vegetation, debris, pavements and other deleterious materials from proposed buildings 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.

Although no evidence of underground facilities such as septic tanks, cesspools, and basements, was 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

We recommend that the proposed building be supported on engineered fill extending to a minimum depth of 2 feet below the bottom of foundations, or 5 feet below existing grades, whichever is greater. Engineered fill placed beneath the entire footprint of the building should extend horizontally a minimum distance of 3 feet beyond the outside edge of perimeter footings.

Subgrade soils beneath exterior slabs and pavements should be scarified, moisture conditioned, and compacted to a minimum depth of 10 inches. The moisture content and compaction of subgrade soils should be maintained until slab or pavement construction.

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 as necessary, and compacted per the compaction requirements in this report. Compacted fill soils should then be placed to the design grades, and the moisture content and compaction of soils should be maintained until slab, pavement, or proposed improvements are constructed.

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

Excavation

We anticipate 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 Material Types

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than three 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 backfill
■	foundation areas	■	pavement areas
■	interior floor slab areas	■	exterior slab areas

If imported soils are used as fill materials to raise grades, these soils should conform to low volume change materials and should conform to the following requirements:

Gradation	**Percent Finer by Weight (ASTM C 136)**

3”	100
No. 4 Sieve	50 - 100
No. 200 Sieve	20 - 50

■ Liquid Limit	30 (max)
■ Plasticity Index	15 (max)
■ Maximum Expansive 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

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/or low volume change imported fill:			
Beneath foundations:	90	0%	+3%
Beneath interior slabs:	90	0%	+3%
Miscellaneous backfill:	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.

Utility Trenches

We anticipate 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.

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.

We recommend a minimum horizontal setback distance of 10 feet from the perimeter of any building and the high-water elevation of the nearest storm-water retention basin.

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.

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.

We recommend that the earthwork portion of this project be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through April) it may be necessary to take extra precautionary measures to protect subgrade soils. Wet season earthwork operations may require additional mitigative measures beyond that which would be expected during the drier summer and fall months. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site. Once subgrades are established, it may be necessary to protect the exposed subgrade soils from construction traffic.

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.

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

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

Item	Description
Foundation Support	Engineered fill extending 2 feet below the bottom of foundations, or 5 feet below existing grades, whichever is greater.
Net Allowable Bearing pressure [1, 2] **(On-site soils or structural fill)**	2,200 psf
Minimum Foundation Dimensions	Columns: 24 inches Continuous: 18 inches
Minimum Footing Depth	18" below finished grade
Ultimate Passive Resistance [4]	350 pcf
Ultimate Coefficient of Sliding Friction [5]	0.32
Estimated Total Static Settlement from Structural Loads [2]	about 1 inch
Estimated Differential Settlement [2, 6]	About 1/2 of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied.
2. Values provided are for maximum loads noted in **Project Description**. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations.
3. Unsuitable or soft soils should be over-excavated and replaced per the recommendations presented in the **Earthwork**.
4. Use of passive earth pressures requires the footing forms be removed and compacted structural fill be placed against the vertical footing face. A factor of safety of 2.0 is recommended.
5. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions. A factor of safety of 1.5 is recommended.
6. Differential settlements are as measured over a span of 40 feet.

FLOOR SLABS

DESCRIPTION	RECOMMENDATION
Interior floor system	Slab-on-grade concrete
Floor slab support	Engineered fill extending 2 feet below the bottom of associated foundations, or 5 feet below existing grades, whichever is greater.
Modulus of subgrade reaction	150 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.

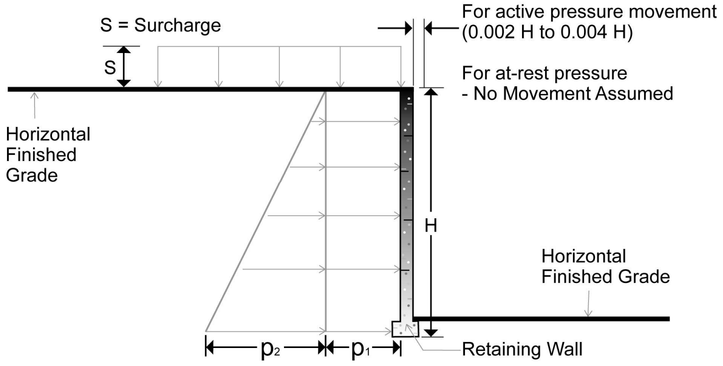
The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer 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.

LATERAL EARTH PRESSURES

Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values 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 in the diagram below. 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 and is commonly used for basement walls, loading dock walls, or other walls restrained at the top. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated).



For on-site or import materials that are compacted as recommended in this report, we recommend the following preliminary lateral earth pressure parameters

Lateral Earth Pressure Design Parameters

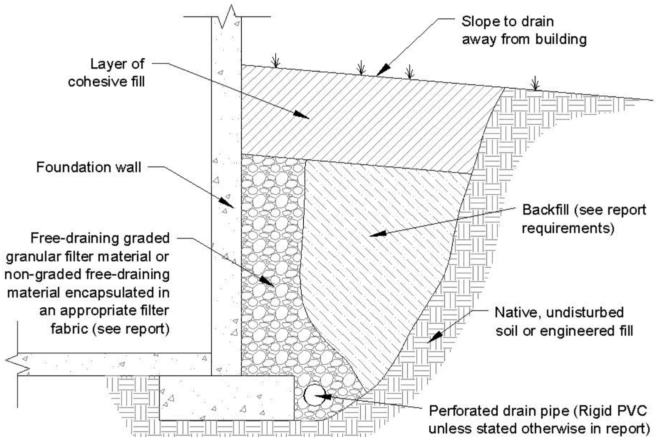
Earth Pressure Condition [1]	Lateral Earth Pressure Coeficients[2]	Surcharge Pressure [3, 4, 5] p_1 (psf)	Effective Fluid Pressures (psf) [2, 4, 5]
			Unsaturated [6]
Active (Ka)	Granular - 0.33	(0.33)S	(45)psf/ft
At-Rest (Ko)	Granular - 0.5	(0.5)S	(65)psf/ft
Passive (Kp)	Granular - 3	(3)S	(375)psf/ft

1. For active earth pressure, wall must rotate about base, with top lateral movements 0.002 H to 0.004 H, where H is wall height. For passive earth pressure, wall must move horizontally to mobilize resistance.
2. Uniform, horizontal backfill, compacted to at least 90% of the ASTM D 1557 maximum dry density, rendering a maximum unit weight of 125 pcf.
3. Uniform surcharge, where S is surcharge pressure.
4. Loading from heavy compaction equipment is not included.
5. No safety factor is included in these values.
6. To achieve "Unsaturated" conditions, follow guidelines in **Subsurface Drainage for Below-Grade Walls** below.

Backfill placed against structures should consist of granular soils. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively.

Subsurface Drainage for Below-Grade Walls

A perforated rigid plastic drain line installed behind the base of walls and extends below adjacent grade is recommended to prevent hydrostatic loading on the walls. The invert of a drain line around a below-grade building area or exterior retaining wall should be placed near foundation bearing level. The drain line should be sloped to provide positive gravity drainage to daylight or to a sump pit and pump. The drain line should be surrounded by clean, free-draining granular material having less than 5% passing the No. 200 sieve. The free-draining aggregate should be encapsulated in a filter fabric. The granular fill should extend to within 2 feet of final grade, where it should be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.



As an alternative to free-draining granular fill, a pre-fabricated drainage structure may be used. A pre-fabricated drainage structure is a plastic drainage core or mesh which is covered with filter fabric to prevent soil intrusion and is fastened to the wall prior to placing backfill.

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

Design of asphalt concrete (AC) pavements is based on the procedures outlined in the Caltrans "Highway Design Manual for Safety Roadside Rest Areas" (Caltrans, 2016). Design of Portland cement concrete (PCC) pavements are based upon American Concrete Institute (ACI) 330R-08; "Guide for Design and Construction of Concrete Parking Lots."

A correlated design R-value of 15 was used to calculate the AC pavement thickness sections. A modulus of subgrade reaction of 120 pci and a modulus of rupture of 600 psi were used for the PCC pavement designs.

The structural sections are predicated upon proper compaction of the utility trench backfills and the subgrade soils as prescribed by in **Earthwork**, with the upper 12 inches of subgrade soils and all aggregate base material brought to a minimum relative compaction of 95 percent in accordance with ASTM D 1557 prior to paving. The aggregate base should meet Caltrans requirements for Class 2 base.

The pavement designs were based upon the results of preliminary sampling and testing and should be verified by additional sampling and testing (specifically R-value testing) during construction when the actual subgrade soils are exposed. Additionally, the preliminary sections provided are minimums based on procedures previously referenced. The project civil engineer should confirm minimum Traffic Indices and sections required by local agencies or jurisdictions if applicable.

Pavement Section Thicknesses

The following table provides options for AC and PCC Sections:

Asphalt Concrete Design		
Usage	**Assumed Traffic Index**	**Recommended Structural Section**
Auto Parking Areas	5.0	3" HMA[1]/9" Class 2 AB[2]
Drive lanes	5.5	3" HMA[1]/10" Class 2 AB[2]
Truck Parking Areas	7.0	4" HMA[1]/13" Class 2 AB[2]
Truck Delivery Areas	8.0	4.5" HMA[1]/16" Class 2 AB[2]

1. HMA = hot mix asphalt
2. AB = aggregate base

Portland Cement Concrete Design		
Layer	Thickness (inches)	
	Medium Duty[1]	Heavy Duty[2]
PCC	6.0	7.5
Aggregate Base [3]	--	--

1. Truck Parking Areas, Multiple Units, ADTT = 25 (Category B)
2. In areas of anticipated heavy traffic, fire trucks, delivery trucks, or concentrated loads (e.g., dumpster pads), and areas with repeated turning or maneuvering of heavy vehicles, ADTT = 700 (Category C).
3. Aggregate base is not required. Compacted on-site material is considered competent.

Recommended structural sections were calculated based on assumed TIs and our preliminary sampling and testing.

Terracon does not practice traffic engineering. We recommend that the project civil engineer or traffic engineer verify that the TIs and ADTT traffic indices used are appropriate for this project.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore, preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Preventive maintenance is usually the priority when implementing a pavement maintenance program. Additional engineering observation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2 percent.
- Subgrade and pavement surfaces should have a minimum 2 percent slope to promote proper surface drainage.
- Install below pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.
- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

STORM WATER MANAGEMENT

The soil at the infiltration test locations was classified in the field using a visual/manual procedure. Soil samples from the test locations were returned to our laboratory for testing by sieve analysis. The results of the sieve analyses are attached. The infiltration velocity is presented as the infiltration rate and is summarized in the following table. The infiltration rates provided do not include safety factors.

Test Location	Test Depth (feet)[1]	Soil Type	Infiltration Rate	
			in./hr.	cm./hr.
DR-1	5	SC-SM	0.06	0.16
DR-2	5	SC-SM	0.07	0.18

1. Below existing ground surface

The above infiltration rates determined by the double-ring method are based on field test results utilizing clear water. Infiltration rates can be affected by silt buildup, debris, degree of soil saturation, site variability and other factors. The rate obtained at specific location and depth is representative of the location and depth tested and may not be representative of the entire site.

Due to the significant variation of measured infiltration rates, infiltration rate utilized in the design should be selected carefully and based on the design basin depth. The designer of the basins should also consider other possible site variability in the design. Application of an appropriate safety factor may be prudent to account for subsoil inconsistencies, possible compaction related to site grading, and potential silting of the percolating soils, depending on the application.

CORROSIVITY

The following table lists the laboratory electrical resistivity (standard and as-received), chlorides, soluble sulfates, and pH testing results. 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	Depth (feet)	Soluble Sulfate (mg/kg)	Soluble Chloride (mg/kg)	Fluoride (mg/kg)	pH	Resistivity (as-received) (Ohm-cm)	Resistivity (saturated) (Ohm-cm)
B-3	0 to 5	64	11	18	7.6	13,200	2,400

Results of soluble sulfate testing indicate samples of the on-site soils tested possess negligible sulfate concentrations when classified in accordance with Table 4.3.1 of the ACI Design Manual. Concrete should be designed in accordance with the provisions of the ACI Design Manual, Section 318, Chapter 4.

For protection against corrosion to buried metals, Terracon recommends that an experienced corrosion engineer be retained to design a suitable corrosion protection system for underground metal structures or components.

If corrosion of buried metal is critical, it should be protected using a non-corrosive backfill, wrapping, coating, sacrificial anodes, or a combination of these methods, as designed by a qualified corrosion engineer.

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.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Terracon conducted thirteen (13) soil-testing borings. Our scope also included excavating two (2) test pits, each 5 feet deep, for double ring infiltration testing. These borings and pits were planned at the locations and to depths indicated in the table below.

Boring Nos	Boring Depth (feet) [1]	Location [2]
3 (B-1 to B-3)	21 ½	Warehouse building
2 (B-4 and B-5)	51 ½	Warehouse building
3 (B-6 to B-8)	21 ½	Office buildings and loading docks
4 (B-9 to B-13)	6 ½ and 11 ½	Car/trailer Parking lots
2 (DR-1 and DR-2)	5	Infiltration facility

1. Below ground surface.
2. Boring locatons are based on the similar project site plan. Specfici site plan for this site was not ready at the time of this report.

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 the Google Earth. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: We advance the borings with a truck-mounted drill rig using hollow-stem augers. Both a standard penetration test (SPT) sampler (2-inch outer diameter and 1-3/8-inch inner diameter) and a modified California ring-lined sampler (3-inch outer diameter and 2-3/8-inch inner diameter) are utilized in our investigation. The penetration resistance is recorded on the boring logs as the number of hammer blows used to advance the sampler in 6-inch increments (or less if noted). The samplers are driven with an automatic hammer that drops a 140-pound weight 30 inches for each blow. After the required seating, samplers are advanced up to 18 inches, providing up to three sets of blowcounts at each sampling interval. The sampling depths, penetration distances, and other sampling information are recorded on the field boring logs. The recorded blows are raw numbers without any corrections for hammer type (automatic vs. manual cathead) or sampler size (ring sampler vs. SPT sampler). Relatively undisturbed and bulk samples of the soils encountered are placed in sealed containers and returned to the laboratory for testing and evaluation.

We observe and record groundwater levels during drilling and sampling. For safety purposes, all borings are backfilled with auger cuttings after their completion.

The test pits for infiltration testing were excavated using a small backhoe. Soil was excavated in a 5-foot by 5-foot square area and to a depth of approximately 5 feet. The excavated material was stockpiled and used to backfill the pit upon completion of testing.

Our exploration team prepares field boring logs as part of the drilling operations. These field logs include visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs are 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.

Infiltration Testing (Storm Water)

Two double-ring infiltration tests were performed at the proposed basin area (specified by client) within the excavated test pits. The field infiltration test program consists of the following:

Number of Test Borings	Test Pit Depth (feet) [1]	Location
2 (DR 1 and DR 2)	5	See **Exploration Plan**

1. Below ground surface

Utilizing the double-ring infiltrometer method described in ASTM D 3385, testing was performed at the locations indicated on **Exploration Plan**. Based on observations in the excavations utilized for infiltrometer testing, the soil profile within the site generally consists of silty clayey sand.

The double-ring infiltration tests were performed by driving two open aluminum rings into the bottom of excavated test pits, one inside of the other. A tamping rod was used to compact disturbed soils adjacent to the rings. The rings were partially filled with water to equal depths. The water was maintained at a constant level using a float valve and water source for each ring. The volume of water added to the inner and outer rings was recorded at timed intervals. The graduated cylinder corresponding to the inner ring is readable in increments of 25 mL. These data were used to calculate the infiltration rate of the soil. The infiltration test was performed until a relatively steady- state infiltration velocity was reached.

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.

- Water (Moisture) Content of Soil by Mass

- Laboratory Determination of Density (Unit Weight) of Soil Specimens
- Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
- Modified Proctor test
- Hydro-consolidation
- Atterberg limits
- Corrosivity suite test

The laboratory testing program often 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

Patterson Avenue Industrial Center ■ Perris, Riverside County, California
August 10, 2021 ■ Terracon Project No. CB215068

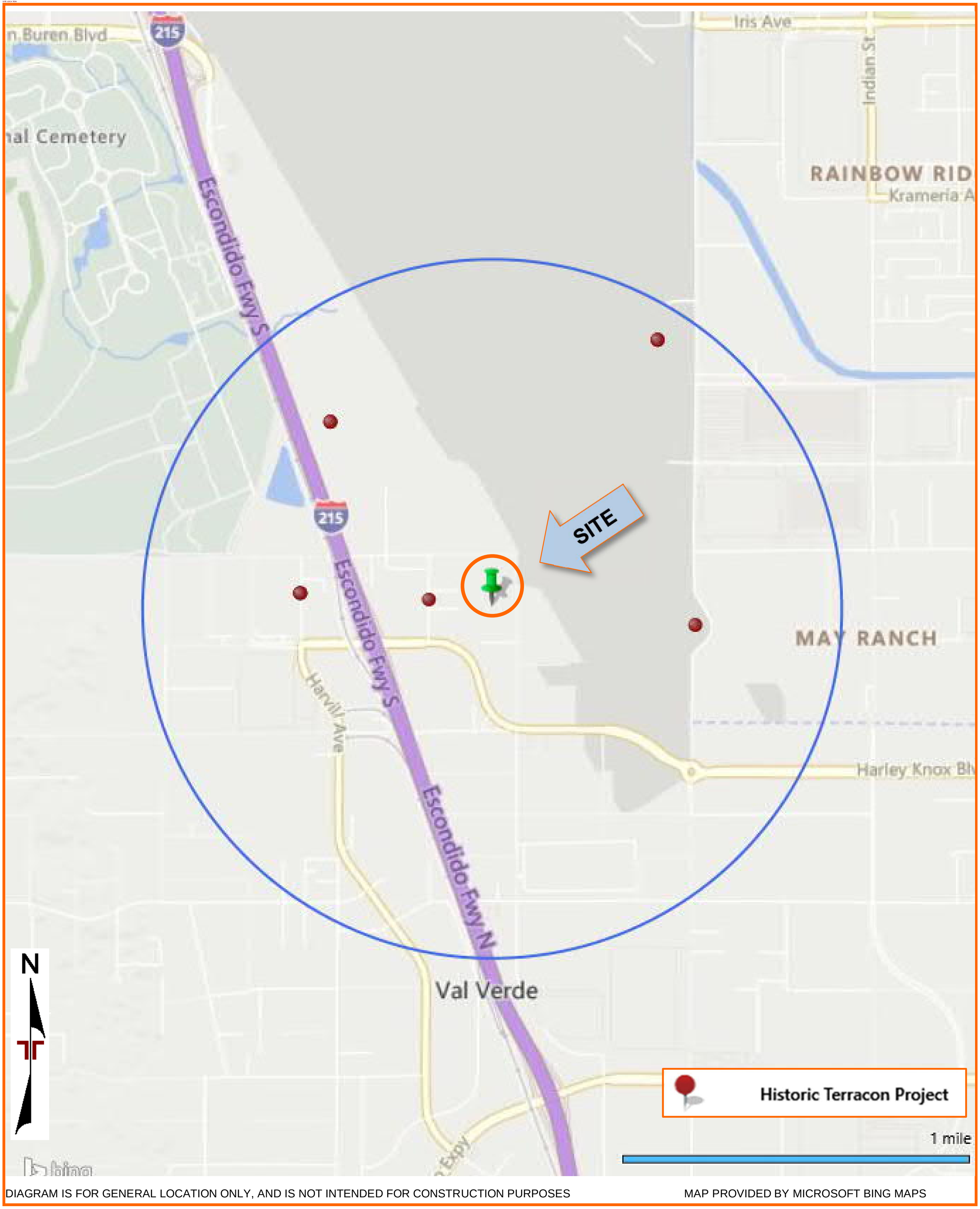


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

Patterson Avenue Industrial Center ■ Perris, Riverside County, California

August 10, 2021 ■ Terracon Project No. CB215068

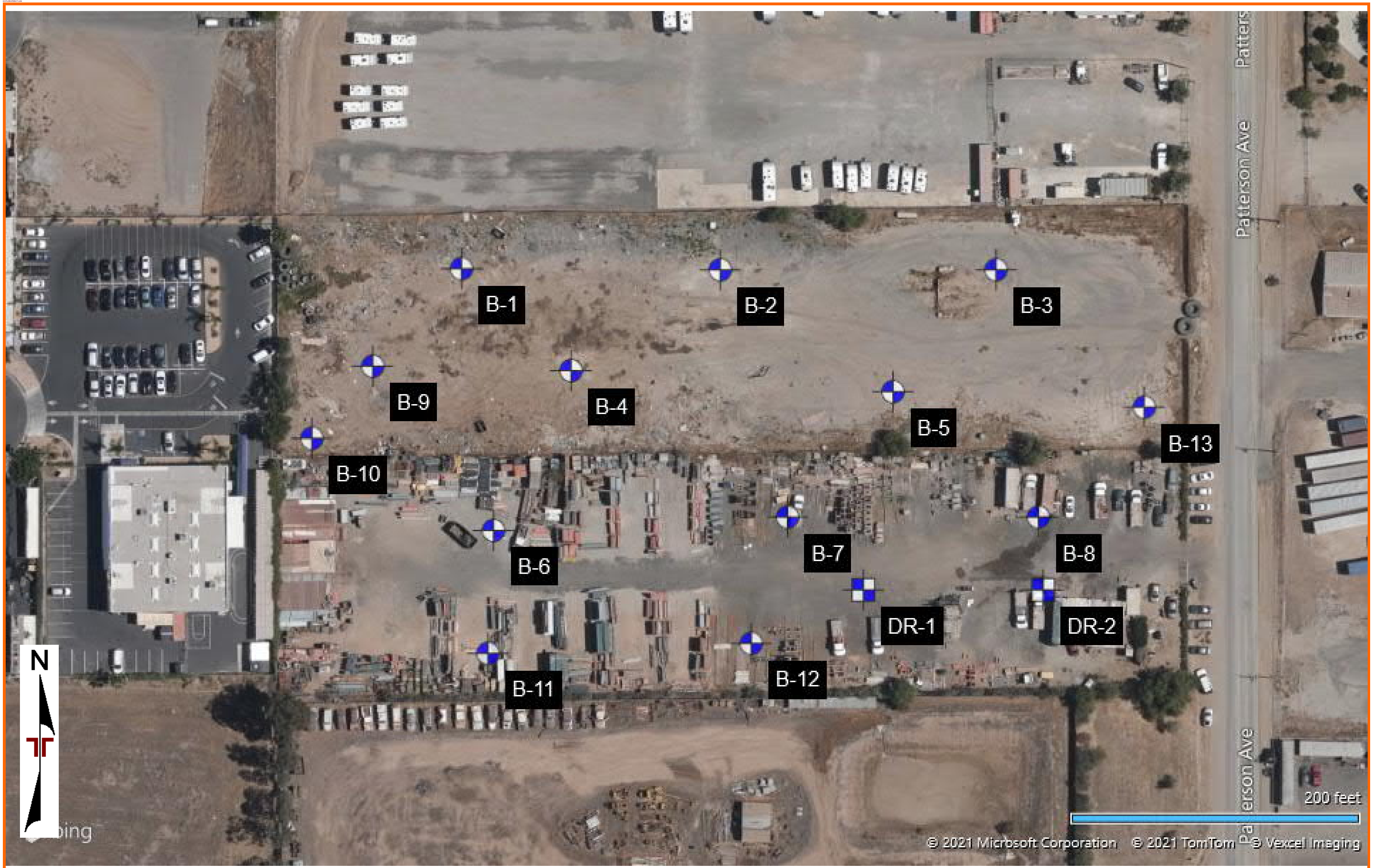


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

BORING LOG NO. B-1

Page 1 of 1

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

GRAPHIC LOG	DEPTH	LOCATION See Exploration Plan Latitude: 33.8644° Longitude: -117.2544°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
▨		**SANDY LEAN CLAY (CL)**, dark reddish brown, very stiff			⧗	6-9-15				8	126		
	4.5												
▨		**SILTY CLAYEY SAND (SC-SM)**, fine to coarse grained, orange, very dense	5		⧗	25-50/3"				6	116		
		medium dense			⧗	8-13-17				6	131		
	9.0												
▨		**SANDY LEAN CLAY (CL)**, grayish brown, very stiff	10		⧗	13-18-20				7	129		
	13.0												
▨		**LEAN CLAY (CL)**, orange, very stiff	15		☒	6-8-11 N=19							
		2" sandy clay lens at 16.25'											
	18.0												
▨		**SANDY SILTY CLAY (CL-ML)**, grayish brown, stiff, with mineralization	20		☒	2-6-8 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:
6" 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
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-30-2021	Boring Completed: 07-30-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-2

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: **Patterson Ave. & Nandina Ave.**
Perris, CA

LOCATION See Exploration Plan

Latitude: 33.8643° Longitude: -117.2538°

GRAPHIC LOG	DEPTH		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
							TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)			LL-PL-PI	
		SANDY LEAN CLAY (CL), dark reddish brown, very stiff, with mineralization											
					⧗	5-10-18				8	127		59
	4.5	**SILTY CLAYEY SAND (SC-SM)**, orange, very dense	5		⧗	20-50/4"				9	131		42
		medium dense			⧗	11-18-21				8	127		41
		dark reddish brown	10		⧗	11-25-32				7	131		49
		grayish brown, with mineralization											
		dense, 3" silt lens at 15'	15		☒	14-19-16 N=35							44
	18.0	**SILT (ML)**, orange, stiff											
	20.8	**SILTY SAND (SM)**, fine to coarse grained, orange, medium dense	20		☒	5-7-8 N=15							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:
6" 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
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-30-2021	Boring Completed: 07-30-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-3

Page 1 of 1

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 33.8643° Longitude: -117.2531° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
						TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)			LL-PL-PI	
	SANDY LEAN CLAY (CL), dark reddish brown, stiff			⧓	3-5-9				11	125		59
	4.5 **SANDY SILT (ML)**, orange, hard	5		⧓	23-50/6"				9	123		53
	7.0 **SILTY CLAYEY SAND (SC-SM)**, orange, dense			⧓	36-41-41				10	121		32
	brown	10		⧓	13-23-34				9	128		45
	13.0 **SANDY LEAN CLAY (CL)**, brown, very stiff, with mineralization	15		⋈	6-13-16 N=29							58
	hard, with 3" silty sand lens at 20'	20		⋈	10-17-23 N=40							40
	21.5 ***Boring Terminated at 21.5 Feet***											

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

Hammer Type: Automatic

Advancement Method:
6" 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
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-29-2021	Boring Completed: 07-29-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-4

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

LOCATION See Exploration Plan

Latitude: 33.8642° Longitude: -117.2541°

DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SANDY ELASTIC SILT (ML), orange, hard				9-36-50/3"				34	100		56
4.5	**SILTY CLAYEY SAND (SC-SM)**, fine to coarse grained, orange, very dense	5			50/6"				8	105		39
	medium dense				11-13-13				7	116		40
	loose	10			7-8-9				4	114		30
	medium dense	15			6-11-14 N=25							13
16.5	**SANDY SILTY CLAY (CL-ML)**, grayish brown, very stiff	20			3-6-12 N=18							61
23.0	**SILTY SAND (SM)**, fine to coarse grained, grayish brown, medium dense	25	▽		4-5-6 N=11							44

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

Hammer Type: Automatic

Advancement Method:
6" 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

▽ *While sampling*

▽ *At completion of drilling*

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-30-2021

Boring Completed: 07-30-2021

Drill Rig: B-61

Driller: California Pacific Drilling

Project No.: CB215068

BORING LOG NO. B-4

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

LOCATION See Exploration Plan

Latitude: 33.8642° Longitude: -117.2541°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
▨	**SILTY SAND (SM)**, fine to coarse grained, grayish brown, medium dense *(continued)*		▽									
▨	medium to coarse grained, reddish brown, strong cementation	30		☒	8-13-16 N=29							19
▨		35		☒	7-11-16 N=27							17
▨	dense	40		☒	11-21-25 N=46							19
▨		45		☒	12-18-25 N=43							19
▨	very dense 51.5	50		☒	18-28-34 N=62							26
	Boring Terminated at 51.5 Feet											

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

Hammer Type: Automatic

Advancement Method:
6" 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

▽ *While sampling*

▽ *At completion of drilling*

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-30-2021	Boring Completed: 07-30-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-5

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: **Patterson Ave. & Nandina Ave.**
Perris, CA

LOCATION See Exploration Plan

Latitude: 33.8641° Longitude: -117.2534°

DEPTH	GRAPHIC LOG / DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SANDY LEAN CLAY (CL), dark reddish brown, very stiff											
				⧗	5-13-21				8	129	31-16-15	55
4.0	**SILTY CLAYEY SAND (SC-SM)**, fine to coarse grained, dark reddish brown, very dense, with mineralization											
		5		⧗	15-31-50/4"				22	108		47
	orange			⧗	21-36-50/5"				7	131		48
	dense	10		⧗	15-26-37				7	129	23-16-7	45
		15		⧖	9-15-16 N=31							44
	medium dense	20		⧖	9-9-10 N=19							39
21.5	**SANDY SILTY CLAY (CL-ML)**, grayish brown, stiff											
		25		⧖	3-6-8 N=14						27-20-7	59
26.5												

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

Hammer Type: Automatic

Advancement Method:
6" 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

▽ *While drilling*

▼ *At completion of drilling*

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-30-2021	Boring Completed: 07-30-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-5

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 33.8641° Longitude: -117.2534° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
▨	**SILTY SAND (SM)**, medium to coarse grained, reddish brown, dense, strong cementation *(continued)*											
▨		30		☒	12-17-24 N=41							17
▨		35		☒	13-20-25 N=45							20
▨	sandy clay lens at 36.5'		∇ ∇									
▨	very dense	40		☒	15-20-35 N=55							17
▨		45		☒	15-22-32 N=54							19
▨	51.5	50		☒	16-25-31 N=56							18
	Boring Terminated at 51.5 Feet											

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

Hammer Type: Automatic

Advancement Method:
6" 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

∇ *While drilling*

∇ *At completion of drilling*

1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-30-2021	Boring Completed: 07-30-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-6

Page 1 of 1

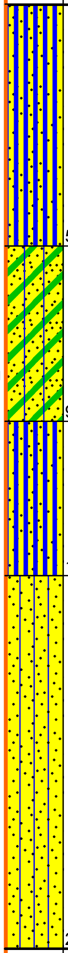
PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

LOCATION See Exploration Plan

Latitude: 33.8639° Longitude: -117.2543°



GRAPHIC LOG	DEPTH		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SANDY SILT (ML), orange, hard, with mineralization			⧗	16-40-50/2"				5	97		
	5.5		5		⧗	33-50/2"				6	102		
		SILTY CLAYEY SAND (SC-SM), fine to coarse grained, orange, very dense											
	9.5	medium dense			⧗	17-21-23				5	134		
	13.0	**SANDY SILT (ML)**, orange, very stiff	10		⧗	11-10-10				4	109		
		SILTY SAND (SM), fine to medium grained, brown, medium dense	15		☒	5-11-16 N=27							
	21.5	grayish brown	20		☒	4-6-10 N=16							

Boring Terminated at 21.5 Feet

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

Hammer Type: Automatic

Advancement Method:
6" 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
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-29-2021	Boring Completed: 07-29-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-7

Page 1 of 1

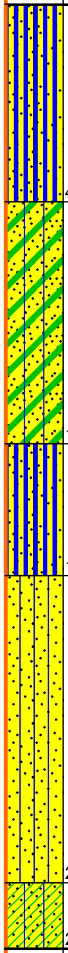
PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: **Patterson Ave. & Nandina Ave.**
Perris, CA

LOCATION See Exploration Plan

Latitude: 33.8639° Longitude: -117.2536°



GRAPHIC LOG	DEPTH		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SANDY SILT (ML), orange, hard, with mineralization			⧓	14-29-50/3"							55
	4.5	**SILTY CLAYEY SAND (SC-SM)**, fine to medium grained, orange, very dense	5		⧓	33-50/3"							49
					⧓	23-50/5"							40
	10.0	**SANDY SILT (ML)**, orange, very stiff	10		⧓	16-20-21							56
	13.0	**SILTY SAND (SM)**, fine to medium grained, brown, medium dense	15		⊠	4-5-7 N=12							17
	20.0	**SANDY SILTY CLAY (CL-ML)**, grayish brown, very stiff 3" silty sand lens at 20'	20		⊠	6-10-12 N=22							49
	21.5	***Boring Terminated at 21.5 Feet***											

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

Hammer Type: Automatic

Advancement Method:
6" 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
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-29-2021	Boring Completed: 07-29-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-8

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

LOCATION See Exploration Plan

Latitude: 33.8639° Longitude: -117.253°

DEPTH	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
4.5	**SANDY SILT (ML)**, orange, hard				12-25-23							
10.0	**SILTY CLAYEY SAND (SC-SM)**, fine to medium grained, orange, very dense	5			31-50/3" 15-50/6"							
13.0	**SANDY LEAN CLAY (CL)**, brown, very stiff	10			10-10-13							
16.0	**SILTY SAND (SM)**, fine to coarse grained, brown, medium dense	15			6-8-13 N=21							
21.5	**LEAN CLAY (CL)**, brown, very stiff	20			5-9-13 N=22							
	Boring Terminated at 21.5 Feet											

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

Hammer Type: Automatic

Advancement Method:
6" 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
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-29-2021	Boring Completed: 07-29-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-9

Page 1 of 1

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: **Patterson Ave. & Nandina Ave.**
Perris, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 33.8642° Longitude: -117.2546° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
▨	**SILTY SAND (SM)**, dark reddish brown, medium dense			⧗	11-11-14							46
		5		⧗	7-11-12							
	6.5 ***Boring Terminated at 6.5 Feet***											

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

Hammer Type: Automatic

Advancement Method:
6" 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
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-30-2021	Boring Completed: 07-30-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-10

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: **Patterson Ave. & Nandina Ave.**
Perris, CA

LOCATION See Exploration Plan

Latitude: 33.864° Longitude: -117.2547°

GRAPHIC LOG	DEPTH		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST TEST TYPE	STRENGTH TEST COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
▨		**SANDY LEAN CLAY (CL)**, dark reddish brown, very stiff											
					⧗	5-7-29							
▨	4.0	**SILTY CLAYEY SAND (SC-SM)**, orange, very dense											
			5		⧗	50/6"							
					⧗	13-27-50/6"							
		dense	10		⧗	23-26-34							
	11.5	***Boring Terminated at 11.5 Feet***											

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

Hammer Type: Automatic

Advancement Method:
6" 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
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-30-2021	Boring Completed: 07-30-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-11

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: **Patterson Ave. & Nandina Ave.**
Perris, CA

LOCATION See Exploration Plan

Latitude: 33.8636° Longitude: -117.2543°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	<u>SILTY CLAYEY SAND (SC-SM)</u>, fine to medium grained, orange, very dense, with mineralization				22-33-50/6"							
		5			50/6"							
	7.0											
	<u>SANDY LEAN CLAY (CL)</u>, dark reddish brown, hard				22-37-50/5"							
		10			15-37-42							
	11.5											
	Boring Terminated at 11.5 Feet											

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

Hammer Type: Automatic

Advancement Method:
6" 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
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-29-2021	Boring Completed: 07-29-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

BORING LOG NO. B-12

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 33.8636° Longitude: -117.2537° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
						TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)			LL-PL-PI	
▨	**SILTY CLAYEY SAND (SC-SM)**, fine to medium grained, reddish brown, very dense, with mineralization			⧗	17-31-50/4"							
		5		⧗	50/6"							
				⧗	19-33-44							
▥	9.5 **SANDY SILT (ML)**, reddish brown, very stiff	10		⧗	7-10-16							
	11.5 ***Boring Terminated at 11.5 Feet***											

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

Hammer Type: Automatic

Advancement Method:
6" 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
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-29-2021

Boring Completed: 07-29-2021

Drill Rig: B-61

Driller: California Pacific Drilling

Project No.: CB215068

BORING LOG NO. B-13

Page 1 of 1

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: **Patterson Ave. & Nandina Ave.**
Perris, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 33.8641° Longitude: -117.2528° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
						TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)			LL-PL-PI	
	SANDY LEAN CLAY (CL), dark reddish brown, very stiff 4.0				8-9-11							
	SILTY SAND (SM), dark reddish brown, medium dense 6.5	5			5-9-10 N=19							
	Boring Terminated at 6.5 Feet											

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

Hammer Type: Automatic

Advancement Method:
6" 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
1355 E Cooley Dr, Ste C
Colton, CA

Boring Started: 07-30-2021	Boring Completed: 07-30-2021
Drill Rig: B-61	Driller: California Pacific Drilling
Project No.: CB215068	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB215068 CGU PATTERSON A.GPJ TERRACON_DATATEMPLATE.GDT 7/26/21

TEST PIT LOG NO. DR-1

Page 1 of 1

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 33.8637° Longitude: -117.2534° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
▨	**SILTY CLAYEY SAND (SC-SM)**, orange 5.0	5										27
	Test Pit Terminated at 5 Feet											

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

Advancement Method:

Abandonment Method:
Boring backfilled with soil 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

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Test Pit Started: 07-29-2021	Test Pit Completed: 07-29-2021
Excavator: Backhoe	Operator: California Pacific Drilling
Project No.: CB215068	

TEST PIT LOG NO. DR-2

Page 1 of 1

PROJECT: CGU: Patterson Avenue Industrial Center

CLIENT: CGU Capital Management
San Pedro, CA

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 33.8637° Longitude: -117.253° DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
						TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)			LL-PL-PI	
▨	**SILTY CLAYEY SAND (SC-SM)**, orange 5.0	5		│								47
	Test Pit Terminated at 5 Feet											

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

Advancement Method:

Abandonment Method:
Boring backfilled with soil 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

Terracon
1355 E Cooley Dr, Ste C
Colton, CA

Test Pit Started: 07-29-2021

Test Pit Completed: 07-29-2021

Excavator: Backhoe

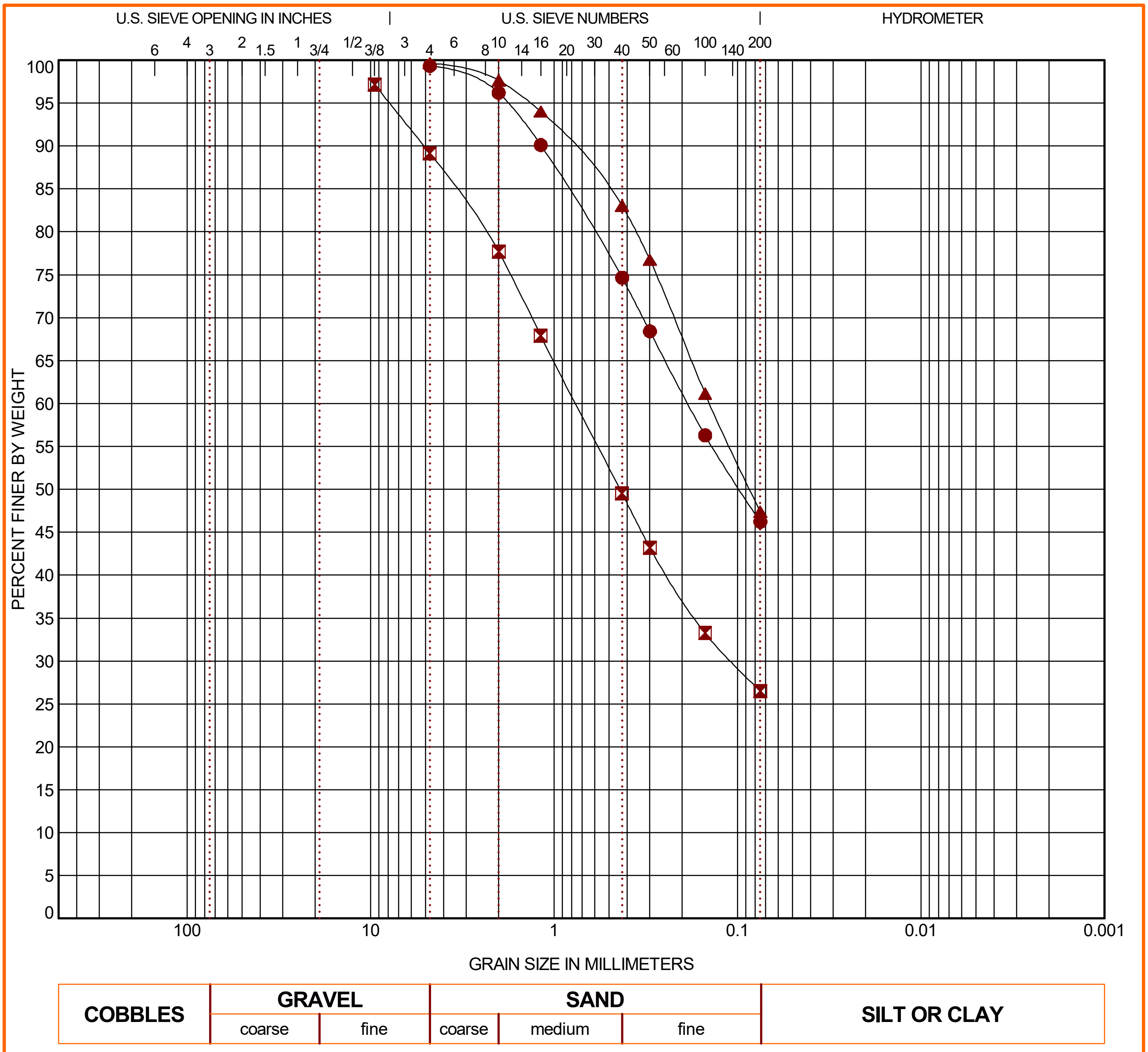
Operator: California Pacific Drilling

Project No.: CB215068

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB215068 CGU PATTERSON A.GPJ TERRACON_DATATEMPLATE.GDT 7/26/21

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



	Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	B-9	0 - 5							
☒	DR-1	0 - 5							
▲	DR-2	0 - 5							

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
●	B-9	0 - 5	4.75	0.185					53.1		46.2	
☒	DR-1	0 - 5	9.5	0.761	0.107			8.0	62.7		26.5	
▲	DR-2	0 - 5	4.75	0.142					52.2		47.4	

PROJECT: CGU: Patterson Avenue Industrial Center

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

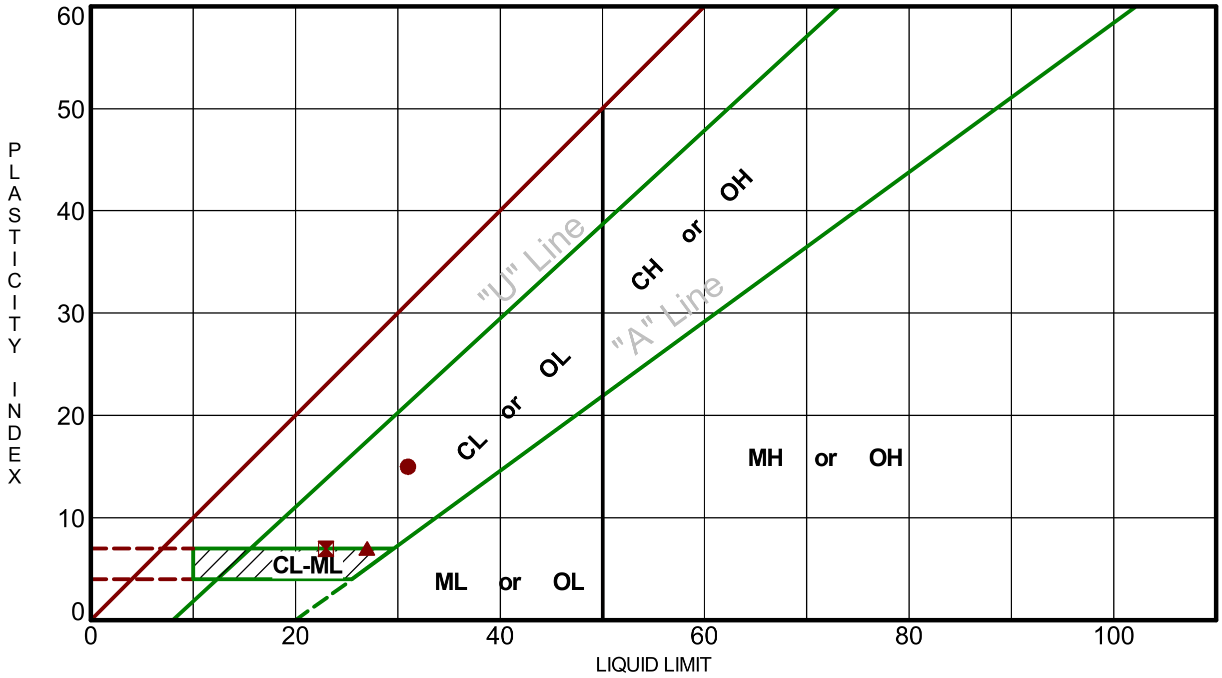
Terracon
1355 E Cooley Dr, Ste C
Colton, CA

PROJECT NUMBER: CB215068

CLIENT: CGU Capital Management
San Pedro, CA

ATTERBERG LIMITS RESULTS

ASTM D4318



	Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
●	B-5	2.5 - 4	31	16	15	54.7	CL	SANDY LEAN CLAY
☒	B-5	10 - 11.5	23	16	7	45.4	SC-SM	SILTY, CLAYEY SAND
▲	B-5	25 - 26.5	27	20	7	59.1	CL-ML	SANDY SILTY CLAY

PROJECT: CGU: Patterson Avenue Industrial Center

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

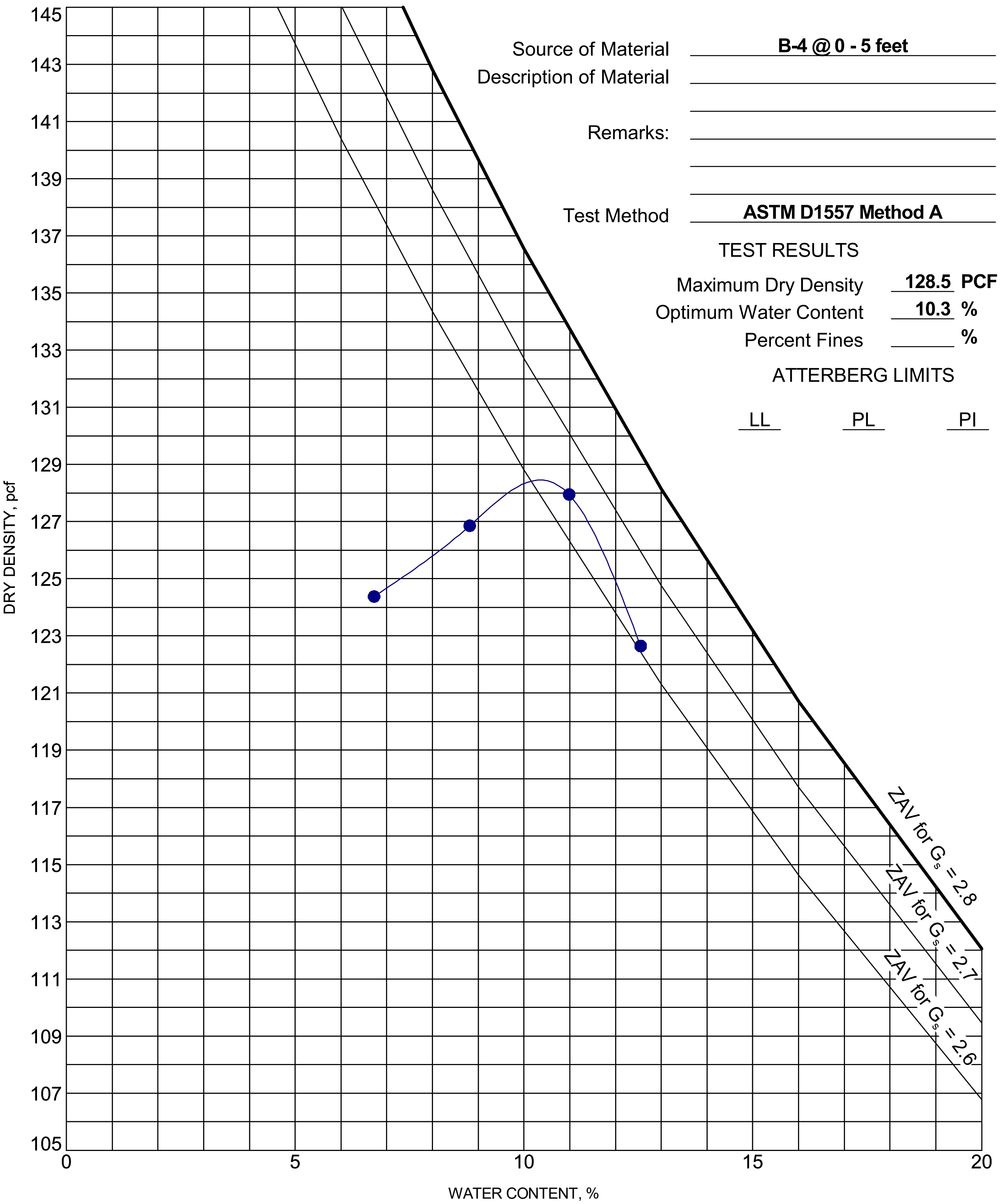
Terracon
1355 E Cooley Dr, Ste C
Colton, CA

PROJECT NUMBER: CB215068

CLIENT: CGU Capital Management
San Pedro, CA

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



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

Description of Material

Remarks:

Test Method **ASTM D1557 Method A**

TEST RESULTS

Maximum Dry Density **128.5** **PCF**

Optimum Water Content **10.3** **%**

Percent Fines ______ **%**

ATTERBERG LIMITS

LL	PL	PI

PROJECT: CGU: Patterson Avenue Industrial Center

SITE: Patterson Ave. & Nandina Ave.
Perris, CA

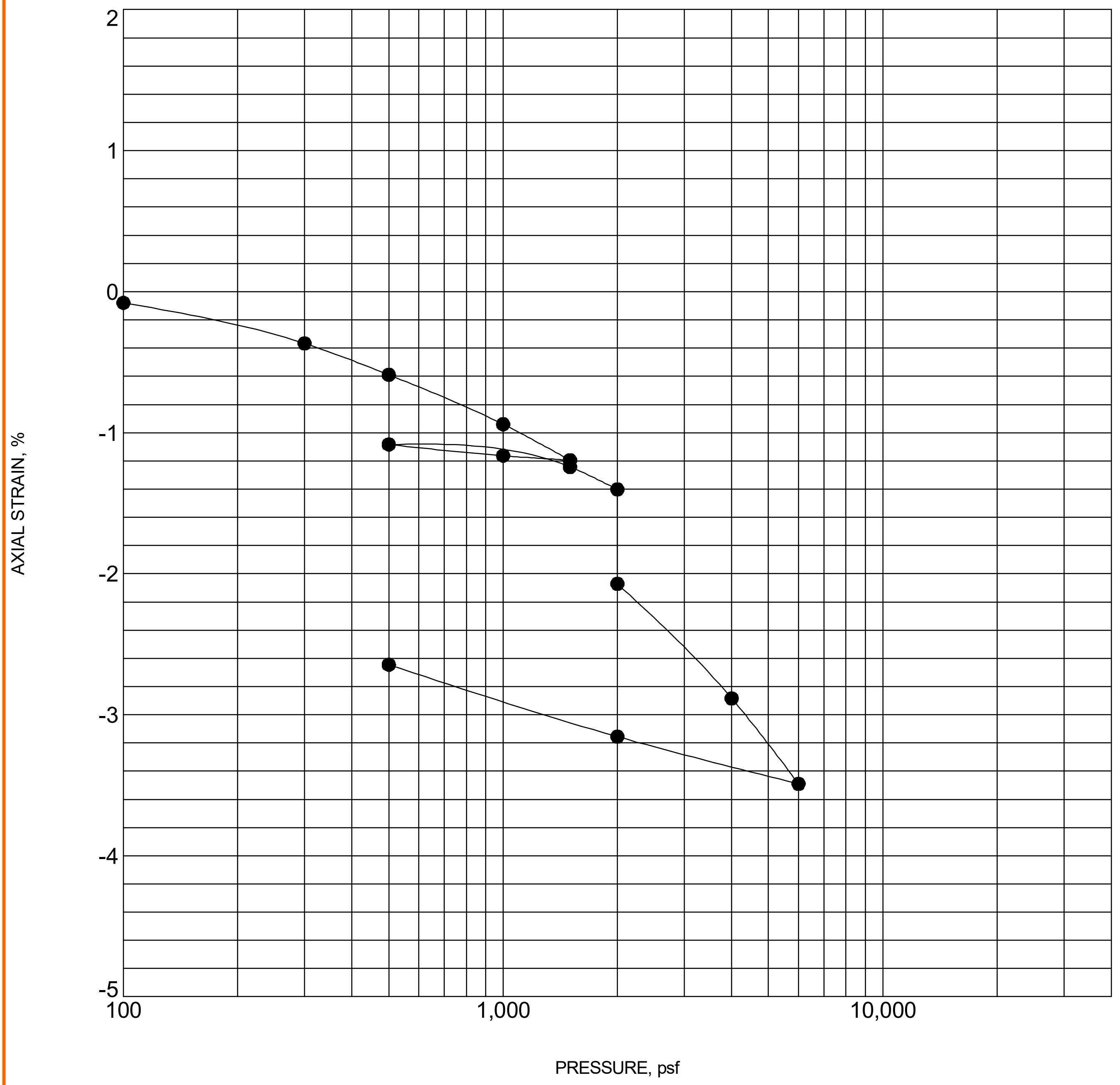
Terracon
1355 E Cooley Dr, Ste C
Colton, CA

PROJECT NUMBER: CB215068

CLIENT: CGU Capital Management
San Pedro, CA

SWELL CONSOLIDATION TEST

ASTM D2435



Specimen Identification		Classification	γ_d, pcf	WC, %
●	B-4 7.5 - 9 ft		113	6

NOTES: Saturated at surcharge pressure of 2,000 psf

PROJECT: CGU: Patterson Avenue Industrial Center	Terracon 1355 E Cooley Dr, Ste C Colton, CA	PROJECT NUMBER: CB215068
SITE: Patterson Ave. & Nandina Ave. Perris, CA		CLIENT: CGU Capital Management San Pedro, CA

HDR

TRANSMITTAL LETTER

DATE: July 21, 2021

ATTENTION: **Tom Remmel**

TO:
Terracon
1355 East Cooley Drive, Suite C
Colton, CA 92324

SUBJECT:
Laboratory Test Data
Patterson Ave Ind. Center
Your #CB215068, HDR Lab #21-0631LAB

COMMENTS: Enclosed are the results for the subject project.

James T. Keegan, MD
Corrosion and Lab Services Section Manager

Table 1 - Laboratory Tests on Soil Samples

Terracon
Patterson Ave Ind. Center
Your #CB215068, HDR Lab #21-0631LAB
21-Jul-21

Sample ID			
			B-3 @ 0-5'
Resistivity		**Units**	
as-received		ohm-cm	13,200
saturated		ohm-cm	2,400
pH			7.6
Electrical Conductivity		mS/cm	0.12
Chemical Analyses			
Cations			
calcium	Ca^{2+}	mg/kg	46
magnesium	Mg^{2+}	mg/kg	14
sodium	Na^{1+}	mg/kg	93
potassium	K^{1+}	mg/kg	6.5
ammonium	NH_4^{1+}	mg/kg	ND
Anions			
carbonate	CO_3^{2-}	mg/kg	ND
bicarbonate	HCO_3^{1-}	mg/kg	268
fluoride	F^{1-}	mg/kg	18
chloride	Cl^{1-}	mg/kg	11
sulfate	SO_4^{2-}	mg/kg	64
nitrate	NO_3^{1-}	mg/kg	36
phosphate	PO_4^{3-}	mg/kg	ND
Other Tests			
sulfide	S^{2-}	qual	na
Redox		mV	na

Resistivity per ASTM G187, pH per ASTM G51, Cations per ASTM D6919, Anions per ASTM D4327, and Alkalinity per APHA 2320-B.

Electrical conductivity in millisiemens/cm and chemical analyses were made on a 1:5 soil-to-water extract.

mg/kg = milligrams per kilogram (parts per million) of dry soil.

Redox = oxidation-reduction potential in millivolts

ND = not detected

na = not analyzed

CGU Patterson Ave
Double Ring Infiltrometer Test Data Log (DR-1)

Job No.	**CB215068**		Test Location:	DR-1	Date	6/30/2021	Tested by:	GA	Depth:	5'	
Interval No.	Start or End	Time	Elapsed Time (min)	Total Time (min)	Inner Ring Level (cm^3)	Annular Space (cm^3)	Time (hr)	Incremental Infiltration (cm/hr)	Incremental Infiltration (in/hr)	Annular Space Incremental Infiltration (cm/hr)	Annular Space Incremental Infiltration (in/hr)
	Start	8:35 AM			0	0					
1	End	8:50 AM	15	15.0	125	350	0.25	0.69	0.27	0.64	0.25
	Start	8:50 AM			0	0					
2	End	9:05 AM	15	30.0	100	250	0.25	0.55	0.22	0.46	0.18
	Start	9:05 AM			0	0					
3	End	9:20 AM	15	45.0	75	200	0.25	0.41	0.16	0.37	0.14
	Start	9:20 AM			0	0					
4	End	9:35 AM	15	60.0	75	150	0.25	0.41	0.16	0.27	0.11
	Start	9:35 AM			0	0					
5	End	10:05 AM	30	90.0	125	300	0.50	0.34	0.13	0.27	0.11
	Start	10:05 AM			0	0					
6	End	10:35 AM	30	120.0	100	250	0.50	0.27	0.11	0.23	0.09
	Start	10:35 AM			0	0					
7	End	11:05 AM	30	150.0	75	300	0.50	0.21	0.08	0.27	0.11
	Start	11:05 AM			0	0					
8	End	11:35 AM	30	180.0	100	300	0.50	0.27	0.11	0.27	0.11
	Start	11:35 AM			0	0					
9	End	12:05 PM	30	210.0	100	300	0.50	0.27	0.11	0.27	0.11
	Start	12:05 PM			0	0					
10	End	12:35 PM	30	240.0	75	250	0.50	0.21	0.08	0.23	0.09
	Start	12:35 PM			0	0					
11	End	1:05 PM	30	270.0	75	300	0.50	0.21	0.08	0.27	0.11
	Start	1:05 PM			0	0					
12	End	1:35 PM	30	300.0	50	250	0.50	0.14	0.05	0.23	0.09
	Start	1:35 PM			0	0					
13	End	2:05 PM	30	330.0	50	250	0.50	0.14	0.05	0.23	0.09
	Start	2:05 PM			0	0					
14	End	2:35 PM	30	360.0	50	250	0.50	0.14	0.05	0.23	0.09
			Average Rate:	0.06	(Inches/hour)						
			Average Rate:	0.16	(cm/hour)						

CGU Patterson Ave

Double Ring Infiltrometer Test Data Log (DR-2)

Job No.	**CB215068**		Test Location:	DR-2	Date	6/30/2021	Tested by:	GA	Depth:	5'	
Interval No.	Start or End	Time	Elapsed Time (min)	Total Time (min)	Inner Ring Level (cm^3)	Annular Space (cm^3)	Time (hr)	Incremental Infiltration (cm/hr)	Incremental Infiltration (in/hr)	Annular Space Incremental Infiltration (cm/hr)	Annular Space Incremental Infiltration (in/hr)
1	Start	8:15 AM	15	15.0	0	0	0.25	0.41	0.16	0.46	0.18
	End	8:30 AM			75	250					
2	Start	8:30 AM	15	30.0	0	0	0.25	0.27	0.11	0.37	0.14
	End	8:45 AM			50	200					
3	Start	8:45 AM	15	45.0	0	0	0.25	0.27	0.11	0.27	0.11
	End	9:00 AM			50	150					
4	Start	9:00 AM	15	60.0	0	0	0.25	0.27	0.11	0.18	0.07
	End	9:15 AM			50	100					
5	Start	9:15 AM	30	90.0	0	0	0.50	0.21	0.08	0.23	0.09
	End	9:45 AM			75	250					
6	Start	9:45 AM	30	120.0	0	0	0.50	0.21	0.08	0.18	0.07
	End	10:15 AM			75	200					
7	Start	10:15 AM	30	150.0	0	0	0.50	0.14	0.05	0.18	0.07
	End	10:45 AM			50	200					
8	Start	10:45 AM	30	180.0	0	0	0.50	0.21	0.08	0.18	0.07
	End	11:15 AM			75	200					
9	Start	11:15 AM	30	210.0	0	0	0.50	0.14	0.05	0.14	0.05
	End	11:45 AM			50	150					
10	Start	11:45 AM	30	240.0	0	0	0.50	0.14	0.05	0.09	0.04
	End	12:15 PM			50	100					
11	Start	12:15 PM	30	270.0	0	0	0.50	0.21	0.08	0.09	0.04
	End	12:45 PM			75	100					
12	Start	12:45 PM	30	300.0	0	0	0.50	0.21	0.08	0.09	0.04
	End	1:15 PM			75	100					
13	Start	1:15 PM	30	330.0	0	0	0.50	0.14	0.05	0.05	0.02
	End	1:45 PM			50	50					
14	Start	1:45 PM	30	360.0	0	0	0.50	0.21	0.08	0.09	0.04
	End	2:15 PM			75	100					
			Average Rate:	0.07	(Inches/hour)						
			Average Rate:	0.18	(cm/hour)						

SUPPORTING INFORMATION

Contents:

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

CGU: Patterson Avenue Industrial Center ■ Perris, CA
Terracon Project No. CB215068

SAMPLING

- ▯ Auger Cuttings
- ⧗ Modified California Ring Sampler
- ☒ Standard Penetration Test

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.**	**Ring Sampler Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium Stiff	0.50 to 1.00	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Dense	> 50	> 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42
			Hard	> 4.00	> 30	> 42

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

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] $Cu = D_{60}/D_{10}$ $\quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add “with sand” to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add “with organic fines” to group name.

[I] If soil contains ≥ 15% gravel, add “with gravel” to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add “with sand” or “with gravel,” whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add “sandy” to group name.

[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add “gravelly” to group name.

[N] PI ≥ 4 and plots on or above “A” line.

[O] PI < 4 or plots below “A” line.

[P] PI plots on or above “A” line.

[Q] PI plots below “A” line.