GEOTECHNICAL INVESTIGATION REPORT
ARS Fulfillment Center
Project Loki / SBD4 / Lot 44W
Victorville, California

Prepared For:

Prologis, Inc.
3546 Concours Street, Suite 100
Ontario, California

Prepared By:

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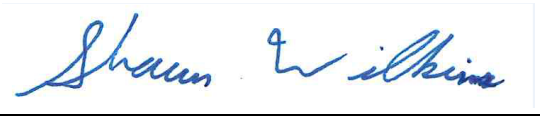
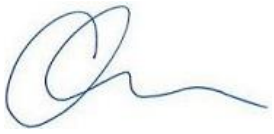
Signed 4/9/21



Shaun Wilkins, PG, CEG
Senior Project Geologist

Signed 4/9/21



Christopher J. Zadoorian, PE, GE
Associate Geotechnical Engineer

9 April 2021
700089101

LANGAN

Technical Excellence
Practical Experience
Client Responsiveness

9 April 2021

Mr. Thomas Donahue
Prologis
3546 Concours St., Suite 100
Ontario, CA 91764

Subject: Geotechnical Investigation Report
ARS Fulfillment Center
Project Loki / SBD4 / Lot 44W
Victorville, California
Langan Project: 700089101

Dear Mr. Donahue:

Langan Engineering & Environmental Services, Inc. is pleased to submit this geotechnical investigation report for the proposed traditional non-sort fulfillment center project in Victorville, California.

This report was prepared in general accordance with our proposal dated 16 February 2021 and the Agreement between Owner and Consultant, executed 2 March 2021.

♦ ♦ ♦

We sincerely appreciate the opportunity to be of service to you on this project. Please contact us if you have questions regarding this report.

Sincerely,

Langan Engineering and Environmental Services, Inc.

Christopher J. Zadoorian
Associate

TABLE OF CONTENTS

1.0 INTRODUCTION

As requested by Prologis, Langan Engineering and Environmental Services, Inc. (LANGAN) performed a geotechnical investigation for the proposed traditional non-sort fulfillment center project (SBD4), located within the Southern California Logistics Center in Victorville, California. The site location is shown on Figure 1. The project is identified as Project Loki and Lot 44W.

These services were performed in accordance with our 16 February 2021 proposal, authorized by Prologis on 2 March 2021.

This report presents a brief summary of our understanding of the proposed development, an overview of the available geotechnical information, and our recommendations regarding geotechnical design and construction considerations as they pertain to the project.

2.0 PROJECT OVERVIEW

2.1 Site Description

The site is located along the east side of Adelanto Road between Chamberlain Road and Auburn Avenue. The site is currently undeveloped with the exception of an existing historic structure referred to as "Fire-In Butt" located along the eastern edge of the site. Additionally, a concrete foundation and a large concrete trough are present on-site northwest of the "Fire-In Butt."

The ground surface level at the site generally slopes gently down from the south to the north and ranges from approximately Elevation 2,869 to Elevation 2,851.

The site is located within the limits of what was previously known as George Air Force Base (AFB). George AFB was closed in 1992 and is currently the Southern California Logistics Airport.

The property is bordered on the north and east by vacant land and on the south by a large industrial warehouse. Access to this neighboring warehouse is via Gateway Drive, which runs along the eastern side of the warehouse property and terminates approximately 1,200 feet south of the subject property. The existing portion of Gateway Drive is an asphalt-paved two- to three-lane road. Access to the site will be provided by an extension and expansion of Gateway Drive, which is within the scope of this investigation.

Based on a limited historical aerial photo analysis on Google Earth, the subject property contained at least one airport runway and several access roads. Between 2017 and 2020 the parcels were utilized for automobile storage.

2.2 Proposed Development

2.2.1 On-Site Development

Based on our review of *Civil Improvements Plans, Project Loki, Overall Site Plan* dated 2 April 2021, prepared by our firm, the proposed development will include construction of an approximately 1.1 million square foot traditional non-sort fulfillment center with 98 loading docks, 1,010 auto parking spaces, and 396 trailer parking spaces.

The development will also include approximately 36,000 square feet of office space and an approximately 250,000 square foot mezzanine as shown on Figure 2.

The lowest finish floor level of the proposed fulfillment center building will be established at Elevation 2,866. Fill on the order of approximately nine feet in thickness and cuts on the order of one foot are required to establish the proposed finish floor level.

HSA & Associates, Inc. (HSA) provided column loading information on 15 February 2021. Based on the information provided, typical dead-plus-live columns loading will range from approximately 400 kips to 800 kips.

2.2.2 Off-Site Development

Proposed off-site improvements include expansion of existing Gateway Drive, located south of the proposed development. The existing portion of Gateway Drive is approximately 4,500 feet in length and extends north from Air Expressway to its northern terminus on the eastern side of the neighboring warehouse. The existing portion of Gateway Drive will be widened to a four-lane road and will reportedly include curb and gutter and sidewalks.

The proposed extension of Gateway Drive will include the construction of approximately 4,000 lineal feet (LF) of a new four-lane road. The proposed new road will include curb and gutter and sidewalks and will be constructed along the eastern edge of the site. This new road is proposed to connect to the existing Gateway Drive. The proposed limits of the off-site developments are shown on Figure 3.

3.0 SUBSURFACE INVESTIGATION

3.1 Field Explorations

We drilled 48 borings (LB-1 through LB-48) for the proposed on-site development and 22 borings (RB-1through RB-22) for the proposed off-site development at the approximate locations are shown on Figures 2 and 3.

Prior to drilling, proposed boring locations were surveyed and marked with stakes and we contacted Underground Service Alert (USA) to locate and mark out known underground utilities within the public right-of-way at the site.

Under our direction, 2R Drilling Inc. drilled 52 borings (42 on-site and nine off-site) on 4 March 2021 and 5 March 2021, and 19 borings (six 'on-site and 13 off-site) on 29 March 2021 and 30 March 2021. The borings were drilled to depths ranging from approximately 6½ to 101½ feet using a truck-mounted drill rig equipped with 8-inch-outside diameter hollow-stem augers

We maintained a log of the soil conditions encountered during drilling and collected relatively undisturbed and bulk samples from the borings at select intervals.

The samples collected from the borings were transported to our office for further review and for assignment of geotechnical laboratory testing.

Upon completion of the borings, we backfilled the boreholes per with the drill cuttings and restored the ground surface to the pre-existing condition, with the exception of borings LB-11, LB-18, LB-31, LB-33, and LB-42 which where backfilled with per bentonite grout per the California Well Standards.

Logs of our exploration borings are presented in Appendix A.

Please note in addition to the explorations summarized herein, we completed six field percolation tests on 9 April 2021 and will summarize the results of the field percolation testing in an addendum.

3.2 Geotechnical Laboratory Testing

The samples collected from the borings were transported to our office for further review and for subsequent- assignment of geotechnical laboratory testing that included the following:

- Direct Shear – ASTM D3080
- Consolidation Test – ASTM D2435
- R-value - ASTM D2844
- Percent Passing #200 Sieve – ASTM D1140
- Moisture Content and Density – ASTM D2937
- Atterberg Limits – ASTM D4318
- Sulfate Content – CTM417
- Chloride Content – CTM 422
- Soil pH – ASTM D1293
- Electrical Resistivity – CTM 643

Laboratory test results are presented in Appendix A.

4.0 SUBSURFACE CONDITIONS

4.1 General

Fill materials consisting of loose to medium dense silty sand was encountered intermittently across the site on our borings. The fill ranged from approximately 1 to 4½ feet in thickness and is most likely associated with the past airport and parking lot usage of the property.

Native soils encountered at the ground surface level or below the fill consisted of medium dense to very dense sandy soils with varying amounts of silt, clay, and gravel and intermittent hard silt and sandy silt with varying amounts of caliche.

Logs of our borings are presented in Appendix A.

Generalized depictions of the subsurface conditions at the site are presented on Figures 4 through 7, Cross Sections A-A' through D-D', respectively.

4.2 Groundwater

Groundwater was encountered in boring LB-33 at an approximate depth of 77 feet BGS.

This depth is consistent with data available from the California State Water Resources Control Board, that include a groundwater well approximately one mile southwest of the site that showed depth to groundwater of approximately 75 feet bgs in 2018.

5.0 GEOLOGIC AND SEISMIC HAZARDS EVALUATION

5.1 General

We evaluated the geologic and seismic hazards at the site in general accordance with California Geological Survey (CGS) Special Publication 117A, "*Guidelines for Evaluating and Mitigating Seismic Hazards in California.*" The results of our evaluation as summarized below.

5.2 Regional and Local Geologic Setting

The site is located along the western edge of the Western Mojave Desert. The western Mojave is a 7,000 square mile wedge-shaped area, bordered on the southwest and northwest by the Sierra Nevada, San Gabriel, San Bernardino, and San Jacinto mountain ranges. The desert has relatively low relief and is essentially an alluviated plain containing irregularly trending bedrock hills and low mountains (Dibblee, 1967).

According to CGS Note 36 the Mojave Desert geomorphic province is a broad interior region of isolated mountain ranges separated by expanses of desert plains. It has an interior enclosed

drainage and many playas (dry lakes). The Garlock fault forms the northern boundary of the province, beyond which transitions to the Basin and Range province of eastern California and Nevada. The southwestern side of the Mojave province is bordered by the Transverse Ranges and Colorado Desert geomorphic provinces, the boundary of which is roughly controlled by the San Andreas fault.

The site is located on a geologically young, Holocene- to late Pleistocene-age alluvial fan deposit sourced from the mountains located to the south. This geologic deposit is described as 'alluvial silt, sand, and gravel of valley areas derived from adjacent higher ground' (Dibblee, 2008).

The data from our exploration borings is generally consistent with the geologic conditions summarized by Dibblee.

Figure 8 presents a regional geologic map utilizing mapping provided by Dibblee (2008).

5.3 Regional Faulting

The site is located within a seismically active region of southern California. According to the 2010 California Geological Survey Fault Activity Map (FAM) of California, the Mirage Valley fault zone is located approximately 7¾ miles northwest of the site and the Helendale-South Lockhart fault zone is located approximately 12 miles northeast of the site.

The location of the site with respect to nearby mapped faults is presented in Figures 9A and 9B.

5.4 Regional Seismicity

The site is located in an active seismic area that has historically been affected by generally moderate to occasionally high levels of ground motion. Therefore, the proposed development will probably experience moderate to occasionally high levels of ground motion from nearby faults as well as ground motions from other active seismic areas of the southern California region.

A search of the USGS ANSS Comprehensive Earthquake Catalog (ComCat) using a web-based Earthquake Archive Search and URL builder tool, found that as of March 23, 2021, 57 earthquakes with magnitudes of 5.0 or greater have occurred within a 100-km radius of the site since 1800 as shown on Figure 9A.

5.5 Ground Surface Rupture Potential

The site is not located within an Alquist-Priolo Earthquake Fault Zone (APEFZ) based on a review of the CGS Earthquake Zones of Required Investigation map. There are no mapped, active faults within 1 mile of the site.

Thus, the potential for ground surface rupture is considered very low.

5.6 Liquefaction Potential

Liquefaction generally occurs in saturated, loose to medium dense, granular soil and in saturated, soft to moderately firm silt as a result of strong ground shaking. As the density and/or particle size of the soil increases and as the confinement (overburden pressure) increases, the potential for liquefaction decreases. Typically, saturated soil within the upper 50 feet of the ground surface or lowest adjacent grade is considered subject to liquefaction.

The County of San Bernardino does not indicate that the site vicinity is subject to liquefaction as shown on Figure 10.

Groundwater was not encountered to the maximum depth explored (approximately 21½ feet).

Based on a review of the California Department of Water Resources Water Data Library web tool several wells in the vicinity of the site indicate that groundwater is in excess of 75 feet below ground surface (bgs).

Thus, the potential for liquefaction is considered very low.

5.7 Lateral Spreading Potential

Lateral spreading is seismically-induced slope instability phenomenon wherein slope failure can occur as a result of liquefaction.

The potential for liquefaction at the site is considered to be very low and significant (in height) open-slope face conditions are neither existing nor planned.

Thus, the potential for lateral spreading is considered negligible.

5.8 Seismic (aka 'Dry') Settlement

Seismic (dry) settlement can occur in loose to medium dense, granular soil as a result of strong ground shaking. Relatively dense, old alluvial fan deposits were observed in our subsurface investigation.

These geologically older soils are generally not susceptible to seismically-induced settlement in the event of strong ground shaking.

5.9 Earthquake-Induced Landslides

The site is not located in a zone of landslide susceptibility per the San Bernardino County Land Use Plan Geologic Hazard Overlays map. Additionally, no landslides have been mapped near the site on regional geologic maps of the area. Evidence of deep-seated landsliding was not observed during our field exploration and no significant sloped boundary conditions exist. Therefore, the probability of earthquake-induced landsliding at the site is nil.

5.10 Flood Mapping

FEMA's flood maps, known as Flood Insurance Rate Maps (FIRMS), identify areas of flood hazard, which are labeled on the flood maps starting with the letters A and V for high-hazard areas and Zone X for moderate- or low-hazard flood-risk areas. In some cases, where there is a potential for moderate to high risk of flooding, but the probability has not been determined, these areas are labeled as Zone D on the flood maps.

Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Number 06071C5785H, the site is located within an area identified as Zone D, or an area with undetermined flood hazard. However, based on flood mapping immediately adjacent to the site to the west it is anticipated that the site is located in an area that has a 0.2% annual chance flood hazard.

5.11 Tsunamis, Seiche, and Dam Inundation

Based on information and maps available from the CGS, the site is not located within a Tsunami inundation hazard zone. Based on review of adjacent water bodies, the site is not subject to inundation from seiche. A review of the California Dam Breach Inundation Maps hosted by the California Division of Safety of Dams shows that the site is not located within an inundation boundary in the case of dam breach.

5.12 Subsidence

Land subsidence may be induced from withdrawal of oil, gas, or water from wells. Based on a search of the CalGEM (formerly known as Division of Oil, Gas, and Geothermal Resources [DOGGR]) GIS Well Finder online tool, there are no wells within a mile of the site. Thus, the likelihood of land subsidence caused by oil or gas withdrawal from oil wells is very low.

5.13 Expansive Soils

Expansive soils swell and shrink when the moisture content in the soil changes as a result of cyclic wet/dry weather cycles, installation of irrigation systems, change in landscape plantings, or changes in grading. Swelling and shrinking soils can result in differential movement of structures including floor slabs and foundations, and site work including hardscape, utilities, and sidewalks.

Expansion index testing is underway and results will be provided in an addendum or revision to this report. Based on the field exploration near-surface soils are generally granular and the expansion potential is anticipated to be in the very low to low categories (EI = 0-50).

Expansion Index testing should be performed during grading to confirm these anticipated conditions.

6.0 GEOTECHNICAL EVALUATION AND DESIGN RECOMMENDATIONS

6.1 Seismic Design

Seismic design of structures can be designed following the provisions of ASCE 7-16 and 2019 CBC. Based on the available subsurface information and the seismic provisions of the aforementioned codes, the following seismic design parameters are recommended for the proposed development at the site:

Based on the data from our investigation, the site may be classified as Site Class C in accordance with Chapter 20 of ASCE-7-16. Justification for site class C can be found in Appendix B and the CBC-prescribed seismic design parameters are presented in Table 1.

Table 1 –Seismic Design Parameters

Criteria	Value
MCE_R Ground Motion at Short Periods, S_s	1.064
MCE_R Ground Motion at 1Second Period, S_1	0.416
Site Class	C
Site-Modified Spectral Acceleration Value at Short Periods, S_{MS}	1.277
Site-Modified Spectral Acceleration Value at 1 Second Period, S_{M1}	0.624
Design Spectral Response Acceleration at short periods, S_{DS}	0.852
Design Spectral Response Acceleration at 1 second period, S_{D1}	0.416
MCE_G Peak Ground Acceleration, PGA_M	0.550

6.2 Foundation Design

6.2.1 General Considerations

The planned grading will result in up to nine feet of compacted fill at the northerly end of the fulfillment center building. Assuming the bottom of foundations will be established three to five

feet below the lowest finish floor level, several feet of compacted fill will reside beneath the building foundations at the north end of the site.

The required thickness of fill across the building footprint decreases to the south and at the southerly building limit, cuts on the order of one foot in thickness are required.

The upper soils within the proposed building footprint generally consist of dense to very dense granular soils. These soils will be used in the required fills and when compacted as recommended herein, will be generally similar to the dense native soils from a foundation support perspective.

As a result, the proposed building may be supported on spread and continuous footings established in either dense native soils and/or properly compacted fill soils provided the recommendations presented herein are followed.

Existing fill soils and/or localized deposits of looser otherwise soft soils should be removed prior to placement of new fill and/or at the bottom of foundation excavations for footings established in dense native soils.

6.2.2 Shallow Foundation Design Recommendations

The proposed building may be supported on spread and continuous footings established in the native medium dense to very dense native soils and/or properly compacted fill.

Spread and continuous footings a minimum of two feet wide and established at least two feet below the lowest finish floor level and/or adjacent grade may be designed using an allowable bearing pressure of 5,500 pounds per square foot (psf) when established in the native soils.

Spread and continuous footings a minimum of two feet wide and established at least two feet below the lowest finish floor level and/or adjacent grade may be designed using an allowable bearing pressure of 4,500 pounds per square foot (psf) when established in properly compacted fill material

The recommended bearing pressure may be increased by one-third when considering short term wind and seismic loading conditions.

Static settlement due to the dead-plus-live column loading will be on the order of 1 inch or less. Differential settlement between adjacent footings is expected to be on the order of ¼ inch or less.

Dynamic settlement due to strong ground shaking is not anticipated at the site and the total foundation settlement will result from gravity (dead-plus-live) loading.

Lateral loading may be resisted by passive pressure of the soils acting against the sides of the footings and friction along the bottom of the footing.

When considering ultimate stress design, to resist lateral loading an ultimate passive resistance equal to 600 psf per foot of embedment up to a maximum value of 6,000 psf and an ultimate coefficient of friction equal to 0.6 may be used.

The ultimate passive pressure and the ultimate coefficient of friction may be combined noting that the ultimate passive resistance should be reduced in this case by 50 percent in consideration of the deformation required to mobilize the full passive resistance.

When considering allowable stress design, to resist lateral loading an allowable passive resistance equal to 400 psf per foot of embedment up to a maximum value of 4,000 psf and an allowable coefficient of friction equal to 0.4 may be used.

The passive pressure and frictional resistance may be combined without reduction for allowable stress design considerations.

6.3 Floor Slabs

The planned grading will result in compacted fill beneath a majority of the building footprint and as a result, we recommend the building floor slab be supported on at least 12 inches of properly compacted fill materials.

A subgrade modulus, *k,* equal to 125 pci may be used in floor slab deformation analysis noting that we recommend a minimum PCC floor slab thickness of five inches.

Where moisture sensitive flooring is planned, a capillary break section should be installed. The capillary break should consist of a 15-mil HDPE membrane placed on six inches of crushed rock. The building floor slab may be placed directly on the 15-mil barrier. However, care should be taken during construction not to puncture the membrane.

Floor slab reinforcing steel may be designed for non-expansive to low expansive soil potential conditions.

6.4 Corrosion Considerations

The results of the corrosion testing are summarized in Table 2.

Table 2 - Corrosion Test Results

Boring (Depth)	Soil Type	Resistivity (ohm-cm)	pH	Sulfate (%)	Chloride (%)
LB-16 (7.5 feet)	Silty Sand (SM)	2,400	7.1	0.0528	0.0353
LB-32 (5 feet)	Silty Sand (SM)	1,500	7.2	0.0061	0.0235

The results of sulfate testing indicate that the on-site soils are classified as exposure category S_1 in accordance with American Concrete Institute (ACI) Table 4.2.1.

The results of the chloride testing indicate that the on-site soils are classified as exposure category C_1 in accordance with ACI Table 4.2.1.

6.5 Pavement Design Recommendations

The required pavement and base thicknesses will depend on the expected wheel loads, Traffic Index (TI), R-Values, subgrade resilient modulus, and California Bearing Ratio (CBR) of the subgrade materials. All pavement sections should be established on at least one foot of properly compacted fill materials. Based on the results of the laboratory testing, an average R-value of 58 was used to correlate the subgrade resilient modulus and CBR values in our analysis.

Three typical pavement sections where utilized for the pavement recommendations.

Standard Duty Pavement is primarily for the use of passenger car and van drive aisles, parking stalls, and car pickup/drop off areas.

Heavy Duty Pavement is primarily for the use of access drives, truck courts, bus pickup/drop off areas, loading dock aprons, dolly pads, and trailer parking stalls.

Extra Heavy Duty Pavement is given as a price alternate in areas that will be subject to repeated impacts from trailer landing gear (i.e. dolly pads and dock loading/unloading aprons).

Our pavement design recommendations for asphalt concrete (AC) and Portland cement concrete (PCC) are provided below.

6.5.1 On-Site Asphalt-Concrete Pavement Design

AC pavements designs for the on-site development are based on the American Association of State Highway and Transportation Officials (AASHTO) flexible pavement design method and the following site-specific traffic parameters:

- 20-year service life
- Average daily trips:
  - 1,366 passenger cars per day
  - 262 non-PCE trucks per day
- AASHTO Vehicle Factors:
  - Tractor trailer vehicle factor = 1.97
  - Passenger car vehicle factor = 0.00209
- Design ESALs = 3,903,387
- Resilient modulus = 16,000 psi
- Initial serviceability = 4.2
- terminal serviceability = 2.5
- Reliability = 90%
- Standard deviation = 0.45
- Design Serviceability Loss = 1.7

Our recommended minimum thicknesses for new pavement based on the above design parameters are shown in Table 3.

Table 3. AC Pavement Design Recommendations

Traffic Use	AC (inches)	AB (inches)
Standard Duty Pavement	4	6
Heavy Duty Pavement	7	5

We can determine the alternative recommended pavement and aggregate base thickness if required. Careful inspection is recommended to confirm that the recommended thickness or greater is achieved and there proper construction procedures are followed.

The aggregate base (AB) should conform to requirements of Section 26 of State of California Standard Specifications for Public Works Construction (Green Book). The aggregate base should be compacted to at least 95 percent relative compaction.

6.5.2 On-site Portland Cement Concrete Pavement Design

PCC pavements designs for the on-site development are based on the American Concrete Institute (ACI) 330R and ACI 330.2R Guidelines and the following site-specific traffic parameters:

- 30-year service life

- Traffic spectrum A for standard duty pavement
- Traffic Spectrum D for heavy duty pavement
- 262 non-PCE trucks per day
- Global reliability of 95%
- 5% of slabs cracked at end of design life
- CBR value = 20
- 3,000 psi compressive strength PCC

Our recommended minimum thicknesses for new pavement based on the above design parameters are shown in Table 4.

Table 4. PCC Pavement Design Recommendations

Traffic Use	Minimum Joint Spacing (feet)	AC (inches)	AB (inches)
Standard Duty Pavement	8	6	4
Heavy Duty Pavement	9	8	6
Extra Heavy Duty Pavement	9	8	6

Dowels are recommended at joints to reduce any possible offsets. Concrete pavement should be continuously reinforced using either No. 3 bars spaced every 22-inches on-centers for Standard Duty Pavement and No. 3 bars spaced 16-inches on-centers for heavy duty pavement.

Extra Heavy Duty Pavement should be enhanced with a minimum of 7.5-lbs/cy of synthetic macrofibers in conjunction with continuous reinforcement.

Careful inspection is recommended to check that the recommended PCC thickness or greater is achieved and that proper construction procedures are followed.

State of California Department of Transportation Type II base, or equivalent, should be used in the required sections. The base should be compacted to at least 95 percent relative compaction.

6.5.3 Off-site Asphalt-Concrete Pavement Design

AC pavement for the off-site development shall be designed in accordance with the CATRANS method. Table 5 summarizes our AC pavement recommendations for an assumed TI of 10.

Table 5. AC Pavement Design Recommendations

Traffic Use	TI	AC (inches)	AB (inches)
Gateway Drive Expansion[1]	10	6	8

[1]Assumed TI for Gateway Drive Expansion – Actual TI to be obtained from City of Victorville

We can determine the recommended pavement and aggregate base thickness for other TIs if required. Careful inspection is recommended to confirm that the recommended thickness or greater is achieved and there proper construction procedures are followed.

The aggregate base should conform to requirements of Section 26 of State of California Standard Specifications for Public Works Construction (Green Book). The aggregate base should be compacted to at least 95 percent relative compaction.

6.6 Free-Standing Retaining Walls

6.6.1 Foundation Design

Free-standing retaining walls may be supported on continuous footings in dense native soils and/or a minimum of 2 feet of properly compacted fill.

Free-standing walls may be supported on continuous footings a minimum of two feet wide and established at least two feet below the lowest finish floor level and/or adjacent grade may be designed using an allowable bearing pressure of 4,000 pounds per square foot (psf) when established in the native and/or properly compacted fill soils.

The recommended allowable bearing pressure for total loads (wind/seismic) has been increased by one-third. No further increase is permitted.

Foundation settlement for free-standing walls supported on continuous footings established in dense native soils and/or properly compacted fill soils will be on the order of ¾ inch or less.

Differential settlement for free-standing wall foundations is anticipated to be on the order of ¼ inch or less.

To resist lateral loading, an ultimate coefficient of friction equal to 0.6 may be used in conjunction with an ultimate passive pressure of 800 psf per foot of embedment provided the passive pressure is reduced by 0.5 to account for the deformation necessary to mobilize the full passive resistance.

6.6.2 Design Lateral Earth Pressures

Drained, free-standing retaining walls should be designed to resist an equivalent fluid pressure equal to 35H psf. Free standing walls in excess of 6 feet (retained height) should also be design to resist a triangular-shaped seismic lateral earth pressure distribution equal to 15H psf.

Additionally, if the surface at the top of the wall is sloped, the recommended lateral earth pressures should be increased as indicated in Table 6.

Table 6 - Permanent Below-Grade Walls – Lateral Earth Pressures

Slope Inclination at Top of Wall (H:V)	Increase in Lateral Earth Pressure (percent)
1:1	200
1.5:1	165
2:1	150

6.6.3 Wall Backdrainage

Permanent retaining walls should be constructed with adequate back-drainage to prevent the buildup of hydrostatic pressure behind the walls. We recommend the use of drainage boards on the back of the walls, in conjunction with conventional weep holes at the base of the walls, would provide adequate drainage.

For shored walls, we recommend the use of a pre-fabricated geo-composite drainage board that is fixed to the shoring wall, and the free standing wall is constructed by the placement of shotcrete directly against the drainage board.

In cases where temporary construction slopes are utilized and retaining walls a perimeter collector pipe could be installed at the base of the walls noting a suitable discharge outlet for the collector pipe will be required.

6.7 Site Flatwork / Sidewalks

To assure uniform support for site flatwork, we recommend that each section be supported on at least 12 inches of properly compacted fill soils.

The design section for site flatwork, including sidewalks, should consist of four inches of reinforced PCC pavement placed on two inches of crushed miscellaneous base (CMB), or Class II aggregate base (AB). The PCC thickness should be increased to six inches for the outer six horizontal inches of the flatwork or sidewalk.

Steel reinforcement should consist of #3 bars placed at 24-inch center-to-center spacing in each direction.

6.8 Stormwater Infiltration

Based on the geologic and subsurface conditions encountered during the field investigation storm water infiltration is geologically feasible at the site.

As noted in Section 3.1, we performed field percolation testing at the site on 9 April 2021 and will summarize the results in an addendum to this report.

7.0 CONSTRUCTION CONSIDERATIONS

7.1 Excavation and Site Preparation

Prior to work on the site, all vegetation and deleterious debris should be removed and disposed of in accordance with state and local regulations. Undocumented fill should be removed and replaced as properly compacted fill as recommended in Section 7.2

The planned excavations are feasible using conventional equipment in good working condition.

Excavation bottoms exposed as part of the mass grading should be scarified for a depth of at least six inches, moisture-conditioned and compacted as recommended in Section 7.2.

Foundation excavations will expose native soils or properly compacted fill. Additional subgrade preparation provisions for foundation excavation bottoms are not required unless the exposed bottom is loose, soft or subsequently disturbed prior to placement of foundation concrete. In these cases, the soft, loose or disturbed soils should be removed and replaced with ¾-inch minus crushed rock, sand-cement slurry or foundation concrete for footings established in native soils and properly compacted fill for footings established in properly compacted fill.

7.2 Engineered Fill Material and Compaction Criteria

On-site soils are considered suitable for re-use as engineered fill provided the soils are absent of environmentally unsuitable materials, construction debris, and roots. Imported fill should be free of organic and other deleterious materials and have a maximum particle size no greater than 3 inches.

Imported fill should be non-corrosive to concrete and ferrous metals and contain no more than 12 percent passing the No. 200 sieve by dry weight and have a plasticity index less than 7. Prior to import to the site, we should evaluate proposed imported fill materials and perform testing if needed, to confirm the proposed import materials are suitable for the intended on-site usage.

All granular fill material should be compacted to at least 95 percent of the maximum dry density at or near the optimum moisture content, as determined by ASTM D1557. Cohesive fill, though not anticipated for this project, should be compacted to at least 90 percent of the maximum dry density, as determined by ASTM D1557, and moisture conditioned 2 to 4 percent over the optimum moisture content.

Fill material should be placed in loose lifts not exceeding 8 inches in thickness, properly moisture conditioned, and mechanically compacted to the minimum required density. For granular fills, compaction may be achieved using heavy equipment and vibration.

7.3 Confirmatory Testing

Table 5 summarizes minimum sampling and testing required during rough and precise grading.

Table 5 – Schedule of Confirmatory Geotechnical Testing

Construction Phase	Confirmatory Test	Minimum Frequency of Sampling
Rough Grading: Building Footing and Pavement Areas	ASTM D1557 - Modified Proctor ASTM D4829 – Expansion Index Corrosion Series – CTM417, 422, 643	Every 50,000-cubic-yards of engineered fill
Precise Grading: Building Footprint	R-Value – CTM 301 or ASTM D2844 ASTM D4829 – Expansion Index	Within the upper 5 feet for every 100,000 ft^2 of designated building footprint
Precise Grading: Pavement Areas	R-Value – CTM 301 or ASTM D2844	Within the upper 5 feet for every 150,000 ft^2 of designated pavement area

7.4 Site Drainage

Proper drainage should be maintained at all times. Ponding or trapping of water in localized areas can cause differing moisture levels in the subsurface soil. Drainage should be directed away from the tops of excavations. Erosion protection and drainage control measures should be implemented during periods of inclement weather. During rainfall events, backfill operations may need to be restricted to allow for proper moisture control during engineered fill placement.

Groundwater was not encountered at the site based on our field investigation and a review of available information; however, shallow perched water may be encountered depending on seasonal rainfall. The site should be graded to ensure positive drainage away from the locations of the proposed development.

7.5 Utility Support

Utilities can be supported on compacted engineered fill or on approved native soils. The bedding material should extend at least 12 inches over the top of the utility unless otherwise required by the utility owner. Utility subgrade should be confirmed to be free of standing water, firm, and unyielding prior to placement of bedding material.

Utility trenches should be backfilled in accordance with the recommendations provided in Section 7.2 using either previously excavated soil, approved imported material, or approved material set forth by the utility owner/manufacturer. The gradation of the approved imported fill should be

compared with the gradation of the native soils to determine if a separation fabric, such as Mirafi 140N or equivalent, is required between the two materials.

7.6 Temporary Vertical Cuts and Construction Slopes

Temporary un-surcharged slopes should not exceed a 1H:1V gradient and should not exceed 15 feet in height. Temporary vertical cuts that will be beneficial for foundation construction may be made into properly compacted fill and/or native materials, however, vertical cuts should not exceed 4 feet in height.

Temporary cut slopes should be protected from erosion by directing surface water away by placing sand bags at the top of the slopes and during wet weather, covering the slopes with plastic sheeting.

8.0 SERVICES DURING DESIGN, CONSTRUCTION DOCUMENTS, AND CONSTRUCTION QUALITY ASSURANCE

During final design we should be retained to consult with the design team as geotechnical questions arise. Technical specifications and design drawings should incorporate LANGAN's recommendations. When authorized, LANGAN will assist the design team in preparing specification sections related to geotechnical issues such as earthwork, ground improvement, shallow foundations, backfill and excavation support. LANGAN should also, when authorized, review the project plans, as well as Contractor submittals relating to materials and construction procedures for geotechnical work, to confirm the designs incorporate the intent of our recommendations.

LANGAN has investigated and interpreted the subsurface conditions and developed the foundation design recommendations contained herein, and is therefore best suited to perform quality assurance observation and testing of geotechnical-related work during construction. The work requiring quality assurance confirmation and/or special inspections per the Building Code includes, but is not limited to, earthwork, backfill, ground improvement, shallow and deep foundations, and excavation support.

Recognizing that construction observation is the final stage of geotechnical design, quality assurance observation during construction by LANGAN is necessary to confirm the design assumptions and design elements, to maintain our continuity of responsibility on this project, and allow us to make changes to our recommendations, as necessary. The foundation system and general geotechnical construction methods recommended herein are predicated upon LANGAN assisting with the final design and providing construction observation services for the Owner. Should LANGAN not be retained for these services, we cannot assume the role of geotechnical engineer of record, and the entity providing the final design and construction observation services must serve as the engineer of record.

9.0 OWNER AND CONTRACTOR RESPONSIBILITIES

The contractor is responsible for construction quality control, which includes satisfactorily constructing the foundation system and any associated temporary works to achieve the design intent while not adversely impacting or causing loss of support to neighboring property, structures, utilities, roadways, etc. Construction activities that can alter the existing ground conditions such as excavation, engineered fill placement, foundation construction, ground improvement, pile driving/drilling, dewatering, etc. can also induce stresses, vibrations, and

movements in nearby structures and utilities, and disturb occupants. Contractors are solely responsible to ensure that their activities will not adversely affect the structures and utilities, and will not disturb occupants. Contractors must also take all necessary measures to protect the existing structures, utilities, etc. during construction. By using this report, the owner agrees that LANGAN will not be held responsible for any damage to adjacent structures, utilities, etc.

The preparation and use of this report is based on the condition that the project construction contract between the owner and their contractor(s) will include: 1) LANGAN being added to the Project Wrap and/or Contractor's General Liability insurance as an additional insured, and 2) language specifically stating the foundation contractor will defend, indemnify, and hold harmless the owner and LANGAN against all claims related to disturbance or damage to adjacent structures, utilities, etc. or properties.

10.0 LIMITATIONS

The conclusions and recommendations provided in this report result from our interpretation of the geotechnical conditions existing at the site inferred from a limited number of borings, test pits and other exploration, as well as architectural and structural information provided by HSA & Associates, Inc. Actual subsurface conditions may vary. Recommendations provided are dependent upon one another and no recommendation should be followed independent of the others.

Any proposed changes in the proposed development or their locations should be brought to LANGAN's attention as soon as possible so that we can determine whether such changes affect our recommendations. Information on subsurface strata and groundwater levels shown on the logs represents conditions encountered only at the locations indicated and at the time of investigation. If different conditions are encountered during construction, they should immediately be brought to LANGAN's attention for evaluation, as they may affect our recommendations.

This report has been prepared to assist the owner, structural engineer, and civil engineer, in the design of the Project and is only applicable to the design of the specific project identified. The information in this report cannot be utilized or depended on by engineers or contractors who are involved in evaluations or designs of facilities on adjacent properties which are beyond the limits of that which is the specific subject of this report.

Environmental issues (such as permitting or potentially contaminated soil and groundwater) are outside the scope of this study and should be addressed in a separate evaluation.

REFERENCES

Publications

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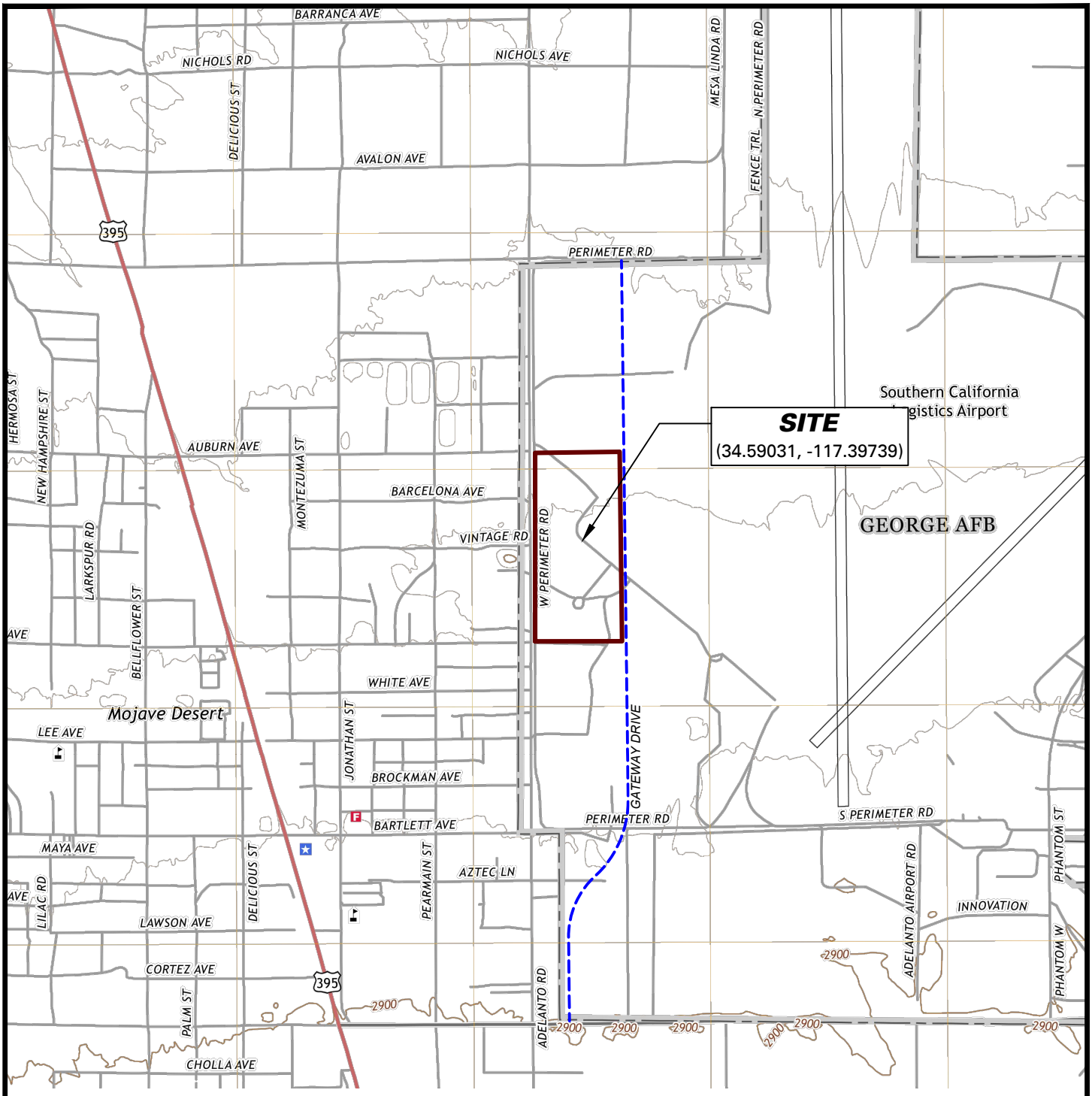
FIGURES



LEGEND:

LIMITS OF ON-SITE IMPROVEMENTS

LIMITS OF OFF-SITE IMPROVEMENTS

2000 1000 0 2000

SCALE IN FEET

REFERENCE: USGS 7.5-MINUTE TOPOGRAPHIC MAP OF THE ADELANTO, CA QUADRANGLE (2018).

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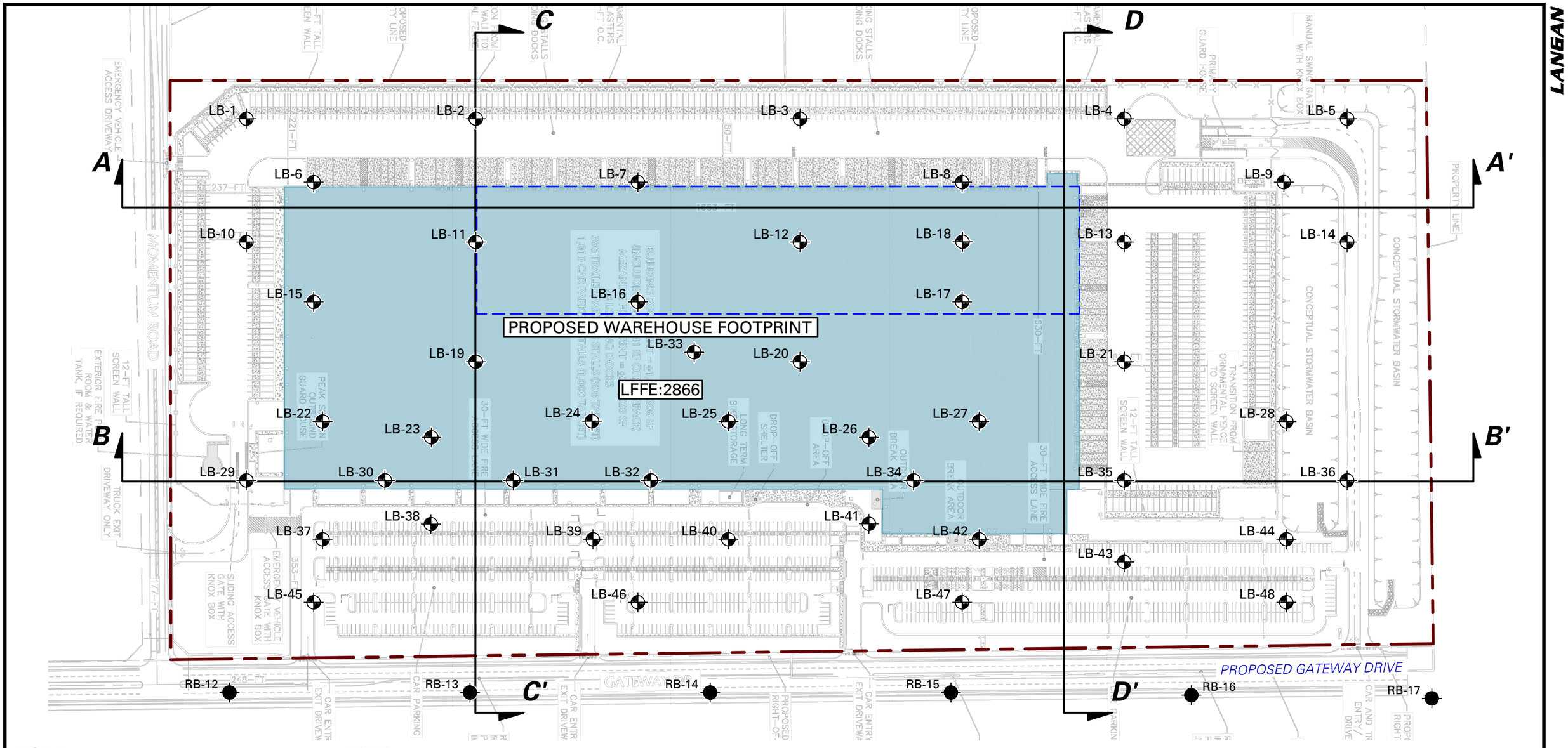
Project
ARS FULFILLMENT CENTER PROJECT LOKI / SBD4 / LOT 44W
VICTORVILLE
SAN BERNARDINO COUNTY CALIFORNIA

Figure Title
SITE LOCATION MAP

Project No.	Figure No.
700089101	1
Date: APRIL 2021	
Scale: AS SHOWN	
Drawn By: CDC	

Filename: \\langan.com\data\IRV\data1\700089101\Project Data_Discipline\Geotechnical\CAD\OTHER GEOTECHNICAL FIGURES\OTHER GEOTECHNICAL FIGURES.dwg Date: 4/9/2021 Time: 09:53 User: cconstantino Style Table: Langan.stb Layout: SLM



LEGEND:

- LIMITS OF ON-SITE IMPROVEMENTS
- PROPOSED WAREHOUSE FOOTPRINT
- PROPOSED MEZZANINE FOOTPRINT
- LB-1 ON-SITE BORINGS
- RB-12 OFF-SITE BORINGS
- LFFE:2866 LOWEST FINISH FLOOR ELEVATION (FEET, MSL)

NOTES:

1. BACKGROUND SITE PLAN REFERENCED FROM CIVIL IMPROVEMENT PLANS PROJECT LOKI - OVERALL SITE PLAN, DRAWING NO. CS100, SHEET 3 OF 36, PREPARED BY LANGAN ENGINEERING, DATED 1 APRIL 2021.

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Figure Title: **ON-SITE BORING LOCATION PLAN**

Project No. 700089101
Date APRIL 2021
Scale AS SHOWN
Drawn By MAG
Figure No. **2**

Filename: \\langan.com\data\IRV\data1\700089101\Project Data_Discipline\Geotechnical\CAD\700089101 - GEOTECHNICAL FIGURES.dwg Date: 4/9/2021 Time: 09:55 User: cconstantino Style Table: Langan.stb Layout: 2 SP

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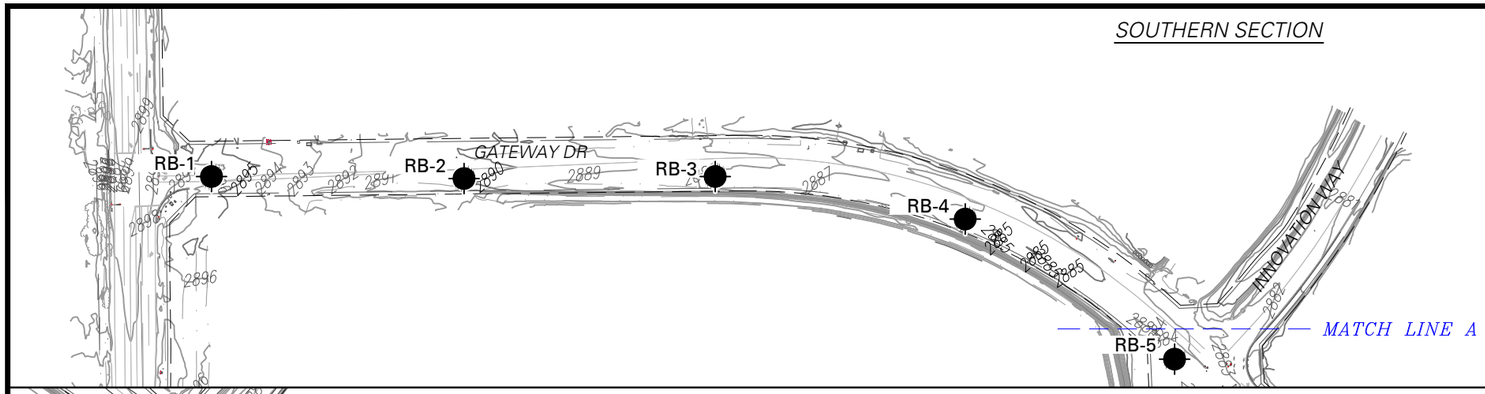

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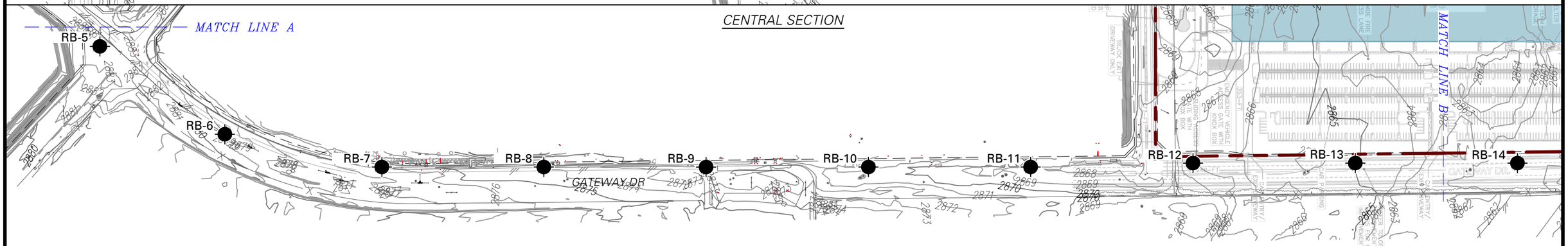

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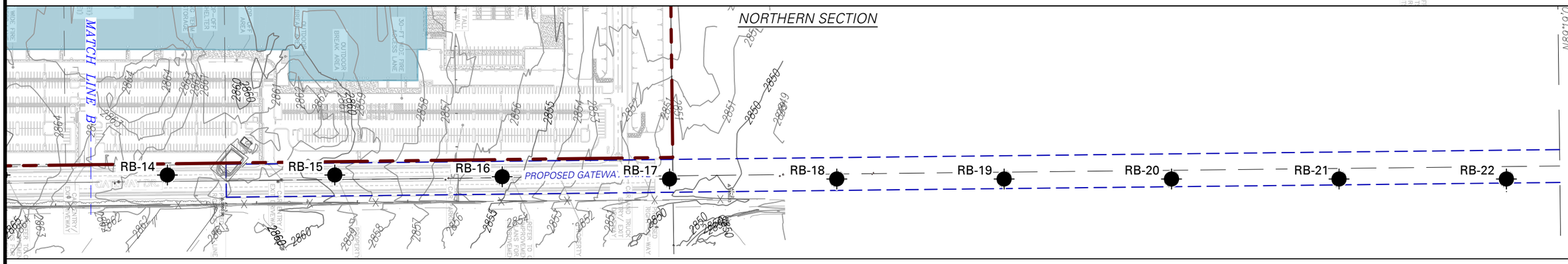

LEGEND:

- LIMITS OF ON-SITE IMPROVEMENTS
- PROPOSED WAREHOUSE FOOTPRINT
- LIMITS OF OFF-SITE IMPROVEMENTS
- RB-1 ROADWAY BORING

NOTES:

1. BACKGROUND TOPOGRAPHIC MAP REFERENCED FROM A.L.T.A./N.S.P.S. LAND TITLE SURVEY PROLOGIS TNS VICTORVILLE VACANT LAND, VICTORVILLE, CA, PREPARED BY CAL VADA SURVEYING, INC., DATED 16 MARCH 2021.
2. BACKGROUND SITE PLAN REFERENCED FROM CIVIL IMPROVEMENT PLANS PROJECT LOKI - OVERALL SITE PLAN, DRAWING NO. CS100, SHEET 3 OF 36, PREPARED BY LANGAN ENGINEERING, DATED 1 APRIL 2021.

300 150 0 300
SCALE IN FEET

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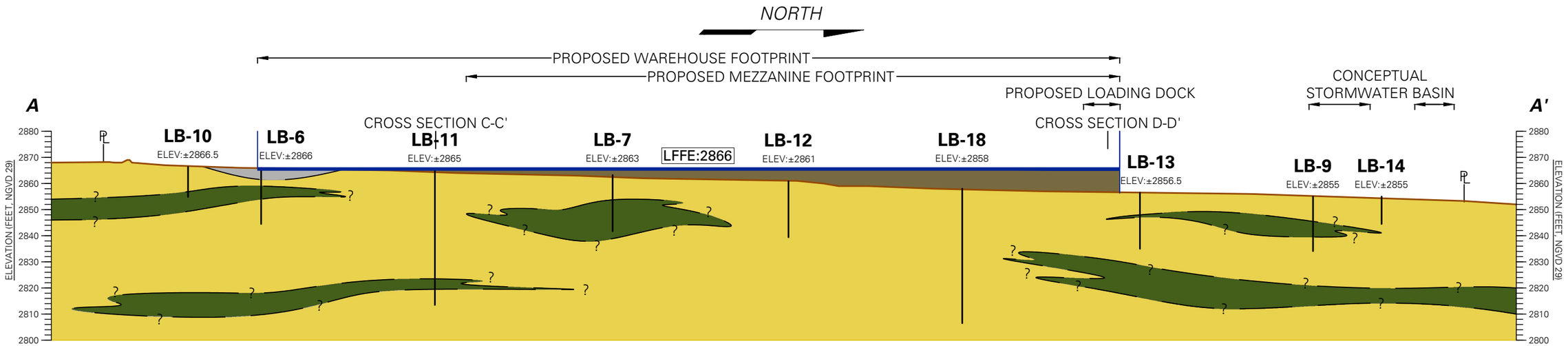
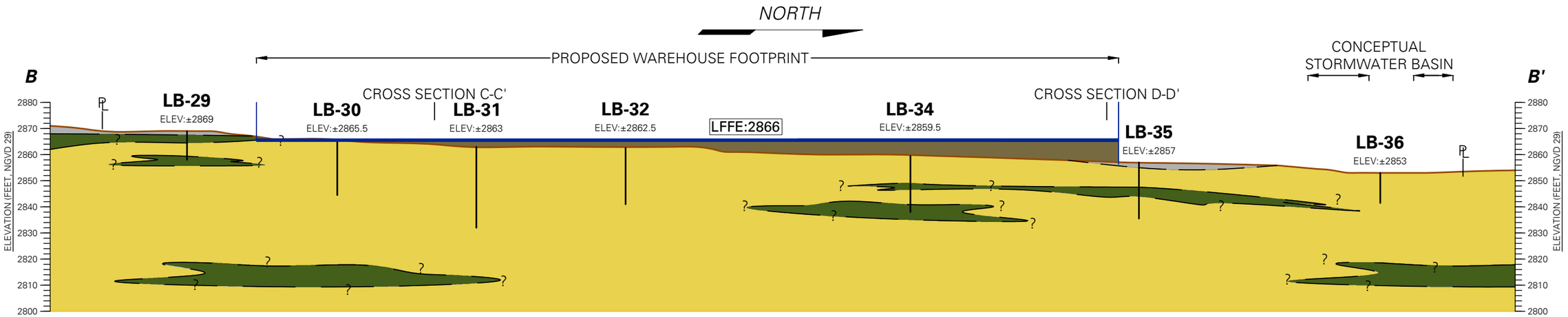
Figure Title
OFF-SITE BORING LOCATION PLAN

Project No.	Figure No.
700089101	3
Date: APRIL 2021	
Scale: AS SHOWN	
Drawn By: MAG	

Filename: \\langan.com\data\IRV\data1\700089101\Project Data_Discipline\Geotechnical\CAD\700089101 - GEOTECHNICAL FIGURES.dwg Date: 4/9/2021 Time: 09:59 User: cconstantino Style Table: Langan.stb Layout: 3 SP





LEGEND:

- GROUND SURFACE LEVEL
- PROPOSED FILL
- EXISTING FILL
- PREDOMINANTLY DENSE TO VERY DENSE SAND AND SILTY SAND
- PREDOMINANTLY HARD SILT AND CLAY
- ——?—— INFERRED GEOLOGIC CONTACT
- LFFE:2866 LOWEST FINISH FLOOR ELEVATION (FEET,MSL)

NOTES:

1. FIGURE DISPLAYS GENERALIZED SUBSURFACE CONDITIONS. FOR A DETAILED DESCRIPTION OF CONDITIONS ENCOUNTERED REFER TO BORING LOGS.
2. GROUND SURFACE LEVEL REFERENCED FROM A.L.T.A./N.S.P.S. LAND TITLE SURVEY PROLOGIS TNS VICTORVILLE VACANT LAND, VICTORVILLE, CA, PREPARED BY CAL VADA SURVEYING, INC., DATED 16 MARCH 2021.

40 20 0 40
VERTICAL SCALE IN FEET

200 100 0 200
HORIZONTAL SCALE IN FEET

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Figure Title
CROSS SECTION A-A' & B-B'

Project No. 700089101
Date APRIL 2021
Scale AS SHOWN
Drawn By MAG

Figure No. **4**

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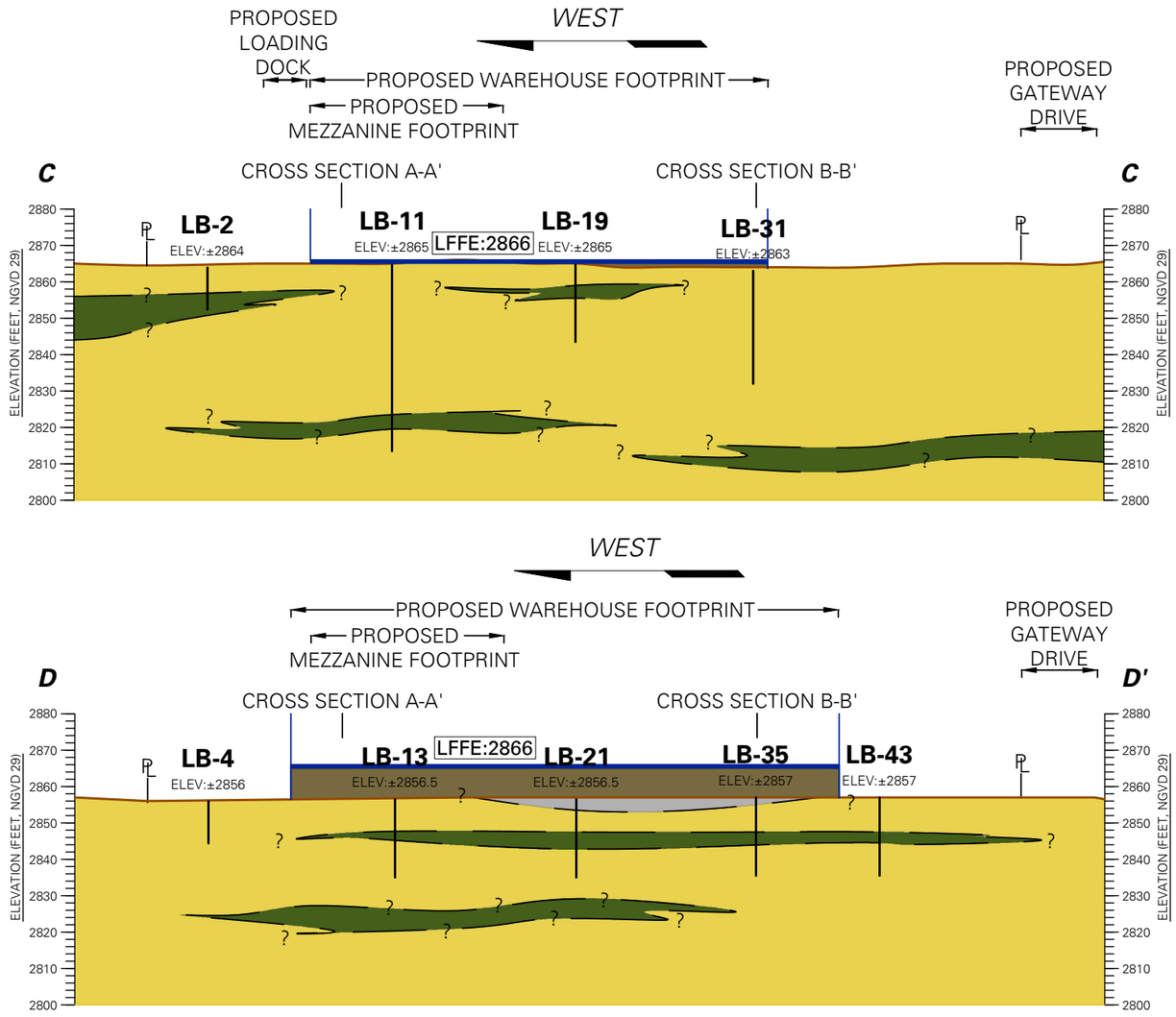

LEGEND:

- GROUND SURFACE LEVEL
- PROPOSED FILL
- EXISTING FILL
- PREDOMINANTLY DENSE TO VERY DENSE SAND AND SILTY SAND
- PREDOMINANTLY HARD SILT AND CLAY
- ——?—— INFERRED GEOLOGIC CONTACT
- LFFE:2866 LOWEST FINISHED FLOOR ELEVATION (FEET, MSL)

NOTES:

1. FIGURE DISPLAYS GENERALIZED SUBSURFACE CONDITIONS. FOR A DETAILED DESCRIPTION OF CONDITIONS ENCOUNTERED REFER TO BORING LOGS.
2. GROUND SURFACE LEVEL REFERENCED FROM A.L.T.A./N.S.P.S. LAND TITLE SURVEY PROLOGIS TNS VICTORVILLE VACANT LAND, VICTORVILLE, CA, PREPARED BY CAL VADA SURVEYING, INC., DATED 16 MARCH 2021.

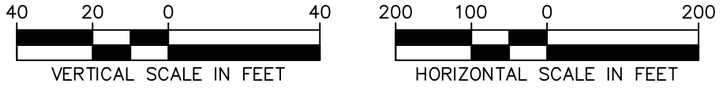

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Figure Title
CROSS SECTION C-C' & D-D'

Project No.	Figure No.
700089101	5
Date: APRIL 2021	
Scale: AS SHOWN	
Drawn By: MAG	

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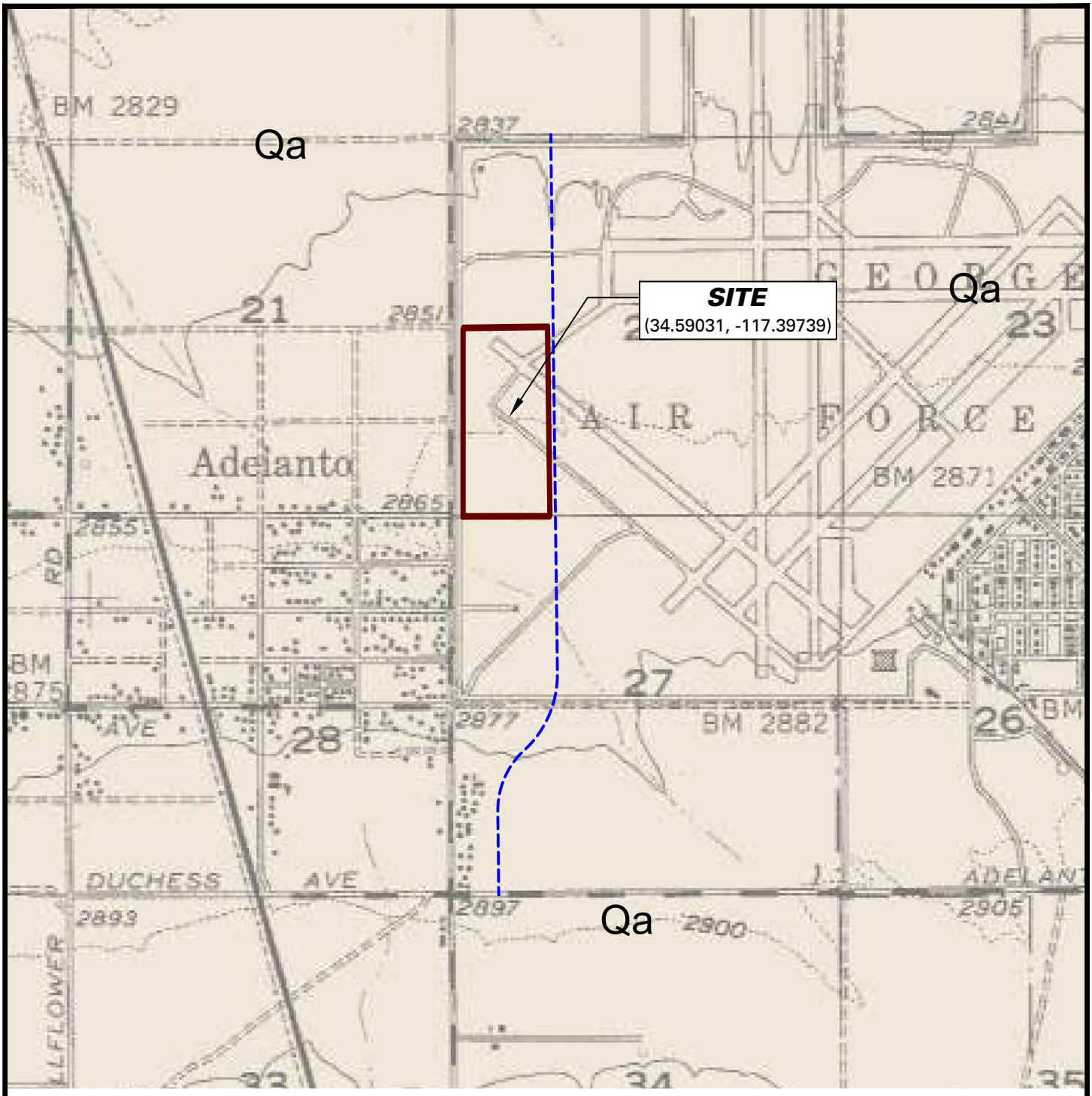

LEGEND:

LIMITS OF ON-SITE IMPROVEMENTS

LIMITS OF OFF-SITE IMPROVEMENTS

Qa ALLUVIUM

REFERENCE: DIBBLEE GEOLOGIC MAP OF THE SHADOW MOUNTAINS & VICTORVILLE 15 MINUTE QUADRANGLES (2008).

2000 1000 0 2000

SCALE IN FEET

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Figure Title
REGIONAL GEOLOGIC MAP

Project No. 700089101

Date APRIL 2021

Scale AS SHOWN

Drawn By CDC

Figure No. **6**

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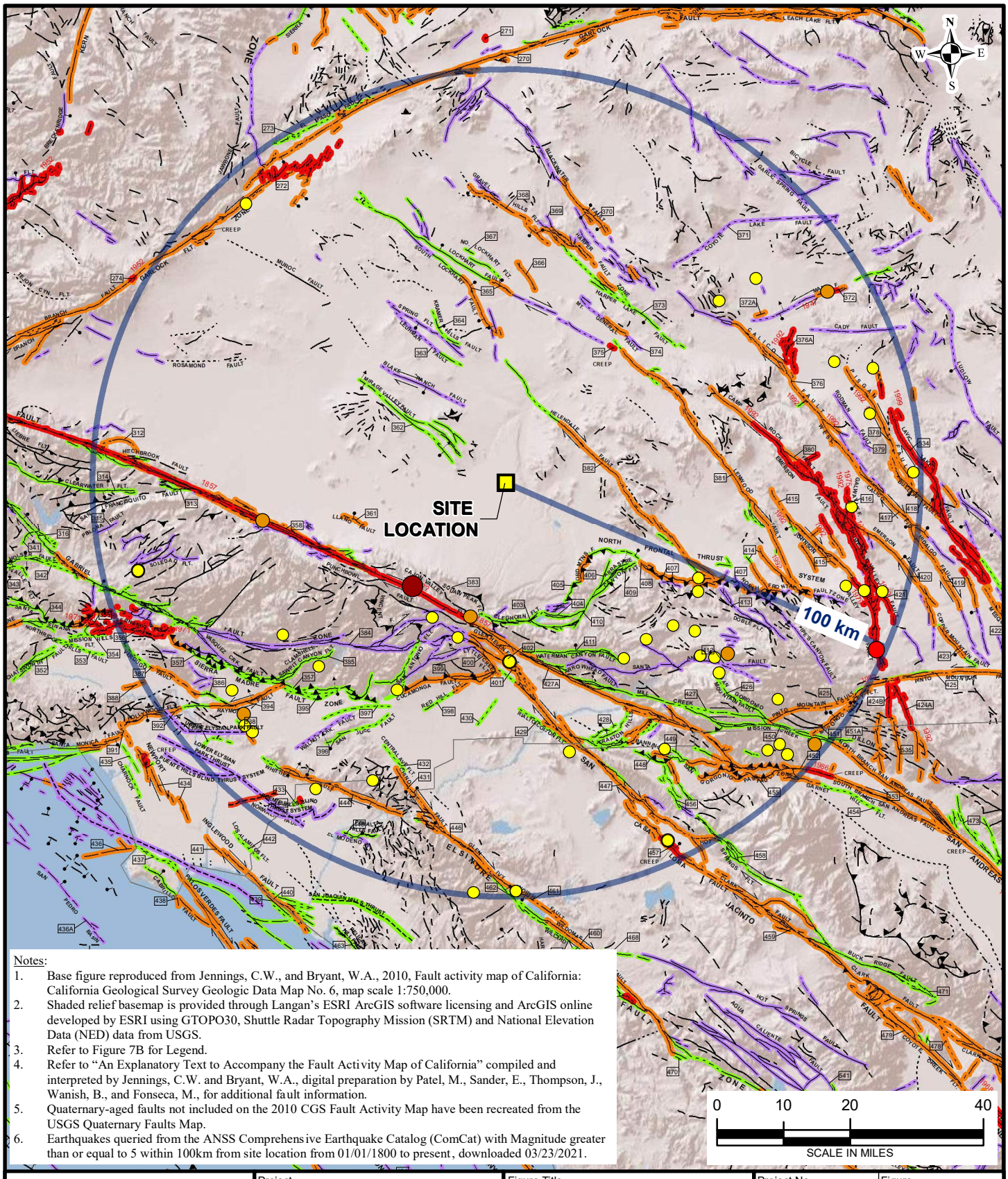

Notes:

1. Base figure reproduced from Jennings, C.W., and Bryant, W.A., 2010, Fault activity map of California: California Geological Survey Geologic Data Map No. 6, map scale 1:750,000.
2. Shaded relief basemap is provided through Langan's ESRI ArcGIS software licensing and ArcGIS online developed by ESRI using GTOPO30, Shuttle Radar Topography Mission (SRTM) and National Elevation Data (NED) data from USGS.
3. Refer to Figure 7B for Legend.
4. Refer to "An Explanatory Text to Accompany the Fault Activity Map of California" compiled and interpreted by Jennings, C.W. and Bryant, W.A., digital preparation by Patel, M., Sander, E., Thompson, J., Wanish, B., and Fonseca, M., for additional fault information.
5. Quaternary-aged faults not included on the 2010 CGS Fault Activity Map have been recreated from the USGS Quaternary Faults Map.
6. Earthquakes queried from the ANSS Comprehensive Earthquake Catalog (ComCat) with Magnitude greater than or equal to 5 within 100km from site location from 01/01/1800 to present, downloaded 03/23/2021.

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Figure Title
QUATERNARY FAULT AND EARTHQUAKE EPICENTER MAP

Project No.	700089101
Date	APRIL 2021
Scale	1 inch = 20 miles
Drawn By	NB

Figure
7A

Path: \\langan.com\data\IRV\data1\700089101\Project Data\ArcGIS\MXD\Geotech_Figures\Fault Map.mxd Date: 3/24/2021 User: NBurke Time: 9:48:12 AM

LEGEND:

Site Location

Fault Age

The age classifications are based on geologic evidence to determine the youngest faulted unit and the oldest unfaulted unit along each fault of fault seciton

- Historic
- Holocene
- Late Quaternary
- Quaternary
- 100 km

Earthquake Epicenter

- Magnitude 5 to 5.9
- Magnitude 6 to 6.9
- Magnitude 7 to 7.4
- Magnitude 7.5 to 8

Pre Quaternary Faults

- fault, certain
- fault, approx. located
- fault, concealed
- thrust fault, certain
- thrust fault, approx. located
- thrust fault, approx. located, queried
- fault, certain, barball
- fault, concealed, barball
- fault, approx. located, barball

Quaternary Faults

- fault, certain
- fault, approx. located
- fault, approx. located, queried
- fault, inferred, queried
- fault, concealed
- fault, concealed, queried
- thrust fault, certain
- thrust fault, approx. located
- thrust fault, concealed
- dextral fault, certain
- dextral fault, approx. located
- dextral fault, concealed
- sinistral fault, certain
- sinistral fault, approx. located
- sinistral fault, concealed
- thrust fault, certain (2)
- thrust fault, approx. located (2)
- thrust fault, concealed (2)
- fault, solid, barball
- fault, dashed, barball
- fault, dotted, barball
- dextral fault, solid, barball
- fault, dotted, queried, ballbar
- fault, dotted, queried, ballbar (2)
- fault, solid, dip
- fault, dashed, dip
- fault, dotted, dip
- reverse fault, solid
- reverse fault, dashed
- reverse fault, dotted

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ARS FULFILLMENT CENTER PROJECT LOKI / SBD4 / LOT 44W
VICTORVILLE
SAN BERNARDINO COUNTY CALIFORNIA

Figure Title
QUATERNARY FAULT AND EARTHQUAKE EPICENTER MAP

Project No. 700089101
Date APRIL 2021

Figure **7B**

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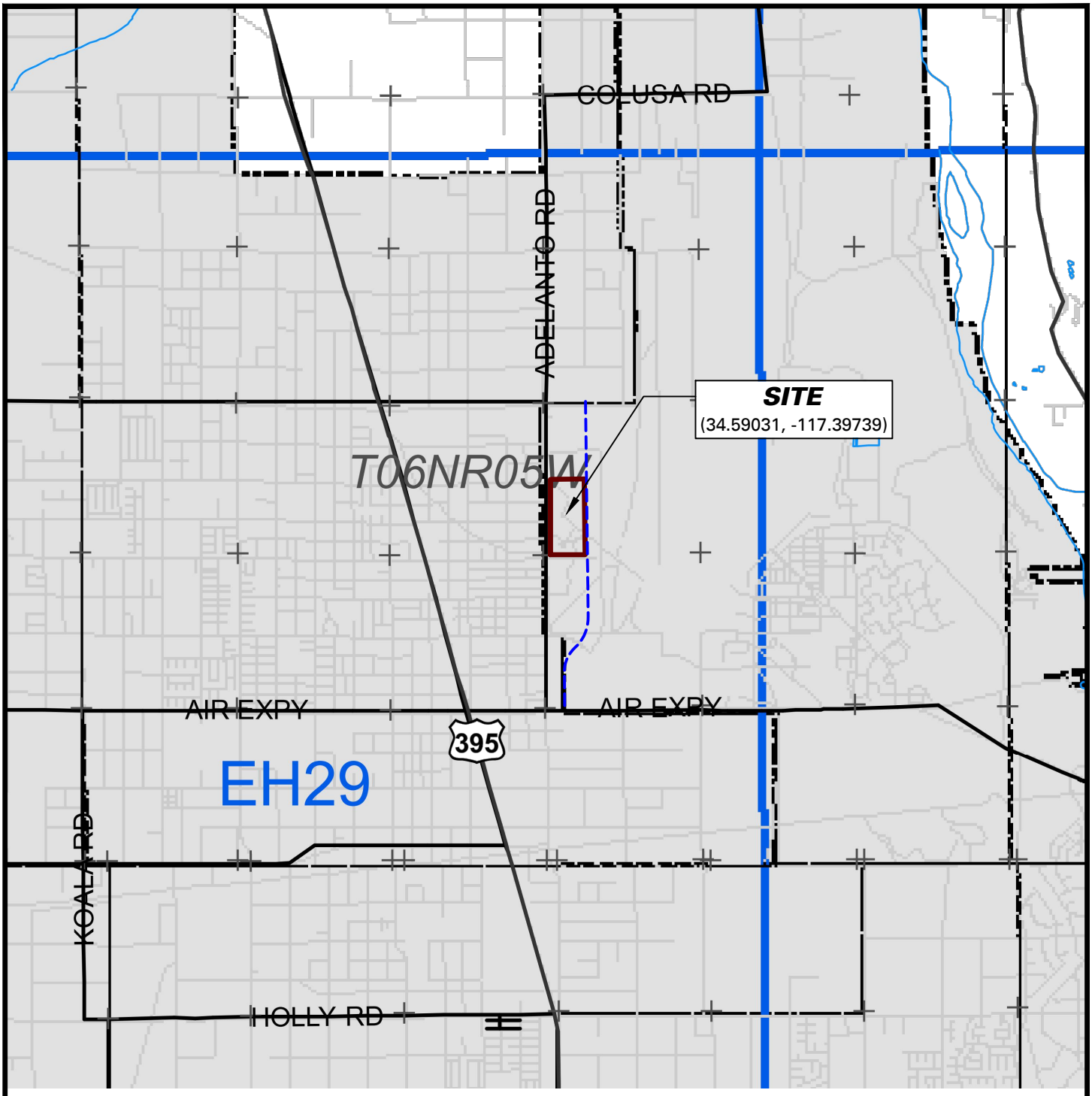

LEGEND:

LIMITS OF ON-SITE IMPROVEMENTS

LIMITS OF OFF-SITE IMPROVEMENTS

ZONE OF SUSPECTED LIQUEFACTION SUSCEPTIBILITY

5000 2500 0 5000

SCALE IN FEET

REFERENCE: SAN BERNARDINO COUNTY LAND USE PLAN, GENERAL PLAN, GEOLOGIC HAZARD OVERLAYS, EHFH C VICTORVILLE/SAN BERNARDINO (2010).

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Figure Title
SEISMIC HAZARD ZONES MAP

Project No.	Figure No.
700089101	8
Date: APRIL 2021	
Scale: AS SHOWN	
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APPENDIX A
Field Explorations and Laboratory Testing

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APPENDIX A

SUBSURFACE EXPLORATIONS

Forty-eight borings (LB-1 through LB-48) were drilled for the proposed on-site development. Twenty-two borings (RB-1through RB-22) were drilled for the proposed off-site street improvements. 2R Drilling Inc. drilled 52 borings (42 'on-site and nine 'off-site) on 4 March 2021 and 5 March 2021, and 19 borings (six 'on-site and 13 'off-site) on 29 March 2021 and 30 March 2021 under the full-time engineering observation of a LANGAN field engineer. Truck-mounted drill rigs with 8-inch-outer-diameter hollow-stem augers were used to advance the borings to depths of approximately 6½ to 101½ feet using conventional soil drilling techniques.

The locations of the explorations were determined in the field by representatives of Cal Vada Surveying, Inc. This information should be considered accurate only to the degree implied by the methods used.

A member of our geotechnical staff observed and logged the explorations and collected representative samples of the various soil compositions encountered in the explorations. Upon completion of the borings, the boreholes were backfilled with soil cuttings. Descriptions of the conditions encountered and sampling intervals are presented in the boring logs included within this appendix.

SOIL SAMPLING

Samples were collected from the borings using modified California split-spoon samplers in general accordance with ASTM D3550 and we performed Standard Penetration Tests (SPTs) in general accordance with ASTM D1586.

The modified California samplers and SPTs were driven using a 140-pound hammer free falling 30 inches. The samplers were driven a total distance of 18 inches or to refusal. The number of blow counts required to drive the sampler for each 6 inch segment (or less if refusal is met) was recorded in the field.

Sampling methods and intervals are shown on the exploration logs. The number of blow counts required to drive the sampler for each 6 inch segment shown on the exploration logs have been corrected to a normalized value based on a hammer efficiency of 60%.

The samples collected from the borings were transported to our office for assignment of geotechnical laboratory testing.

SOIL CLASSIFICATION

The soils samples were classified in accordance with the United Soil Classification System (USCS). The boring logs indicate the soil conditions encountered during drilling and indicate the depths at which the soil or their characteristics change; however, the change between soil types or their characteristics may occur more gradually than depicted on the boing logs. If the change occurred between sampling intervals, the depth was interpreted. Changes between geologic units or soil types on the boring logs are represented with a solid line if observed directly in the samples, and with a dashed line if inferred between sample depths. Classifications are shown on the exploration logs. Classification are presented in the boring logs.

LABORATORY TESTING

Moisture Content

The natural moisture content of select soil samples was performed in general accordance with ASTM D2216. The natural moisture content is a ratio of the weight of the water to soil in a test sample and is expressed as a percentage. The test results are presented in this appendix.

Dry Density

Select soil samples were tested to determine the in situ dry density. The tests were performed in general accordance with ASTM D2937. The dry density is defined as the ratio of the dry weight of the soil sample to the volume of that sample. The dry density typically is expressed in units of pounds per cubic foot (pcf). The test results are presented in this appendix.

Percent Passing No. 200 Sieve

Select soil samples were tested to determine the percentage of fine-grained material, defined as the amount of material finer than 75-µm (No. 200) sieve in the soil. The tests were performed in general accordance with ASTM D6913.

The test results are presented in this appendix.

Atterberg Limits

Atterberg Limits tests were completed on select samples obtained from the explorations. The tests were performed in general accordance with ASTM D4318. The test measures the liquid limit and plastic limit of the sample.

The test results are presented in this appendix.

Consolidation Testing

One-dimensional consolidation testing was performed in general accordance with ASTM D2435 on relatively undisturbed soil samples. The tests measure the volume change of a soil sample under predetermined loads. The test results are presented in this appendix.

Direct Shear Testing

Direct shear tests were completed on select samples obtained from the explorations. The tests were conducted in general accordance with ASTM D3080. The test determines the effects upon shear resistance and displacement, and strength properties such as Mohr strength envelopes. The test results are presented in this appendix.

Corrosion Testing

Corrosion testing was performed on one selected sample. The testing was completed in general accordance with California Test Methods 643 and 417 for resistivity, pH value, and sulfate content. The test results are presented in this appendix.

R-Value Testing

R-value tests were completed on select bulk samples obtained from the explorations. The tests were conducted in general accordance with ASTM D 2844. The test is used to measure the potential strength of subgrade, subbase, and base course materials for use in road and airfield pavements.

The test results are presented in this appendix.

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soil (more than half of soil is larger than the no. 200 sieve size)	**Gravels** (more than half of coarse fraction is retained/> no. 4 sieve size)	**GW**	Well-graded GRAVELS with less than 5% fines or gravel-sand mixtures
		GP	Poorly-graded GRAVELS with less than 5% fines or gravel-sand mixtures
		GM	Silty gravels, gravel-sand-silt mixtures;GRAVELS with greater than 12% ML or MH fines
		GC	Clayey gravels, gravel-sand-clay mixtures; GRAVELS with greater than 12% CL or CH
	Sands (more than half of coarse fraction passes/< no. 4 sieve size)	**SW**	Well-graded sands with less than 5% fines or gravelly sands, little or no fines
		SP	Poorly-graded sands with less than 5% fines or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures; SANDS with greater than 12% ML or MH fines
		SC	Clayey sands, sand-clay mixtures; SANDS with greater than 12% CL or CH fines
Fine-Grained Soils (more than half of soil is smaller than the no. 200 sieve size)	**Silts and Clays** LL = < 50	**ML**	Inorganic silts and clayey silts of low plasticity, sandy non-plastic SILT, gravelly SILT
		CL	Inorganic clays of low to medium plasticity, silty CLAY, trace fines, sand
		OL	Organic silts and organic silt-clays of non-plastic to medium plasticity
	Silts and Clays LL = > 50	**MH**	Inorganic medium plastic silts, medium plastic to very plastic clayey silts.
		CH	Inorganic plastic to very plastic CLAYS, sandy plastic CLAY
		OH	Organic medium plastic to plastic silty CLAYS, and very plastic CLAYS
Highly Organic Soils		**PT**	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes	
	U.S. Standard Sieve Size	Grain Size in Millimeters
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel	3" to No. 4	76.2 to 4.75
coarse	3" to ¾"	76.2 to 19.1
fine	¾" to No.4	19.1 to 4.75
Sand	No. 4 to No. 200	4.76 to 0.075
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.240 to 0.075
Silt and Clay	Below No. 200	Below 0.075

GROUNDWATER READING

- Groundwater encountered during drilling
- Groundwater at completion
- Groundwater at 24 hours

SOIL DESCRIPTIONS/SYMBOLS

- Well-graded GRAVEL (GW)
- Poorly-graded GRAVEL (GP)
- Silty GRAVEL (GM)
- Clayey GRAVEL (GC)
- Well-graded SAND (SW)
- Poorly-graded SAND (SP)
- Silty SAND (SM)
- Clayey SAND (SC)
- AGGREGATE BASE
- Low-Plasticity SILT (ML)
- High-Plasticity SILT (MH)
- Low-Plasticity CLAY (CL)
- High-Plasticity CLAY (CH)
- SANDSTONE
- CLAYSTONE
- SILTSTONE
- FILL
- ASPHALT

SAMPLER TYPE

- CR - Modified California (CR) split-barrel ring sampler with 3.0-inch outside diameter and a 2.5-inch inside diameter.
- SPT - Standard Penetration Test (SPT) split-barrel sampler with a 2.00-inch outside diameter with a 1.5-inch inside diameter
- ST - Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure
- BAG - Bulk Sample
- C - Core Barrel

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Figure Title

BORING LOG LEGEND

Figure No.

APPENDIX A

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Log of Boring **LB-1** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2867 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.3 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2867.0	**Fill** Silty SAND (SM), dark brown, medium dense, moist, fine to medium sand.	0						Bulk sample collected from 0-5 feet bgs. R Value.
	+2864.0	**Alluvium (Qa)** SAND with Clay (SP-SC), pale yellow brown, medium dense, moist, fine sand, trace fine gravel.	3	S-1	CR	18	8 12 15		Dry Density = 117.3 pcf WC = 6.8%
	+2862.5	SAND (SP), pale brown, medium dense, fine to coarse sand, micaceous.	5	S-2	SPT	18	5 5 7		
		With gravel, friable.	8	S-3	CR	18	8 16 17		Dry Density = 109.4 pcf WC = 0.9%
		Red brown, very dense, no gravel.	10	S-4	SPT	16	10 36 50/4"		
	+2855.7	Total Depth = 11.3 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			24						

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Log of Boring **LB-2** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2864 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2864.0	**Alluvium (Qa)** Clayey SAND (SC), red brown, medium dense, dry, fine sand.	0						
	+2861.0	Silty SAND (SM), brown, medium dense, dry, fine to coarse sand.	3	S-1	SPT	18	8 11 8		
	+2859.5	SAND with SILT (SP-SM), light brown, dense, dry, medium to coarse sand, trace fine gravel.	5	S-2	CR	18	11 19 23		Dry Density = 118.3 pcf WC = 1.6% %Pass #200 = 7
	+2857.0	SILT (ML), tan to light brown, hard, dry, trace fine sand, trace caliche.	8	S-3	SPT	18	11 19 19		%Pass #200 = 53
		Increased caliche.	10	S-4	CR	12	20 50/6"		
	+2853.0	Total Depth = 11.0 feet. Groundwater not encountered. Borehole backfilled with soil cuttings.	11						

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Log of Boring **LB-3** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2861 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2861.0	**Alluvium (Qa)** Clayey SAND (SC), red brown, loose, slightly moist, fine to coarse sand, trace fine gravel.	0						
			1						
			2						
			3	S-1	CR	18	7 8 8		Dry Density = 114.9 pcf WC = 5.9%
			4						
	+2856.5	Silty SAND (SM), tan to light brown, medium dense, slightly moist, fine to medium sand, some caliche.	5						
			6	S-2	SPT	18	5 5 5		Interbedded layers of cemented silt.
	+2853.5	SAND (SP), brown, medium dense, dry, fine to coarse sand, trace fine gravel.	7						
			8	S-3	CR	18	7 9 13		Dry Density = 108.8 pcf WC = 1.8%
			9						
	+2850.8	Silty SAND (SM), light brown, very dense, dry, fine to coarse sand, trace fine gravel.	10						
	+2850.0		11	S-4	SPT	18	12 33 35		
	+2849.5	Sandy SILT (ML), tan to light brown, hard, fine sand.							
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **LB-4** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2856 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2856.0	**Alluvium (Qa)** Clayey SAND (SC), red brown, dense, moist, medium to coarse sand, trace fine gravel.	0						
			1						
			2						
			3	S-1	CR	18	22 33 33		Dry Density = 113.1 pcf WC = 8.6%
			4						
	+2851.5	SAND with Silt (SP-SM), pale brown, medium dense, moist, medium to coarse sand, trace fine gravel, micaceous.	5						
			6	S-2	SPT	18	17 16 16		
	+2849.0	SAND with Gravel (SP), red brown, medium dense, moist, medium to coarse sand, fine gravel, micaceous.	7						
			8	S-3	CR	18	11 11 14		Dry Density = 107.4 pcf WC = 2.0%
	+2846.5	Clayey SAND (SC), olive brown, dense, moist, fine sand.	9						
			10						
			11	S-4	SPT	18	8 13 17		
	+2844.5	Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **LB-5** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2854 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2854.0	**Alluvium (Qa)** Silty SAND (SM), brown, medium dense, dry, fine to coarse sand, some fine to medium gravel, some caliche.	0						
			1						
			2						
			3	S-1	CR	18	15 18 21		Dry Density = 115.7 pcf WC = 2.9%
			4						
		Tan, fine to medium sand, increased fines content.	5						
			6	S-2	SPT	18	9 11 10		
	+2846.5		7						
		SAND with Silt (SP-SM), light brown, medium dense, dry, fine to medium sand, some coarse sand, trace fine to medium gravel.	8	S-3	CR	18	15 21 28		Poor sample recovery. Dry Density = 102.8 pcf WC = 0.8%
			9						
	+2843.5		10						
		Silty SAND (SM), light brown, dense, dry, fine to medium sand, trace coarse sand, trace fine gravel.	11	S-4	SPT	18	11 18 25		
	+2842.5	Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **LB-6** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2866 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	Field Engineer: A. Atry

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Number	Sample Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2866.0	**Fill** Silty SAND (SM), dark brown, loose, fine to medium sand, micaceous.	0						
			1						
			2						
			3	S-1	SPT	18	4 5 5		
			4						
	+2861.5	**Alluvium (Qa)** SAND with Silt (SP-SM), pale brown, medium dense, moist, fine to coarse sand.	5	S-2	CR	18	10 14 20		Dry Density = 108.4 pcf WC = 1.3% Consolidation test.
			6						
	+2859.0	SILT (ML), light gray, hard, moist, trace fine sand, non plastic, micaceous.	7						
			8	S-3	SPT	18	14 21 28		LL = 31, PL = 25, PI = 6 %Pass #200 = 61
			9						
	+2856.5	Sandy SILT (ML), light gray, hard, moist, non plastic, fine sand, micaceous.	10	S-4	CR	17	26 36 50/5"		Dry Density = 106.7 pcf WC = 7.2%
			11						
	+2854.0	SAND (SP), pale brown, very dense, moist, fine to medium sand, micaceous, friable.	12						
			13						
			14						
			15						
			16	S-5	SPT	18	18 26 30		
			17						
			18						
			19						
			20						
		Yellow brown, fine to coarse sand, with fine to coarse gravel.	21	S-6	CR	18	20 43 50		
	+2844.5	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-7** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2863 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Number	Sample Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2863.0	**Alluvium (Qa)** Silty SAND (SM), red brown, medium dense, slightly moist, fine to coarse sand, trace clay, trace caliche, cemented.	0						
			1						
			2						
			3	S-1	CR	18	11 15 15		Dry Density = 117.3 pcf WC = 12.3%
			4						
	+2858.5	SAND with Silt (SP-SM), tan to brown, medium dense, slightly moist, fine to coarse sand, trace fine gravel, trace caliche.	5						
			6	S-2	SPT	18	4 9 10		
			7						
	+2855.5	Silty SAND (SM), tan and brown, very dense, slightly moist, fine to coarse sand, layers of cemented silt.	8	S-3	CR	15	10 44 50/3"		Dry Density = 107.5 pcf WC = 4.4%
			9						
		Tan, fine sand, no layers of cemented silt.	10						
			11	S-4	SPT	18	24 34 50		LL = 18, PL = NP %Pass #200 = 23
		Increase sand.	12						
			13						
			14						
		Decreased sand.	15	S-5	CR	10	45 50/4"		Consolidation test.
			16						
			17						
			18						
			19						
			20						
			21	S-6	SPT	0	13 22 25		No sample recovery.
	+2841.5	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-8** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2858 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2858.0	**Alluvium (Qa)** Sandy SILT (ML), tan, very stiff, dry, fine sand.	0						Bulk sample collected from 0-5 feet bgs. Dry Density = 122.8 pcf WC = 9.0% Remolded Direct Shear test. Remolded Consolidation test.
	+2854.5	Silty SAND (SM), light brown, medium dense, dry, fine to coarse sand.	3	S-1	SPT	18	7 8 8		
	+2853.5	SAND (SP), brown, medium dense, dry, fine to coarse sand, trace fine gravel, some caliche.	5	S-2	CR	18	7 11 11		Dry Density = 105.6 pcf WC = 3.1%
	+2850.0	Silty SAND (SM), tan, very dense, dry, fine sand.	8	S-3	SPT	17	13 24 50/5"		
	+2848.5	Clayey SAND (SC), orange brown, very dense, slightly moist, fine to mediums and.	10	S-4	CR	10	34 50/4"		Dry Density = 109.0 pcf WC = 12.5%
	+2845.0	SAND (SP), light brown, dense, dry, fine to coarse sand, trace fine gravel.	13						
		Increased fines content.	15	S-5	SPT	18	12 19 19		
		Very dense, slightly moist, fine to medium sand.	20	S-6	CR	18	21 33 50		
	+2836.5	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						

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Log of Boring **LB-9** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2855 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 20.9 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 / Undisturbed 3 / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2855.0	**Alluvium (Qa)** Silty SAND (SM), light brown to tan, dense, dry, fine sand, some medium to coarse sand, trace caliche.	0						
			1						
			2						
			3	S-1	SPT	18	12 15 17		High fines content.
			4						
		Fine to coarse sand, trace fine gravel, no caliche, decreased fines content.	5	S-2	CR	18	15 27 28		Dry Density = 116.9 pcf WC = 2.3%
			6						
		Fine to medium sand, increased fines content, no gravel.	7						
			8	S-3	SPT	18	8 8 13		
	+2845.5		9						
		SAND with Silt (SP-SM), tan, hard, slightly moist, fine sand, heavy caliche.	10	S-4	CR	18	28 39 42		Dry Density = 113.8 pcf WC = 1.7% %Pass #200 = 11
			11						
			12						
			13						
			14						
	+2839.5	Cemented, trace clay.	15						
		Silty SAND (SM), light brown, very dense, slightly moist, fine to coarse sand, trace fine gravel.	16	S-5	SPT	18	15 27 33		
			17						
			18						
			19						
		Fine to medium sand, increased silt, no gravel.	20	S-6	CR	11	38 50/5"		
	+2834.1		21						
		Total Depth = 20.9 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-10** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2866.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.4 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2866.5	**Alluvium (Qa)** SAND (SP), pale yellow brown, medium dense, moist, fine to coarse sand, friable.	0						
			1						
			2						
			3	S-1	CR	18	11 10 10		Dry Density = 111.0 pcf WC = 1.2%
			4						
		Fine to medium sand.	5						
			6	S-2	SPT	18	4 7 8		
	+2859.5	SAND with Silt (SP-SM), light brown, dense, moist, fine to medium sand, micaceous.	7						
			8	S-3	CR	18	12 20 29		Dry Density = 111.5 pcf WC = 2.9%
	+2857.0	SILT with Sand (ML), pale olive brown, hard, moist, fine sand, non plastic.	9						
			10						
	+2855.1		11	S-4	SPT	17	24 27 50/5"		
		Total Depth = 11.4 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **LB-11** Sheet 1 of 2

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2865 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/29/21 — Date Finished: 3/29/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 51.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 5 — Undisturbed 5 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2865.0	**Fill** Silty SAND (SM), dark brown, moist, fine to medium sand.	0						
	+2864.0	**Alluvium (Qa)** SAND with Gravel (SP), pale brown, medium dense, moist, fine to medium sand, fine to coarse gravel.	1						
			2						
			3						
			4						
			5	S-1	CR	18	8 11 14		
			6						
			7						
	+2857.0	SAND with Silt (SP-SM), pale brown, very dense, moist, fine sand.	8						
			9						
			10						
			11	S-2	SPT	18	19 27 23		
			12						
			13						
	+2851.0	Clayey SAND (SC), brown, very dense, moist, fine to coarse sand, trace pinhole pores.	14						
			15	S-3	CR	5	50/5"		
			16						
			17						
	+2847.0	SAND with Gravel (SP), pale yellow brown, dense, moist, fine to medium sand, fine to coarse gravel.	18						
			19						
			20						
			21	S-4	SPT	18	18 19 24		
			22						
			23						
			24						

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Log of Boring **LB-11** Sheet 2 of 2

Project	Project No.
ARS Fulfillment Center - Project Loki	700089101
Location	**Elevation and Datum**
Victorville, California	2865 (Feet, NGVD 29)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2841.0		24						
		SAND with Gravel (SP), red brown, very dense, moist, medium to coarse sand, fine to coarse gravel.	25						
			26	S-5	CR	18	28 29 50		
			27						
			28						
			29						
		Dense.	30	S-6	SPT	18	15 17 17		
			31						
			32						
			33						
			34						
		Very dense, fine gravel.	35	S-7	CR	16	26 31 50/4"		
			36						
			37						
			38						
			39						
	+2825.0		40						
		SAND (SP), red brown, very dense, moist, fine to medium sand.	41	S-8	SPT	18	19 30 39		
	+2823.5		42						
		Sandy SILT (ML), olive brown, hard, moist, fine to medium sand, some caliche, plastic.	43						
			44						
			45	S-9	CR	10	19 50/4"		
	+2819.5		46						
		SAND with Silt (SP-SM), pale brown, very dense, moist, fine to medium sand.	47						
	+2817.0		48						
		SAND (SP), pale yellow brown, very dense, moist, fine to coarse sand.	49						
			50	S-10	SPT	18	18 28 32		
	+2813.5		51						
		Total Depth = 51.5 feet Groundwater not encountered. Borehole backfilled with bentonite grout.	52						
			53						
			54						

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Log of Boring **LB-12** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2861 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2861.0	**Alluvium (Qa)** Silty SAND (SM), brown, medium dense, dry, fine sand, trace clay.	0						
			1						
			2						
			3	S-1	SPT	18	5 6 9		
			4						
	+2856.5	Clayey SAND (SC), red brown, very dense, slightly moist, fine to coarse sand, trace fine to medium gravel, trace caliche.	5	S-2	CR	12	16 50/6"		Dry Density = 120.1 pcf WC = 11.0% Direct Shear test.
			6						
	+2854.0	SAND (SP), brown to light brown, medium dense, dry, fine to coarse sand, fine to medium gravel, trace silt.	7						
			8	S-3	SPT	18	13 12 11		
	+2851.5		9						
		Silty SAND (SM), red brown, very dense, slightly moist, fine to coarse sand, trace fine gravel.	10	S-4	CR	6	50/6"		Dry Density = 109.7 pcf WC = 2.3%
			11						
			12						
	+2848.0	SAND (SP), light brown, dense, dry, fine to coarse sand, trace fine to medium gravel.	13						
			14						
			15	S-5	SPT	18	16 19 25		
			16						
			17						
			18						
			19						
		Very dense, increased coarse sand.	20	S-6	CR	12	47 50/6"		
	+2840.0		21						
		Total Depth = 21 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-13** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2856.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 — Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4, Undisturbed 3, Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Number	Sample Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2856.5	**Alluvium (Qa)** SAND with Silt and Gravel (SP-SM), pale brown, medium dense, moist, fine to coarse sand, fine gravel, micaceous.	0						
			1						
			2						
			3	S-1	SPT	18	10 12 10		
			4						
			5						
			6	S-2	CR	18	10 11 17		Dry Density = 110.3 pcf WC = 5.8%
	+2849.5		7						
		SAND with Gravel (SP), yellow brown, medium dense, moist, fine to coarse sand, fine gravel, micaceous.	8	S-3A S-3B	SPT	18	7 8 12		
	+2848.0	Sandy SILT (ML), olive brown, very stiff, fine sand, non plastic, micaceous.	9						
	+2847.0	Clayey SAND (SC), strong brown, very dense, moist, fine sand, some caliche.	10						
			11	S-4	CR	18	27 36 50		Dry Density = 117.4 pcf WC = 11.7%
	+2844.0		12						
		SAND with Gravel (SP), pale yellow brown, dense, moist, medium to coarse sand, fine gravel.	13						
			14						
			15						
			16	S-5	SPT	18	12 14 20		
			17						
			18						
			19						
			20						
			21	S-6	CR	18	19 27 44		
	+2835.0		22						
		Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	23						
			24						

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Log of Boring **LB-14** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2855 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2855.0	**Alluvium (Qa)** Silty SAND (SM), light brown, medium dense, dry, fine to medium sand, trace fine gravel.	0						
			1						
			2						
			3	S-1	SPT	18	10 12 16		
			4						
		Dense, increased fines content, cemented fragments.	5	S-2	CR	18	18 22 14		Dry Density = 117.5 pcf WC = 3.1%
			6						
		Medium dense, trace coarse sand, decreased fines content.	7						
			8	S-3	SPT	18	6 9 21		
			9						
	+2844.5	Very dense, some coarse sand. Increased fines content, cemented chunks.	10	S-4	CR	6	50/6"		
		Total Depth = 10.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **LB-15** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2866 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2866.0	**Fill** Silty SAND (SM), dark brown, medium dense, moist, fine sand.	0						
	+2863.0	**Alluvium (Qa)** SAND with Clay (SP-SC), pale brown, medium dense, moist, fine to medium sand, trace fine gravel.	3	S-1	CR	18	14 15 27		Dry Density = 119.1 pcf WC = 4.4% Direct Shear test.
	+2861.5	SAND (SP), yellow brown, medium dense, fine to medium sand, trace fine to coarse gravel, micaceous.	5	S-2	SPT	18	5 8 8		
	+2859.0	Sandy SILT (ML), olive brown, hard, fine sand, non plastic, some caliche veins, micaceous.	7	S-3	CR	18	15 28 40		Dry Density = 108.0 pcf WC = 17.3% Consolidation test.
	+2856.5	SAND (SP), very pale brown, very dense, moist, fine to coarse sand, micaceous.	9	S-4	SPT	18	15 23 32		
		With fine to coarse gravel, trace silt.	15	S-5	CR	5	50/5"		
		Very pale gray, dense.	20	S-6	SPT	18	25 20 28		
	+2844.5	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						

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Log of Boring **LB-16** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2861 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2861.0	**Alluvium (Qa)** Clayey SAND (SC), brown, medium dense, moist, fine to coarse sand, trace silt.	0						With odorless artificial binder (i.e.: oil)
			1						
			2						
			3	S-1	SPT	18	4 6 6		
			4						
	+2856.5	Silty SAND (SM), brown, moist, dense, fine to medium sand, trace clay.	5	S-2	CR	18	12 30 43		Dry Density = 117.2 pcf WC = 7.3%
			6						
		Increased fines sand, trace organics, no clay. No organics.	7						
			8	S-3	SPT	18	12 26 22		Minor petroleum odor. Corrosivity & Chemical tests.
			9						
	+2851.5	SAND (SP), tan, dense, slightly moist, medium to coarse sand, trace fine gravel.	10	S-4	CR	18	19 34 37		Dry Density = 111.9 pcf WC = 1.7%
			11						
			12						
			13						
			14						
		Brown, very dense, trace fine to medium gravel, trace clay.	15	S-5	SPT	12	26 50/6"		
			16						
			17						
			18						
	+2842.5	Silty SAND (SM), light brown, dense, slightly moist, fine to medium sand.	19						
			20						
			21	S-6	CR	18	15 31 38		
	+2839.5	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-17** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2858 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2858.0	**Alluvium (Qa)** Silty SAND (SM), red brown, very dense, slightly moist, fine to coarse sand, trace fine gravel, trace caliche.	0						
			1						
			2						
			3	S-1	CR	18	15 40 42		Dry Density = 123.2 pcf WC = 5.4%
			4						
	+2853.5	SAND (SP), brown, medium dense, slightly moist, fine to coarse sand, fine gravel, trace clay, some caliche.	5						
			6	S-2	SPT	18	7 9 12		
			7						
			8						Dry Density = 106.5 pcf WC = 3.9%
			9						
	+2848.5	Silty SAND (SM), orange brown, very dense, dry, fine sand.	10	S-3	CR	5	50/5"		
		Increased sand.	11						
			12						
	+2845.0	SAND (SP), light brown, dense, dry, fine to coarse sand, trace fine gravel.	13						
			14						
			15						
			16	S-4	SPT	18	12 20 21		
			17						
			18						
			19						
			20						
	+2837.0	Very dense, trace fine to medium gravel, increased coarse sand.	21	S-5	CR	12	27 50/6"		
		Total Depth = 21 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-18** Sheet 1 of 2

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2858 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/29/21 — Date Finished: 3/29/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 51.5 ft — Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 5 — Undisturbed 5 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2858.0	**Fill** Silty SAND (SM), dark brown, medium dense, moist, fine sand.	0						
	+2856.5	**Alluvium (Qa)** SAND with Gravel (SP), pale brown, very dense, moist, medium to coarse sand, fine to coarse gravel, slightly cemented.	1–5						
			5–6	S-1	CR	18	24 36 42		
			6–8						
	+2849.5	Silty SAND (SM), oilve brown, very dense, moist, fine to medium sand, some caliche, slightly cemented.	8–10						
			10–11	S-2	SPT	18	15 24 44		
			11–13						
	+2844.5	SAND with Gravel (SP), pale brown, very dense, miost, fine to coarse sand, fine to coarse gravel, micaceous.	13–15						
			15–16	S-3	CR	18	19 35 47		
			16–19						
		Dense.	19–20						
	+2837.0		20–21	S-4	SPT	18	13 16 22		
		Silty SAND (SM), red brown, dense, moist, fine to medium sand, micaceous.	21–24						

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Log of Boring **LB-18** Sheet 2 of 2

Project	Project No.
ARS Fulfillment Center - Project Loki	700089101
Location	**Elevation and Datum**
Victorville, California	2858 (Feet, NGVD 29)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2834.0		24						
		Silty SAND (SM), red brown, dense, moist, fine to medium sand, micaceous.	25	S-5	CR	9	38 50/3"		
	+2830.0	SAND with Silt (SP-SM), very pale brown, very dense, moist, very fine sand, micaceous.	26						
			27						
			28						
			29						
			30	S-6	SPT	12	30 50/6"		
			31						
			32						
	+2825.0	SAND with Gravel (SP), yellow brown, very dense, moist, medium to coarse sand, fine to coarse gravel.	33						
			34						
			35						
			36	S-7	CR	15	23 28 50/5"		
			37						
			38						
			39						
	+2818.0	SAND (SP), yellow brown, very dense, moist, fine to coarse sand.	40						
			41	S-8	SPT	18	17 22 31		
			42						
	+2815.0	Silty SAND (SM), red brown, very dense, moist, fine sand, micaceous.	43						
			44						
			45	S-9	CR	5	50/5"		
			46						
			47						
			48						
			49						
			50						
			51	S-10	SPT	18	24 34 39		
	+2806.5		52						
		Total Depth = 51.5 feet Groundwater not encountered. Borehole backfilled with bentonite grout.	53						
			54						

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Log of Boring **LB-19** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2865 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Number	Sample Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2865.0	**Alluvium (Qa)** Silty SAND (SM), orange brown, medium dense, slightly moist, fine to coarse sand, trace fine gravel, some caliche.	0						
			1						
			2						
			3	S-1	CR	18	13 17 21		Dry Density = 114.8 pcf WC = 3.1%
			4						
		Dense.	5	S-2	SPT	18	5 14 19		
	+2859.0	Sandy SILT (ML), tan, hard, dry, fine sand.	6						
		Trace medium sand.	7						
			8	S-3	CR	11	28 50/5"		Dry Density = 102.3 pcf WC = 7.4%
		Increased fines content, no medium sand.	9						
	+2855.5	Silty SAND (SM), light brown, dense, slightly moist, fine sand, with caliche.	10						
			11	S-4	SPT	18	20 22 26		3-inches of Sandy Clay (SC) layer.
			12						
	+2852.0	SAND (SP), light brown, very dense, slightly moist, fine to coarse sand.	13						
			14						
			15	S-5	CR	12	33 50/6"		
			16						
			17						
	+2847.0	Silty SAND (SM), tan, very dense, slightly moist, fine to medium sand, trace caliche.	18						
			19						
			20	S-6	SPT	18	24 30 35		
		Fine sand, decreased silt.	21						
	+2843.5	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-20** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2860 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2860.0	**Alluvium (Qa)** Clayey SAND (SC), dark brown, very dense, slightly moist, fine to coarse sand, some fine gravel.	0						Bulk sample collected from 0-5 feet bgs.
			1						
			2						
			3	S-1	CR	12	21 50/6"		Dry Density = 125.6 pcf WC = 9.2%
			4						
	+2855.5	Silty SAND (SM), tan, medium dense, slightly moist, fine to medium sand, some caliche.	5	S-2	SPT	18	12 13 12		%Pass #200 = 26
			6						
		Very dense.	7						6-inches of Sand (SP) layer.
			8	S-3	CR	16	20 48 50/4"		Dry Density = 117.0 pcf WC = 3.2%
			9						
			10	S-4	SPT	12	27 50/6"		
		Fine sand, increased silt.	11						
			12						
			13						
	+2846.0	SAND (SP), light brown, very dense, slightly moist, medium to coarse sand, some fine sand, trace caliche.	14						
			15	S-5	CR	12	27 50/6"		
			16						
			17						
			18						
	+2841.0	Clayey SAND (SC), light brown, dense, slightly moist, fine sand, trace caliche.	19						
			20						
			21	S-6	SPT	18	12 13 32		LL = 31, PL = 21, PI = 10 %Pass #200 = 43
	+2838.5	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-21** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2856.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 / Undisturbed 3 / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Number	Sample Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2856.5	**Fill** Silty SAND (SM), pale brown, medium dense, moist, fine sand.	0						
	+2853.5	**Alluvium (Qa)** Silty SAND (SM), pale brown, medium dense, moist, medium to coarse sand, trace fine gravel.	3	S-1	CR	18	10 12 10		Dry Density = 113.4 pcf WC = 4.1%
			6	S-2	SPT	18	6 7 10		
		Dense.	8	S-3	CR	18	10 20 28		Dry Density = 115.0 pcf WC = 2.7% %Pass #200 = 15
	+2847.5	Sandy CLAY (CL), olive brown, hard, moist, fine sand, low plasticity, micaceous, few caliche deposits.	9						
			11	S-4	SPT	18	12 15 22		LL = 41, PL = 24, PI = 17
	+2843.0	SAND with Silt (SP-SM), red brown, dense, moist, fine to coarse sand, trace fine to coarse gravel, micaceous.	14						
			16	S-5	CR	18	28 37 32		
		Very dense.	20	S-6	SPT	18	15 27 27		
	+2835.0	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						

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Log of Boring **LB-22** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2866.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 — Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.3 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2866.5	**Fill** Silty SAND (SM), dark brown, medium dense, moist, fine to medium sand.	0						
	+2864.5	**Alluvium (Qa)** SAND (SP), pale brown, medium dense, moist, fine to coarse sand, micaceous.	2	S-1	SPT	18	5 7 6		
		Dry, with fine to coarse sand, very friable.	5	S-2	CR	18	9 15 26		Sample disturbed. Dry Density = 120.2 pcf WC = 1.2%
	+2859.5	SILT with Sand (ML), very pale olive gray, hard, dry, fine sand, non plastic, micaceous.	7	S-3	SPT	10	26 50/4"		
	+2857.0	SAND with Silt (SP-SM), pale brown, very dense, dry, fine sand, micaceous.	10	S-4	CR	12	50/6"		Dry Density = 95.4 pcf WC = 5.6%
	+2854.5	SAND (SP), yellow brown, very dense, moist, fine to coarse sand, friable, micaceous.	12						
			15	S-5	SPT	18	15 26 30		
		Fine to medium sand.	20	S-6	CR	16	25 27 50/4"		
	+2845.0	Total Depth = 21.3 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			24						

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Log of Boring **LB-23** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2864.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 — Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4 — Undisturbed 3 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2864.5	**Fill** Silty SAND (SM), dark brown, medium dense, moist, fine sand.	0						
	+2863.0	**Alluvium (Qa)** SAND with Gravel (SP), dark brown, dense, moist, medium to coarse sand, fine gravel, micaceous.	1–3	S-1	CR	18	24 30 31		Dry Density = 116.5 pcf WC = 2.5% Direct Shear test.
		Very dense.	4–5	S-2a/S-2b	SPT	18	15 18 34		
	+2858.5	Clayey SAND (SC), very light gray, very dense, dry, fine sand, some caliche.	6						
	+2857.5	Silty SAND (SM), pale brown, very dense, moist, fine sand, micaceous.	7–8	S-3	CR	12	34 50/6"		Dry Density = 97.3 pcf WC = 5.4%
			9–10	S-4	SPT	11	30 50/5"		
	+2852.0	SAND (SP), yellow brown, very dense, moist, medium to coarse sand, trace fine gravel, micaceous.	11–15	S-5	CR	11	34 50/5"		
	+2847.0	SAND with Silt (SP-SM), pale brown, very dense, moist, fine sand, micaceous.	16–20	S-6	SPT	18	24 40 50		
	+2843.0	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	21–24						

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Log of Boring **LB-24** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2862 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 20.9 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 5 / Undisturbed 2 / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Number	Sample Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2862.0	**Fill** Silty SAND (SM), dark brown, medium dense, moist, fine sand.	0						
	+2860.5	**Alluvium (Qa)** Clayey SAND (SC), brown, very dense, moist, fine sand, some caliche.	1–2						
			3	S-1	SPT	18	20 26 28		
	+2857.5	Silty SAND (SM), yellow brown, very dense, moist, fine sand, micaceous, some caliche.	4–5	S-2	CR	10	40 50/4"		Dry Density = 108.9 pcf WC = 3.9%
	+2855.0	SAND with Silt (SP-SM), very pale brown, very dense, dry, fine to medium sand, micaceous.	6–7						
			8	S-3	SPT	18	33 43 42		
	+2852.5	SAND (SP), pale yellow brown, dense, moist, medium to coarse sand, trace fine gravel, micaceous.	9–10						
			11	S-4	CR	18	25 28 32		Dry Density = 112.0 pcf WC = 1.2%
	+2846.5	Silty SAND (SM), pale olive brown, very dense, moist, fine sand, micaceous.	12–15						
			16	S-5A S-5B	SPT	12	20 50/6"		
			17–19						
			20	S-6	SPT	11	35 50/5"		
	+2841.2	Total Depth = 20.9 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	21–24						

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Log of Boring **LB-25** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2861.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2861.5	**Alluvium (Qa)** Silty SAND (SM), red brown, dense, slightly moist, fine to coarse sand, trace fine gravel.	0						
			1						
			2						
			3	S-1	CR	18	19 23 33		Dry Density = 111.1 pcf WC = 3.6%
			4						
		Increased sand content.	5						
	+2855.5		6	S-2	SPT	18	7 9 11		
		SAND with Silt (SP-SM), light brown, medium dense, slightly moist, fine to coarse sand, trace fine gravel.	7						
			8	S-3	CR	15	17 38 50/3"		Dry Density = 111.4 pcf WC = 3.1%
	+2853.0	Silty SAND (SM), tan, very dense, dry, fine to medium sand, trace fine gravel, trace caliche.	9						
		Fine to medium sand, with caliche, cemented, no gravel.	10						
			11	S-4	SPT	18	18 34 47		
	+2848.5		12						
		SAND (SP), brown, very dense, dry, coarse sand, some fine to medium sand, trace fine gravel.	13						
			14						
			15	S-5	CR	11	41 50/5"		
			16						
			17						
			18						
	+2842.5		19						
		SAND with Silt (SP-SM), light brown, very dense, slightly moist, fine to medium sand, trace coarse sand, some caliche.	20						
			21	S-6	SPT	18	17 25 28		
	+2840.0		22						
		Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	23						
			24						

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Log of Boring **LB-26** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2859.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 — Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2859.5	Silty SAND (SM), tan to brown, medium dense, dry, slightly moist, fine to coarse sand, some fine to medium gravel.	0						
			1						
			2						
			3	S-1	SPT	18	6 6 7		
			4						
	+2854.0		5						
		SAND (SP), brown, medium dense, slightly moist, coarse sand, some fine to medium sand, some fine to coarse gravel.	6	S-2	CR	18	16 22 22		Dry Density = 105.0 pcf WC = 2.8%
		Trace fine gravel.	7						
	+2851.0		8	S-3	SPT	18	5 6 6		
		Silty SAND (SM), tan, medium dense, slightly moist, fine to medium sand.	9						
		Brown, very dense, fine to coarse sand, trace fine gravel.	10	S-4	CR	17	17 39 50/5"		Dry Density = 110.9 pcf WC = 8.4%
	+2848.5		11						
		Sandy SILT (ML), light brown, hard, slightly moist, fine sand.	12						
	+2846.5		13						
		Silty SAND (SM), tan to brown, very dense, slightly moist, fine sand, trace clay, trace caliche.	14						
			15	S-5	SPT	18	10 24 32		
		Some medium to coarse sand, increased sand content, no clay.	16						
	+2841.5		17						
		SAND (SP), red brown, very dense, slightly moist, medium to coarse sand, some fine sand, trace fine gravel.	18						
			19						
			20						
	+2838.0		21	S-6	CR	18	17 44 50		
		Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-27** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2858.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 — Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2858.5	**Alluvium (Qa)** Clayey SAND (SC), brown, medium dense, slightly moist, fine to coarse sand.	0						
	+2855.5	Silty SAND (SM), brown, medium dense, slightly moist, fine to coarse sand, trace fine gravel, trace clay, trace caliche.	3	S-1	SPT	18	4 5 6		
	+2854.0	SAND with Silt (SP-SM), red brown, medium dense, slightly moist, fine to coarse sand, some fine to medium gravel, trace caliche, trace clay.	5	S-2	CR	18	10 11 15		Dry Density = 111.9 pcf WC = 3.1%
		Light brown, trace fine gravel, no clay.	8	S-3	SPT	18	7 10 11		
	+2849.0	Silty SAND (SM), light brown, very dense, slightly moist, fine to medium sand.	10	S-4	CR	6	50/6"		Dry Density = 96.2 pcf WC = 8.6%
		Dense, increased fines content, trace caliche.	15	S-5	SPT	18	11 15 25		
		Decreased fines content.	16						
	+2840.5	SAND (SP), brown, very dense, slightly moist, fine to coarse sand, trace fine gravel.	18						
	+2837.0	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	20	S-6	CR	18	25 42 50		
			22						
			24						

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Log of Boring **LB-28** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2854.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 — Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4 — Undisturbed 3 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2854.5	**Alluvium (Qa)** Silty SAND (SM), strong brown, medium dense, moist, fine to medium sand, micaceous.	0						
			1						
			2						
			3	S-1	CR	18	8 14 19		Dry Density = 115.7 pcf WC = 3.6%
			4						
		Heavy caliche, cemented.	5						
			6	S-2	SPT	18	13 12 10		
	+2847.5		7						
		SAND with Gravel (SP), red brown, medium dense, moist, medium to coarse sand, fine to coarse gravel, trace silt.	8	S-3	CR	18	12 16 22		Dry Density = 115.1 pcf WC = 2.4%
			9						
			10						
	+2843.5		11	S-4A S-4B	SPT	18	8 11 14		
		Silty SAND (SM), olive brown, medium dense, moist, fine sand, trace caliche.	12						
			13						
			14						
		Very dense, heavy iron oxide stains, some caliche.	15	S-5	CR	12	42 50/6"		
	+2837.5		16						
		SAND with Gravel (SP), pale brown, dense, moist, medium to coarse sand, fine to coarse gravel, micaceous.	17						
			18						
			19						
			20	S-6	SPT	18	14 22 20		
	+2833.0		21						
		Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-29** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2869 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 10.8 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ -, Completion ▼ -, 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2869.0	**Fill** Silty SAND (SM), dark brown, medium dense, moist, fine sand.	0						Bulk sample collected from 0-5 feet bgs. R Value.
	+2867.5	**Alluvium (Qa)** SILT (ML), pale olive brown, hard, dry, non plastic, trace fine sand.	1–3	S-1	SPT	18	8 11 9		
	+2864.5	SAND with Silt (SP-SM), pale brown, medium dense, fine sand, micaceous, trace caliche nodules.	4–6	S-2	CR	18	5 11 13		Dry Density = 108.1 pcf WC = 3.3%
	+2862.0	SAND with Gravel (SP), pale yellow brown, medium dense, fine to coarse sand, fine to coarse gravel, micaceous.	7						
	+2860.5	Silty SAND (SM), olive brown, medium dense, moist, fine to medium sand, micaceous.	8–9	S-3	SPT	18	8 10 18		
	+2859.5	SILT with Sand (ML), olive brown, hard, moist, fine sand, micaceous.	10	S-4	CR	10	32 50/4"		
	+2858.2	Total Depth = 10.8 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	11–24						

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Log of Boring **LB-30** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2865.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 — Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	Field Engineer: A. Atry

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Number	Sample Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2865.5	**Alluvium (Qa)** Clayey SAND (SC), very pale brown, very dense, moist, fine to medium sand, micaceous.	0						
			1						
			2						
			3	S-1	SPT	18	16 24 26		
			4						
	+2861.0	SAND (SP), red brown, very dense, moist, medium to coarse sand, trace fine to coarse gravel, micaceous.	5	S-2	CR	10	32 50/4"		Dry Density = 115.9 pcf WC = 4.2% Consolidation test.
			6						
	+2858.5	Silty SAND (SM), yellow brown, very dense, moist. fine to medium sand, micaceous.	7						
			8	S-3	SPT	12	24 50/6"		
			9						
			10	S-4	CR	4	50/4"		Dry Density = 102.5 pcf WC = 6.7%
			11						
			12						
	+2852.5	SAND (SP), pale yellow brown, dense, moist, medium to coarse sand, trace fine gravel, micaceous.	13						
			14						
			15						
			16	S-5	SPT	18	12 15 21		
			17						
			18						
			19						
			20	S-6	CR	0	25 50/6"		No sample recovery.
	+2844.5	Total Depth = 21 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	21						
			22						
			23						
			24						

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Log of Boring **LB-31** Sheet 1 of 2

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2863 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/29/21 — Date Finished: 3/29/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 31.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2863.0	**Fill** Silty SAND (SM), dark brown, medium dense, moist, fine to medium sand.	0						
	+2862.0	**Alluvium (Qa)** SAND with Silt (SP-SM), pale brown, very dense, moist, fine sand, micaceous.	1–5						
			5–6	S-1	SPT	18	19 34 45		
	+2855.0	SAND with Gravel (SP), red brown, dense, moist, medium to coarse sand, fine to coarse gravel.	7–10						
			10–11	S-2	CR	18	21 29 36		
	+2848.0	SAND (SP), red brown, dense, moist, medium to coarse sand.	12–15						
			15–16	S-3	SPT	18	11 15 21		
	+2844.0	Silty SAND (SM), strong brown, very dense, moist, fine to medium sand, micaceous.	17–20						
			20–21	S-4	CR	17	17 32 50/5"		
			22–24						

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Log of Boring **LB-31** Sheet 2 of 2

Project	Project No.
ARS Fulfillment Center - Project Loki	700089101
Location	**Elevation and Datum**
Victorville, California	2863 (Feet, NGVD 29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2839.0	Silty SAND (SM), olive brown, dense, moist, fine to medium sand, micaceous, increased silt content.	24						
			25						
			26	S-5	SPT	18	12 14 22		
			27						
			28						
			29						
		Very dense.	30						
	+2832.5			S-6	CR	12	20 50/6"		
	+2832.0	SAND (SP), pale brown, very dense, moist, fine to coarse sand.	31						
		Total Depth = 31.0 feet Groundwater not encountered. Borehole backfilled with bentonite grout.	32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						
			46						
			47						
			48						
			49						
			50						
			51						
			52						
			53						
			54						

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Log of Boring **LB-32** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2862.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 — Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2862.5	**Alluvium (Qa)** Clayey SAND (SC), red brown, very dense, slightly moist, fine to coarse sand, trace fine gravel, trace caliche, cemented.	0						
			1						
			2						
			3	S-1	CR	11	38 50/5"		Dry Density = 122.3 pcf WC = 7.2%
			4						
	+2858.0	Silty SAND (SM), tan, medium dense, slightly moist, fine to coarse sand, some fine to medium gravel.	5						
			6	S-2	SPT	18	12 13 14		Corrosivity & Chemical tests.
			7						
		Very dense, with cemented fragments, caliche.	8	S-3	CR	6	50/6"		Dry Density = 117.0 pcf WC = 2.6% Direct Shear test.
			9						
		Fine to medium sand, no cemented fragments, no gravel.	10						
		Increased fines content.	11	S-4	SPT	18	39 22 39		
			12						
	+2849.5	SAND (SP), brown, very dense, dry, coarse sand, some fine to medium sand, trace fine gravel.	13						
			14						
			15	S-5	CR	11	30 50/5"		
	+2846.3	SILT with Sand (SP-SM), tan, hard, dry, fine sand.	16						
	+2845.0	SAND (SP), brown, dense, dry, fine to coarse sand, some fine gravel.	17						
			18						
			19						
			20	S-6	SPT	18	17 22 26		
	+2841.5	Silty SAND (SM), tan, dense, dry, fine to medium sand.	21						
	+2841.0	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-33** Sheet 1 of 4

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2861 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/29/21 — Date Finished: 3/29/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 101.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 9 — Undisturbed 11 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First ▽ - — Completion ▼ 79 — 24 HR. ▼ -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2861.0	**Fill** Silty SAND (SM), dark brown, medium dense, moist, fine sand.	0						
	+2859.5	**Alluvium (Qa)** SAND (SP), strong brown, medium dense, moist, fine to coarse sand, trace fine gravel.	1						
			2						
			3						
			4						
			5	S-1	CR	18	23 33 32		
			6						
			7						
			8						
			9						
		Yellow brown, very dense, trace fine to coarse gravel.	10	S-2	CR	18	38 33 45		
			11						
			12						
			13						
			14						
		Very pale brown.	15	S-3	SPT	18	17 27 44		
			16						
			17						
			18						
			19						
		Medium to coarse sand, no gravel, friable.	20	S-4	CR	12	25 50/6"		
			21						
			22						
			23						
			24						

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Log of Boring **LB-33** Sheet 2 of 4

Project	Project No.
ARS Fulfillment Center - Project Loki	700089101
Location	**Elevation and Datum**
Victorville, California	2861 (Feet, NGVD 29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2837.0	SAND (SP), strong brown, very dense, moist, fine sand, not friable.	24						
			25						
			26	S-5	SPT	18	20 33 35		
			27						
			28						
			29						
		Friable.	30	S-6	CR	6	50/6"		Sample disturbed.
			31						
			32						
			33						
			34						
			35						
			36	S-7	SPT	18	16 28 30		
			37						
			38						
			39						
		Fine to coarse sand, some fine to coarse gravel.	40	S-8	CR	12	31 50/6"		
			41						
			42						
	+2818.0		43						
		Silty SAND (SM), brown, very dense, moist, medium to coarse sand, slightly cemented, micaceous.	44						
			45						
			46	S-9	SPT	18	21 26 29		
			47						
	+2813.0		48						
		SAND (SP), very pale brown, very dense, moist, very fine sand, micaceous, friable.	49						
			50	S-10	CR	6	50/6"		
			51						
			52						
	+2808.5		53						
		Clayey SAND (SC), dark brown, dense, moist, fine to medium sand, sightly cemented.	54						

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Log of Boring **LB-33** Sheet 3 of 4

Project	Project No.
ARS Fulfillment Center - Project Loki	700089101
Location	**Elevation and Datum**
Victorville, California	2861 (Feet, NGVD 29)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2807.0	Clayey SAND (SC), dark brown, dense, moist, fine to medium sand, sightly cemented.	54						
			55						
			56	S-11	SPT	18	18 22 25		
			57						
	+2803.5	SAND with Silt (SP-SM), very pale brown, very dense, moist, fine sand, micaceous, friable.	58						
			59						
			60	S-12	CR	10	39 50/4"		
	+2800.5	Silty SAND (SM), dark brown, very dense, moist, fine sand, micaceous.	61						
			62						
			63						
			64						
			65	S-13	SPT	18	9 17 31		
	+2795.0	SAND (SP), very pale brown, dense, moist, fine sand, micaceous.	66						
			67						
			68						
			69						
		Very dense, very moist, medium to coarse sand.	70	S-14	CR	6	50/6"		
			71						
			72						
	+2788.0	Sandy CLAY (CL), olive brown, very stiff, wet, fine sand, trace manganese oxide strains, micaceous, plastic.	73						
			74						
			75	S-15	SPT	18	13 10 8		
	+2784.5	Silty SAND (SM), dark brown, medium dense, wet, fine sand.	76						
			77						
			78						
			79						Groundwater encountered at 79 feet bgs during drilling.
		Very dense.	80	S-16	CR	0	35 50/4"		No recovery.
			81						
			82						
	+2778.5	Sandy SILT (ML), yellow brown, very dense, wet, fine to medium sand, micaceous.	83						
			84						

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Log of Boring **LB-33** Sheet 4 of 4

Project	Project No.
ARS Fulfillment Center - Project Loki	700089101
Location	**Elevation and Datum**
Victorville, California	2861 (Feet, NGVD 29)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2777.0	Sandy SILT (ML), yellow brown, very dense, wet, fine to medium sand, micaceous.	84						
			85						
			86	S-17	SPT	18	27 38 38		
			87						
	+2773.0	SAND (SP), brown, very dense, wet, fine to medium sand, micaceous.	88						
			89						
			90						
			91	S-18	CR	18	21 36 50		
			92						
	+2768.0	Silty SAND (SM), olive brown, medium dense, wet, fine to medium sand.	93						
			94						
			95						
			96	S-19	SPT	18	7 11 13		
	+2764.0	SAND (SP), pale brown, dense, wet, fine to coarse sand.	97						
			98						
			99						
			100						
	+2760.0		101	S-20	CR	18	12 28 35		
	+2759.5	Sandy CLAY (CL), olive brown, hard, wet, fine to medium sand, plastic.							
		Total Depth = 101.5 feet Groundwater encountered at 79 feet bgs. Borehole backfilled with bentonite grout.	102						
			103						
			104						
			105						
			106						
			107						
			108						
			109						
			110						
			111						
			112						
			113						
			114						

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Log of Boring **LB-34** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2859.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2859.5	**Alluvium (Qa)** Clayey SAND (SC), red brown, medium dense, slightly moist, fine to coarse sand, trace fine gravel, trace caliche.	0						Bulk sample collected from 0-5 feet bgs. Dry Density = 117.3 pcf WC = 11.0% Remolded Direct Shear test. Remolded Consolidation test. Dry Density = 111.7 pcf WC = 11.8%
			1						
			2						
			3	S-1	CR	18	8 13 22		
			4						
	+2855.0	SAND with Clay (SP-SC), brown to light brown, dense, slightly moist, fine to coarse sand, some fine to coarse gravel, trace caliche.	5						
			6	S-2	SPT	18	10 15 16		
	+2852.5	SAND with Silt (SP-SM), red brown, dense, moist, fine to coarse sand, some fine to medium gravel, trace coarse gravel, trace clay.	7						
			8	S-3	CR	18	18 26 27		Dry Density = 109.8 pcf WC = 2.6%
			9						
	+2849.0	No gravel, no clay. Sandy SILT (ML), tan, hard, dry, fine sand.	10						%Pass #200 = 33
			11	S-4	SPT	18	27 22 23		
			12						
	+2846.5	Silty SAND (SM), red brown, dense, moist, fine to medium sand, trace clay, with limonite covering.	13						
			14						
			15						
			16	S-5	CR	18	12 28 30		
			17						
			18						
			19						
			20						
		Sandy SILT (ML), tan to brown, hard, slightly moist, fine sand.	21	S-6	SPT	18	8 10 23		
	+2838.0	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-35** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2857 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2857.0	**Fill** Silty SAND (SM), pale brown, medium dense, moist, fine sand.	0						Bulk sample collected from 0-5 feet bgs.
	+2855.0	**Alluvium (Qa)** SAND with Silt and Gravel (SP-SM), yellow brown, dense, moist, medium to coarse sand, fine gravel.	2	S-1	SPT	18	10 18 25		
		Red brown, dense.	5	S-2	CR	18	32 28 35		Dry Density = 114.4 pcf WC = 2.0%
			8	S-3	SPT	18	14 18 29		
	+2847.5	Sandy SILT (ML), olive brown, hard, moist, non plastic, fine sand, some caliche.	10	S-4	CR	10	29 50/4"		Dry Density = 101.3 pcf WC = 13.8%
	+2844.0	Silty SAND (SM), pale brown, very dense, moist, fine sand.	13						
			16	S-5	SPT	17	20 35 50/5"		
		Dense, increased silt.	20	S-6	CR	18	10 15 26		
	+2835.5	Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						

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Log of Boring **LB-36** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2853 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2853.0	**Alluvium (Qa)** Silty SAND (SM), light brown, medium dense, moist, fine to medium sand, trace fine gravel, some caliche.	0						Bulk sample collected from 0-5 feet bgs. R Value.
			1						
			2						
			3	S-1	CR	18	9 10 9		Dry Density = 115.9 pcf WC = 7.6%
			4						
		Fine to coarse sand, increased fines content, no caliche.	5						
			6	S-2	SPT	18	5 6 6		
			7						
		Increased medium to coarse sand, some fine to medium gravel.	8	S-3	CR	18	13 19 23		Poor sample recovery. Dry Density = 103.7 pcf WC = 1.9%
			9						
		Fine to medium sand, increased fines content, no gravel.	10						
	+2841.5		11	S-4	SPT	18	13 27 28		
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **LB-37** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2866 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 / Undisturbed 3 / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2866.0	**Fill** Silty SAND (SM), dark brown, medium dense, moist, fine sand.	0						
	+2865.0	**Alluvium (Qa)** SAND (SP), dark brown, dense, moist, medium to coarse sand, micaceous, trace caliche.	1						
			2						
			3	S-1	CR	18	34 30 35		Dry Density = 114.9 pcf WC = 2.0%
			4						
		Pale brown.	5						
			6	S-2	SPT	18	12 15 17		
	+2859.0		7						
		Poorly graded GRAVEL with Sand (GP), brown, very dense, moist, medium to coarse sand, fine gravel, micaceous.	8	S-3	CR	6	50/6"		Dry Density = 104.4 pcf WC = 2.4%
	+2856.5		9						
		SILT (ML), olive brown, hard, moist, non plastic, trace fine sand, heavy caliche deposits.	10						
			11	S-4	SPT	18	26 29 50		
	+2853.5		12						
		SAND with Silt (SP-SM), pale brown, very dense, moist, fine sand, micaceous.	13						
			14						
			15	S-5	CR	10	42 50/4"		
	+2849.0		16						
		SAND (SP), pale yellow brown, dense, moist, medium to coarse sand, micaceous.	17						
			18						
			19						
			20						
			21	S-6	SPT	18	17 19 25		
	+2844.5		22						
		Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	23						
			24						

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Log of Boring **LB-38** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2864.5 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2864.5	**Alluvium (Qa)** SAND (SP), dark brown, dense, moist, medium to coarse sand.	0						
	+2861.0	Sandy SILT (ML), pale brown, hard, non plastic, fine sand, trace caliche.	3	S-1	CR	18	19 34 40		Dry Density = 112.5 pcf WC = 3.8%
			6	S-2	SPT	18	30 32 30		
	+2857.5	Silty SAND (SM), pale brown, very dense, moist, fine to medium sand, micaceous.	8	S-3	CR	11	38 50/5"		Dry Density = 108.6 pcf WC = 3.5%
	+2855.0	Grades to yellow brown, few caliche deposits.	9						
		Sandy CLAY (CL), olive brown, very dense, fine sand, micaceous.	10	S-4	SPT	10	38 50/4"		LL = 31, PL = 22, PI = 9 %Pass #200 = 56
	+2852.0	SAND with Gravel (SP), red brown, very dense, moist, fine to coarse sand, fine to coarse gravel, friable.	13						
			15	S-5	CR	12	25 50/6"		Poor sample recovery.
	+2843.5		20	S-6A	SPT	18	17 34 35		
	+2843.0	Clayey SAND (SC), olive brown, very dense, moist, fine sand, micaceous.	21	S-6B					
		Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						

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Log of Boring **LB-39** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2863 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2863.0	**Alluvium (Qa)** Clayey SAND (SC), red brown, dense, moist, fine to medium sand.	0						Bulk sample collected from 0-5 feet bgs.
	+2860.0	Silty SAND (SM), light brown, dense, dry, fine to medium sand, trace fine gravel, cemented fragments, some caliche.	3	S-1	SPT	18	14 19 20		Moderate Petroleum odor.
		Very dense, fine to coarse sand.	5	S-2	CR	11	25 50/5"		Dry Density = 108.5 pcf WC = 4.8% Direct Shear test.
		Trace clay.	8	S-3	SPT	11	21 50/5"		
		Very dense, fine to medium sand, trace coarse sand, increased fines content.	10	S-4	CR	6	50/6"		Dry Density = 107.3 pcf WC = 4.5%
	+2850.5	SAND (SP), tan, very dense, slightly moist, coarse sand, some fine to medium sand, trace fine gravel.	13						
	+2847.5	Silty SAND (SM), tan, very dense, dry, fine sand, trace medium to coarse sand.	16	S-5	SPT	18	16 24 41		
	+2842.0		20	S-6	CR	0	32 50/6"		No sample recovery.
		Total Depth = 21 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	21						

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Log of Boring **LB-40** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2863 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 20.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 / Undisturbed 3 / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2863.0	**Fill** Silty SAND (SM), dark brown, moist, medium dense, fine sand.		0						
	+2861.5	**Alluvium (Qa)** Silty SAND (SM), pale brown, dense, moist, fine sand, micaceous, heavy caliche lenses.	0.2	1 2 3	S-1	SPT	18	12 23 23		
	+2858.5	SAND (SP), pale brown, dense, moist, fine to coarse sand, trace fine gravel, micaceous.	0.1	4 5	S-2	CR	18	23 35 40		Dry Density = 117.9 pcf WC = 1.7%
		Medium dense, fine to coarse gravel.	0.2	6 7 8	S-3	SPT	18	8 11 14		
		Dense. No gravel.	0.7	9 10 11	S-4	CR	18	25 38 37		Dry Density = 108.8 pcf WC = 1.2%
	+2850.0	Silty SAND (SM), olive brown, very dense, moist, fine sand, micaceous, some caliche.		12 13 14						
			0.5	15 16	S-5	SPT	12	32 50/6"		
	+2845.5	SAND with Silt (SP-SM), red brown, very dense, moist, fine to medium sand, micaceous.		17 18 19						
	+2842.5		0.1	20	S-6	CR	6	50/6"		
		Total Depth = 20.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.		21 22 23 24						

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Log of Boring **LB-41** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2860 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 / Undisturbed 3 / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2860.0			0						
	+2859.0	**Fill** Silty SAND (SM), dark brown, medium dense, fine sand.		1						
		Alluvium (Qa) SAND with Clay (SP-SC), dark red brown, very dense, moist, fine to coarse sand.	0.3	2	S-1	CR	17	11 25 50/5"		Dry Density = 122.9 pcf WC = 11.0%
				3						
				4						
		Dense, some caliche.	0.0	5	S-2	SPT	18	11 14 17		
				6						
	+2853.0			7						
		SAND with Gravel (SP), yellow brown, dense, medium to coarse sand, fine to coarse gravel, micaceous.	0.0	8	S-3	CR	18	26 29 37		Dry Density = 115.8 pcf WC = 2.4%
				9						
		Medium dense, fine to medium sand, no gravel.	0.1	10	S-4	SPT	18	8 10 18		
				11						
	+2847.5			12						
		Silty SAND (SM), pale brown, very dense, moist, fine sand, micaceous.		13						
				14						
			0.0	15	S-5	CR	12	20 50/6"		
				16						
	+2843.0			17						
		SAND with Silt (SP-SM), pale brown, dense, moist, fine to medium sand, micaceous.		18						
				19						
			0.0	20	S-6	SPT	18	14 16 20		
	+2838.5			21						
		Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.		22						
				23						
				24						

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Log of Boring **LB-42** Sheet 1 of 2

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2859 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/29/21 — Date Finished: 3/29/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 31.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2859.0	**Alluvium (Qa)** SAND with Gravel (SP), pale brown, medium dense, moist, medium to coarse sand, fine to coarse gravel.	0						
			1						
			2						
			3						
			4						
			5	S-1	CR	18	11 13 20		
			6						
			7						
			8						
	+2850.0	Silty SAND (SM), pale olive brown, medium dense, moist, fine sand.	9						
			10	S-2	SPT	18	10 12 14		
			11						
			12						
			13						
	+2845.5	Sandy SILT (ML), olive brown, hard, moist, fine sand, non-plastic.	14						
			15	S-3	CR	10	19 50/4"		
			16						
			17						
			18						
	+2840.0	SAND (SP), very pale brown, dense, moist, fine to coarse sand.	19						
			20	S-4	SPT	18	12 21 21		
			21						
			22						
	+2836.5	Sandy SILT (ML), pale brown, dense, moist, fine sand, micaceous.	23						
			24						

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Log of Boring **LB-42** Sheet 2 of 2

Project	Project No.
ARS Fulfillment Center - Project Loki	700089101
Location	**Elevation and Datum**
Victorville, California	2859 (Feet, NGVD 29)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2835.0	Sandy SILT (ML), pale brown, dense, moist, fine sand, micaceous.	24						
			25						
	+2833.0	Silty SAND (SM), pale brown, dense, moist, fine sand, micaceous.	26	S-5	CR	18	22 34 45		
			27						
			28						
	+2830.5	SAND (SP), pale yellow brown, very dense, moist, medium to coarse sand, trace fine gravel.	29						
			30	S-6	SPT	18	18 25 27		
	+2827.5	Total Depth = 31.5 feet Groundwater not encountered. Borehole backfilled with bentonite grout.	31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						
			46						
			47						
			48						
			49						
			50						
			51						
			52						
			53						
			54						

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Log of Boring **LB-43** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2857 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2857.0	**Alluvium (Qa)** SAND with Gravel (SP), pale brown, dense, moist, medium to coarse sand, fine to coarse gravel.	0						
			1						
			2						
			3	S-1	CR	18	14 24 30		Dry Density = 113.7 pcf WC = 3.4%
			4						
		Medium dense, trace fine gravel.	5						
			6	S-2	SPT	18	6 7 9		
			7						
		Very dense, with fine to coarse gravel.	8	S-3	CR	12	27 50/6"		Dry Density = 110.1 pcf WC = 2.7%
	+2847.5		9						
		Clayey SAND (SC), olive brown, dense, moist, low plasticity, fine sand, few caliche deposits.	10						
			11	S-4	SPT	18	16 24 26		LL = 31, PL = 18, PI = 13 %Pass #200 = 26
	+2844.5		12						
		SAND (SP), pale brown, very dense, moist, fine to medium sand, micaceous.	13						
			14						
			15	S-5	CR	11	30 50/5"		Consolidation test. %Pass #200 = 47
	+2841.5		16						
		Silty SAND (SM), yellow brown, very dense, moist, fine sand, micaceous.	17						
	+2839.0		18						
		SAND with Gravel (SP), pale brown, very dense, moist, medium to coarse sand, fine to coarse gravel.	19						
			20						
			21	S-6	SPT	18	16 25 29		
	+2835.5		22						
		Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	23						
			24						

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Log of Boring **LB-44** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2854 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2854.0	**Alluvium (Qa)**	0						
		SAND (SP), pale brown, medium dense, moist, fine to coarse sand, trace fine to coarse gravel.	1						
			2						
			3	S-1	SPT	18	7 6 6		
			4						
		Dense, with gravel.	5	S-2	CR	18	11 15 26		Dry Density = 122.5 pcf WC = 1.4%
			6						
	+2846.5		7						
		SAND with Silt (SP-SM), pale brown, very dense, moist, fine to medium sand, trace fine gravel, trace caliche, cemented.	8	S-3	SPT	18	24 24 26		
	+2844.5		9						
		Sandy SILT (ML), olive gray, hard, moist, fine sand, heavy caliche deposits.	10	S-4	CR	18	16 21 32		Dry Density = 95.5 pcf WC = 18.0% LL = 34, PL = 27, PI = 7 Consolidation test.
			11						
	+2841.5		12						
		Silty SAND (SM), strong brown, very dense, moist, fine sand, some caliche.	13						
			14						
			15						
			16	S-5	SPT	18	16 30 50		
			17						
			18						
			19						
			20	S-6	CR	0	30 50/6"		No sample recovery.
	+2833.0		21						
		Total Depth = 21 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **LB-45** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2866 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 20.4 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2866.0		0						
	+2865.0	**Fill** Silty SAND (SM), dark brown, medium dense, moist, fine sand.	1						
		Alluvium (Qa) Silty SAND (SM), pale brown, medium dense, moist, medium to coarse sand, micaceous.	2						
			3	S-1	SPT	18	6 7 8		
			4						
		Very pale brown, very dense, fine sand, increased silt.	5	S-2	CR	18	25 37 50/4"		Dry Density = 93.1 pcf WC = 4.4%
	+2859.0		6						
		Sandy SILT (ML), olive brown, hard, non plastic, fine sand, micaceous, some caliche deposits.	7						
			8	S-3	SPT	18	18 18 25		
			9						
			10	S-4	CR	11	25 50/5"		Dry Density = 108.8 pcf WC = 10.4%
	+2853.5		11						
		SAND with Gravel (SP), yellow brown, very dense, moist, fine to coarse sand, fine to coarse gravel, micaceous.	12						
			13						
			14						
			15						
			16	S-5	SPT	18	18 25 30		
			17						
			18						
			19						
			20	S-6	CR	5	50/5"		
	+2845.5	Fine to medium sand, no gravel. Total Depth = 20.4 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	21						
			22						
			23						
			24						

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Log of Boring **LB-46** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2862 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2862.0	**Alluvium (Qa)** SAND with Silt (SP-SM), yellow brown, medium dense, moist, fine to coarse sand, micaceous, friable.	0						
			1						
			2						
			3	S-1	CR	18	10 16 14		Dry Density = 116.7 pcf WC = 2.2%
	+2857.5		4						
		SAND (SP), pale brown, medium dense, moist, medium to coarse sand, micaceous, friable.	5						
			6	S-2	SPT	18	4 5 6		
	+2855.0		7						
		Silty SAND (SM), strong brown, very dense, moist, fine to medium sand, micaceous, trace caliche.	8	S-3	CR	6	50/6"		Dry Density = 110.1 pcf WC = 6.5%
	+2852.5		9						
		SAND (SP), pale brown, very dense, moist, fine to coarse sand, micaceous.	10						
			11	S-4	SPT	18	14 18 33		
	+2850.5	Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **LB-47** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2861 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2861.0	**Alluvium (Qa)** Silty SAND (SM), light brown, dense, dry, fine sand, trace caliche.	0						Bulk sample collected from 0-5 feet bgs. R Value.
			1						
			2						
			3	S-1	SPT	18	13 16 22		
			4						
		Medium dense, fine to coarse sand, increased granular material.	5	S-2	CR	18	19 22 21		Dry Density = 115.2 pcf WC = 2.5%
			6						
	+2854.0		7						
		SAND (SP), tan, medium dense, dry, medium to coarse sand, trace fine sand, trace silt.	8	S-3	SPT	10	6 6 6		
			9						
		Dense, increased coarse sand.	10	S-4	CR	18	19 23 32		Dry Density = 112.9 pcf WC = 2.6%
	+2849.5		11						
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **LB-48** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: 2854 (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 21.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 3, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	Field Engineer: A. Atry

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+2854.0	**Alluvium (Qa)** SAND with Gravel (SP), yellow brown, medium dense, moist, medium to coarse sand, fine gravel.	0						
			1						
			2						
			3	S-1	CR	18	7 13 10		Dry Density = 111.0 pcf WC = 1.6%
			4						
		Dense.	5						
			6	S-2	SPT	18	9 13 24		
	+2847.5	Silty SAND (SM), olive brown, very dense, moist, fine sand, some caliche deposits.	7						
			8	S-3	CR	18	24 30 50		Dry Density = 116.5 pcf WC = 7.3% %Pass #200 = 31
			9						
			10						
			11	S-4	SPT	18	24 25 29		
			12						
			13						
			14						
		FIne to medium sand, decreased silt.	15	S-5	CR	12	24 50/6"		
	+2836.5		16						
			17						
		SAND with Gravel (SP), pale brown, very dense, moist, fine to coarse sand, fine to coarse gravel, micaceous.	18						
			19						
			20						
	+2832.5		21	S-6	SPT	18	15 24 34		
		Total Depth = 21.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	22						
			23						
			24						

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Log of Boring **RB-1** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 2, Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First ▽ -, Completion ▼ -, 24 HR. ▼ -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Fill Silty SAND (SM), pale brown, moist, fine sand, trace fine gravel.	0						Bulk sample collected from 0-5 feet bgs.
		Alluvium (Qa) Clayey SAND (SC), brown, very dense, moist, fine to medium sand, trace coarse sand, trace fine gravel, trace caliche.	1–3	S-1	CR	17	22 33 50/5"		
			4–6	S-2	SPT	18	14 10 10		
		Silty SAND (SM), light yellow brown, very dense, moist, fine sand, trace caliche.	7–8	S-3	CR	12	29 50/6"		
		Sandy SILT (ML), brown, hard, moist, fine sand, some caliche.	9–11	S-4	SPT	18	16 33 46		
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12–24						

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Log of Boring **RB-2** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 10.4 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2 — Undisturbed 2 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa)	0						
		Clayey SAND (SC), pale brown, very dense, moist, fine to medium sand, trace fine to coarse gravel.	1						
			2						
			3	S-1	SPT	18	13 30 25		
			4						
		Some coarse sand, no gravel.	5	S-2	CR	12	20 50/6"		
			6						
		Silty SAND (SM), light brown, very dense, moist, fine to medium sand, fine gravel.	7						
			8	S-3	SPT	12	31 50/6"		
			9						
		No gravel.	10	S-4	CR	4.5	50/4.5"		
		Total Depth = 10.4 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **RB-3** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 6.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2 — Undisturbed 1 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First ▽ - — Completion ▼ - — 24 HR. ▼ -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Silty SAND (SM), light yellow brown, medium dense, slightly moist, fine to medium sand.	0						Bulk sample collected from 0-5 feet bgs.
			1						
			2						
			3	S-1	CR	18	14 19 23		
		Sandy SILT (ML), pale gray, hard, moist, fine sand, trace caliche.	4						
			5						
			6	S-2	SPT	18	14 18 18		
		Total Depth = 6.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	7						
			8						
			9						
			10						
			11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **RB-4** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2 — Undisturbed 2 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Silty SAND (SM), light brown, medium dense, slightly moist, fine to medium sand.	0						
			1						
			2						
			3	S-1	SPT	18	14 10 15		
			4						
		Dense, moist.	5						
			6	S-2	CR	18	14 22 29		
			7						
		Pale brown, with fine to coarse gravel.	8	S-3	SPT	18	14 21 23		
			9						
		SAND with Silt and Gravel (SP-SM), pale brown, dense, moist, fine to coarse sand, fine to coarse gravel.	10						
			11	S-4	CR	18	24 27 33		
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **RB-5** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2 — Undisturbed 2 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First ▽ - — Completion ▼ - — 24 HR. ▼ -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Clayey SAND (SC), pale brown, dense, moist, fine to medium sand, some coarse sand.	0						
			1						
			2						
			3	S-1	CR	18	9 25 25		
			4						
		Medium dense, fine sand, some medium sand, some caliche, increased fines.	5						
			6	S-2	SPT	12	9 11 17		
			7						
		Clayey SAND (SC), brown, very dense, moist, fine to medium sand, some coarse sand, some caliche.	8	S-3	CR	3.5	50/3.5"		Rock in sample tip.
			9						
		SAND (SP), pale brown, very dense, slightly moist, fine to medium sand, some coarse sand, trace silt.	10						
			11	S-4	SPT	18	21 24 30		
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **RB-6** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 2 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Clayey SAND (SC), brown, medium dense, moist, fine to medium sand.	0–4						Bulk sample collected from 0-5 feet bgs.
				S-1	SPT	18	5, 9, 8		
		Silty SAND (SM), pale brown, dense, moist, fine sand.	5–6	S-2	CR	18	14, 21, 28		Increased clay at the bottom of sample.
		SAND (SP), yellow brown, medium dense, slightly moist, fine to medium sand, trace coarse sand, trace fine to coarse gravel.	7–8	S-3	SPT	18	9, 11, 14		
		Medium to coarse sand, trace fine sand, increased gravel.	10–11	S-4	CR	18	10, 21, 24		Poor sample recovery.
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12–24						

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Log of Boring **RB-7** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 2 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Clayey SAND (SC), brown, medium dense, moist, fine to medium sand.	0–4						
		Sandy CLAY (CL), brown, stiff, moist, fine to medium sand.	4–7	S-1	CR	18	10, 12, 15		
				S-2	SPT	18	6, 6, 6		High sand content.
		SAND with Clay (SP-SC), brown, medium dense, moist, fine to medium sand.	7–8						
		SILT with Sand (ML), olive and light orange mottled, hard, moist, fine sand.	8–9	S-3	CR	18	16, 16, 24		
		SAND with Silt (SP-SM), pale brown, very dense, moist, fine to medium sand, trace fine gravel.	9–11						
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	11–12	S-4A/S-4B	SPT	18	23, 28, 33		
			12–24						

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Log of Boring **RB-8** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 10.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 2 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Clayey SAND (SC), brown, dense, moist, fine to medium sand, trace fine gravel.	0						Bulk sample collected from 0-5 feet bgs.
			1						
			2						
			3	S-1	SPT	18	15 18 21		
			4						
		CLAY (CL), olive, hard, moist, some caliche veins.	5	S-2	CR	12	20 50/6"		
			6						
		Silty SAND (SM), pale yellow brown, very dense, moist, fine sand, trace caliche.	7						
			8	S-3	SPT	18	27 29 29		
			9						
		SAND with Silt (SP-SM), light orange brown, very dense, moist, fine to medium sand.	10	S-4	CR	5	50/6"		
		Total Depth = 10.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **RB-9** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 2, Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First ▽ - , Completion ▼ - , 24 HR. ▼ -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Sandy SILT (ML), light yellow brown, hard, slightly moist, fine sand, trace clay, trace caliche.	0–4						Bulk sample collected from 0-5 feet bgs.
				S-1	CR	12	23 50/6"		High sand content.
		Silty SAND (SM), pale gray, dense, slightly moist, fine sand.	5–6	S-2	SPT	18	13 17 20		High sand content.
		Sandy SILT (ML), pale brown, hard, moist, fine sand.	7–8	S-3	CR	10	24 50/4"		
		SAND with Silt (SP-SM), pale brown to pale red brown, very dense, slightly moist, fine to medium sand.	9–11	S-4	SPT	18	22 28 22		
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12–24						

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Log of Boring **RB-10** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 4 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 1 — Undisturbed 1 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First ▽ - — Completion ▼ - — 24 HR. ▼ -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Fill Silty SAND (SM), pale brown, dense, moist, fine sand.	0						
		Alluvium (Qa) Sandy SILT (ML), pale brown, hard, slightly moist, fine sand, trace fine gravel, trace clay.	1	S-1	SPT	18	10 13 20		
		No gravel, no clay.	2						
			3	S-2	CR	10	31 50/4"		
		Total Depth = 4 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	4						
			5						
			6						
			7						
			8						
			9						
			10						
			11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **RB-11** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 4.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 1 — Undisturbed 1 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First ▽ - — Completion ▼ - — 24 HR. ▼ -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Silty SAND (SM), pale brown, very dense, slightly moist, fine to medium sand.	0–2	S-1	CR	18	14, 34, 43		
		SAND with Silt (SP-SM), pale brown, dense, slightly moist, fine to medium sand, trace coarse sand.	2–4	S-2	SPT	18	18, 18, 20		
		Total Depth = 4.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	4–24						

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Log of Boring **RB-12** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/4/21 / Date Finished: 3/4/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Fill Silty SAND (SM), dark brown, medium dense, moist, fine sand.	0						Bulk sample collected from 0-5 feet bgs. R Value.
		Alluvium (Qa) Silty SAND (SM), dark brown, medium dense, moist, medium to coarse sand, micaceous.	1						
			2						
			3	S-1	SPT	18	6 5 7		
			4						
		With gravel, fine to coarse sand.	5						
		Sandy SILT (ML), olive brown, hard, moist, non plastic, fine sand, heavy caliche deposits.	6	S-2	CR	18	14 27 31		Dry Density = 108.0 pcf WC = 12.9%
			7						
		Increased sand.	8	S-3	SPT	18	17 23 17		
			9						
			10						
			11	S-4	CR	17	14 27 50/5"		Dry Density = 131.6 pcf WC = 3.9%
		SAND with Gravel (SP), brown, very dense, moist, fine to coarse sand, fine to coarse gravel, micaceous.	12						
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **RB-13** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 — Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2 — Undisturbed 2 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Clayey SAND (SC), light brown, medium dense, moist, fine to medium sand.	0–4	S-1	SPT	18	7 8 9		
		SAND with Clay (SP-SC), brown, dense, moist, medium to coarse sand, trace fine sand.	5–6	S-2	CR	18	20 28 32		
		Clayey SAND (SC), pale brown, very dense, moist, fine to medium sand, some caliche.	7–8	S-3	SPT	12	29 50/6"		
		SAND (SP), light yellow brown, medium dense, moist, medium to coarse sand, some fine sand, trace clay.	10–11	S-4	CR	18	13 15 21		
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12–24						

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Log of Boring **RB-14** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 — Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2 — Undisturbed 2 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First ▽ - — Completion ▼ - — 24 HR. ▼ -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) SAND with Gravel (SP), pale brown, dense, moist, fine to coarse sand, fine gravel.		0						
				1						
				2						
				3	S-1	CR	18	13 27 38		No sample recovery.
				4						
		Very dense, heavy caliche deposits.	0.1	5	S-2	SPT	12	28 50/6"		
				6						
		SAND with Clay (SP-SC), red brown, very dense, moist, medium to coarse sand, trace fine gravel.	0.4	7						
				8	S-3	CR	9	43 50/3"		Dry Density = 109.3 pcf WC = 2.4%
				9						
		Silty SAND (SM), olive brown, very dense, moist, fine sand, micaceous.	0.1	10						
				11	S-4	SPT	17	15 32 50/5"		
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.		12						
				13						
				14						
				15						
				16						
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						

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Log of Boring **RB-15** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) SAND with Clay (SP-SC), red brown, dense, moist, medium to coarse sand, micaceous.		0						Bulk sample collected from 0-5 feet bgs. R Value.
			0.2	1						
				2						
				3	S-1	SPT	18	10 19 16		
				4						
		SAND with Gravel (SP), pale brown, medium dense, fine to coarse sand, fine to coarse gravel, micaceous.	0.2	5	S-2	CR	18	14 16 24		Dry Density = 114.5 pcf WC = 2.6%
				6						
			0.2	7						
				8	S-3	SPT	18	8 8 9		
				9						
		Silty SAND (SM), pale olive brown, very dense, moist, fine sand, micaceous.	0.0	10	S-4	CR	12	17 50/6"		Dry Density = 113.6 pcf WC = 8.4%
		Total Depth = 11 feet Groundwater not encountered. Borehole backfilled with soil cuttings.		11						
				12						
				13						
				14						
				15						
				16						
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						

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Log of Boring **RB-16** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 — Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 6.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 1 — Undisturbed 1 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Silty SAND (SM), tan, medium dense, dry fine to coarse sand, trace fine gravel, trace caliche.	0						
			1						
			2						
		Some clay.	3	S-1	CR	18	7 12 13		Dry Density = 111.8 pcf WC = 2.9%
			4						
		Increased coarse sand.	5						
			6	S-2	SPT	18	6 9 17		
		Total Depth = 6.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	7						
			8						
			9						
			10						
			11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **RB-17** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Silty SAND (SM), light brown, medium dense, slightly moist, fine to coarse sand, trace fine to medium gravel.	0						
			1						
			2						
			3	S-1	SPT	18	8 6 6		Dry Density = 111.7 pcf WC = 3.3%
			4						
		Brown, dense, fine to medium sand, increased fines content, no gravel.	5						
			6	S-2	CR	18	24 32 37		
			7						
		Some clay.	8	S-3	SPT	18	25 24 15		
			9						
			10						
		Fine to coarse sand, trace fine to medium gravel, increased sand content.	11	S-4	CR	18	16 32 44		Dry Density = 128.0 pcf WC = 2.3%
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **RB-18** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 6.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2 / Undisturbed 1 / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Silty SAND (SM), pale brown, dense, moist, fine to coarse sand.	0						Bulk sample collected from 0-5 feet bgs. R Value.
			1						
			2						
			3	S-1	CR	18	14 21 30		Dry Density = 114.7 pcf WC = 3.6%
			4						
		Increased silt, some caliche.	5						
			6	S-2	SPT	18	14 25 23		Dry Density = 117.4 pcf WC = 1.2%
		Total Depth = 6.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	7						
			8						
			9						
			10						
			11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **RB-19** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 / Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2, Undisturbed 2, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) SAND (SP), pale brown, medium dense, moist, fine to medium sand, micaceous.	0						
			1						
			2						
			3	S-1	SPT	18	8 7 6		
			4						
		Fine to coarse sand.	5	S-2	CR	18	8 14 19		Dry Density = 117.4 pcf WC = 1.2%
			6						
		Medium dense.	7						
			8	S-3	SPT	18	6 7 7		
			9						
		Trace fine to coarse gravel, friable.	10	S-4	CR	18	12 15 14		Dry Density = 109.9 pcf WC = 0.8%
			11						
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

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Log of Boring **RB-20** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 — Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 6.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 1 — Undisturbed 1 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Adrian
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: M. Galvan
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Silty SAND (SM), red brown, medium dense, slightly moist, fine to coarse sand, trace fine gravel, trace clay.	0						
			1						
			2						
			3	S-1	SPT	18	7 14 14		
		No clay, some caliche.	4						
			5						
		Increased sand.	6	S-2	CR	0	8 7 9		No sample recovery.
		Total Depth = 6.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	7						
			8						
			9						
			10						
			11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

LANGAN

Log of Boring **RB-21** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/30/21 / Date Finished: 3/30/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 10 ft / Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3, Undisturbed 1, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - , Completion - , 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: Bulk, 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Silty SAND (SM), pale brown, medium dense, slightly moist, fine to medium sand, trace coarse gravel.	0						Bulk sample collected from 0-5 feet bgs.
			1						
			2						
			3	S-1	SPT	18	7 7 8		
			4						
			5						
			6	S-2	CR	18	11 8 8		
			7						
		SAND (SP), pale brown, medium dense, slightly moist, medium to coarse sand, some fine sand, trace silt.	8	S-3	SPT	18	7 6 8		
			9						
		Total Depth = 10 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	10						Drill rig hammer malfunction. No sample recovery.
			11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

LANGAN

Log of Boring **RB-22** Sheet 1 of 1

Project: ARS Fulfillment Center - Project Loki	Project No.: 700089101
Location: Victorville, California	Elevation and Datum: (Feet, NGVD 29)
Drilling Company: 2R Drilling	Date Started: 3/5/21 — Date Finished: 3/5/21
Drilling Equipment: CME 75 Truck-mounted Drill Rig	Completion Depth: 11.5 ft — Rock Depth:
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 2 — Undisturbed 2 — Core -
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First ▽ - — Completion ▼ - — 24 HR. ▼ -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Atry
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Water Content	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Alluvium (Qa) Silty SAND (SM), pale brown, medium dense, moist, fine sand.	0						
			1						
			2						
			3	S-1	CR	18	8 11 9		Dry Density = 115.3 pcf WC = 3.3%
			4						
		SAND (SP), yellow brown, loose, moist, fine to medium sand, micaceous, friable.	5						
			6	S-2	SPT	18	4 4 5		
			7						
		Dense.	8	S-3	CR	0	10 15 29		No sample recovery.
			9						
		Silty SAND (SM), light grayish-brown, very dense, moist, fine sand, micaceous.	10						
			11	S-4	SPT	14	18 29 30		
		Total Depth = 11.5 feet Groundwater not encountered. Borehole backfilled with soil cuttings.	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						

DENSITY TESTS

PROJECT Langan # 700089101 **JOB NO.** 2012-0057 **BY** LD **DATE** 04/03/21

Sample No.	LB-1 / S-1	LB-1 / S-3	LB-2 / S-2	LB-3 / S-1	LB-3 / S-3	LB-4 / S-1	LB-4 / S-4	LB-5 / S-1
Depth (ft)	2.5	7.5	5.0	2.5	7.5	2.5	7.5	2.5
P.P.			-200					
Soil Type	Brown, Clayey Sand	Brown, M.C. Sand	Brown, M.C. Sand	Brown, Silty Sand	Brown, M.C. Sand	Brown, Clayey Sand w. F. Gravel	Brown, M.C. Sand	Brown, F.M. Silty Sand
Wet+Tare	976.9	888.1	757.4	1146.9	712.5	962.7	882.9	939.7
No. Ring	5	5	4	6	4	5	5	5
Wet Weight	137.1	170.6	143.7	166.0	190.3	111.1	103.7	124.2
Dry Weight	128.4	169.1	141.5	156.8	186.9	102.3	101.7	120.7
Wet density	125.2	110.4	120.2	121.7	110.8	122.9	109.5	119.0
% Water	6.8	0.9	1.6	5.9	1.8	8.6	2.0	2.9
Dry Density	117.3	109.4	118.3	114.9	108.8	113.1	107.4	115.7
O.B.Press(psf)								

Sample No.	LB-5 / S-3	LB-6 / S-2	LB-6 / S-4	LB-7 / S-1	LB-7 / S-3	LB-8 / S-2	LB-8 / S-3	
Depth (ft)	7.5	5.0	10.0	2.5	7.5	5.0	10.0	
P.P.								
Soil Type	Brown, M.C. Sand	Brown, F.C. Silty Sand	Brown, F.M. Silty Sand	Brown, Clayey Sand	Brown, F.M. Silty Sand	Brown, F.M. Silty Sand w. Gravel	Brown, Clayey Sand	
Wet+Tare	508.7	707.4	1094.1	1015.5	899.2	879.4	961.4	
No. Ring	3	4	6	5	5	5	5	
Wet Weight	168.0	137.0	131.2	104.1	117.1	115.7	90.1	
Dry Weight	166.6	135.3	122.4	92.7	112.2	112.2	80.1	
Wet density	103.7	109.7	114.3	131.7	112.2	108.9	122.6	
% Water	0.8	1.3	7.2	12.3	4.4	3.1	12.5	
Dry Density	102.8	108.4	106.7	117.3	107.5	105.6	109.0	
O.B.Press(psf)								

Geo-Logic ASSOCIATES

DENSITY TESTS

PROJECT Langan # 700089101 **JOB NO.** 2012-0057 **BY** LD **DATE** 04/03/21

Sample No.	LB-9 / S-2	LB-9 / S-4	LB-10 / S-1	LB-10 / S-3	LB-12 / S-2	LB-12 / S-4	LB-13 / S-2	LB-13 / S-4
Depth (ft)	5.0	10.0	2.5	7.5	5.0	10.0	5.0	10.0
P.P.								
Soil Type	Brown, M.C. Sand	Brown, F.C. Sand w. Gravel	Brown, M.C. Sand	Brown, Silty Sand	Brown, Sandy Clay	Brown, M.C. Sand	Brown, Silty Sand	Brown, Sandy Clay
Wet+Tare	754.5	736.1	899.3	913.8	1025.9	539.3	1110.5	1214.8
No. Ring	4	4	5	5	5	3	6	6
Wet Weight	178.8	140.8	104.0	129.6	136.7	125.3	126.7	165.6
Dry Weight	174.8	138.5	102.8	126.0	123.1	122.5	119.8	148.2
Wet density	119.6	115.7	112.3	114.7	133.4	112.2	116.6	131.1
% Water	2.3	1.7	1.2	2.9	11.0	2.3	5.8	11.7
Dry Density	116.9	113.8	111.0	111.5	120.1	109.7	110.3	117.4
O.B.Press(psf)								

Sample No.	LB-14 / S-2	LB-15 / S-1	LB-15 / S-3	LB-16 / S-2	LB-16 / S-3	LB-17 / S-1	LB-17 / S-2	
Depth (ft)	5.0	2.5	7.5	5.0	10.0	2.5	7.5	
P.P.		S	C					
Soil Type	Brown, F.C. Silty Sand	Brown, F.M. Silty Sand	Brown, Sandy Silt	Brown, F.M. Silty Sand	Brown, M.C. Sand	Brown, F.C. Silty Sand w. Gravel	Brown, F.M. Silty Sand	
Wet+Tare	952.7	776.9	985.3	1176.2	908.9	1205.6	889.5	
No. Ring	5	4	5	6	5	6	5	
Wet Weight	108.8	167.3	168.2	168.9	130.9	136.3	61.6	
Dry Weight	105.5	160.3	143.4	157.4	128.7	129.3	59.3	
Wet density	121.2	124.3	126.6	125.8	113.9	129.9	110.6	
% Water	3.1	4.4	17.3	7.3	1.7	5.4	3.9	
Dry Density	117.5	119.1	108.0	117.2	111.9	123.2	106.5	
O.B.Press(psf)								

Geo-Logic ASSOCIATES

DENSITY TESTS

PROJECT Langan # 700089101 **JOB NO.** 2012-0057 **BY** LD **DATE** 04/03/21

Sample No.	LB-19 / S-1	LB-19 / S-3	LB-20 / S-1	LB-20 / S-3	LB-21 / S-1	LB-21 / S-3	LB-22 / S-2	LB-22 / S-4
Depth (ft)	2.5	7.5	2.5	7.5	2.5	7.5	5.0	10.0
P.P.								
Soil Type	Brown, Silty Sand	Brown, Silty Sand	Brown, F.C. Clayey Sand	Brown, F.C. Silty Sand	Brown, Silty Sand	Brown, M.C. Sand w. Gravel	Brown, M.C. Sand	Brown, Silty Sand
Wet+Tare	935.3	885.0	1048.4	759.9	934.3	747.8	955.3	830.3
No. Ring	5	5	5	4	5	4	5	5
Wet Weight	138.3	102.7	108.8	162.7	125.6	158.4	193.9	112.8
Dry Weight	134.2	95.6	99.6	157.7	120.6	154.2	191.6	106.8
Wet density	118.3	109.9	137.2	120.7	118.1	118.2	121.6	100.7
% Water	3.1	7.4	9.2	3.2	4.1	2.7	1.2	5.6
Dry Density	114.8	102.3	125.6	117.0	113.4	115.0	120.2	95.4
O.B.Press(psf)								

Sample No.	LB-23 / S-1	LB-23 / S-3	LB-24 / S-2	LB-24 / S-4	LB-25 / S-1	LB-25 / S-2	LB-26 / S-2	LB-26 / S-4
Depth (ft)	2.5	7.5	5.0	2.5	7.5	5.0	10.0	
P.P.								
Soil Type	Brown, M.C. Sand	Brown, Silty Sand	Brown, Silty Sand	Brown, M.C. Sand	Brown, Silty Sand	Brown, M.C. Sand	Brown, M.C. Sand	L. Brown, F. Sandy Silt
Wet+Tare	941.8	841.4	904.1	906.0	916.6	914.9	669.0	757.7
No. Ring	5	5	5	5	5	5	4	4
Wet Weight	152.8	104.5	115.7	110.9	131.3	118.7	131.8	117.6
Dry Weight	149.1	99.1	111.4	109.6	126.7	115.1	128.2	108.5
Wet density	119.4	102.6	113.1	113.4	115.1	114.9	108.0	120.2
% Water	2.5	5.4	3.9	1.2	3.6	3.1	2.8	8.4
Dry Density	116.5	97.3	108.9	112.0	111.1	111.4	105.0	110.9
O.B.Press(psf)								

DENSITY TESTS

PROJECT Langan # 700089101 **JOB NO.** 2012-0057 **BY** LD **DATE** 04/03/21

Sample No.	LB-27 / S-2	LB-27 / S-4	LB-28 / S-1	LB-28 / S-3	LB-29 / S-2	LB-30 / S-2	LB-30 / S-4	LB-32 / S-1
Depth (ft)	5.0	10.0	2.5	7.5	5.0	5.0	10.0	2.5
P.P.								
Soil Type	Brown, Clayey Sand	Brown, Clayey Sand	Brown, Clayey Sand	Brown, M.C. Sand	Brown, Silty Sand	Brown, F.C. Silty Sand	Brown, Clayey Sand	Brown, Clayey Sand
Wet+Tare	917.5	852.4	1133.2	932.9	895.7	950.4	881.9	1214.5
No. Ring	5	5	6	5	5	5	5	6
Wet Weight	104.7	89.9	136.5	125.7	132.7	103.6	138.6	168.4
Dry Weight	101.6	82.8	131.8	122.7	128.5	99.4	129.9	157.1
Wet density	115.3	104.4	119.8	117.9	111.7	120.8	109.4	131.1
% Water	3.1	8.6	3.6	2.4	3.3	4.2	6.7	7.2
Dry Density	111.9	96.2	115.7	115.1	108.1	115.9	102.5	122.3
O.B.Press(psf)								

Sample No.	LB-32 / S-3	LB-34 / S-1	LB-34 / S-3	LB-35 / S-2	LB-35 / S-4	LB-36 / S-1	LB-36 / S-3	
Depth (ft)	7.5	2.5	7.5	5.0	10.0	2.5	7.5	
P.P.								
Soil Type	Brown, M.C. Silty Sand	Brown, Clayey Sand	Brown, M.C. Silty Sand	Brown, M.C. Sand	Brown, Sandy Clay	Brown, Clayey Sand	Brown, M.C. Sand w. Gravel	
Wet+Tare	946.0	937.1	901.7	925.9	1101.1	1168.6	859.8	
No. Ring	5	5	5	5	6	6	5	
Wet Weight	168.1	131.9	128.1	122.3	142.6	159.0	116.2	
Dry Weight	163.8	118.0	124.9	119.9	125.3	147.8	114.0	
Wet density	120.1	124.8	112.7	116.7	115.3	124.7	105.7	
% Water	2.6	11.8	2.6	2.0	13.8	7.6	1.9	
Dry Density	117.0	111.7	109.8	114.4	101.3	115.9	103.7	
O.B.Press(psf)								

Geo-Logic ASSOCIATES

DENSITY TESTS

PROJECT Langan # 700089101 **JOB NO.** 2012-0057 **BY** LD **DATE** 04/03/21

Sample No.	LB-37 / S-1	LB-37 / S-3	LB-38 / S-1	LB-38 / S-3	LB-39 / S-2	LB-39 / S-4	LB-40 / S-2	LB-40 / S-4
Depth (ft)	2.5	7.5	2.5	7.5	5.0	10.0	5.0	10.0
P.P.		PI			S			
Soil Type	Brown, M.C. Sand	Brown, M.C. Sand	Brown, Silty Sand	Brown, Silty Sand	Brown, Silty Sand w. F. Gravel	Brown, Silty Sand	Brown, M.C. Sand	Brown, M.C. Sand
Wet+Tare	929.0	693.8	926.1	900.3	908.0	898.8	945.4	886.2
No. Ring	5	4	5	5	5	5	5	5
Wet Weight	115.0	228.0	118.6	114.5	134.0	86	118.8	110.4
Dry Weight	112.7	222.6	114.3	110.6	127.9	81.8	116.8	109.1
Wet density	117.2	106.9	116.7	112.4	113.7	112.2	120.0	110.1
% Water	2.0	2.4	3.8	3.5	4.8	4.5	1.7	1.2
Dry Density	114.9	104.4	112.5	108.6	108.5	107.3	117.9	108.8
O.B.Press(psf)								

Sample No.	LB-41 / S-1	LB-41 / S-3	LB-43 / S-1	LB-43 / S-3	LB-44 / S-2	LB-44 / S-4	LB-45 / S-2	LB-45 / S-4
Depth (ft)	2.5	7.5	2.5	7.5	5.0	10.0	5.0	10.0
P.P.								
Soil Type	Brown, Clayey Sand	Brown, M.C. Sand	Brown, F.C. Silty Sand	Brown, F.C. Silty Sand	Brown, F.C. Sand	Brown, F. Sandy Silt	Brown, F. Sandy Silt	Brown, Silty Sand
Wet+Tare	1044.1	937.1	931.0	904.7	970.5	721.5	971.1	1136.2
No. Ring	5	5	5	5	5	4	6	6
Wet Weight	147.2	96.6	123.6	108.4	124.3	144.5	113.0	146.1
Dry Weight	132.6	94.3	119.5	105.5	122.6	122.5	108.2	132.3
Wet density	136.5	118.6	117.6	113.2	124.2	112.7	97.2	120.2
% Water	11.0	2.4	3.4	2.7	1.4	18.0	4.4	10.4
Dry Density	122.9	115.8	113.7	110.1	122.5	95.5	93.1	108.8
O.B.Press(psf)								

Geo-Logic ASSOCIATES

DENSITY TESTS

PROJECT Langan # 700089101 **JOB NO.** 2012-0057 **BY** LD **DATE** 04/03/21

Sample No.	LB-46 / S-1	LB-46 / S-3	LB-47 / S-2	LB-47 / S-4	LB-48 / S-1	LB-48 / S-3		
Depth (ft)	2.5	7.5	5.0	10.0	2.5	7.5		
P.P.								
Soil Type	Brown, F.C. Silty Sand	Brown, Silty Sand	Brown, F.C. Silty Sand	Brown, M.C. Sand	Brown, M.C. Sand	Brown, F. Silty Sand		
Wet+Tare	941.3	928.8	1121.1	1104.6	722.2	1171.1		
No. Ring	5	5	6	6	4	6		
Wet Weight	130.5	103.5	125.8	135.2	241.3	101		
Dry Weight	127.7	97.2	122.7	131.8	237.4	94.1		
Wet density	119.3	117.2	118.1	115.8	112.8	125.1		
% Water	2.2	6.5	2.5	2.6	1.6	7.3		
Dry Density	116.7	110.1	115.2	112.9	111.0	116.5		
O.B.Press(psf)								
Sample No.								
Depth (ft)								
P.P.								
Soil Type								
Wet+Tare								
No. Ring								
Wet Weight								
Dry Weight								
Wet density								
% Water								
Dry Density								
O.B.Press(psf)								

Geo-Logic ASSOCIATES

DENSITY TESTS

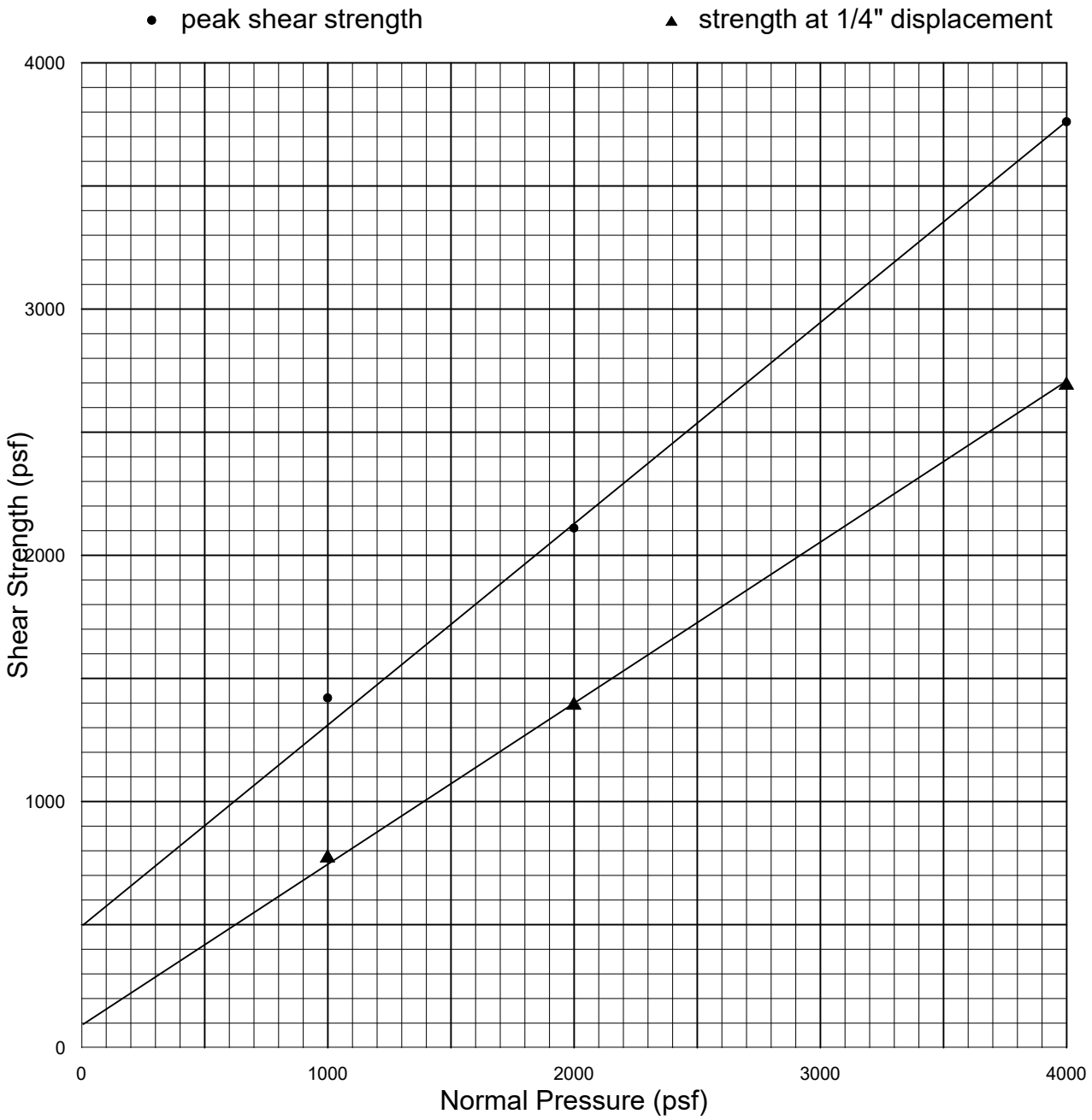
PROJECT Langan # 700089101 **JOB NO.** 2012-0057 **BY** LD **DATE** 04/03/21

Sample No.	RB-12 / S-2	RB-12 / S-4	RB-14 / S-1	RB-14 / S-3	RB-15 / S-2	RB-15 / S-4	RB-16 / S-1	RB-17 / S-1
Depth (ft)	5.0	10.0	2.5	7.5	5.0	10.0	2.5	2.5
P.P.								
Soil Type	Brown, Sandy Silt	Brown, F.C. Silty Sand	No Sample	Brown, F.C. Silty Sand w. Gravel	Brown, F.C. Silty Sand w. Gravel	Brown, Silty Sand w. trace Gravel	Brown, F.C. Silty Sand	Brown, F.C. Silty Sand
Wet+Tare	1148.3	1045.7		717.5	744.1	1157.8	1099.5	1101.6
No. Ring	6	5		4	4	6	6	6
Wet Weight	148.4	125.7		216.2	250.7	117.0	126.9	142.0
Dry Weight	131.5	121.0		211.2	244.4	107.9	123.3	137.5
Wet density	121.9	136.7		111.9	117.4	123.2	115.1	115.4
% Water	12.9	3.9		2.4	2.6	8.4	2.9	3.3
Dry Density	108.0	131.6		109.3	114.5	113.6	111.8	111.7
O.B.Press(psf)								

Sample No.	RB-17 / S-4	RB-18 / S-1	RB-19 / S-2	RB-19 / S-4	RB-20 / S-2	RB-22 / S-1	RB-22 / S-3	
Depth (ft)	10.0	2.5	5.0	5.0	5.0	2.5	7.5	
P.P.								
Soil Type	Brown, Silty Sand w. trace Gravel	Brown, F.C. Silty Sand	Brown, F.C. Sand	Brown, F.C. Sand	No Sample	Brown, Silty Sand	No Sample	
Wet+Tare	1011.4	938.8	750.9	712.0		1128.7		
No. Ring	5	5	4	4		6		
Wet Weight	150.7	115.2	214.4	144.7		132.8		
Dry Weight	147.3	111.2	211.9	143.6		128.5		
Wet density	131.0	118.9	118.8	110.7		119.2		
% Water	2.3	3.6	1.2	0.8		3.3		
Dry Density	128.0	114.7	117.4	109.9		115.3		
O.B.Press(psf)								

Geo-Logic ASSOCIATES

DIRECT SHEAR TEST - ASTM D-3080

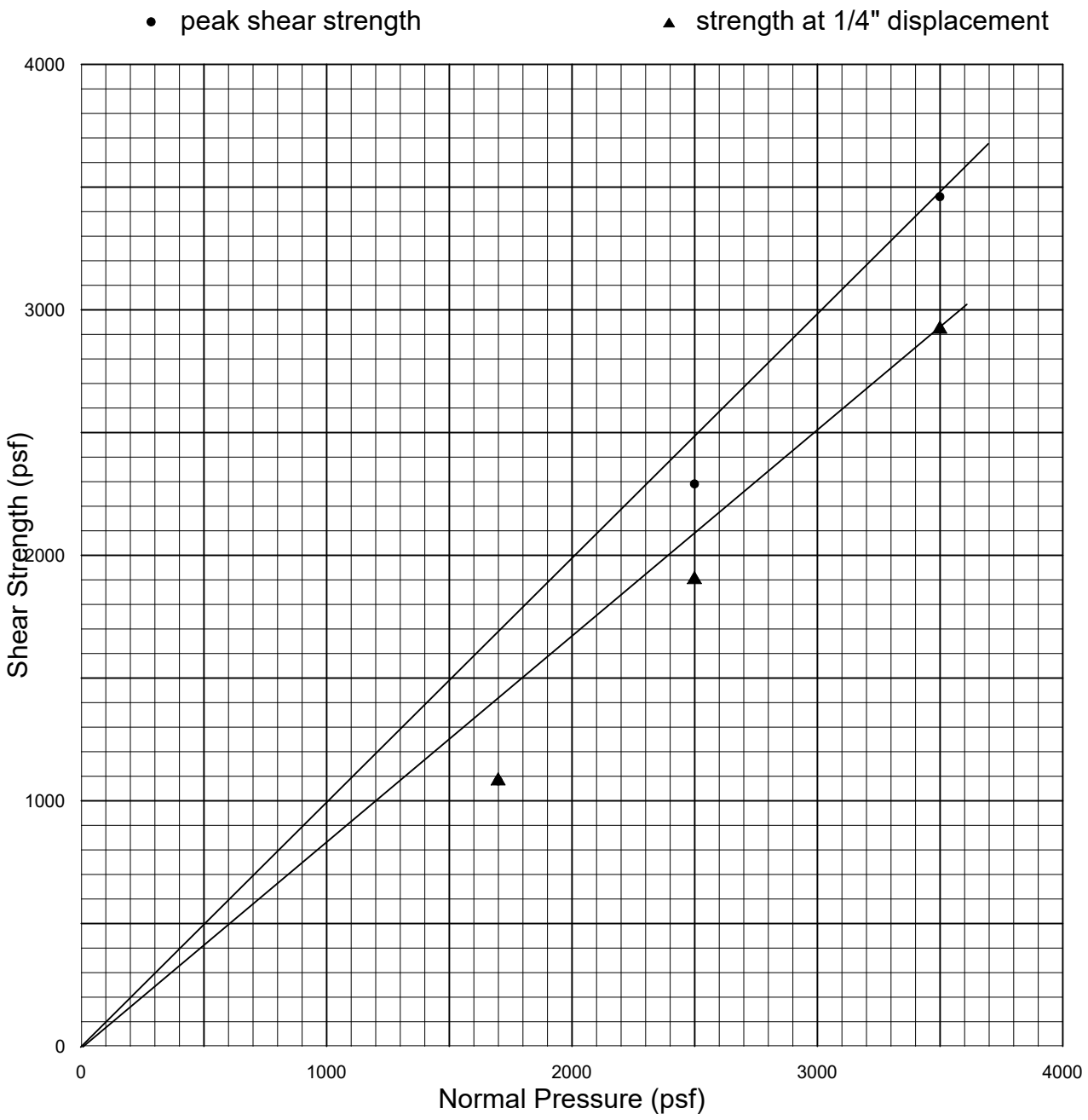


Strain Rate: 0.0084in. / min.

Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB8@0-5'	Remolded & Saturated	Clayey Sand	122.8 (95% Max Density)	9.0	13.0

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
1000	1420 @ 0.0250"	770
2000	2110 @ 0.0555"	1390
4000	3750 @ 0.0750"	2690
	C = 500 psf	C = 100 psf
	ϕ = 38.5 deg.	ϕ = 33 deg.

DIRECT SHEAR TEST - ASTM D-3080



Strain Rate: 0.0084in. / min.

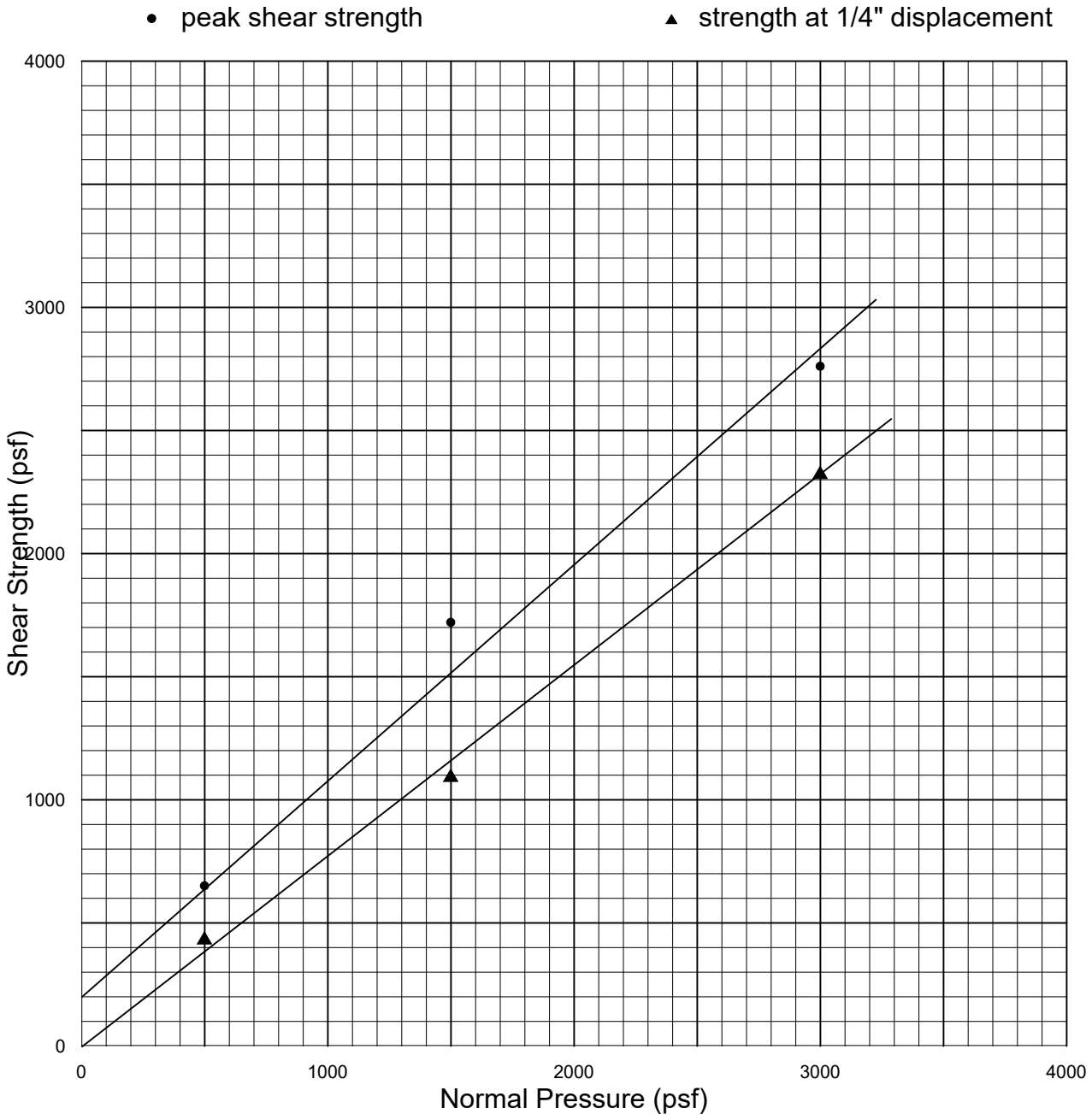
Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB-12/S-2	Undisturbed & Saturated	Sandy Clay	120.1	11.0	20.2

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
1700	1080 @ 0.1355"	1080
2500	1900 @ 0.1205"	1900
3500	2920 @ 0.1205"	2920
	C = 0 psf	C = 0 psf
	ϕ = 44.5 deg.	ϕ = 40 deg.

Date: 03-27-2021

GeoLogic Associates

DIRECT SHEAR TEST - ASTM D-3080

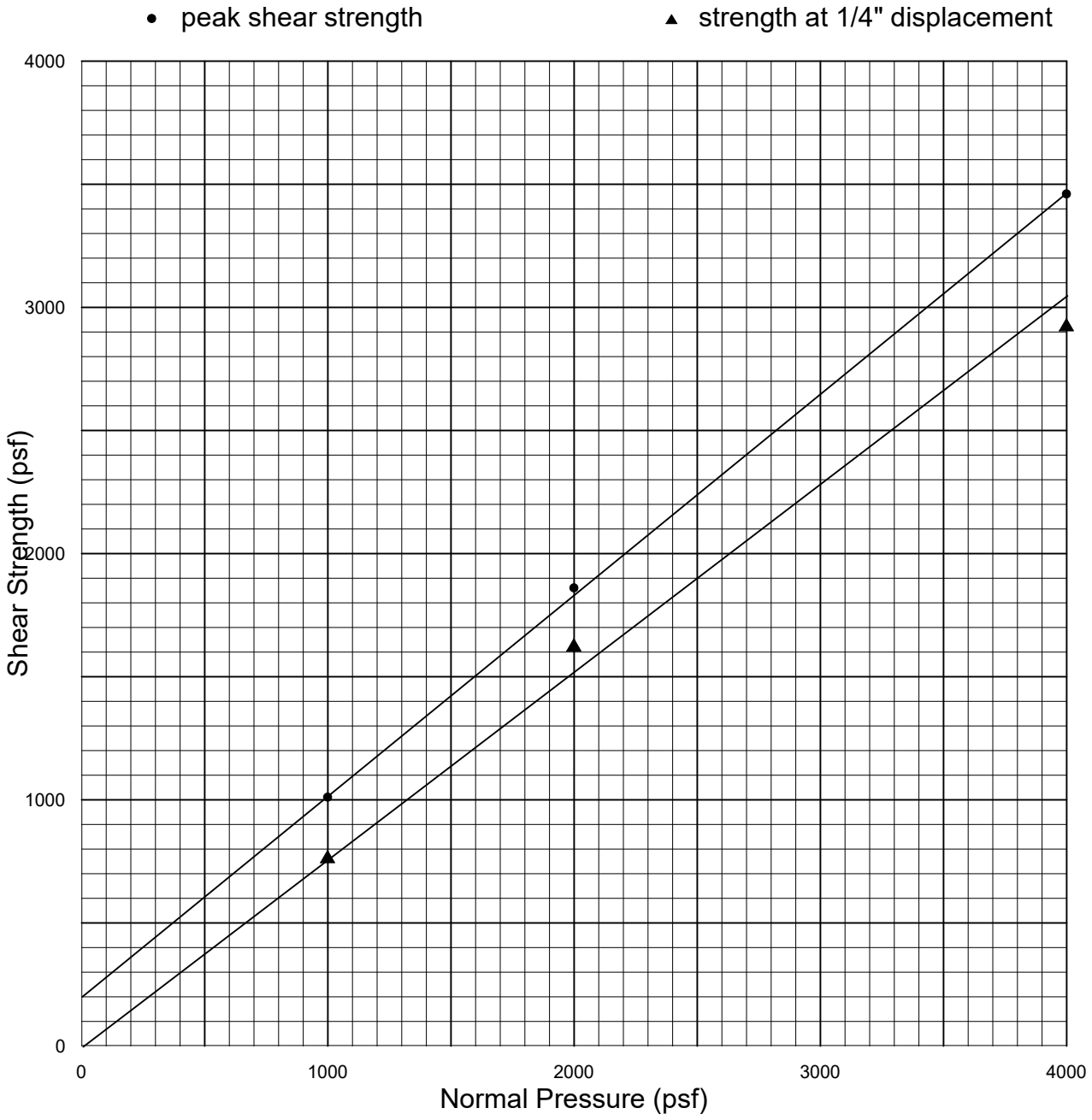


Strain Rate: 0.0084in. / min.

Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB-15/S-1	Undisturbed & Saturated	Silty Sand	119.1	4.4	15.5

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
500	650 @ 0.0750"	430
1500	1720 @ 0.1150"	1090
3000	2760 @ 0.1350"	2320
	C = 200 psf	C = 0 psf
	ϕ = 41 deg.	ϕ = 37 deg.

DIRECT SHEAR TEST - ASTM D-3080



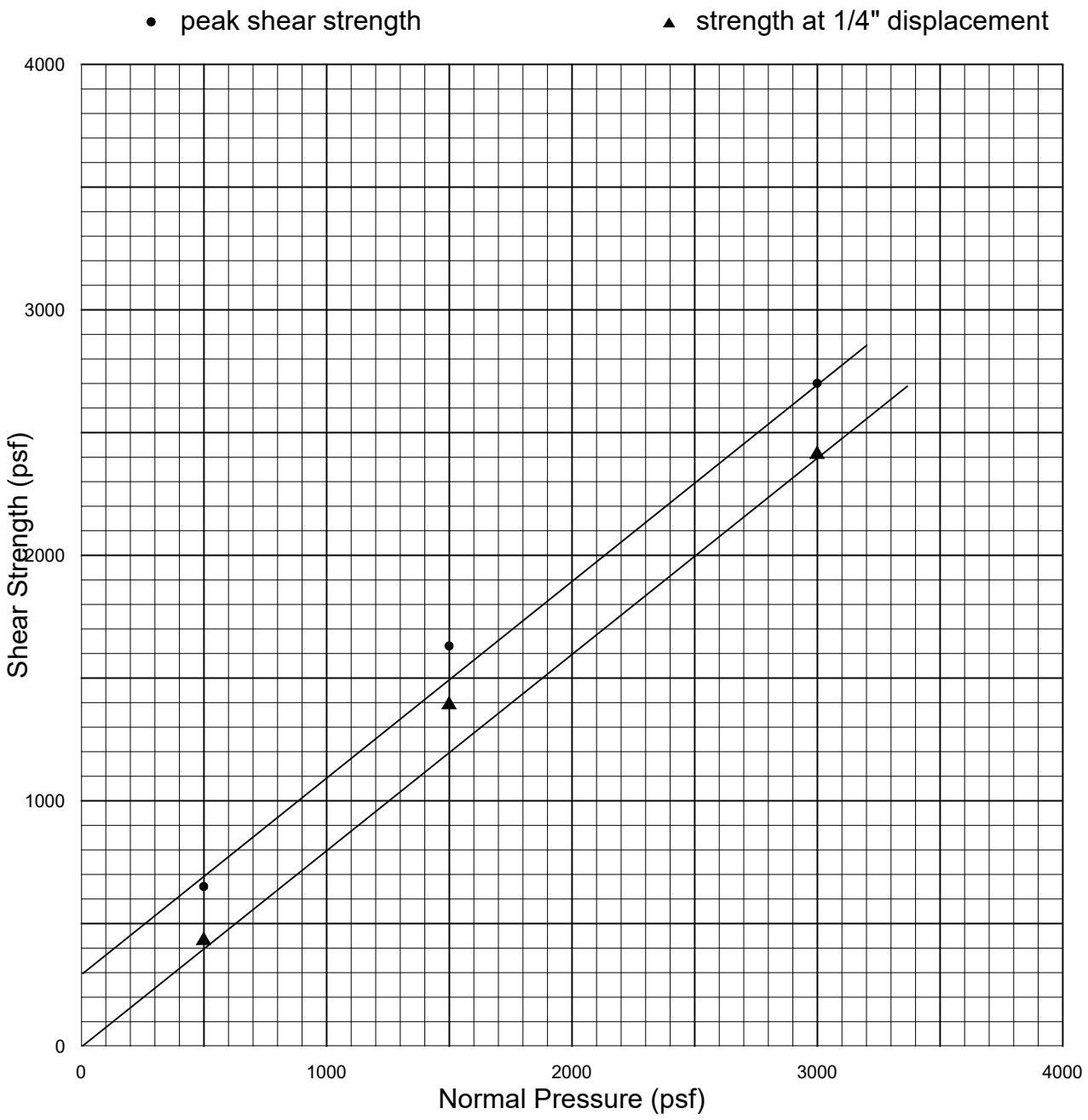
Strain Rate: 0.0084in. / min.

Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB-23/S-1	Undisturbed & Saturated	M.C. Sand	116.5	2.5	16.1

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
1000	1010 @ 0.1200"	760
2000	1860 @ 0.1900"	1620
4000	3460 @ 0.1705"	2920
	C = 200 psf	C = 0 psf
	ϕ = 38.5 deg.	ϕ = 37 deg.

Date: 03-25-2021

DIRECT SHEAR TEST - ASTM D-3080

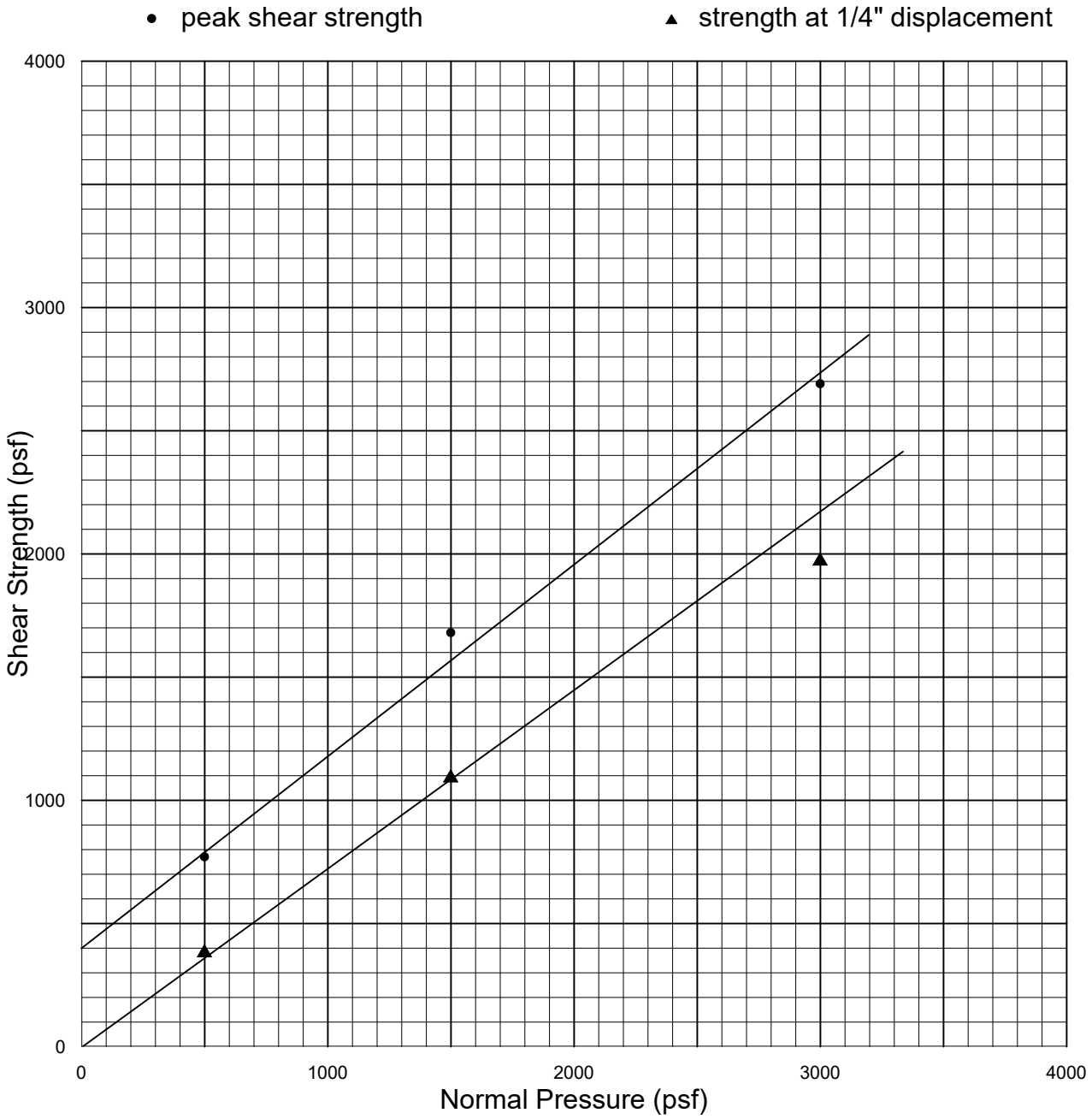


Strain Rate: 0.0084in. / min.

Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB-32/S-3	Undisturbed & Saturated	Silty Sand	117.0	2.6	18.9

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
500	650 @ 0.0955"	650
1500	1630 @ 0.1900"	1390
3000	2700 @ 0.1505"	2410
	C = 300 psf	C = 0 psf
	ϕ = 42.5 deg.	ϕ = 42.5deg.

DIRECT SHEAR TEST - ASTM D-3080



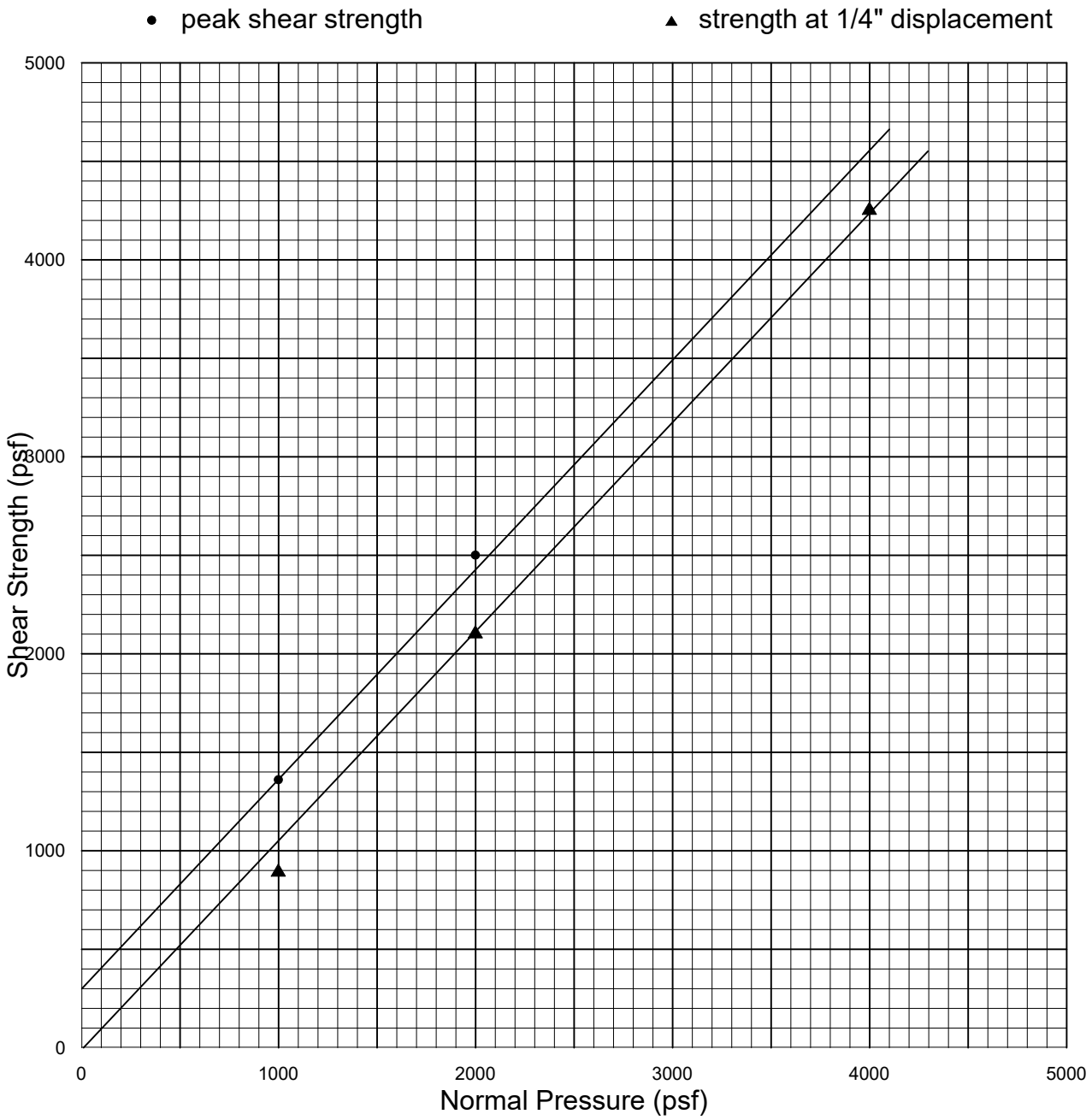
Strain Rate: 0.0084in. / min.

Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB34@0-5'	Remolded & Saturated	Clayey Sand	117.3 (95% Max Density)	11.0	15.6

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
500	770 @ 0.0300"	380
1500	1680 @ 0.0500"	1090
3000	2690 @ 0.0655"	1970
	C = 400 psf	C = 0 psf
	ϕ = 38 deg.	ϕ = 35.5 deg.

Date: 03-25-2021

DIRECT SHEAR TEST - ASTM D-3080

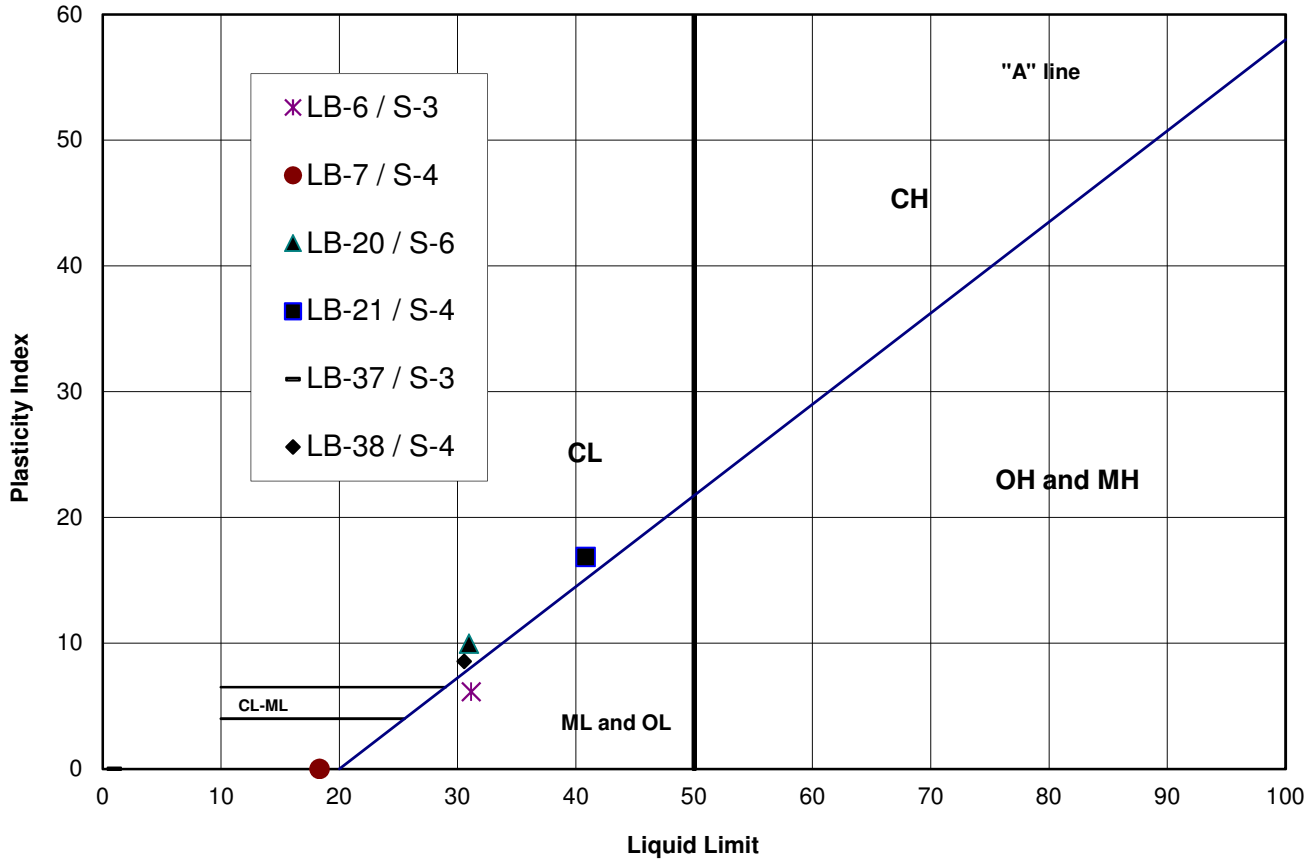


Strain Rate: 0.0084in. / min.

Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB-39/S-2	Undisturbed & Saturated	Silty Sand	108.5	4.5	17.0

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
1000	1360 @ 0.0750"	890
2000	2500 @ 0.1700"	2100
4000	4250 @ 0.2500"	4250
	C = 300 psf	C = 0 psf
	ϕ = 47 deg.	ϕ = 47 deg.

PLASTICITY INDEX _ ASTM D4318



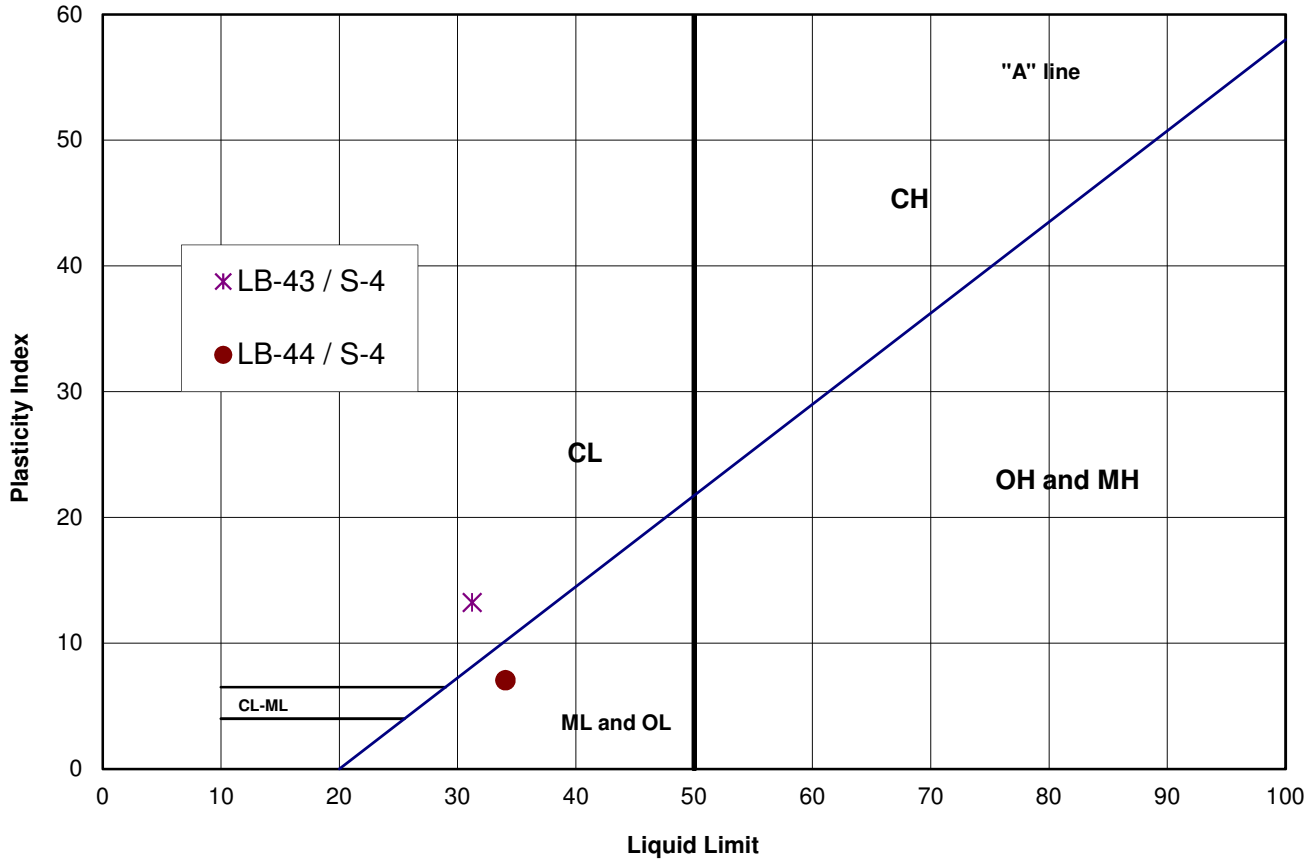
Sample	Depth	LL	PL	PI	USCS	Material Description
LB-6 / S-3	7.5'	31	25	6	ML	
LB-7 / S-4	10'	18	NP	-	SM	
LB-20 / S-6	20'	31	21	10	CL	
LB-21 / S-4	10'	41	24	17	CL	
LB-37 / S-3	7.5'	-	NP	-	SM	
LB-38 / S-4	10'	31	22	9	CL	

Job Name: Langan # 700089101 Date: 3/31/21

Job No.: 2012-0057

Geo-Logic ASSOCIATES

PLASTICITY INDEX _ ASTM D4318



Sample	Depth	LL	PL	PI	USCS	Material Description
LB-43 / S-4	10'	31	18	13	CL	
LB-44 / S-4	10'	34	27	7	ML	

Job Name: Langan # 700089101 Date: 3/31/21

Job No.: 2012-0057

Geo-Logic ASSOCIATES

WASH #200 SIEVE - ASTM D 1140-92

Job Name Langan # 700089101 Date 3-30-21

Job No. 2012-0057 By LD

Sample	LB-2 / S-2	**Sample**	LB-2 / S-3	**Sample**	LB-6 / S-3
Depth		Soil Type		Soil Type	
% water	1.6	% water		% water	
Wet weight	338.4	Wet weight		Wet weight	
Dry weight	333.1	Dry weight	219.2	Dry weight	160.6
+ 200 sieve	309.7	+ 200 sieve	102.9	+ 200 sieve	63.2
% Retained	93.0	% Retained	46.9	% Retained	39.4
%Pass. #200	**7**	**%Pass. #200**	**53**	**%Pass. #200**	**61**

Sample	LB-7 / S-4	**Sample**	LB-9 / S-4	**Sample**	LB-20 / S-2
Depth		Soil Type		Soil Type	
% water		% water	1.7	% water	
Wet weight		Wet weight	295.0	Wet weight	
Dry weight	166.7	Dry weight	290.07	Dry weight	301.8
+ 200 sieve	128.2	+ 200 sieve	257.2	+ 200 sieve	222.8
% Retained	76.9	% Retained	88.7	% Retained	73.8
%Pass. #200	**23**	**%Pass. #200**	**11**	**%Pass. #200**	**26**

Sample	LB-20 / S-6	**Sample**	LB-21 / S-3	**Sample**	LB-34 / S-4
Soil Type		Soil Type		Soil Type	
% water		% water	2.7	% water	
Wet weight		Wet weight	253.0	Wet weight	
Dry weight	170.8	Dry weight	246.3	Dry weight	221.5
+ 200 sieve	97.4	+ 200 sieve	210.5	+ 200 sieve	147.7
% Retained	57.0	% Retained	85.4	% Retained	66.7
%Pass. #200	**43**	**%Pass. #200**	**15**	**%Pass. #200**	**33**

Sample		**Sample**		**Sample**	
Soil Type		Soil Type		Soil Type	
% water		% water		% water	
Wet weight		Wet weight		Wet weight	
Dry weight		Dry weight		Dry weight	
+ 200 sieve		+ 200 sieve		+ 200 sieve	
% Retained		% Retained		% Retained	
%Pass. #200		**%Pass. #200**		**%Pass. #200**	

Geo-Logic ASSOCIATES

WASH #200 SIEVE - ASTM D 1140-92

Job Name Langan # 700089101 Date

Job No. 2012-0057 By LD

Sample	LB-38 / S-4	**Sample**	LB-43 / S-4	**Sample**	LB-43 / S-5
Depth		Soil Type		Soil Type	
% water		% water		% water	
Wet weight		Wet weight		Wet weight	
Dry weight	118.7	Dry weight	197.4	Dry weight	147.2
+ 200 sieve	52.3	+ 200 sieve	145.4	+ 200 sieve	77.7
% Retained	44.1	% Retained	73.7	% Retained	52.8
%Pass. #200	**56**	**%Pass. #200**	**26**	**%Pass. #200**	**47**

Sample	LB-48 / S-3	**Sample**		**Sample**	
Depth		Soil Type		Soil Type	
% water	7.3	% water		% water	
Wet weight	191.5	Wet weight		Wet weight	
Dry weight	178.5	Dry weight		Dry weight	
+ 200 sieve	123.1	+ 200 sieve		+ 200 sieve	
% Retained	69.0	% Retained		% Retained	
%Pass. #200	**31**	**%Pass. #200**		**%Pass. #200**	

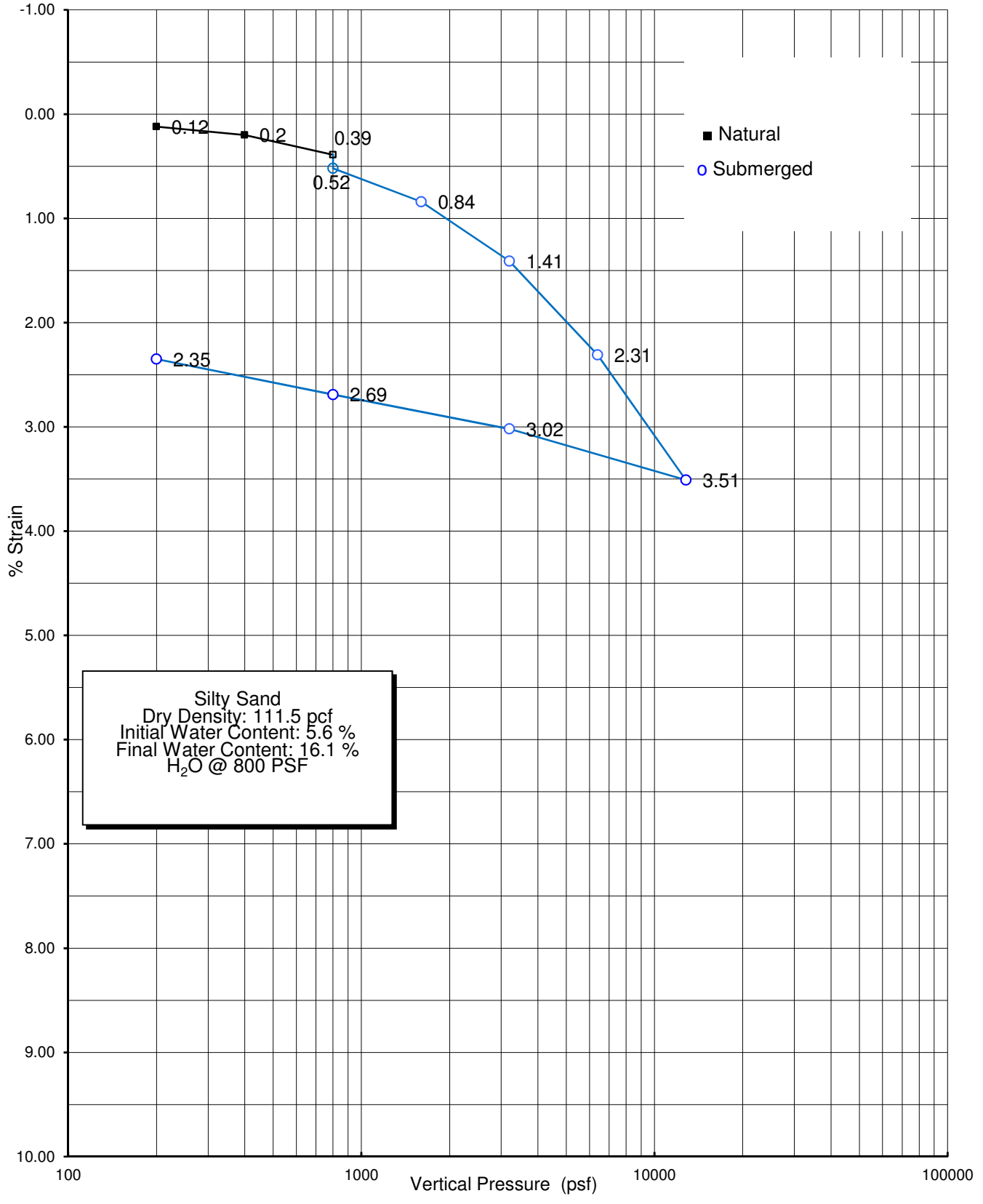
Sample		**Sample**		**Sample**	
Soil Type		Soil Type		Soil Type	
% water		% water		% water	
Wet weight		Wet weight		Wet weight	
Dry weight		Dry weight		Dry weight	
+ 200 sieve		+ 200 sieve		+ 200 sieve	
% Retained		% Retained		% Retained	
%Pass. #200		**%Pass. #200**		**%Pass. #200**	

Sample		**Sample**		**Sample**	
Soil Type		Soil Type		Soil Type	
% water		% water		% water	
Wet weight		Wet weight		Wet weight	
Dry weight		Dry weight		Dry weight	
+ 200 sieve		+ 200 sieve		+ 200 sieve	
% Retained		% Retained		% Retained	
%Pass. #200		**%Pass. #200**		**%Pass. #200**	

Geo-Logic ASSOCIATES

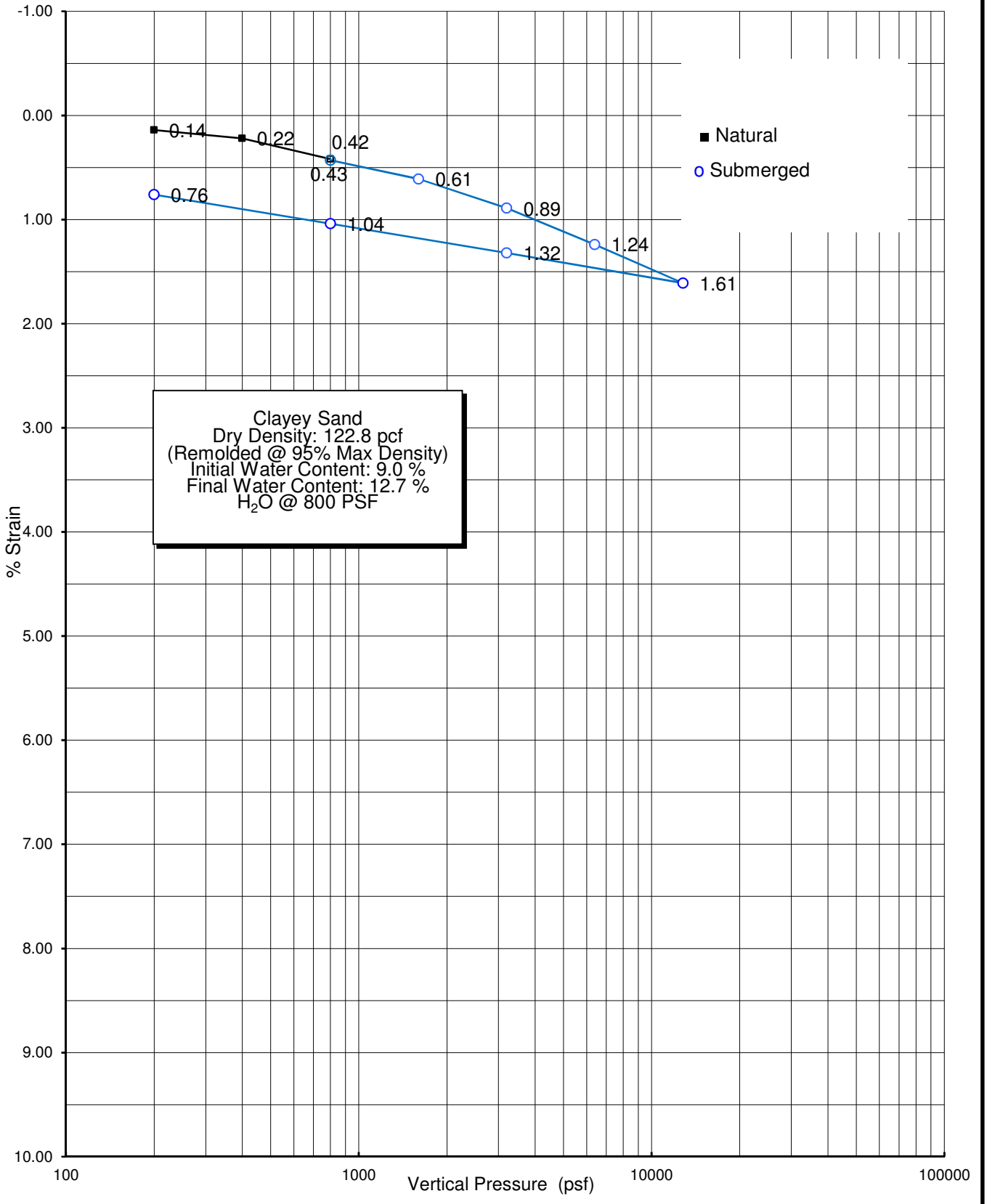
CONSOLIDATION TEST - ASTM D2435

Boring / Sample No.	LB-43 / S-5	Depth:	15'	Date	03-25-21



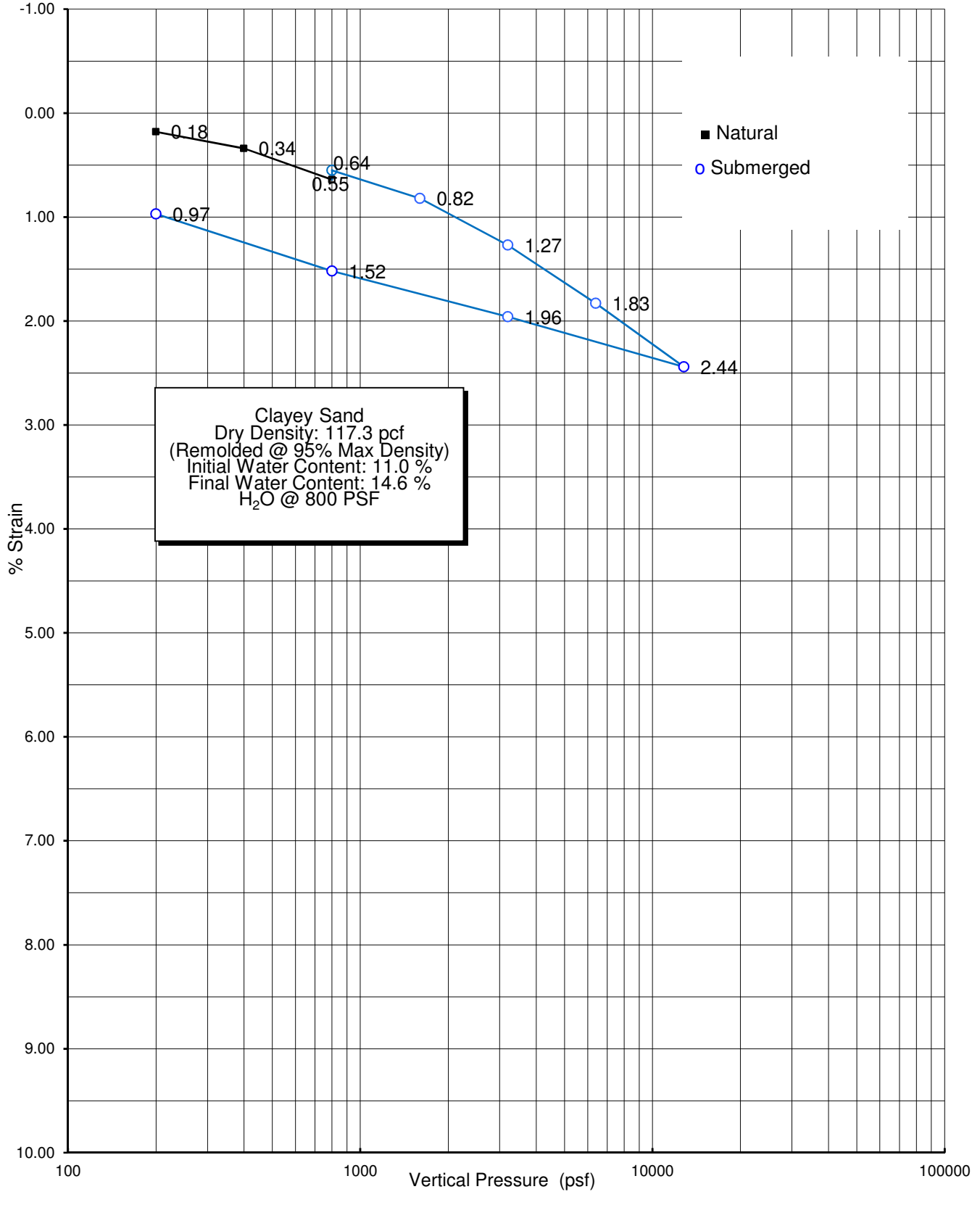
CONSOLIDATION TEST - ASTM D2435

Boring / Sample No.	LB-8	Depth:	0 - 5'	Date	03-25-21



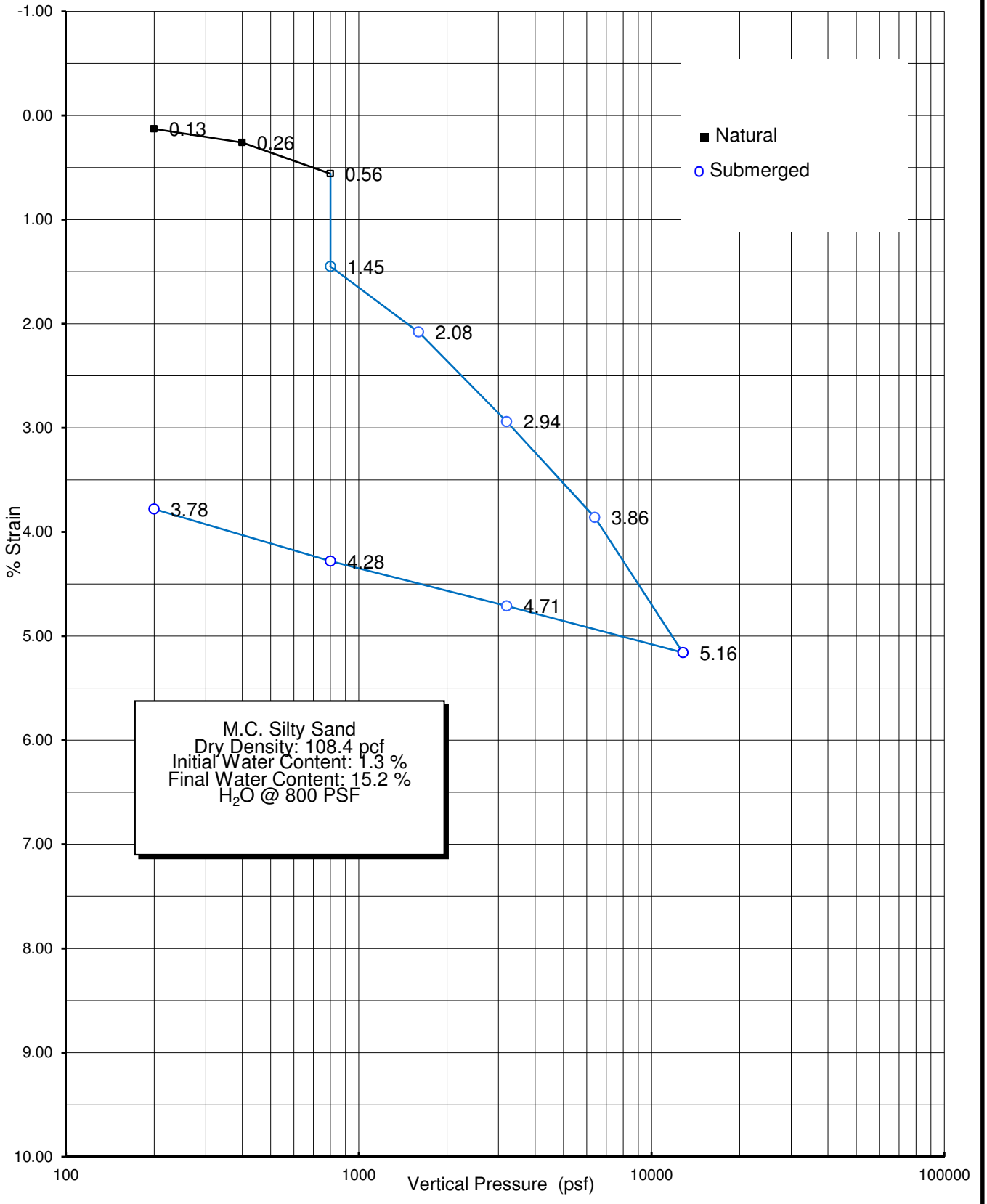
CONSOLIDATION TEST - ASTM D2435

Boring / Sample No.	LB-34	Depth:	0 - 5'	Date	03-25-21



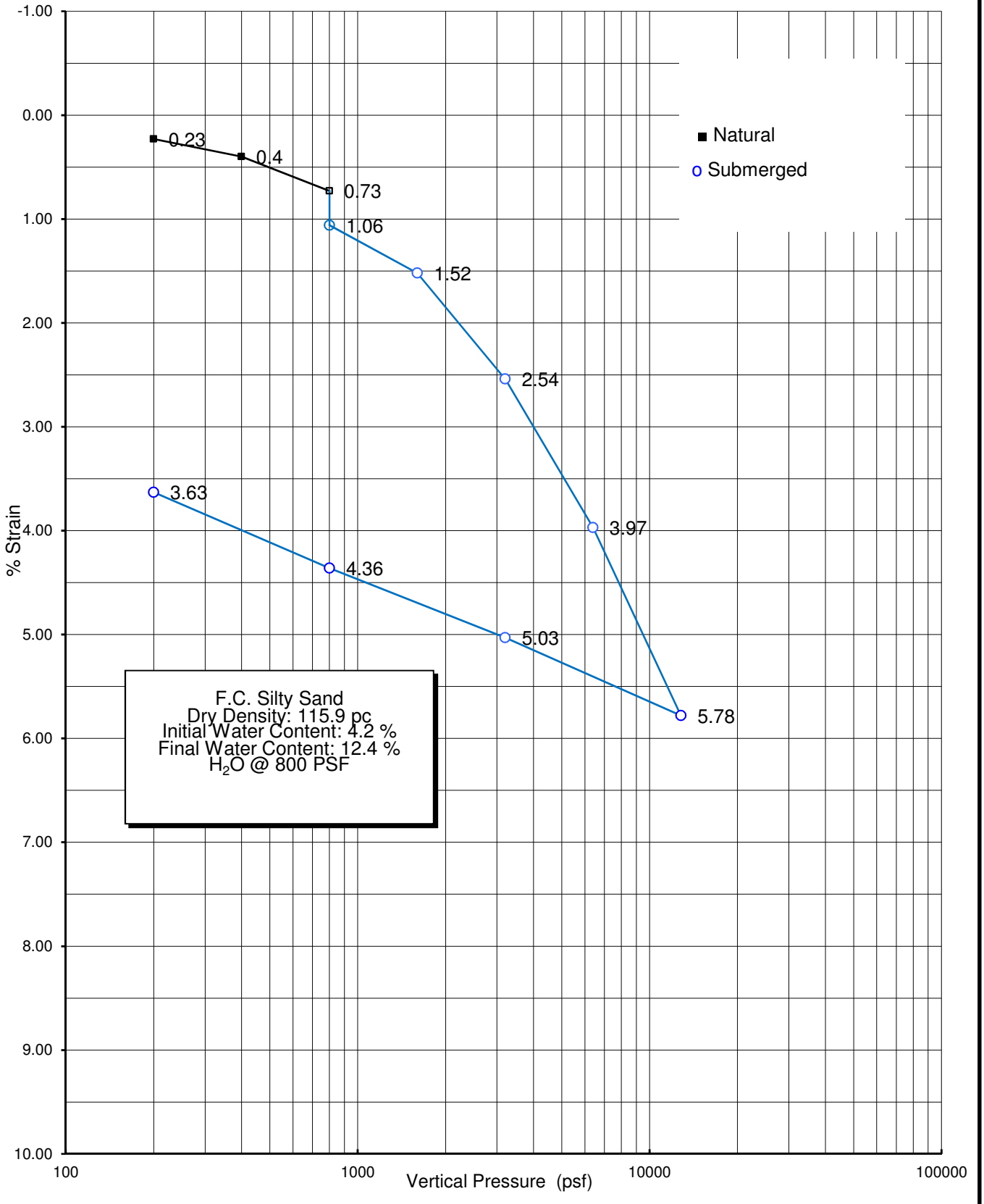
CONSOLIDATION TEST - ASTM D2435

Boring / Sample No.	LB-6 / S-2	Depth:	5'	Date	03-19-21



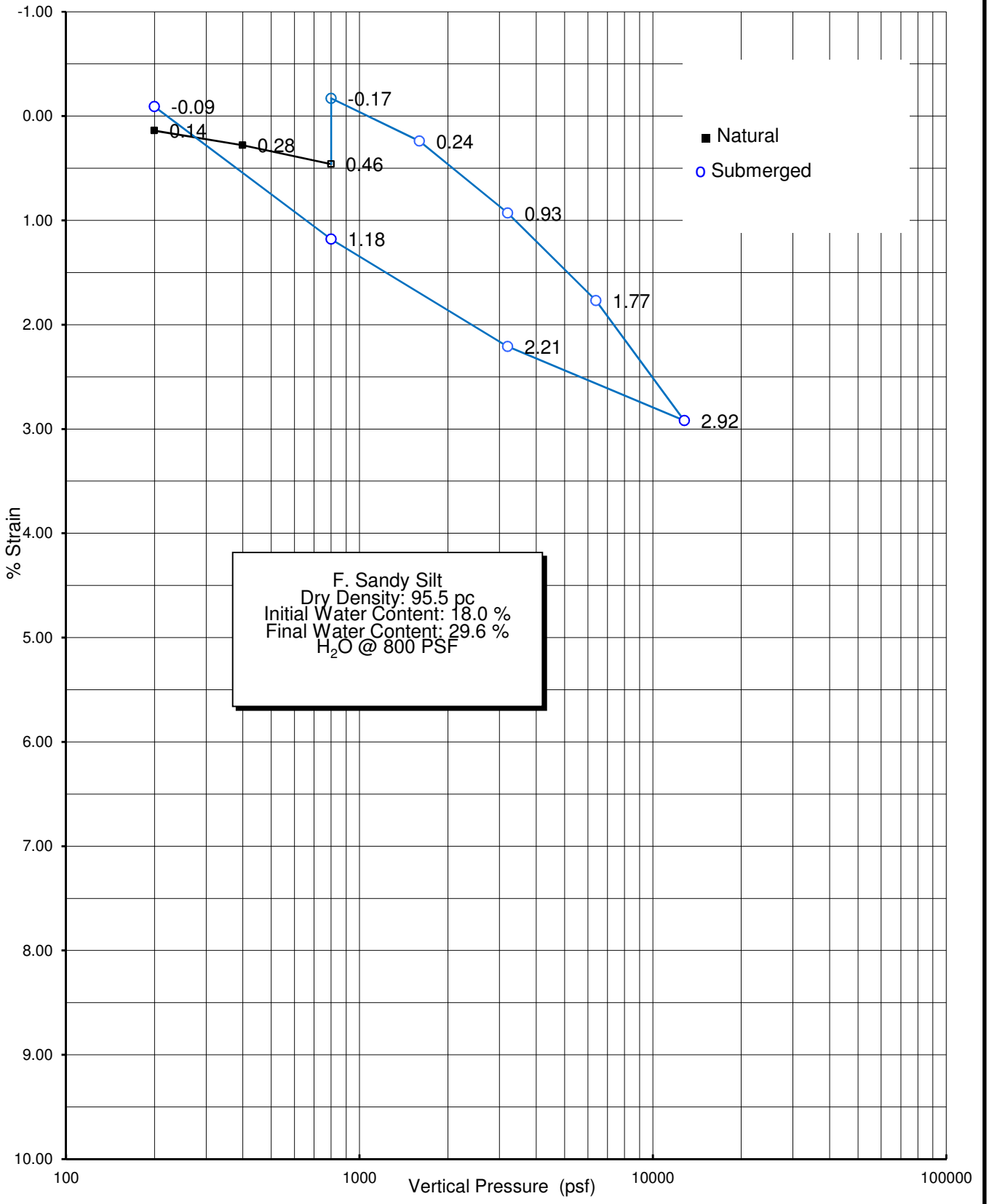
CONSOLIDATION TEST - ASTM D2435

Boring / Sample No.	LB-30 / S-2	Depth:	5'	Date	03-19-21



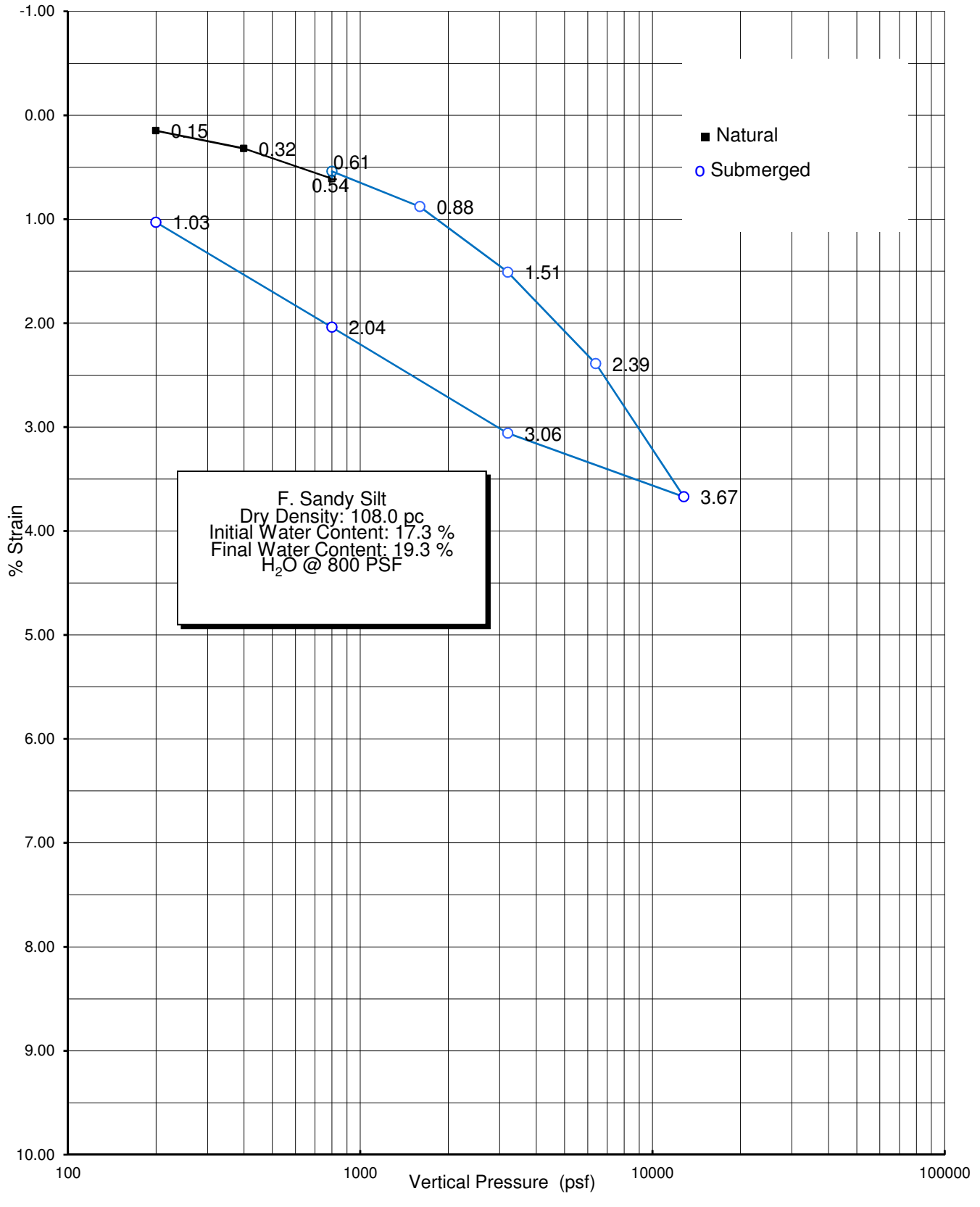
CONSOLIDATION TEST - ASTM D2435

Boring / Sample No.	LB-44 / S-4	Depth:	10'	Date	03-19-21



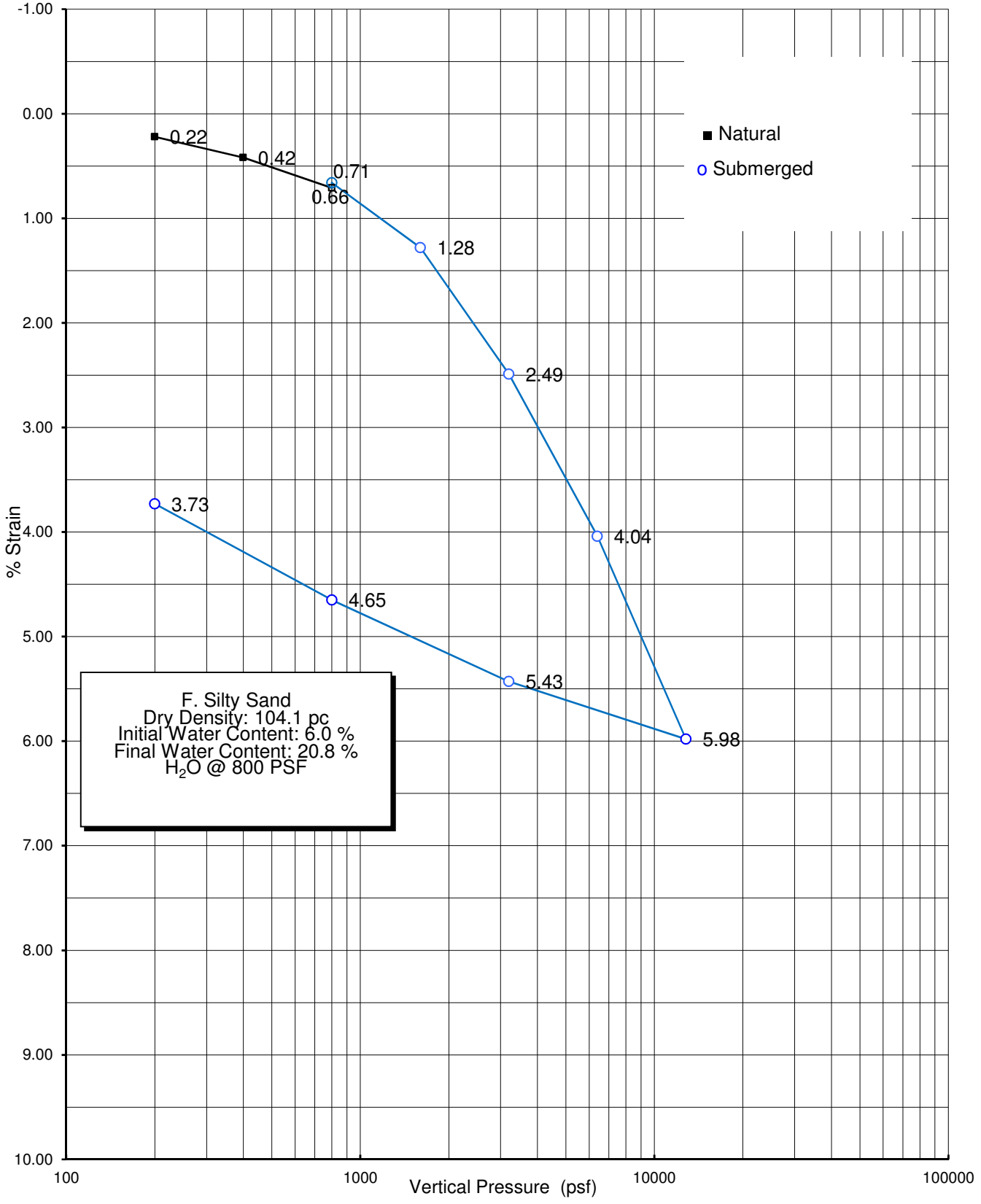
CONSOLIDATION TEST - ASTM D2435

Boring / Sample No.	LB-15 / S-3	Depth:	7.5	Date	03-19-21



CONSOLIDATION TEST - ASTM D2435

Boring / Sample No.	LB-7 / S-5	Depth:	15'	Date	03-19-21



'R' VALUE CA 301

Client: Langan Date: 3/30/21 By: LD

Client's Job No.: **700089101** Sample No.: RB-12

GLA Reference: 2012-0057 Soil Type: Brown, Clayey Sand

TEST SPECIMEN		A	B	C	D
Compactor Air Pressure	psi	**300**	**110**	**200**	
Initial Moisture Content	%	**5.4**	**5.4**	**5.4**	
Water Added	ml	**40**	**60**	**50**	
Moisture at Compaction	%	9.2	11.1	10.2	
Sample & Mold Weight	gms	**3253**	**3252**	**3249**	
Mold Weight	gms	**2114**	**2085**	**2099**	
Net Sample Weight	gms	1139	1167	1150	
Sample Height	in.	**2.534**	**2.545**	**2.528**	
Dry Density	pcf	124.7	125.0	125.1	
Pressure	lbs	**9415**	**2225**	**3980**	
Exudation Pressure	psi	750	177	317	
Expansion Dial	x 0.0001	**26**	**0**	**10**	
Expansion Pressure	psf	113	0	43	
Ph at 1000lbs	psi	**18**	**32**	**25**	
Ph at 2000lbs	psi	**31**	**64**	**48**	
Displacement	turns	**3.95**	**4.57**	**4.19**	
R' Value		72	45	58	
Corrected 'R' Value		**72**	**45**	**58**	

FINAL 'R' VALUE	
By Exudation Pressure (@ 300 psi):	**57**
By Epansion Pressure :	**61**
TI = 5	

Geo-Logic ASSOCIATES

'R' VALUE CA 301

Client: Langan Date: 3/30/21 By: LD

Client's Job No.: **700089101** Sample No.: RB-15

GLA Reference: 2012-0057 Soil Type: Brown, Sandy Clay

TEST SPECIMEN		A	B	C	D
Compactor Air Pressure	psi	**80**	**60**	**120**	
Initial Moisture Content	%	**4.8**	**4.8**	**4.8**	
Water Added	ml	**60**	**70**	**50**	
Moisture at Compaction	%	10.5	11.5	9.6	
Sample & Mold Weight	gms	**3269**	**3291**	**3279**	
Mold Weight	gms	**2097**	**2104**	**2102**	
Net Sample Weight	gms	1172	1187	1177	
Sample Height	in.	**2.519**	**2.578**	**2.533**	
Dry Density	pcf	127.6	125.2	128.5	
Pressure	lbs	**4440**	**2090**	**8060**	
Exudation Pressure	psi	354	166	642	
Expansion Dial	x 0.0001	**13**	**4**	**23**	
Expansion Pressure	psf	56	17	100	
Ph at 1000lbs	psi	**28**	**32**	**20**	
Ph at 2000lbs	psi	**58**	**72**	**44**	
Displacement	turns	**4.01**	**4.44**	**3.73**	
R' Value		52	41	64	
Corrected 'R' Value		**52**	**41**	**64**	

FINAL 'R' VALUE	
By Exudation Pressure (@ 300 psi):	**49**
By Epansion Pressure :	**54**
TI = 5	

Geo-Logic ASSOCIATES

'R' VALUE CA 301

Client: Langan Date: 3/30/21 By: LD

Client's Job No.: **700089101** Sample No.: RB-18

GLA Reference: 2012-0057 Soil Type: Brown, Sandy Clay w. trace Gravel

TEST SPECIMEN		A	B	C	D
Compactor Air Pressure	psi	**100**	**60**	**150**	
Initial Moisture Content	%	**5.2**	**5.2**	**5.2**	
Water Added	ml	**90**	**100**	**80**	
Moisture at Compaction	%	13.8	14.8	12.9	
Sample & Mold Weight	gms	**3219**	**3229**	**3224**	
Mold Weight	gms	**2098**	**2107**	**2096**	
Net Sample Weight	gms	1121	1122	1128	
Sample Height	in.	**2.501**	**2.557**	**2.482**	
Dry Density	pcf	119.3	115.9	122.0	
Pressure	lbs	**4780**	**2760**	**8630**	
Exudation Pressure	psi	381	220	687	
Expansion Dial	x 0.0001	**23**	**10**	**44**	
Expansion Pressure	psf	100	43	191	
Ph at 1000lbs	psi	**29**	**31**	**24**	
Ph at 2000lbs	psi	**62**	**75**	**48**	
Displacement	turns	**4.55**	**4.78**	**4.22**	
R' Value		46	37	58	
Corrected 'R' Value		**46**	**37**	**58**	

FINAL 'R' VALUE	
By Exudation Pressure (@ 300 psi):	**42**
By Epansion Pressure :	**44**
TI = 5	

Geo-Logic ASSOCIATES

'R' VALUE CA 301

Client: Langan Date: 3/26/21 By: LD

Client's Job No.: **700089101** Sample No.: LB-36 / Bulk

GLA Reference: 2012-0057 Soil Type: Brown, Clayey Sand w. Gravel

TEST SPECIMEN		A	B	C	D
Compactor Air Pressure	psi	**150**	**350**	**350**	
Initial Moisture Content	%	**6.2**	**6.2**	**6.2**	
Water Added	ml	**60**	**50**	**43**	
Moisture at Compaction	%	12.0	11.0	10.4	
Sample & Mold Weight	gms	**3218**	**3211**	**3199**	
Mold Weight	gms	**2107**	**2098**	**2096**	
Net Sample Weight	gms	1111	1113	1103	
Sample Height	in.	**2.494**	**2.483**	**2.448**	
Dry Density	pcf	120.5	122.3	123.7	
Pressure	lbs	**1760**	**4320**	**7630**	
Exudation Pressure	psi	140	344	607	
Expansion Dial	x 0.0001	**0**	**0**	**6**	
Expansion Pressure	psf	0	0	26	
Ph at 1000lbs	psi	**28**	**20**	**15**	
Ph at 2000lbs	psi	**50**	**35**	**23**	
Displacement	turns	**4.75**	**3.9**	**3.48**	
R' Value		54	70	81	
Corrected 'R' Value		**54**	**74**	**81**	

FINAL 'R' VALUE	
By Exudation Pressure (@ 300 psi):	**71**
By Epansion Pressure :	**N/A**
TI = 5	

Geo-Logic ASSOCIATES

'R' VALUE CA 301

Client: Langan Date: 3/26/21 By: LD

Client's Job No.: **700089101** Sample No.: LB-47 / Bulk

GLA Reference: 2012-0057 Soil Type: Brown, Clayey Sand

TEST SPECIMEN		A	B	C	D
Compactor Air Pressure	psi	**350**	**200**	**300**	
Initial Moisture Content	%	**3.3**	**3.3**	**3.3**	
Water Added	ml	**80**	**88**	**84**	
Moisture at Compaction	%	10.8	11.6	11.2	
Sample & Mold Weight	gms	**3226**	**3231**	**3238**	
Mold Weight	gms	**2095**	**2102**	**2104**	
Net Sample Weight	gms	1131	1129	1134	
Sample Height	in.	**2.47**	**2.479**	**2.483**	
Dry Density	pcf	125.2	123.7	124.5	
Pressure	lbs	**5265**	**1790**	**3200**	
Exudation Pressure	psi	419	143	255	
Expansion Dial	x 0.0001	**15**	**0**	**6**	
Expansion Pressure	psf	65	0	26	
Ph at 1000lbs	psi	**19**	**34**	**25**	
Ph at 2000lbs	psi	**36**	**60**	**45**	
Displacement	turns	**3.97**	**4.79**	**4.11**	
R' Value		68	47	61	
Corrected 'R' Value		**68**	**47**	**61**	

FINAL 'R' VALUE	
By Exudation Pressure (@ 300 psi):	**65**
By Epansion Pressure :	**N/A**
TI = 5	

Geo-Logic ASSOCIATES

'R' VALUE CA 301

Client: Langan Date: 3/26/21 By: LD

Client's Job No.: **700089101** Sample No.: LB-29 / Bulk

GLA Reference: 2012-0057 Soil Type: Brown, Clayey Sand

TEST SPECIMEN		A	B	C	D
Compactor Air Pressure	psi	**350**	**200**	**350**	
Initial Moisture Content	%	**5.4**	**5.4**	**5.4**	
Water Added	ml	**60**	**70**	**54**	
Moisture at Compaction	%	11.1	12.1	10.6	
Sample & Mold Weight	gms	**3219**	**3206**	**3218**	
Mold Weight	gms	**2103**	**2075**	**2099**	
Net Sample Weight	gms	1116	1131	1119	
Sample Height	in.	**2.481**	**2.51**	**2.466**	
Dry Density	pcf	122.6	121.8	124.3	
Pressure	lbs	**4970**	**2635**	**8300**	
Exudation Pressure	psi	396	210	661	
Expansion Dial	x 0.0001	**8**	**0**	**17**	
Expansion Pressure	psf	35	0	74	
Ph at 1000lbs	psi	**17**	**26**	**15**	
Ph at 2000lbs	psi	**30**	**46**	**24**	
Displacement	turns	**4.11**	**4.46**	**3.79**	
R' Value		72	58	79	
Corrected 'R' Value		**72**	**58**	**79**	

FINAL 'R' VALUE	
By Exudation Pressure (@ 300 psi):	**66**
By Epansion Pressure :	**N/A**
TI = 5	

Geo-Logic ASSOCIATES

'R' VALUE CA 301

Client: Langan Date: 3/26/21 By: LD

Client's Job No.: **700089101** Sample No.: LB-1 / Bulk

GLA Reference: 2012-0057 Soil Type: Brown, Clayey Sand w. Gravel

TEST SPECIMEN		A	B	C	D
Compactor Air Pressure	psi	**135**	**250**	**200**	
Initial Moisture Content	%	**7.2**	**7.2**	**7.2**	
Water Added	ml	**50**	**35**	**43**	
Moisture at Compaction	%	12.1	10.6	11.4	
Sample & Mold Weight	gms	**3232**	**3201**	**3220**	
Mold Weight	gms	**2097**	**2104**	**2096**	
Net Sample Weight	gms	1135	1097	1124	
Sample Height	in.	**2.566**	**2.45**	**2.543**	
Dry Density	pcf	119.6	122.7	120.2	
Pressure	lbs	**2485**	**5645**	**3960**	
Exudation Pressure	psi	198	449	315	
Expansion Dial	x 0.0001	**15**	**41**	**28**	
Expansion Pressure	psf	65	178	121	
Ph at 1000lbs	psi	**29**	**21**	**24**	
Ph at 2000lbs	psi	**60**	**40**	**48**	
Displacement	turns	**4.12**	**3.75**	**3.89**	
R' Value		50	67	60	
Corrected 'R' Value		**50**	**67**	**60**	

FINAL 'R' VALUE	
By Exudation Pressure (@ 300 psi):	**59**
By Epansion Pressure :	**N/A**
TI = 5	

Geo-Logic ASSOCIATES

SAMPLE NO.:	LB-16 / S-3	LB-32 / S-2			
Depth:	7.5'	5'			
DIRECT SHEAR TEST (type)					
Initial Moisture Content %					
Dry Density (pcf)					
Normal Stress (psf)					
Peak Shear Stress (psf)					
Ultimate Shear Stress (psf)					
Cohesion (psf)					
Internal Friction Angle (degrees)					
EXPANSION TEST UBC STD 18-2					
Initial Dry Density (pcf)					
Initial Moisture Content %					
Final Moisture Content %					
Pressure (psf)					
Expansion Index / Swell %					
CORROSIVITY TEST					
Resistivity (CTM 643) (ohm-cm)	2400	1500			
pH (ASTM D1293)	7.1	7.2			
CHEMICAL TESTS					
Soluble Sulfate (CTM 417) (%)	0.0526	0.0353			
Chloride Content (CTM 422) (%)	0.0061	0.0235			
Wash #200 Sieve (ASTM-1140) %					
Sand Equivalent (ASTM D2419)					

Geo-Logic ASSOCIATES

APPENDIX B
SEISMIC SITE CLASS CALCULATIONS

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SEISMIC SITE CLASSIFICATION - SPT N-METHOD

Project Number: 700089101
Project Name: ARS Fullfillment Center SBD4
Created By: J. Goff
Edited By: J. Goff
Reviewed By: CJZ
Date: 3/30/2021

BORING ID:	LB-11
GROUNDWATER DEPTH (FT)	79
SAMPLER HAMMER EFFICIENCY (%)	83.9

Layer No.	Top Depth (ft)	Bot. Depth (ft)	Mid-Depth (ft)	Thickness, d_i (ft)	N_{FIELD}	Sampler Type	Soil Type	C_S	C_E	N_{60}	d_i/N_{60}
1	0	8	4	8	25	Ring	SP	0.65	1.40	23	0.352
2	8	14	11	6	50	SPT	SM	1.00	1.40	70	0.086
3	14	18	16	4	100	Ring	SC	0.65	1.40	91	0.044
4	18	23	20.5	5	43	SPT	SP	1.00	1.40	60	0.083
5	23	28	25.5	5	89	Ring	SP	0.65	1.40	81	0.062
6	28	33	30.5	5	34	SPT	SP	1.00	1.40	48	0.105
7	33	38	35.5	5	97	Ring	SP	0.65	1.40	88	0.057
8	38	41	39.5	3	69	SPT	SP	1.00	1.40	96	0.031
9	41	45.5	43.25	4.5	69	SPT	ML	1.00	1.40	96	0.047
10	45.5	48	46.75	2.5	100	Ring	SM	0.65	1.40	91	0.028
11	48	51.5	49.75	3.5	60	SPT	SP	1.00	1.40	84	0.042
12 (LB-33)	51.5	58	54.75	6.5	47	SPT	SC	1.00	1.40	66	0.099
13 (LB-33)	58	66	62	8	100	Ring	SM	0.65	1.40	91	0.088
14 (LB-33)	66	68	67	2	48	SPT	SP	1.00	1.40	67	0.030
15 (LB-33)	68	73	70.5	5	100	Ring	SP	0.65	1.40	91	0.055
16 (LB-33)	73	76.5	74.75	3.5	18	SPT	CL	1.00	1.40	25	0.139
17 (LB-33)	76.5	83	79.75	6.5	100	Ring	SM	0.65	1.40	91	0.072
18 (LB-33)	83	88	85.5	5	76	SPT	SM	1.00	1.40	100	0.050
19 (LB-33)	88	93	90.5	5	86	Ring	SP	0.65	1.40	78	0.064
20 (LB-33)	93	98	95.5	5	24	SPT	SM	1.00	1.40	34	0.149
21 (LB-33)	98	100	99	2	63	Ring	SP	0.65	1.40	57	0.035

Σd_i	**100.0**
$\Sigma d_i/N_{60}$	**1.72**
Avg. N_{60}	**58**
Seismic Site Class	**C**