

Project	Creekview Ranch School Campus Expansion – Site Package
Client	Dry Creek Joint Elementary School District
Date	07/17/2026
Project Number	Y2514.00
Agency Number	02-123892 Inc. 01

To all bidders for furnishing all labor and materials necessary and required for constructing the above referenced project. This Addendum has been prepared to clarify, modify, delete, or add to the original or previously modified Contract Documents for the above referenced project. Revisions to items listed here shall supersede description thereof prior to above date. All conditions not specifically referenced here shall remain the same. It is the obligation of the General Contractor to make subcontractors aware of any items herein that may affect submitted bids.

Acknowledge receipt of all Addenda by inserting the addendum number and date in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification. All addenda items refer to the Specifications and Drawings unless specifically noted otherwise.

ITEM NO.

GENERAL INFORMATION TO BIDDERS FOR THIS PROJECT

- | | |
|----------------|---|
| AD02.01 | Prequalification will not be required (but encouraged) for Subcontractors on this project as it is not funded by state bond funds. The District will require Prime bidders to be prequalified. The current list is on our website. |
| AD02.02 | Assembly Bill 1565: AB 1565 is a law that went into effect January 1, 2014. It requires school districts with over 2,500 students to pre-qualify bidders (General and MEP subcontractors) for construction contracts if the total project value is \$1,000,000 or more and if the project is funded, in whole or in part, with State bond funds. AB 1565, in part, added Section 20111.6 to the Public Contract Code. |
| AD02.03 | The Creekview Ranch Campus is an active school site. Daily operations of the school shall not be impacted by construction operations. All utilities shall remain functional during normal school hours. The school's website has their current calendar and bell schedule. Contractor to provide temporary construction fencing with screen mesh around the entire construction site. The new water tie-in (POC) shall be completed during an extended school break so as to not disrupt the campus. |
| AD02.04 | At this time, access to the site will be through the Creekview Ranch School Campus. There is a maintenance road on the South side of campus that may be used. There is also a fire lane that extends through campus and is part of the normal walk path for students. This access may only be used during non-school hours (30 minutes before the bell to 30 minutes after the bell). All heavy equipment will need to be mobilized during non-school hours as access is limited for large vehicles on the access road. |

AD02.05 Contractor to follow all applicable Skilled & Trained Workforce and Apprenticeship laws and requirements.

CHANGES TO FRONT END DOCUMENTS

AD02.06 Delete the Design and Engineering Services Agreement in the Front Ends

AD02.07 Delete any reference to Lease-Leaseback, Roof Project Certification and Iran Contracting

GENERAL PRE-BID RFI's:

BIDDER QUESTIONS:

Q#1: Can we visit the site once more to look at the existing MSB? A couple electrical subs have asked if we have pictures of it or if they can walk the site.

R#1: Yes, please make arrangements with Shaun Schondelmayer for any needed site visits.

Q#2: At the walk you mentioned issuing a responsibility matrix for the buildings/site in an addendum, has this been issued yet and will it be issued on the district's web site?

R#2: Provided as part of Addendum No. 1

Q#3: Who is responsible for the equipment pads outside of the new buildings on sheet A101 and also on the Meehleis drawings? The responsibility matrix may spell this out.

R#3: Per the RESPONSIBILITY MATRIX issued as part of Addendum No. 1, equipment pads are Site Contractor's responsibility.

Q#4: Detail 9/A105 calls for out "mow strip per 13/C6.1 where occurs on plans". Sheet C6.1 is the erosion control plan and doesn't have a detail 13. We're assuming a mow strip is required under the new fencing due to the existing having one. Please confirm a mow strip is required under all new fence provide detail.

R#4: New mow strip is required under new fencing – detail will be provided in Addendum No. 3.

Q#5: Sheets C4.1 & C4.2 appear to show fencing along the entire East side of the project, please confirm we are to use the Architectural sheets A101 & A102 for the extent of new fence, and no new fence is required along the East side of the new drop off loop & parking areas per A102.

R#5: Yes, no new fencing along east side of property around parking and drop off loop. A102 is correct.

Q#6: Is there a current Geotech report for this project?

R#6: Yes, attached to this addendum.

Q#7: During the job walk, it was stated that the sign in sheet, an addendum detailing the changes due to DSA approval and a responsibility matrix would be provided.

R#7: Sign-in sheet, Responsibility Matrix, and DSA changes are listed and included in Addendum No. 1.

Q#8: Is this project solely funded by revenue bonds? Our insurance provider is asking.

R#8: No.

Q#9: The responsibility matrix calls for the site GC to provide a field office for the inspector & CM, please provide the size and amenity requirements for this office.

R#9: No field office for the CM or Inspector is required for this project.

Q#10: The responsibility matrix calls for the site GC to provide on-site security, can you define the requirements for this? We're not sure if this should be a full time security guard or if a Verkada security camera & monitoring system will meet this requirement.

R#10: Full time security is not required. A monitoring system is recommended.

Q#11: Would it be possible to locate the fire risers on the Meehleis drawings since the site GC is to provide the riser to +6" AFF. The location inside the building footprint isn't clear.

R#11: There are 2 fire risers on the east exterior side of the new Meehleis buildings. T1 Riser is on the southeast corner, T2 riser is on the northwest corner (both inside the gated areas).

Q#12: Specification 33 00 00 Utilities section 3.07-H calls for video inspection of all site sewer piping, but has a sentence that says, "For Elk Grove USD Only". Is a video inspection of all site sewer piping required and if so is it limited to only new piping?

R#12: Video inspection is required in all new sewer piping, and shall extend 100 feet into existing where connected to new to ensure no debris has travelled as a result of new work.

Q#13: On sheet T1.0-1 at the South end of the new buildings there's a new conduit & pull box "For Future Building" this calls for a new 2" conduit, on sheet E1.0-1 there is a similar line & pull box for electrical with the same call out "For Future Building" but this line has no conduit size call out and appears to be part of the same keynote #4 call out which is for future convenience power and per the LPD1 panel schedule calls for a single 1/2" conduit. Should the power conduit going to the pull box for future building be a separate conduit run and if so please provide the required conduit count & size.

R#14: Conduit size is 2", count to be provided in Addendum No. 3.

SPECIFICATIONS

None.

DRAWINGS

None.

LIST OF ATTACHMENTS

Exhibit A	Geotech Report
Exhibit B	DSA 103: Testing & Inspections

End of Addendum Number 02

Geologic Hazards and Geotechnical Engineering Report

CAMPUS EXPANSION AT CREEKVIEW RANCH SCHOOL

APN 474-080-020-000

Roseville, California

MPE No. 07261-01



November 18, 2025

Geologic Hazards and Geotechnical Engineering Report
CAMPUS EXPANSION AT CREEKVIEW RANCH SCHOOL

APN 474-080-020-000

Roseville, California

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APPENDIX B – Guide Earthwork Specifications

APPENDIX C – Output files from the EQSEARCH program

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APPENDIX F – SPT Hammer Energy Measurements

APPENDIX G – Pertained Data from the Previous Report

Geologic Hazards and Geotechnical Engineering Report
CAMPUS EXPANSION AT CREEKVIEW RANCH SCHOOL

APN 474-080-020-000

Roseville, California

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November 18, 2025

INTRODUCTION

We have completed a Geologic Hazards and Geotechnical Engineering Report for the proposed expansion of the Creekview Ranch School campus to be constructed within the property with Assessor Parcel Number (APN) 474-080-020-000 in Roseville, California. The purposes of our study have been to investigate the site, soil, groundwater, geologic and seismic conditions at the site, and to prepare Geologic and Geotechnical Engineering conclusions and recommendations for use by the other members of the design team in preparing project plans and specifications for the proposed project. This report presents the results of our work.

SCOPE OF SERVICES

Our scope of work included the following:

1. Site reconnaissance;
2. Review of the following plans;
 - Sheet A100, *Site Code Analysis, Creekview Ranch School Campus Expansion*, prepared by Nacht & Lewis and dated August 28, 2025, referred to, hereinafter, as the Site Plan; and,
 - *Topographic Survey, Creekview Ranch Expansion*, prepared by WCE and dated July 25, 2025, referred to, hereinafter, as the Topo Survey;
3. Review of the following reports:

- A Geotechnical Engineering Report, DCJESD Creekview Ranch School, New Classroom Building, prepared by Mid Pacific Engineering (Project No. 02834-05) and dated July 2, 2018 (referred to, hereinafter, as the 2018 Report; and,
 - A Geologic Hazards/Geotechnical Engineering Report, Dry Creek Joint Elementary School District, New District Education Center, prepared by Mid Pacific Engineering (Project No. 02834-01) and dated May 16, 2016 (referred to, hereinafter, as the 2016 Report);
4. Review of available historic aerial photographs, topographic maps and groundwater information of the area;
 5. Review of geologic maps and fault maps;
 6. Review of historic seismicity within 100 kilometers (km) of the site;
 7. Subsurface exploration, including the drilling, logging, and sampling eight (8) exploratory soil borings to the approximate maximum depth of 51½ feet below existing ground surface (bgs) within areas proposed for the improvements;
 8. Collection of bulk and in-situ soil samples at various depths within the borings;
 9. Laboratory testing of selected soil samples;
 10. Engineering analyses; and,
 11. Preparation of this report.

FIGURES AND ATTACHMENTS

Figure	Title	Figure	Title
1	Vicinity Map	13-15	Geologic Cross-Sections
2	Regional Geologic Map	16	Regional Fault Map
3	Site Plan	17	Earthquake Epicenter Map
4 – 11	Logs of Soil Borings	18	FEMA Flood Map
12	Unified Soil Classification System		

Appended to this report are:

- Appendix A - General information regarding project concepts; exploratory methods used during our field investigation; and laboratory test results not included on the boring logs.
- Appendix B - *Guide Earthwork Specifications* that may be used in the preparation of contract documents.
- Appendix C - Output files from the EQSEARCH program.

- Appendix D - Output of Liquefaction and Seismic Settlement Analyses
- Appendix E - A list of references cited.
- Appendix F – SPT Hammer Energy Measurements.
- Appendix G – Pertained Data from the Previous Report.

PROPOSED DEVELOPMENT

Based on our review of the available information, we understand the proposed project will include the construction of two classroom buildings with plan areas of approximately 6,000 and 6,300 square feet. The proposed buildings are anticipated to be single-story, wood-framed structures supported on a conventional foundation system, with concrete slab-on-grade floors. Structural loads were not available at the time this report was prepared. However, based on our previous experience, it is anticipated that structural loads will be light. Associated development is anticipated to include the construction of landscaping, exterior flatwork, asphalt concrete (AC) and Portland cement concrete (PCC) pavements, and underground utilities.

Grading plans were not available at the time we prepared this report; however, for the purposes of preparing this report and based on the relatively level site topography, we anticipate earthwork cuts and fills of up to two feet in depth will be constructed to achieve final pad elevation.

FINDINGS

SITE DESCRIPTION

The project site is located within property with APN 474-080-020-000, east of the existing Creekview Ranch School campus located at 8779 Cook Riolo Rd in Roseville, California. The approximate location of the project is north latitude 38.7376° and west longitude 121.3319°.

The site is generally bounded to the north by undeveloped land, beyond which is Vineyard Road; to the east by undeveloped land; to the south by undeveloped land, beyond which is Dry Creek; and, to the west by Creekview Ranch School campus. On the dates of our investigation, the site supported low growth of grass. Several mature trees were noted on site. A fence line was present along the western site border.

Topography across the site is essentially level with surface elevations range from +129 feet relative to mean sea level (msl) to +130 feet msl, based on review of the Topographic Survey. Portions of the USGS map containing the site and vicinity is included with this report as Figure 1.

SITE HISTORY

The project site history was compiled based on review of historical aerial photographs (dated 1947, 1957, 1958, 1964, 1966, and 1984) and Google Earth images (dated 1993, 1998, 2002 through 2025).

The site is an undeveloped land/pasture in 1947 photograph. With the exception of periodic disking, the site remained essentially unchanged since 1947.

GEOLOGIC SETTING

REGIONAL GEOLOGY AND STRUCTURE

The project site lies in the northern portion of the Great Valley geomorphic province of California. The Great Valley is an alluvial plain, approximately 50 miles wide and 400 miles long, between the Coast Ranges to the West and Sierra Nevada geomorphic provinces to the East. Within the northern portion, the Great Valley is drained by the Sacramento River, which enters San Francisco Bay. The eastern border is the west-sloping Sierran bedrock surface, which continues westward beneath alluvium and older sediments. The western border is underlain by east-dipping Cretaceous and Cenozoic strata that form a deeply buried synclinal trough, lying beneath the Great Valley along its western side.

SITE GEOLOGY

The California Geological Survey (CGS) *Preliminary Geologic Map of the Sacramento 30'x60' Quadrangle, California*, indicates the project site is underlain by the Pleistocene Turlock Lake Formation (Map Symbol: Qtl), described as arkosic alluvium, sand with some silt and minor gravel (Figure 2).

The United States Department of Agriculture, Natural Resources Conservation Service website (<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>), indicates the site is

underlain by Ramona sandy loam (Map symbol 175), 2 to 9 percent slopes. The soil profile consists of sandy loam to a depth of 6 inches, underlain by fine sandy loam to a depth of 14 inches, over sandy clay loam to a depth of 55 inches, over gravelly sandy loam to a depth of 73 inches.

“The soils are somewhat limited for the construction of dwellings without basement, small commercial buildings, and local roads and streets due to shrink/swell potential. Soils are somewhat limited to shallow excavations due to dust and unstable excavation walls. Soils are somewhat limited to lawns and landscaping due to the low exchange capacity and dust. Soils are anticipated to exhibit “low” corrosion potential to steel and concrete”.

SUBSURFACE SOIL CONDITIONS

Soils encountered in the test borings consist of medium dense to very dense silty sands and clayey sands to depths of 5½ to 14½ feet bgs, underlain by interbedded layers of dense to very dense sandy silts, hard to very hard clayey silts, dense silty sands, and medium dense to very dense poorly graded sands to the maximum depth explored 51½ feet bgs. Partially cemented soils were encountered at various depths.

For soil conditions at a specific location, please refer to the Logs of Soil Borings (Figures 4 through 11). An explanation of the symbols and classification system used on the Logs is presented on Figure 12. Graphic illustrations of the subsurface conditions encountered in the borings are presented on the geologic cross-sections (Figures 13 through 15).

GROUNDWATER

At the time of the drilling, on November 4, 2025, groundwater was initially encountered in borings D1 and D2 at a depth of approximately 35 feet bgs. On November 5, 2025, groundwater was measured in boring D1 at a depth of approximately 32½ feet bgs. On November 6, 2025, groundwater was measured in boring D2 at a depth of approximately 34 feet bgs.

Review of the 2018 Report indicates groundwater was measured at a depth of approximately 30 feet bgs on June 11, 2018. Review of the 2016 Report indicates, groundwater was measured at a depth of approximately 32 feet bgs on April 26, 2016.

Review of the *Depth to Groundwater Maps* produced by the California Department of Water Resources for the period from 2011 through 2025 indicates that the depth to groundwater ranged from 110 to 140 feet bgs.

We also review groundwater data for well 10No6E09D001M located approximately 0.35-mile north from the project site. Review of the groundwater data for the well for the period from 1948 through 1971 indicates that the depth to groundwater ranged from approximately 83 feet bgs in 1949 to approximately 117 feet bgs in 1964.

According to the Flood Insurance Rate Maps (FIRM), Map Number 06061C1027H, published by FEMA, with an effective date of November 2, 2018, Dry Creek to the south of the project site has base flood elevations of 113 to 114 feet msl, or 16 feet bgs and 15 bgs, respectively.

Groundwater levels may fluctuate beneath the site depending on the time of year and rainfall amounts. Therefore, groundwater conditions presented in this report may not be representative of those which may be encountered during or subsequent to construction.

REGIONAL SEISMICITY

FAULTING

The project site is not located across the mapped trace of any known fault, nor was there any indication of surface rupture or fault-related surface disturbance at the site during our review of aerial photographs, site reconnaissance, or geotechnical investigation.

The site is not located within an Alquist-Priolo Earthquake Fault Zone as currently designated by the State of California (DMG Special Publication No. 42, revised 1997). The nearest Earthquake Fault Zone is the Cleveland Fault of the Foothills Fault System, located approximately 48¼ miles (77¾ kilometers) north of the project site. A Regional Fault Map (Figure 16) is included with this report.

According to the United States Geological Survey (USGS), 2008 National Seismic Hazard Maps – Source Parameters website, (https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/query_main.cfm), the closest Type A or Type B fault to the site is the Great Valley 4a, Trout Creek Fault, located approximately 38.8 miles (62.5 kilometers) west of the project site. It also identifies eight (8) Class A and B

faults and fault rupture segments within 62 miles (100 kilometers) of the site that are considered capable of producing earthquakes with maximum moment magnitudes (M_{wMAX}) 6.5 or greater.

Review of the CGS California Fault Activity Map of California (2010) database indicates that the nearest fault to the site with the activity in the Holocene is the Dunnigan Hills (Zamora) Fault located approximately 34.3 miles (55.2 kilometers) west from the site. The nearest fault to the site with the activity in Quaternary time is the Maidu Fault located approximately 16¼ miles (26 kilometers) northeast from the site. The closest mapped fault to the site is the concealed Pre-Quaternary Willows Fault Zone located approximately 8¼ miles (13¼ kilometers) southwest from the site.

In general, and for larger earthquake scenarios, the magnitude that is utilized for reporting to the public (and for site hazard assessment) is the moment magnitude. The moment magnitude is based on the scalar seismic-moment of an earthquake determined by calculation of the seismic moment-tensor that best accounts for the character of the seismic waves generated by the earthquake. The scalar seismic-moment, a parameter of the seismic moment-tensor, can also be estimated via the multiplicative product rigidity of faulted rock x area of fault rupture x average fault displacement during the earthquake (USGS, 2008). Results of a hazard deaggregation conducted utilizing USGS Unified Hazard Tool (2023) indicate that the mode (modal) magnitude earthquake for the site is 7.28. This is the moment magnitude that should be used for site hazard assessment purposes.

HISTORIC SEISMICITY

Seismological data regarding significant historical earthquakes affecting the site was obtained using the commercially available software program EQSEARCH (Blake, 2000; database updated 2021). The EQSEARCH database was developed by extracting records of events greater than magnitude 5.0 from the DMG Comprehensive Computerized Earthquake Catalog, and supplemented by records from the USGS; University of California, Berkeley; the California Institute of Technology; and, the University of Nevada at Reno. A search radius of 62 miles (100 kilometers) was specified for this analysis. A historic earthquake epicenter map showing earthquakes (magnitude 5 or greater) within the project region is presented as Figure 17.

A review of the historical earthquake data indicates that the most significant earthquake shaking (acceleration) experienced at the project site occurred during the 1892 Vacaville-Winters earthquake sequence. The source of these events is attributed to the Midland Fault. The estimated magnitudes of these events ranged from 5.5 to 6.4 and they produced estimated site peak ground accelerations of 0.043 to 0.062 g. The closest epicenter is located approximately 34.4 miles (55.3 kilometers) southwest of the site. An examination of the tabulated EQSEARCH data suggests that the project site has experienced maximum ground shaking equivalent to Modified Mercalli Intensity VI¹ as the result of these earthquakes.

The number of earthquakes greater than Mw 5.0 within a 62 mile (100 kilometer) radius of the site is presented in the following table.

Table 1 - Table of Magnitudes and Exceedances	
Earthquake Magnitude	Number of Times Exceeded
5.0	12
5.5	7
6.0	3

Output files from the EQSEARCH program are included in Appendix C.

COSEISMIC GROUND DEFORMATION

The California State Legislature passed the Seismic Hazards Mapping Act (SHMA) in 1990 (Public Resources Code Division 2, Chapter 7.8) as a result of earthquake damage caused by the 1987 Whittier Narrows and 1989 Loma Prieta earthquakes. The purpose of the SHMA is to protect public safety from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes (California Geological Survey [CGS] Special Publication [SP] 117). The site is not located within the State designated Seismic Hazard Zone map (Unevaluated Area).

¹ VI – Strong: Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.

SITE CLASS

SPT testing conducted in Borings D1 and D2 indicates average weighted penetration resistance value, adjusted for hammer energy efficiency, of 59 and 42, respectively, with an average value between two borings of 52.

According to *An Updated Vs30 Map for California with Geologic and Topographic Constraints* (ver. 2.0, July 2022), produced by USGS and available on CGS web site, the site Vs30 velocities are 447.3 m/sec (1,467.5 ft/sec) which is correspondence with Seismic Site Clas C.

SEISMIC CODE PARAMETERS

The 2022 edition of the CBC references ASCE Standard 7-16 for seismic design. The following seismic parameters were determined based on the site latitude and longitude using the web interface (<https://seismicmaps.org/>) provided by the Structural Engineers Association of California (SEAOC) in association with the California Office of Statewide Health Planning and Development (OSHPD) that uses the USGS web services to retrieve pertinent seismic design data. The seismic design parameters summarized in the following table may be used for seismic design of the proposed improvements.

Table 2 – 2022 CBC/ASCE 7-16 Seismic Design Parameters*				
Latitude: 38.7376° N Longitude: 121.3319° W	ASCE 7-16 Table/Figure	2022 CBC Table/Figure	Factor/ Coefficient	Value
Short-Period MCE at 0.2	Figure 22-1	Figure 1613.2.1(1)	S _s	0.453
1.0 Period MCE	Figure 22-2	Figure 1613.3.1(2)/ Figure 1613.2.1(3)	S ₁	0.225
Soil Class	Table 20.3-1	Section 1613.2.2	Site Class	C
Site Coefficient	Table 11.4-1	Table 1613.2.3(1)	F _a	1.3
Site Coefficient	Table 11.4-2	Table 1613.2.3(2)	F _v	1.5
Adjusted MCE Spectral Response Parameters	Equation 11.4-1	Equation 16-36/ Equation 16-20	S _{MS}	0.589
	Equation 11.4-2	Equation 16-37/ Equation 16-21	S _{M1}	0.337

Table 2 – 2022 CBC/ASCE 7-16 Seismic Design Parameters*				
Latitude: 38.7376° N Longitude: 121.3319° W	ASCE 7-16 Table/Figure	2022 CBC Table/Figure	Factor/ Coefficient	Value
Design Spectral Acceleration Parameters	Equation 11.4-3	Equation 16-38/ Equation 16-22	S_{DS}	0.393
	Equation 11.4-4	Equation 16-39/ Equation 16-23	S_{D1}	0.225

* Calculated using USGS computer program U.S. Seismic Design Maps and the site latitude and longitude.
 g – Acceleration due to gravity

Site-specific ground response and ground motion hazard analyses, and/or time history analyses were not part of our work scope.

The site modified peak ground acceleration PGA_M (Equation 11.8-1, ASCE 7-16) is 0.24 g.

PRIMARY SEISMIC HAZARDS

Seismic Hazards

No active or potentially active faults are known to cross the project site as indicated by the published geologic maps or aerial photographs reviewed for this project. The project site is not located within an Earthquake Fault Zone, or designated seismic hazard zone; therefore, a site-specific ground motion analysis is not warranted. The project site is located within an area of moderate seismic activity; however, design of the structure in conformance with the 2022 editions of the California Building Code (Title 24 of the California Code of Regulations, Chapter 16A), should be sufficient to prevent significant damage from ground shaking during seismic events resulting from movement on any of the faults or fault systems discussed in this report.

Seismic Sources

Several faults exhibiting activity in the Quaternary time are mapped within 62 miles (100 kilometers) of the project site. These faults and fault systems, their Maximum Magnitude Earthquakes (M_{wmax}) and distances to the project site are listed within the FAULTING section of this report. Hazard deaggregation indicates that the causing faults contributing to the estimated site PGA are Foothills Fault System, Great Valley

Fault System, Hunting Creek-Berryessa Fault System, San Andres Fault (North Coast section), and Rodgers Creek Fault.

The Foothills Fault System is a large fault system, which is the dominant structural feature of the western Sierra Nevada. The steeply dipping to vertical component faults trend northwestward through an area of about 200 miles long and 30 miles wide. The faulted Paleozoic and Mesozoic rocks are overlapped by unfaulted younger rocks, and the total extent of the fault system is not known. The direction of fault movement has not been determined. Net displacement on some of the component faults exceeds 3000 feet and may be measurable in miles.

The Great Valley Fault System extends from the southern San Joaquin Valley in Kern County northward into Tehama County and serves as the boundary between the Coast Range and the Great Valley Geomorphic Provinces of California. It is characterized by a zone of low-angle, or blind thrust, and reverse faults that do not rupture the ground surface during sizable earthquake events. Although not exposed at the surface, regional studies have suggested that the Great Valley Fault System may be comprised of 18 to 25 segments that range in length from 7 to 35 miles (11.2 to 56.3 kilometers) – with most segment lengths measuring between 12 and 19 miles (19.3 to 30.6 kilometers). Several notable earthquake events have occurred along segments of the Great Valley Fault System, including: the 1892 Mw 6.4 and 6.2 Winters-Vacaville earthquakes, 1983 MW 6.5 Coalinga earthquake, and the 1985 MW 6.1 Kettleman Hills earthquake.

The Hunting Creek-Berryessa is a Holocene dextral strike-slip fault system associated with the larger San Andreas fault system. The Hunting Creek-Berryessa fault system extends from the vicinity of Wilson Valley south-southeast to the Cedar Roughs area west of Lake Berryessa. The fault zone is divided from north to south into the Wilson, Hunting Creek, and Lake Berryessa sections. The Hunting Creek-Berryessa fault system is expressed as a zone of discontinuous fault traces as much as 3.5 km wide. The Hunting Creek-Berryessa fault system locally is delineated by geomorphic evidence of Holocene dextral strike-slip displacement, predominantly along the Hunting Creek fault, which comprises the Hunting Creek section (Bryant, 1982). An investigation by Steffen, Robertson, and Kirsten, and Woodward-Clyde Consultants (1983 #5310) demonstrated latest Pleistocene and probable Holocene displacement

along traces of the Hunting Creek fault. Slip rate of between 1 and 5 mm/yr assigned for the fault sections.

The 1,100-km-long San Andreas fault zone is the principal element of the San Andreas fault system, a network of faults with predominantly dextral strike-slip displacement that collectively accommodates the majority of relative N-S motion between the North American and Pacific plates. The North Coast section extends from offshore Golden Gate to Cape Mendocino. The segment has reported late Holocene slip rates range from a minimum value of 16–18 mm/yr to a maximum value of 25.5 ± 2.5 mm/yr. The most recent event is the 1906 San Francisco earthquake.

Rodgers Creek Fault is a Holocene dextral fault, with a total length of 56 kilometers. It is an important branch of the larger San Andreas fault system connecting, by means of right steps, the Hayward fault to the south and the Maacama fault to the north. A slip rate of 6.4–10.4 mm/yr was inferred for the south part of the fault.

Surface Fault Rupture

No known faults are mapped crossing the immediate vicinity of the site. The site does not lie within an Earthquake Fault Zone as currently designated by the State of California and no evidence of surface faulting was observed during our historical aerial photography review, site reconnaissance, or geotechnical investigation. It is our opinion that the potential of fault-related surface rupture at the site is low.

Seismic Risk

Hazard deaggregation indicates that the causative faults contributing to the estimated site PGA are Foothills Fault System, Swain Ravine – Spenceville rupture ($M=6.82 - 7.05$ event scenarios), Great Valley Fault System ($M=7.11 - 7.49$ event scenarios), Hunting Creek-Berryessa Fault System ($M=7.59$ event scenario). San Andreas, North Coast section, ($M=8.01$ event scenario), and Rodgers Creek – Healdsburg rupture ($M=7.61$ event scenario). The calculated mode magnitude (largest $m-r-\epsilon_0$ bin) is 7.28.

SECONDARY HAZARDS

Liquefaction

Liquefaction is a soil strength and stiffness loss phenomenon that typically occurs in loose, saturated cohesionless soils as a result of strong ground shaking during earthquakes. The potential for liquefaction at a site is usually determined based on the results of a subsurface geotechnical investigation and the groundwater conditions beneath the site. Hazards to buildings associated with liquefaction include bearing capacity failure, lateral spreading, and differential settlement of soils below foundations, which can contribute to structural damage or collapse. The site is not located within a State Designated Seismic Hazard Zone for liquefaction (Unevaluated Area).

Modelling of the soil conditions encountered in the borings D1 and D2 using the GeoSuite (Version 4.1.1.12) software, utilizing SPT data, high depth to groundwater of 15 feet bgs, site ground motion of 0.24g, and modal earthquake magnitude of 7.28 indicates no liquefaction (factor of safety against liquefaction is above 1.3). Therefore, loss of bearing capacity of the foundations and surface manifestation of the liquefaction are not anticipated. Output files of GeoSuite software are presented in Appendix D.

Cyclic Softening of Clay and Clay-like Soils

Cyclic softening of clay soils is commonly understood as the reduction in soil stiffness and strength due to repeated cyclic loading. This phenomenon is typically observed in soft, saturated soils with Plasticity Index (PI) above 7. Soils with PI above 7 were not encountered in our borings, it is our opinion the potential for cyclic softening occurring beneath the site is low.

Lateral Spreading

Liquefaction-induced lateral spreading is defined as the finite, lateral displacement of gently sloping ground as a result of pore pressure build up or liquefaction in a shallow underlying deposit during an earthquake. Lateral spreading usually occurs on gently sloping ground exposed to a slope or free face. Based on essentially level site

topography and a low potential for liquefaction beneath the site, it is our opinion that the potential for lateral spreading at the site is very low.

Seismically Induced Settlement

Modelling of the soil conditions encountered in the borings D1 and D27 using the GeoSuite (Version 4.1.1.12) software, utilizing SPT data, high depth to groundwater of 15 feet bgs, site ground motion of 0.24 g, and modal earthquake magnitude of 5.5 indicates seismic settlement of saturated and unsaturated soils of 0.02 inch in boring D1 and 0.06 inch in boring D2.

Conservatively, total and differential seismic settlements of ¼-inch and ¼-inch in 40 linear feet, respectively, should be anticipated for the design. Output files of GeoSuite software are presented in Appendix D.

Subsidence & Hydrocollapse

Regional subsidence occurs when large areas of land sink in response to withdrawal of groundwater, petroleum, or natural gas. According to a review of the *Areas of Land Subsidence in California Map* (California Water Science Center), the site is not currently located within an area of land subsidence from groundwater pumping, peat loss, or oil extracting our opinion, the site is not located in an area subject to high subsidence, due to the absence of factors and conditions needed to cause subsidence (excessive withdrawal of groundwater, petroleum, or natural gas).

Review of the *Land Subsidence Map* produced by the California Department of Water Resources for the period from 2015 through 2025 indicates that the negative vertical displacement of the ground surface was 0.041 feet.

Landslides and Slope Stability

The site is not located in a Landslide Hazard Zone as designated by the State of California (Unevaluated Area). Considering the essentially flat site topography, the potential for development of landslides or slope instability is low.

Tsunami

The project site is well inland and there are no significant bodies of standing water near the site; therefore, the potential for tsunamis influencing the site is low.

Seiche

There are no significant bodies of standing water near the site; therefore, the potential for seiches influencing the site is low.

Flood/Dam Inundation

The site is not located within a Special Flood Hazard Area (SFHA) as designated by the Federal Emergency Management Agency (FEMA). According to the Flood Insurance Rate Maps (FIRM), Map Number 06061C1027H, published by FEMA, with an effective date of November 2, 2018, the proposed site improvements lie within Zone X, Area of Minimal Flood Hazard. It is our opinion that the site has a low risk of flooding (Figure 18).

Review of the Dam Breach Inundation Map Web Publisher, maintained by Department of Water Resources, indicates that the site is not located in the area prone to inundation due to the dam failure.

According to the *County of Placer, Final Draft Health & Safety Element*, the project site is not located in the dam failure inundation area.

Volcanic Hazard

Review of the USGS *Map of Potential Hazards from Future Volcanic Eruptions in California* (Miller, 1989), shows the project site is approximately 78 miles (126 kilometers) east of Clear Lake Volcanic Area, the closest volcanic area indicated. The closest known area of the Quaternary volcanic eruption (Sutter Buttes) is 38½ miles (62 kilometers) northwest of the site. Based on the above information, it is our opinion that the potential for volcanic hazard affecting the site is low.

Naturally Occurring Asbestos (NOA)

Asbestos is the generic term for the naturally occurring fibrous (asbestiform) varieties of six silicate minerals. Asbestos also refers to an industrial product obtained by mining and processing deposits of asbestiform minerals. According to CGS Open-File Report 2000-19, *A General Location Guide for Ultramafic rocks in California-Areas More Likely to Contain Naturally Occurring Asbestos* (2000), and the USGS Open-File Report 2011-1188, *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California* (2011), the project site does not lie within an area mapped as containing Naturally Occurring Asbestos (NOA) or ultramafic rock in outcrop.

According to CGS Special Report 190, *Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California*, the site is located in “Areas Least Likely to Contain NOA”.

Radon Gas

Sections 307 and 309 of the [Indoor Radon Abatement Act of 1988 \(IRAA\)](#) directed EPA to list and identify areas of the U.S. with the potential for elevated indoor radon levels. EPA's Map of Radon Zones assigns each of the 3,141 counties in the U.S. to one of three zones based on radon potential. Placer County and the project site are located in Zone 2 for radon potential. Zone 2 counties have a predicted average indoor radon screening levels of between two pCi/L and four pCi/L and are indicated to have a Moderate Potential for radon.

According to CGS *Radon Potential Zone Map for Western Placer County, California*, the site is located in the area with “Low Potential for Indoor Radon Levels Above Four Picocuries Per Liter”.

CONCLUSIONS

FOUNDATION AND STRUCTURAL SUPPORT

The upper 12 inches of site soil are loose and disturbed due to previous plowing activities; therefore, we will recommend all disturbed and/or loose soils within building pad and all site structural areas be properly moisture conditioned and compacted in place to promote more uniform support for the planned slab-on-grade structures, foundations, pavements, concrete flatwork, and associated improvements.

Specific recommendations for processing and re-compaction are presented in the SITE PREPARATION section of this report.

Our work indicates that undisturbed and re-compacted native soils and engineered fill, properly placed and compacted in accordance with the recommendations of this report, will be capable of supporting the proposed structure and associated improvements.

Provided the over-excavation, processing, and re-compaction of on-site disturbed soils is performed as recommended, we estimate total static settlements of foundations to be one inch with differential settlements to be approximately ½-inch in 40 linear feet. In our opinion, the majority of any initial static settlements will occur during construction. We do not anticipate long-term secondary static settlements to occur, based on the soil conditions and the recommended re-compaction.

EXPANSIVE SOILS

Laboratory testing of the on-site soils indicates they possess a very low expansion potential when tested in accordance with the ASTM D4829 test method (see Figure A1). Review of the 2016 Report and 2018 Report indicate the on-site soil possess a very low expansion potential. Expansion potential of on-site soils should not be a factor in the design and construction of the proposed improvements. Specific recommendations for placement of on-site soils as engineered fill are presented in this report.

SUITABILITY OF ON-SITE SOILS FOR USE AS FILL

The on-site soils are considered suitable for use as engineered fill materials, provided these materials are free from concentrations of organic debris (roots and root balls), rubble, debris, rubbish, or other deleterious materials and are at the proper moisture content for compaction. Removal of rubble, debris, and organic debris from on-site soils may require laborers handpicking the fill materials, and/or screening prior to allowing the soils to be re-used as fill.

EXCAVATION CONDITIONS

Based on our field investigation, the on-site soils should be readily excavatable with conventional earthmoving and trenching equipment typically used in the area. Excavations encountering the variably cemented soils will be slower to excavate; although, special trenching and excavation equipment are not anticipated for this project.

In general, we anticipate soil sidewalls for most site excavations will remain stable at near-vertical inclinations for short periods of time without significant caving, unless perched water and/or seepage is encountered, or saturated and/or low cohesion sandy soils are encountered or the exposed soils are allowed to dry. Excavations encountering perched water and seepage will be susceptible to sloughing or caving upon excavation or if left open for an extended period of time requiring sloped excavations and other stabilization methods.

Excavations deeper than five feet that will be entered by workers should be sloped and/or braced in accordance with current OSHA regulations. The contractor must provide an adequately constructed and braced shoring system in accordance with federal, state and local safety regulations for individuals working in an excavation that may expose them to the danger of moving ground. If material is stored or heavy equipment is operated near an excavation, stronger shoring would be needed to resist the extra pressure due to the superimposed loads.

SOIL CORROSION POTENTIAL

Representative soil sample was submitted to Sunland Analytical Lab, Inc. for testing to determine pH, resistivity, and sulfate and chloride concentrations to help evaluate the

potential for corrosive attack upon reinforced concrete. Results of the corrosion testing performed by Sunland Analytical Lab are summarized in Table 3.

Table 3 – Soil Corrosivity Testing		
Analyte	Test Method	Sample Identification
		D5 @ 1-3'
Soil pH	CA DOT 643 Modified*	5.96
Minimum Resistivity	CA DOT 643 Modified*	10,720 Ω -cm
Chloride	CA DOT 417	31.4 ppm
Sulfate	CA DOT 422	7.8 ppm

* = Small cell method

Ω -cm = Ohm-centimeters

ppm = Parts per million

The California Department of Transportation Corrosion Technology Section, Office of Materials and Foundations, Corrosion Guidelines Version 3.2, March 2022, considers a site to be corrosive to foundation elements if one or more of the following conditions exists for the representative soil and/or water samples collected: a chloride concentration greater than or equal to 500 ppm, sulfate concentration greater than or equal to 2000 ppm, or the pH is 5.5 or less. Based on this criterion, the on-site soils are not considered corrosive to reinforced concrete.

Table 19.3.1.1 – Exposure Categories and Classes, American Concrete Institute (ACI) 318-19, Section 19.3, as referenced in Section 1904.1 of the 2019 CBC, indicates the severity of sulfate exposure for the samples tested is “not a concern”. Ordinary Type I-II Portland cement is considered suitable for use on this project, assuming a minimum concrete cover is maintained over the reinforcement.

Mid Pacific Engineering, Inc. are not corrosion engineers. Therefore, to further define the soil corrosion potential at the site, or to determine the need or design parameters for cathodic protection or grounding systems, a corrosion engineer should be consulted.

Import fills, if used for construction, should be sampled and tested to verify the materials have corrosion characteristics within acceptable limits and generally should be similar to the tested on-site soils.

PAVEMENT SUBGRADE QUALITIES

Based on the results of laboratory testing, the near-surface soils which when tested in accordance with California Test (CT) 301 are good quality materials for the support of asphalt concrete pavements possessing Resistance (“R”)-value of 49 (see Figure A2). Review of the 2016 Report and 2018 Report indicate the near-surface soils which when tested in accordance with California Test (CT) 301 are good quality materials for the support of asphalt concrete pavements. Based upon the test results, and considering the natural variation in soils, it is our opinion that an R-value of 30 is considered appropriate for the design of pavements.

PERMANENT GROUNDWATER

Due to the anticipated depth to groundwater, permanent groundwater should not be a significant factor in the design and construction of the proposed improvements at this site.

SEASONAL WATER

The near-surface soils also may be in a near-saturated condition during and for a significant time following the rainy season due to rainwater being unable to penetrate through the underlying cemented soils below existing site grade. Earthwork operations attempted following the onset of the rainy season and prior to prolonged drying will be hampered by high soil moisture contents. Heavy, prolonged rainfall events will promote high soil moisture contents and increase the potential for trapped water over impermeable soil layers that could further affect grading operations. If grading operations are to proceed shortly after the rainy season, and before prolonged periods of warm dry weather, the near-surface soils and soils to be used as engineered fill including trench backfill may be at moisture contents where significant and prolonged aeration or lime-treatment may be required to dry the soils to a moisture content where the specified degree of compaction can be achieved. The contractor should anticipate the additional time and effort necessary to achieve a compactable moisture content.

It is possible that perched or seepage water may be present within excavations, depending upon the time of year when construction takes place due to surface water becoming trapped over the on-site cemented soils. The need for dewatering of excavations can best

be determined during site work when subsurface conditions are fully exposed. Localized dewatering, if required, can likely be accomplished by using sump pumps.

Seasonal moisture and landscape irrigation will result in high soil moisture contents below interior floor slabs throughout their lifetime. Moisture vapor penetration resistance should be a significant consideration in design and construction of interior floor slabs.

EROSION AND WINTERIZATION

The near-surface on-site soils generally consist of silts and sands. In our opinion, the undisturbed soils may be susceptible to erosion by surface run-off that occurs during intense rainfall. As a minimum, erosion control measures including placement of straw bale sediment barriers or construction of silt filter fences in areas where surface run-off may be concentrated would be prudent. The project civil engineer should develop a site-specific erosion and sediment control plan based upon their site grading and drainage plan and the anticipated construction schedule.

All excavation and fill (if any) slopes should be protected from concentrated storm water run-off to minimize potential erosion. Control of water over the slopes may be accomplished by constructing small berms at the top of the slope, constructing V-ditches near the top of the slope, or by grading the area behind the top of the slope to drain away from the slope. Ponding of surface water at the top of the slope or allowing sheet flow of water over the top of the slope should be avoided.

RECOMMENDATIONS

The project is in a preliminary stage of design; therefore, we consider it essential that our office review site, grading, and structural foundation plans to verify the applicability of the following recommendations, perform additional investigations, and provide supplemental recommendations, as conditions dictate.

Our recommendations are contingent upon our office performing the recommended plan reviews and providing a letter indicating that the recommendations of this report are applicable to the proposed construction. Grading plans were not available; therefore, we have assumed that excavations and fills of up to two feet for development of the planned

improvements. The recommendations contained in this report are based upon this assumption.

The recommendations presented below are appropriate for typical construction in the late spring through fall months. The on-site soils likely will be saturated by rainfall in the winter and spring months and will not be compactable without drying by aeration or the addition of lime (or a similar product) to dry the soils. Should the construction schedule require work to continue during the wet months, additional recommendations should be provided by the Geotechnical Engineer retained to provide services during project construction.

Our review of available historical photographs provides a limited site history. Therefore, unknown buried structures or remnants of former structures may be present on-site and may be encountered during construction. If encountered, these structures should be removed, and the resulting cavities or holes should be backfilled with properly moisture conditioned and compacted engineered fill as described in this report.

SITE CLEARING

Initially, all structural areas of the site should be cleared of vegetation, and any deleterious materials to expose firm and stable soil conditions as identified by our on-site representative. Trees designated for removal should include the rootball and all surface roots larger than ½-inch in diameter.

Structural areas of the site should be stripped of surface vegetation (if any); strippings may be stockpiled for later use or disposed of off-site. If used on-site, strippings may be placed in landscaped areas, provided they are kept at least five feet from the building pads and areas or flatwork or pavements, moisture conditioned and compacted. Strippings should not be used in landscaped berms that will support either walls, concrete flatwork, or any other improvements that are susceptible to damage from settlement. Discing may be a suitable alternative to stripping, depending on the quantity and condition of organics at the time of grading. However, it is emphasized that discing should be allowed only with our office's approval at the time of grading based on the quantity and condition of vegetation on the site.

Where practical, the clearing should extend a minimum of five feet beyond the limits of the proposed improvements and structural areas of the site.

Adequate removal of debris, rubble may, and tree roots may require laborers and handpicking to clear the subgrade soils to the satisfaction of our on-site representative. Depressions resulting from clearing operations and any other loose, disturbed, soft or otherwise unstable materials should be removed to expose a firm, undisturbed soils prior to backfilling with properly placed and compacted engineered fill to restore the areas back to the required grades.

It is essential that our representative be present during clearing operations to verify adequate removal of existing and former improvements and determine the need for over-excavation of disturbed soil areas. It is essential that excavations resulting from clearing operations be left as shallow dish-shaped depressions for proper location and to allow proper access with compaction equipment during grading operations. If clearing and removal of structures takes place without direct observation by the Geotechnical Engineer, or depressions are not left open as recommended, deeper cross-ripping and/or over-excavation of the disturbed areas, building pads or structural areas affected will be required.

SITE PREPARATION

Provided MPE is present during clearing operations and the excavations for removal of subsurface elements are left as dish shaped depressions so that our representative can verify adequate and complete removal, pad preparation can proceed as recommended below. If this is not the case and MPE is not present during site clearing operations or if excavations are backfilled without our observation and testing, all building and structural pads (building/structural area plus five feet beyond) will require deeper processing and/or over-excavation and re-compaction.

Following site clearing operations, all structural areas achieved by cut or left at the grade and areas to receive fill, should be ripped and cross-ripped to a minimum depth of 12 inches, moisture conditioned to at least the optimum moisture content, and compacted to at least 90 percent of the ASTM D1557 maximum dry density. The extent of scarification and compaction should extend a minimum of three feet horizontally beyond the proposed structural improvements lines. The compacted subgrades must be in a stable and unyielding condition for proper structural support.

Compaction operations should be undertaken with a heavy, self-propelled, sheepsfoot compactor (Caterpillar 815, or equivalent-size compactor) and should be performed in the

presence of our representative who will evaluate the performance of the subgrade under compactive load and identify loose or unstable soils that could require additional excavation and/or compaction. Loose, soft, or unstable soils, as identified by our representative in the field, should be cleaned out to firm, undisturbed and stable soils, as determined by our representative, and should be restored to grade with engineered fill compacted in accordance with the recommendations of this report. Difficulty in achieving subgrade compaction or unusual soil instability may be indications of loose fill associated with past subsurface items. Should these conditions exist, the materials should be excavated to check for subsurface structures and the excavations backfilled with engineered fill. We recommend construction bid documents contain a unit price (price per cubic yard) for all excess excavation due to loose, soft, or unsuitable materials and replacement with engineered fill.

ENGINEERED FILL CONSTRUCTION

Engineered fill should be placed in horizontal lifts not exceeding six inches in compacted thickness. Engineered fill should be brought to at least two percent above the optimum moisture content and compacted to at least 90 percent of the maximum dry density as determined by ASTM D1557. Compaction operations should be undertaken with a heavy, self-propelled, sheepsfoot compactor capable of providing proper compaction to the full depth of each lift of fill. Additional passes with the compactor shall be added, as required by the Geotechnical Engineer, to achieve a firm, stable and unyielding subgrade condition. Compactive effort should be applied uniformly across the full width of fill construction. Care must be taken when compacting at the edges of excavations, to ensure that the fills are uniformly tied into the adjacent sloping ground by benching into undisturbed native soil. Each lift of engineered fill should be properly benched into adjacent side slopes, if present, to remove loose soils and promote uniformity.

The on-site soils will be suitable for use as engineered fill if the materials are at a workable moisture content and free of rubbish, rubble, debris and concentrations of organics, and have a maximum particle size of three inches or less. Hand picking of exposed roots, rubbish, debris, and over-sized material should be performed by the Contractor to adequately clear the grades and properly prepare and clear the soils proposed as fill, prior to use.

Imported fill material, if required, should consist of well-graded granular soils or well-graded aggregates with a Plasticity Index of 15 or less, an Expansion Index of 20 or less, an R-value of 40 or above, and should have no particles greater than three inches in maximum dimension. Clean, open graded gravels (such as crushed rock or pea gravel) and other such materials are not acceptable for fill construction. The contractor also should supply appropriate documentation for imported fill materials indicating the materials are free of known contamination and have corrosion characteristics within acceptable limits. The imported materials should be sampled, tested, and approved before being transported to the project site. Samples should be submitted to the Geotechnical Engineer at least two weeks prior to planned importation to the site.

The upper six inches of pavement subgrades and exterior slab subgrades supporting vehicle loadings should be uniformly compacted to at least 95 percent of the ASTM D1557 maximum dry density and must be stable under construction traffic prior to placement of aggregate base. Final subgrade processing and compaction should be performed just prior to placement of aggregate base, after construction of underground utilities is complete.

Site preparation should be accomplished in accordance with the recommendations of this section and the *Guide Earthwork Specifications* provided in Appendix B. It is essential that a representative from our office be present on a nearly full-time basis during site preparation and all grading operations to verify complete removal of undocumented fills and/or unstable soil deposits, to observe the earthwork construction, perform compaction testing and verify compliance with our recommendations and the job specifications.

UTILITY TRENCH BACKFILL

Utility trench backfill should be engineered fill that mechanically compacted in maximum six-inch lifts. Trench backfill should be brought to uniform moisture content above the optimum moisture and each lift mechanically compacted to at least 90 percent of the maximum dry density. The upper six inches of trenches in pavement areas should be compacted to at least 95 percent of the maximum dry density. Jetting of trench backfill as a means of compaction is not acceptable. We recommend that native soil be used as trench backfill within the perimeter of the building foundations to help minimize soil moisture variations beneath the structure. The native soil backfill should extend at least three feet horizontally beyond perimeter foundation lines. We recommend that underground utility trenches that are aligned nearly parallel with foundations be at least three feet laterally from

the outer edge of foundations, wherever possible. As a general rule, trenches should not encroach into the zone extending outward at a 1:1 (horizontal to vertical) inclination below the bottom of the foundations. In addition, trenches parallel to foundations should not remain open longer than 72 hours. The intent of these recommendations is to prevent loss of both lateral and vertical support of foundations, resulting in possible settlement.

Pipe bedding, shading and trench backfill and compaction within municipal streets should conform to jurisdictional requirements.

FOUNDATION DESIGN

We are providing design soil values for the analysis of proposed foundations, and suggested minimums for dimensions, but only from a Geotechnical Engineering perspective. The project Structural Engineer should determine final foundation design width and depth dimensions as well as concrete strength and reinforcing requirements, based on their specific structural design, which should include an appropriate factor of safety applied to the overall design.

Total and differential settlements (static and seismic) of 1¼-inches and ¾-inches in 40 linear feet, respectively, should be anticipated for the design of the proposed foundations.

Provided the building pads are re-compacted as recommended, the proposed structures may be supported upon continuous and/or isolated spread foundations extending at least 18 inches into the prepared building pad, or at least 18 inches below lowest adjacent soil grade, whichever is deeper. Continuous foundations should be at least 12 inches wide; isolated foundations should be at least 24 inches wide. Foundations must be continuous around the perimeter of the building to help minimize moisture migration beneath the structure.

The following bearing pressure values may be used for shallow spread and continuous foundation design. The weight of foundation concrete extending below grade may be disregarded in sizing computations. The recommended factors of safety for various Allowable Stress Design (ASD) load combinations are presented in Table 4 below for the design in accordance with 2022 CBC 1605A.1.1, assuming the structure would be designed for a system overstrength factor (Ω_o) of 3. For foundations designed using ASD, the factor of safety for soil bearing pressure shall not be less than the overstrength factor.

Table 4 – Allowable Bearing Pressures			
Load Condition	Ultimate Bearing Pressure (psf)	Minimum Factor of Safety	Allowable Bearing Pressure (psf)
Dead plus Live Loads	12,000	4	3,000
Total Loads (Including Wind or Seismic)	12,000	3	4,000

We recommend that all foundations be adequately reinforced to provide structural continuity, mitigate cracking and permit spanning of local soil irregularities. As a minimum, continuous foundations should contain at least two No. 4 steel reinforcing bars placed one each, near the top and bottom of the foundations. The project designer should determine the need for additional reinforcement based on structural requirements, including the use of slab ties to provide structural continuity and integrity of the slab and foundation system. Resistance to lateral displacement of shallow foundations may be computed using an allowable friction factor of 0.25 multiplied by the effective vertical load on each foundation. Additional lateral resistance may be achieved using an allowable passive earth pressure against the vertical projection of the foundation equal to an equivalent fluid pressure of 300 psf per foot of depth. These two modes of resistance should not be added unless the frictional component is reduced by 50 percent since mobilization of the passive resistance requires some horizontal movement, effectively reducing the frictional resistance.

It is an essential requirement that foundation excavations be observed by a representative of MPE to verify competent and uniform bearing conditions and evaluate the need for any modifications to these recommendations as may be required by specific circumstances. The observations should take place prior to placement of reinforcing steel but following cleaning of the excavations. To account for any re-compaction of foundation bottoms or deepening of foundations that might be required, we suggest bid documents include a unit price for additional compaction or foundation excavation and concrete that may be required.

INTERIOR FLOOR SLAB SUPPORT

Interior concrete slab-on-grade floors can be suitably supported upon soil subgrades prepared and constructed in accordance with the recommendations in this report and maintained in that condition (at or near optimum conditions). From a Geotechnical standpoint, interior concrete slab-on-grade floors should be a minimum of four inches thick and, as a minimum, should be reinforced with chaired No. 3 reinforcing bars on 18-inch

center-to-center spacing, located at mid-slab depth. This slab thickness and reinforcement is suggested as a guide "minimum" only; final concrete slab thickness, compressive strength, reinforcement and joint spacing should be determined by the Architect or Structural Engineer based on anticipated slab loading, uses, and performance expectations.

It is emphasized that thicker slabs with greater reinforcing will be needed in areas supporting higher loads or where increased performance is desired.

Temporary loads exerted during construction from vehicle traffic, cranes, forklifts, and storage of palletized construction materials should be considered in the design of the slab-on-grade floors. Proper and consistent location of the reinforcement at mid-slab is essential to its performance. The risk of uncontrolled shrinkage cracking is increased if the reinforcement is not properly located within the slab.

Floor slabs may be underlain by a layer of free-draining crushed rock, serving as a deterrent to migration of capillary moisture. The crushed rock layer should be at least four inches thick and graded such that 100 percent passes a one-inch sieve and none passes a No. 4 sieve. Additional moisture protection may be provided by placing a plastic water vapor retarder (at least 10-mils thick) directly over the crushed rock. The plastic water vapor retarder should meet or exceed the minimum specifications as outlined in ASTM E1745. Consideration should be given to using a thicker, higher quality membrane for additional moisture protection, such as a 15-mil thick Stego vapor barrier or other similar product. The membrane should be installed so that there are no holes or uncovered areas. All seams should overlap and be sealed with manufacturer-approved tape, continuous at the laps to create vapor tight conditions. All perimeter edges of the membrane, such as pipe penetrations, interior and exterior footings, joints, etc., should be sealed or caulked per manufacturer's recommendations. An optional, thin layer of clean sand above the membrane is acceptable, as an aid to curing of the slab concrete.

If heavier floor loads are anticipated and/or increased support is desired, the crushed rock section (if used) beneath interior slab-on-grade floors could be replaced with a thicker section of Class 2 aggregate base compacted to at least 95 percent of the maximum dry density as determined by ASTM D1557.

Floor slab construction over the past 25 years or more has included placement of a thin layer of sand over the vapor retarder membrane. The intent of the sand is to aid in the proper

curing of the slab concrete. However, recent debate over excessive moisture vapor emissions from floor slabs includes concern for water trapped within the sand. As a consequence, we consider the use of the sand layer as optional. The concrete curing benefits should be weighed against efforts to reduce slab moisture vapor transmission.

The recommendations presented above are intended to mitigate any significant soils-related cracking of the slab-on-grade floors. More important to the performance and appearance of a Portland cement concrete slab is the quality of the concrete, the workmanship of the concrete contractor, the curing techniques utilized and the spacing of control joints.

FLOOR SLAB MOISTURE PENETRATION RESISTANCE

It is considered likely that floor slab subgrade soils will become wet to near-saturated at some time during the life of the structure. This is a certainty when slab subgrades are constructed during the wet seasons or when constantly wet ground or poor drainage conditions exist adjacent to structure. For this reason, it should be assumed that all slabs intended for moisture-sensitive floor coverings require protection against moisture or moisture vapor penetration. Standard practice includes the gravel and vapor retarder membrane, as discussed above. However, the gravel and membrane offer only a limited, first-line of defense against soil-related moisture. Recommendations contained in this report concerning foundation and floor slab design are presented as *minimum* requirements, only from the geotechnical engineering standpoint.

It is emphasized that neither use of sub-slab crushed rock and sheet plastic membrane will not “moisture proof” the slab, nor does it assure that slab moisture transmission levels will be low enough to prevent damage to floor coverings or other building components. If increased protection against moisture vapor penetration of slabs is desired, a concrete moisture protection specialist should be consulted. The design team should consider all available measures for slab moisture protection. It is commonly accepted that maintaining the lowest practical water-cement ratio in the slab concrete is one of the most effective ways to reduce future moisture vapor penetration of the completed slabs.

DRILLED CAST-IN-PLACE CONCRETE PIERS

Light poles and solar canopies (if any) can be supported on drilled cast-in-place concrete piers. We are providing design soil values for the analysis of the foundations, and suggested

minimums, but only from a Geotechnical Engineering perspective. The project Structural Engineer should determine final foundation design width and depth dimensions and concrete strength and reinforcing requirements, based on their specific structural design, which should include an appropriate factor of safety applied to the overall design. We should review the project plans to verify the applicability of our recommendations.

In general, we recommend the proposed piers consist of drilled, straight-shafted holes, filled with concrete, and reinforced with steel to resist and transfer lateral and axial loads. Further, we recommend the pier excavations should have a minimum diameter of 18 inches and a minimum depth of 5 feet below lowest adjacent soil final grade. The Structural Engineer should determine the final pier depth and diameter based on the required capacities.

Drilled pier foundations may be sized for a maximum allowable soil pressure of 2000 pounds per square foot (psf) for Allowable Stress Design such as using the Basic Load Combinations listed in Sections 1605.1 of 2022 CBC. This value can be increased by one-third to consider the short-term effects of seismic or wind forces if they are not factored in the load combinations such as the Alternative Basic Load Combinations listed in Sections 1605.2 of 2022 CBC for dead plus live load. The weight of the foundation concrete extending below adjacent soil grade may be disregarded in sizing computations.

Alternatively, cast-in-place concrete drilled piers should be designed to resist downward loads using an allowable unit skin friction of 150 psf. Total downward capacities derived from the parameters provided above may be increased by $\frac{1}{3}$ for total load conditions to include short-term loading due to wind or seismic forces.

We recommend the uppermost 1 foot of the embedded portion of the foundation be neglected when evaluating the skin friction component of the axial capacities.

Sizing of piers to resist lateral loads can be evaluated using Section 1807.3.2 of the 2022 California Building Code (CBC). A value of 150 pounds per cubic foot (pcf) for lateral bearing as defined in Table 1806.2 of the CBC may be used for the coefficients S_1 and S_3 for the nonconstrained and constrained conditions, respectively. Per Section 1806.1 of the 2022 CBC, an increase of $\frac{1}{3}$ is permitted when using the alternate load combinations in Section 1605.2 that include wind or earthquake loads. The upper 12 inches of embedment should be neglected for the non-constrained condition unless exterior flatwork or pavements

completely surrounds the top of the pier and extends at least three feet beyond the outside edge of the pier.

Actual depth and diameter of piers should be determined by the Structural Engineer based on actual design loading conditions and requirements. Larger piers than the minimum recommended may be needed based on actual design loading requirements and capacities.

Drilled Pier Construction Considerations

Relatively cohesionless soils were encountered during our field investigation. In our opinion, these soils may be susceptible to caving, requiring advancing casing, drilling fluid, and/or other methods to advance the drilled excavations for the proposed piers and maintain hole stability. The contractor should be prepared to fully case the drilled pier holes, as needed.

Casing

If casing is used, we recommend it be removed from the excavation as concrete is being placed. The bottom of the casing should be maintained below the top of the concrete at all times during casing withdrawal and concrete placement. Further, continuous vibration or other approved methods should be used during casing withdrawal to reduce the potential for void-space formation within the concrete. Abandoning the casing in-place should not be allowed.

Drilling Fluids

If drilling fluids are used to facilitate construction of the proposed drilled pier, we recommend steel reinforcement and concrete be placed immediately upon completion of the pier excavation to reduce the quantity of suspended soil particles which may settle to the bottom of the hole. Further, we recommend all pier construction operations which utilize drilling fluids be in accordance with procedures outlined in the Federal Highway Administration publication titled: *Drilled Shafts: Construction Procedures and Design Methods*.

Bottom Preparation

All debris, loose or disturbed soil, and any water (if applicable) should be removed from the pier excavation just prior to placing reinforcing steel and/or concrete. A representative from

Mid Pacific Engineering should observe the bottom of the pier and its excavation to verify that subsurface conditions are consistent with those encountered during our field investigation and to verify competent support conditions are exposed.

Steel and Concrete Placement

Reinforcement and concrete should be placed in the pier excavations immediately upon completion of the pier excavation to minimize the chances of sidewall caving into the excavations. If water is present during concrete placement, or if drilling fluids are used to advance the pier, concrete should be pumped or otherwise discharged to the bottom of the hole via a hose or tremie pipe. The end of the hose or tremie pipe must remain below the top surface of any water, drilling fluids, and the in-place concrete at all times. In addition, concrete used for pier construction should be consolidated using vibratory methods over the entire length and width of the pier. If water and/or drilling fluids are present, concrete within the upper portion of the pier should be consolidated to the extent possible upon removal of these fluids.

It is considered essential that our representative be present during pier drilling to verify adequate depth of penetration. Concrete reinforcing steel should not be placed in any pier excavation until approved by our representative.

EXTERIOR FLATWORK (NON-PAVEMENT AREAS)

Areas to receive exterior concrete flatwork should be ripped and cross-ripped to a minimum depth of 12 inches, moisture conditioned to at least two percent above the optimum moisture content, and compacted to at least 90 percent of the ASTM D1557 maximum dry density. Uniform moisture conditioning of subgrade soils is important to reduce the risk of non-uniform moisture withdrawal from the concrete and the possibility of plastic shrinkage cracks. Practices recommended by the Portland Cement Association for proper placement and curing of concrete should be followed during exterior concrete flatwork construction. Some seasonal movement of flatwork should be anticipated. *Areas adjacent to slabs-on-grade should not be allowed to lay fallow to reduce problems associated with seasonal moisture content variations.* For increased support and performance, the exterior slabs may be underlain by a minimum four inches of Class 2 aggregate compacted to 95 percent relative compaction.

The Architect or Structural Engineer should determine the final thickness, strength, reinforcement, and joint spacing of exterior slab-on-grade concrete; however, we offer the following suggested minimum guidelines. Exterior flatwork should be at least four inches thick and be constructed independent of perimeter building foundations and isolated column foundations by the placement of a layer of felt material between the flatwork and the foundation. Reinforcement should consist of at least steel reinforcing bars, placed mid-depth of the slab. Thicker slabs constructed with thickened edges to at least twice the slab thickness should be constructed where light wheeled traffic or intermittent light loading is expected over the slabs. . *Slabs supporting vehicle loads should be designed as pavements with thicker slabs underlain by aggregate base.*

SITE DRAINAGE

Control of surface water on this site is essential to proper performance of the planned improvements. Final site grading should be accomplished to provide positive drainage of surface water away from building, pavements, and structures and prevent ponding of water adjacent to foundations, slabs or pavements. Proper control of surface water drainage is essential to the performance of foundations, slabs-on-grade, and pavements. The ground adjacent to the planned building and structures should be sloped away from the structures at a gradient no less than two percent for a distance of at least 10 feet.

We recommend using full-roof gutters, with downspouts from roof drains connected to rigid non-perforated piping directed to an appropriate drainage point away from the structures, or discharging onto paved surfaces leading away from the structures and foundations. Concentrated storm water discharge collected from roof downspouts or surface drains should not be allowed to drain on unprotected slopes adjacent to structure.

The ground should be graded to drain positively away from all flatwork and building structure. Ponding of surface water should be avoided near pavements, foundations, and flatwork. Landscape berms, if planned, should be constructed in such a manner as to promote drainage away from the buildings.

All excavations and fill slopes (if any) should be protected from concentrated storm water run-off to minimize potential erosion. Control of water over the slopes may be accomplished by constructing V-ditches near the top of slopes, or by grading the area

behind the top of slope to drain away from the slope. Ponding of surface water or allowing sheet flow of water over any open excavation must be avoided.

PAVEMENT DESIGN

The following pavement sections have been calculated based on anticipated traffic indices (TI's), results of R-value testing, and the procedures contained within Chapters 600 to 670 of the California Highway Design Manual, Sixth Edition. An R-Value of 30 was used for the design on-site pavements constructed on native, subgrade soils. The project civil engineer should determine the appropriate traffic index based on anticipated traffic conditions. We can provide additional section thicknesses for other TI's, as needed.

Table 5 – Pavement Design Alternatives		
Traffic Index (TI)	Pavement Subgrade R-value = 30	
	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
5.0	2½	7
	3*	6
6.0	3	9
	3½	8
7.0	3	12
	4*	10

* = Asphalt concrete thickness includes the Caltrans Safety Factor.

We emphasize that the performance of a pavement is critically dependent upon uniform compaction of the subgrade soils, as well as all engineered fill and utility trench backfill within the limits of the pavements. Materials used for pavement construction should conform to the appropriate sections of the most recent editions of the County/City Standards and the Caltrans *Standard Specifications*.

It has been our experience that pavement failures may occur where a non-uniform or disturbed subgrade soil condition is created. Subgrade disturbances can result if pavement subgrade preparation is performed prior to underground utility construction and/or if a

significant time period passes between subgrade preparation and placement of aggregate base. Therefore, we recommend that pavement subgrade preparation, i.e. scarification, moisture conditioning and compaction, be performed **just prior** to aggregate base placement.

The upper six inches of final pavement subgrades should be uniformly moisture conditioned to at least the optimum moisture content and compacted to at least 95 percent relative compaction. Pavement subgrades should be proof-rolled with a loaded water truck and must be stable under construction traffic prior to placement of aggregate base. All aggregate base (AB) should be compacted to at least 95 percent of the maximum dry density. The AB should be proof rolled with a loaded water truck. Any areas of observed instability should be stabilized and recompacted as necessary to achieve the compaction requirements above.

Earthwork construction within the limits of the pavements should be performed in accordance with the recommendation contained within this report. Materials quality and construction of the structural section should conform to the applicable provisions of the Caltrans Standard Specifications, latest editions.

Portland Cement Concrete Pavements

In the summer heat, high axle loads coupled with shear stresses induced by sharply turning tire movements can lead to failure in asphalt concrete pavements. Therefore, we recommend that consideration be given to using a Portland cement concrete (PCC) section in areas subjected to concentrated heavy wheel loading, such as entry driveways, truck maneuvering areas, and in front of trash enclosures.

At the time this report was prepared, the need for, and locations of, PCC pavements had not yet been determined. Therefore, when more information is available regarding uses, loading and potential subgrade conditions, we should review the information and provide specific thicknesses as applicable.

For preliminary purposes, it may be assumed that Portland cement concrete slabs in areas of entry driveways and in front of trash enclosures should be at least 6 inches thick and be underlain by at least 6 inches of 95 percent compacted Class 2 aggregate base. Thicker slabs will be needed in areas of frequent bus traffic, in heavy duty areas, or areas subjected to

high traffic frequencies by heavy trucks or equipment. In these areas, Portland cement concrete slabs with a minimum thickness of 7 inches and underlain by at least 6 inches of 95 percent compacted Class 2 aggregate base may be needed. These sections are preliminary and subject to revision based on review of additional information regarding loadings and traffic frequencies.

We suggest the concrete slabs be constructed with thickened edges in accordance with American Concrete Institute (ACI) design standards. Reinforcing for crack control, if desired, should consist of No. 4 reinforcing bars placed on maximum 24-inch centers each way throughout the slab. The project design engineer should determine the minimum PCC reinforcement for crack control. Reinforcement must be located at mid-slab depth to be effective. Construction of Portland cement concrete pavements should be performed in accordance with applicable American Concrete Institute (ACI) or PCA standards. Portland cement concrete utilized in pavements should attain a compressive strength of at least 3500 psi at 28 days.

Pavement Drainage

Efficient drainage of all surface water to avoid infiltration and saturation of the supporting aggregate base and subgrade soils is important to pavement performance. Consideration should be given to using full-depth curbs between landscaped areas and pavements to serve as a cut off for water that could migrate into the pavement base materials or subgrade soils. Geotextile water barriers also could be used to inhibit migration of water into pavement base materials, if extruded curbs are used. Proprietary geotextile moisture barriers and curb details should be reviewed and approved by our office prior to construction. Weep holes are recommended in parking lot drop inlets to allow accumulating water moving through the aggregate base to drain from beneath the pavements.

Earthwork construction within the limits of the pavements should be performed in accordance with the recommendation contained within this report.

EARTHWORK TESTING AND OBSERVATION

Site preparation should be accomplished in accordance with the recommendations of this report and the appended *Guide Earthwork Specifications*. Representatives of Mid Pacific Engineering, Inc. must be present during site preparation and all grading operations to

observe and test the fills to verify compliance with our recommendations and the job specifications. In the event that MPE is not retained to provide geotechnical engineering observation and testing services during construction, the Geotechnical Engineer retained to provide this service should indicate in writing that they agree with the recommendations of this report and prepare supplemental recommendations as necessary.

A final report by the "Geotechnical Engineer" should be prepared upon completion of the project indicating compliance with or deviations from this report and the project plans and specifications. Please be aware that the title Geotechnical Engineer is restricted in the State of California to a Civil Engineer authorized by the State of California to use the title "Geotechnical Engineer."

FUTURE SERVICES

We recommend that our firm be given the opportunity to review the final plans and specifications to verify that the intent of our recommendations has been implemented in those documents. Testing and approval of proposed import sources is an essential requirement to qualify the proposed soils for use as engineered fill for this project. This sampling and testing should be completed well in advance of the proposed start of construction.

LIMITATIONS

Our recommendations are based upon the information provided regarding the proposed construction, combined with our analysis of site conditions revealed by the field exploration and laboratory testing programs. We have used our best engineering judgment based upon the information provided and the data generated from our investigation. This report has been prepared in accordance with generally accepted standards of practice existing in northern California at the time of the report. No warranty, either express or implied, is provided.

If the proposed construction is modified or re-sited; or, if it is found during construction that subsurface conditions differ from those we encountered at the test boring locations, we should be afforded the opportunity to review the new information or changed conditions to determine if our conclusions and recommendations must be modified.

Mid Pacific Engineering, Inc., should be retained to review the final plans and specifications to verify that the intent of our recommendations has been implemented in those documents.

We emphasize that this report is applicable only to the proposed construction and the investigated site and should not be utilized for construction on any other site.

The conclusions and recommendations of this report are considered valid for a period of two years. If the design is not completed and construction has not started within two years of the date of this report, the report must be reviewed and updated, as necessary.

Mid Pacific Engineering, Inc.

Vasily V. Parfenov

Vasily V. Parfenov, CEG
Senior Geologist

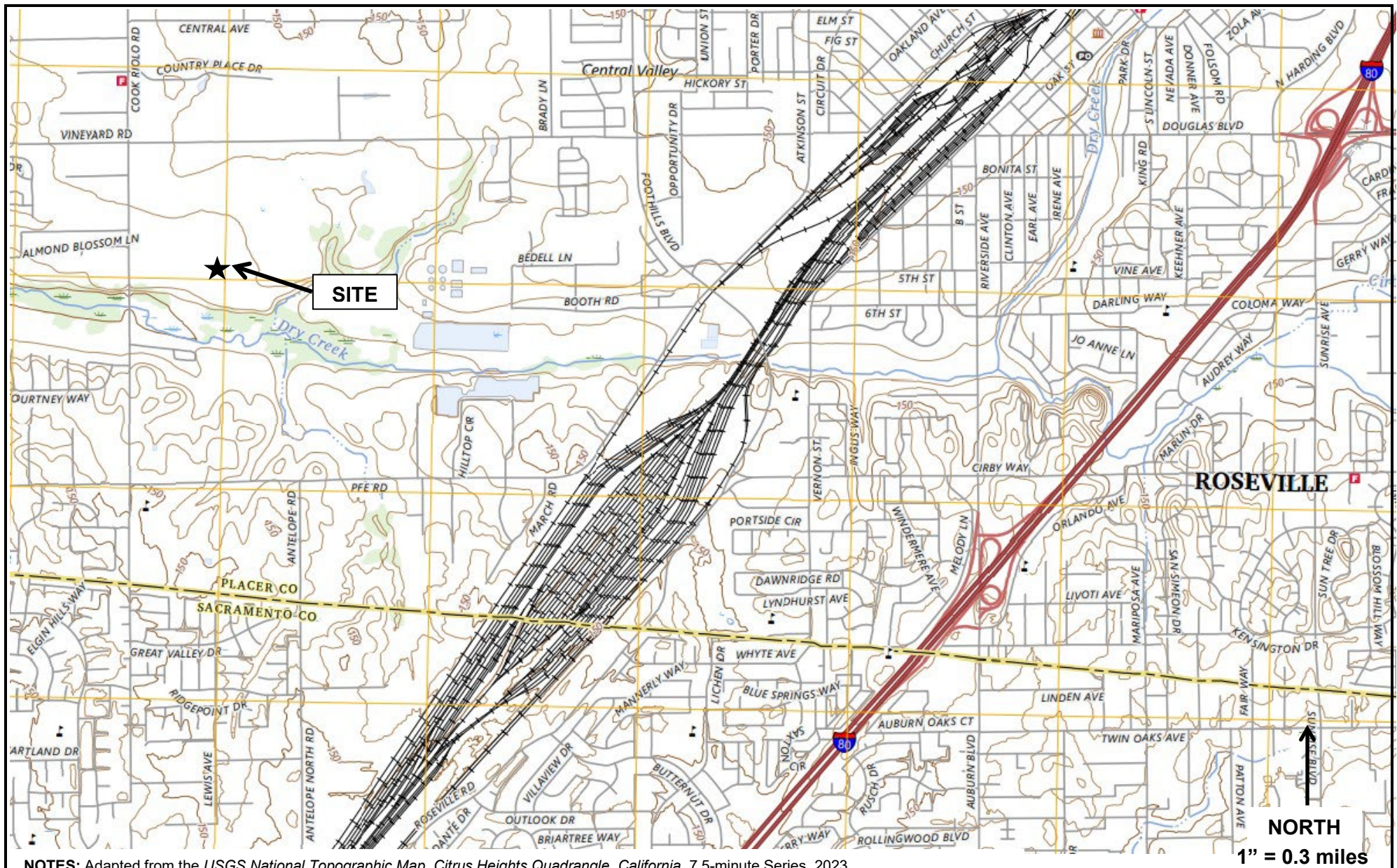


Dan Smith

Dan Smith, GE
Principal Engineer



FIGURES

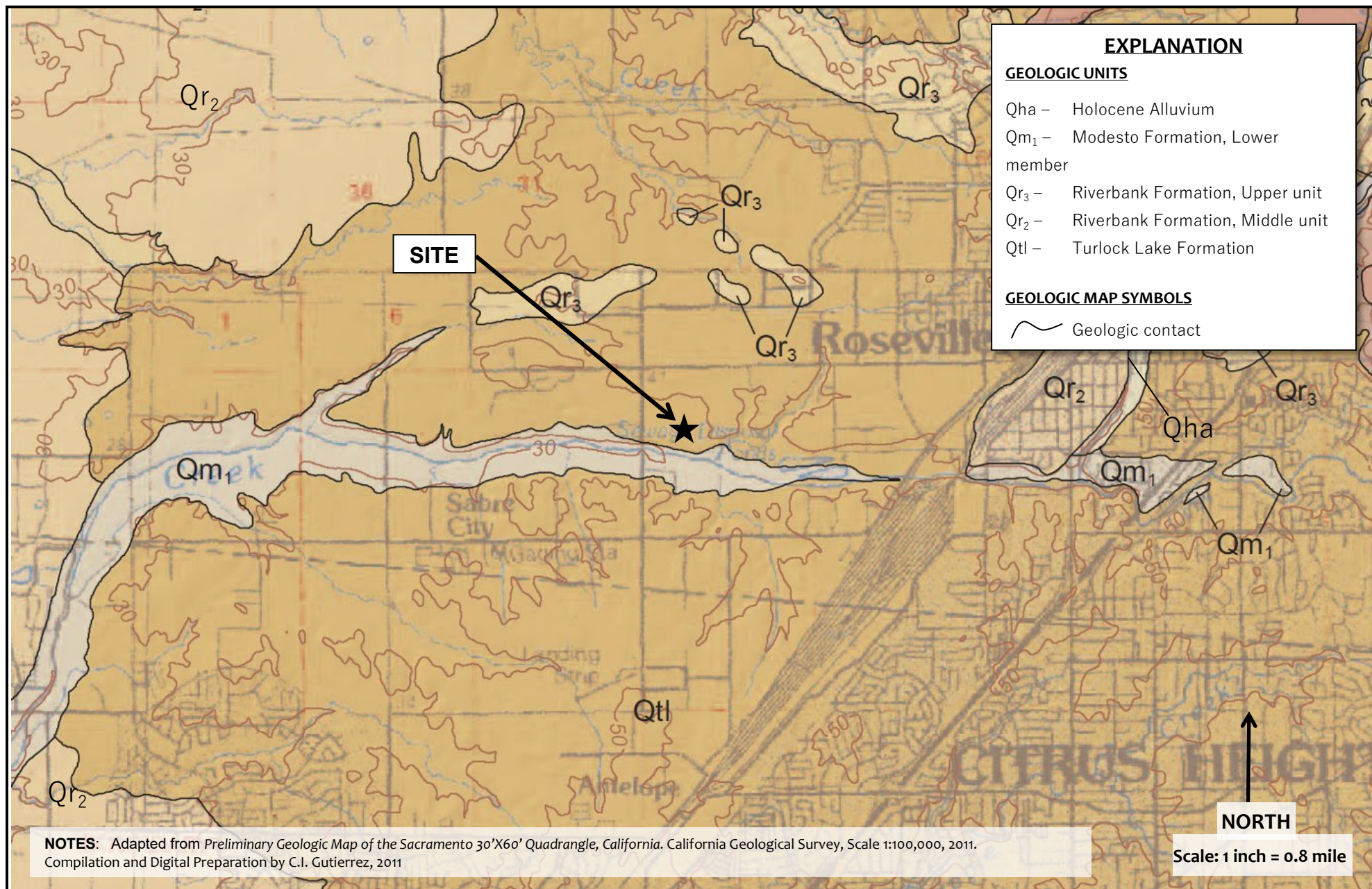


VICINITY MAP
CAMPUS EXPANSION AT CREEKVIEW RANCH SCHOOL
APN 474-080-020-000
Roseville, California

FIGURE 1

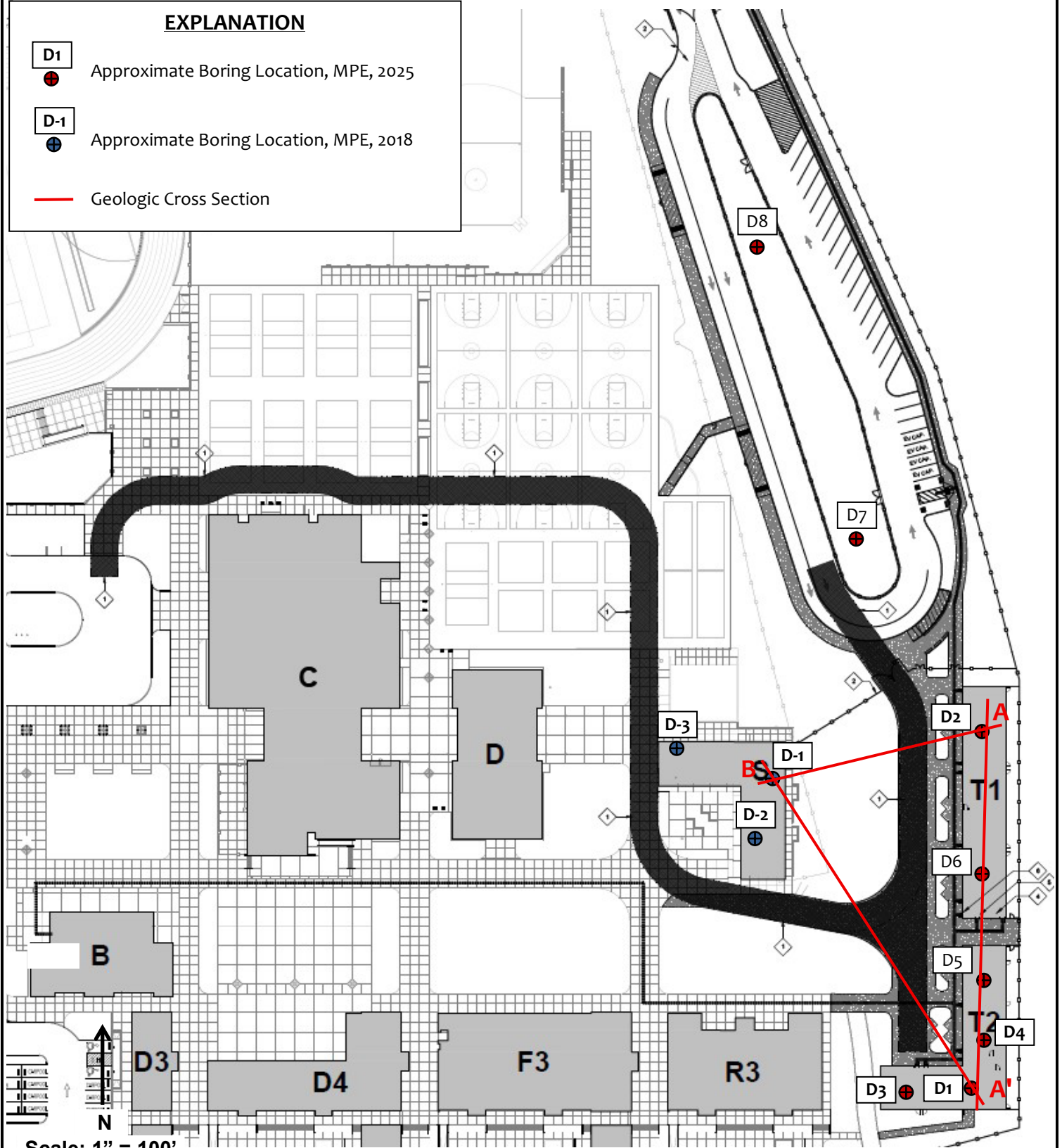
Date: 11/25

MPE No. 07261-01



EXPLANATION

- D1**
● Approximate Boring Location, MPE, 2025
- D-1**
⊕ Approximate Boring Location, MPE, 2018
- Geologic Cross Section



Scale: 1" = 100'

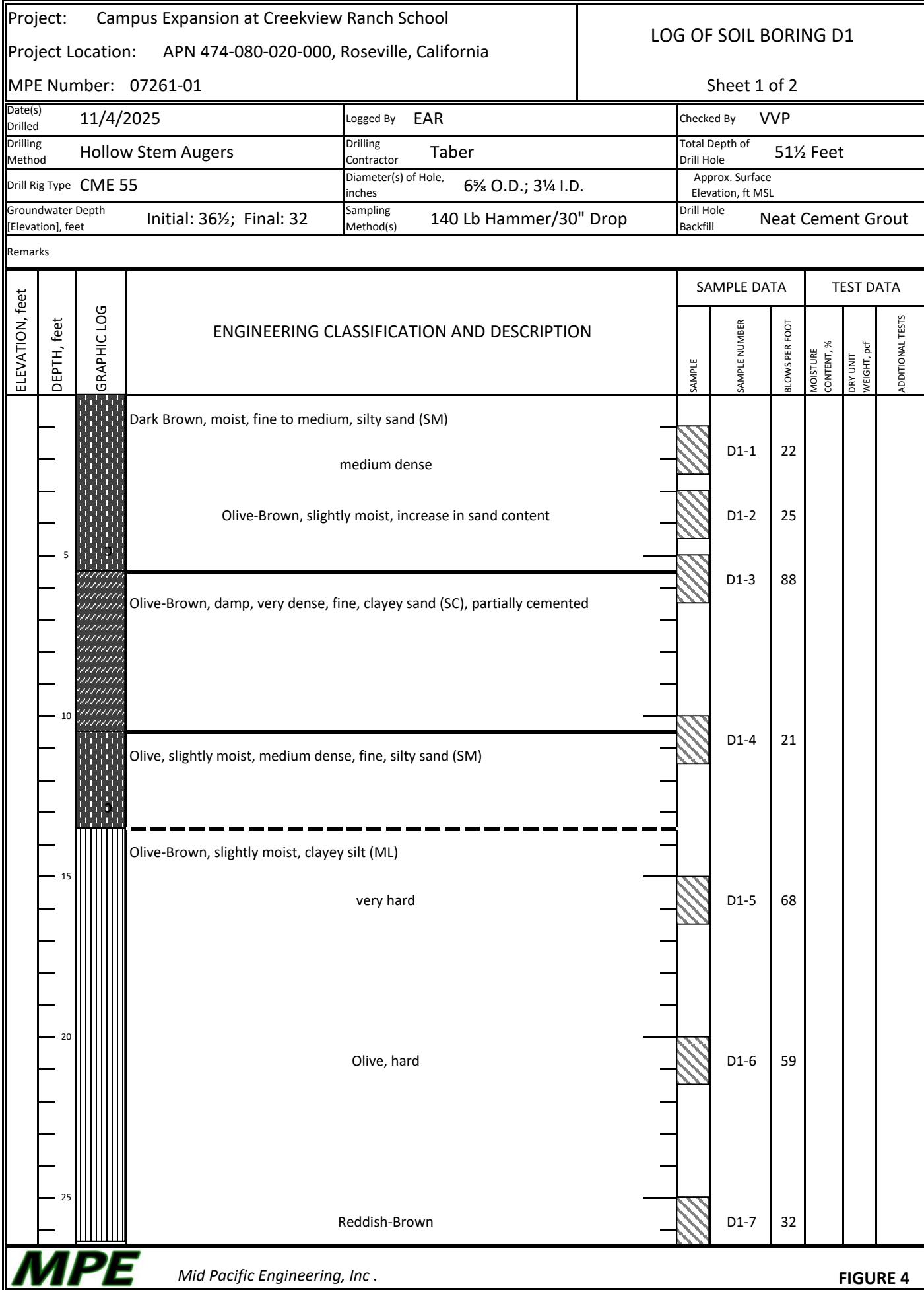
NOTES: Adapted from the August 2025, Creekview Ranch School Campus Expansion, Site Code Analysis, Sheet A100, prepared by Nacht & Lewis.

MPE
MID PACIFIC ENGINEERING, INC.

SITE PLAN
CAMPUS EXPANSION AT CREEKVIEW RANCH SCHOOL
APN 474-080-020-000
Roseville, California

FIGURE 3

Date: 11/25
MPE No. 07261-01



Project: Campus Expansion at Creekview Ranch School		LOG OF SOIL BORING D1	
Project Location: APN 474-080-020-000, Roseville, California		Sheet 2 of 2	
MPE Number: 07261-01			
Date(s) Drilled 11/4/2025	Logged By EAR	Checked By VVP	
Drilling Method Hollow Stem Augers	Drilling Contractor Taber	Total Depth of Drill Hole 51½ Feet	
Drill Rig Type CME 55	Diameter(s) of Hole, inches 6⅞ O.D.; 3¼ I.D.	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet Initial: 36½; Final: 32	Sampling Method(s) 140 Lb Hammer/30" Drop	Drill Hole Backfill Neat Cement Grout	
Remarks			

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA			TEST DATA		
				SAMPLE	SAMPLE NUMBER	BLOWS PER FOOT	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
30									
			Olive-Brown, slightly moist, medium dense, fine, poorly graded sand (SP)		D1-8	23			
35			Olive with reddish brown mottling, slightly moist, dense, fine, silty sand (SM)		D1-9	41			
40			fine to medium		D1-10	40			
45			Olive-Brown, slightly moist, very dense, fine to coarse, poorly graded sand (SP)		D1-11	87			
50			Olive, slightly moist, clayey silt (ML)						
			hard		D1-12	33			

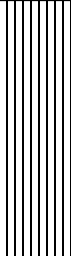
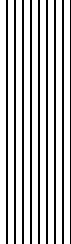


Mid Pacific Engineering, Inc.

FIGURE 4

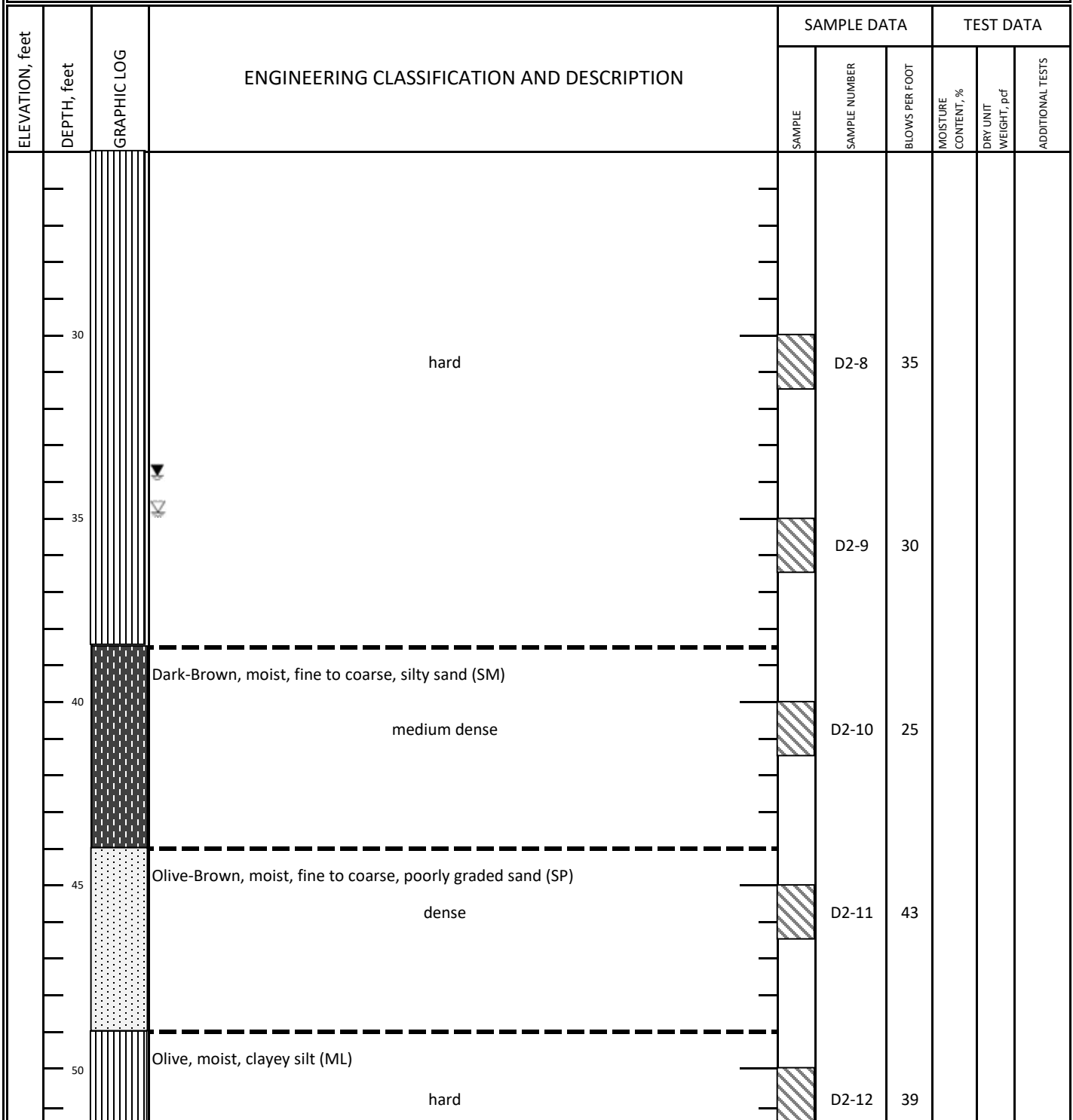
Project: Campus Expansion at Creekview Ranch School Project Location: APN 474-080-020-000, Roseville, California MPE Number: 07261-01	LOG OF SOIL BORING D2 Sheet 1 of 2
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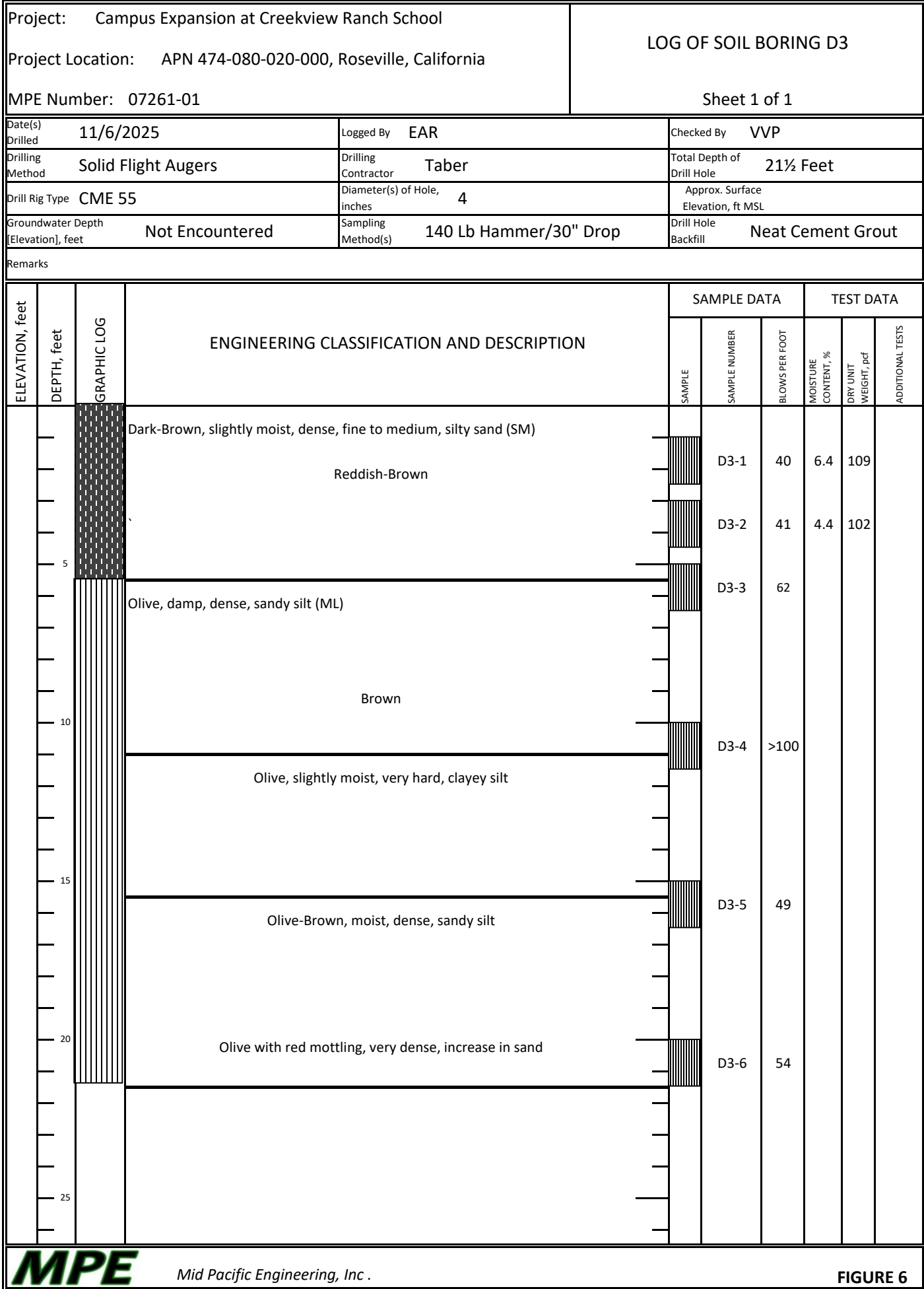
Date(s) Drilled 11/4/2025	Logged By EAR	Checked By VVP
Drilling Method Hollow Stem Augers	Drilling Contractor Taber	Total Depth of Drill Hole 51½ Feet
Drill Rig Type CME 55	Diameter(s) of Hole, inches 6⅝ O.D.; 3¼ I.D.	Approx. Surface Elevation, ft MSL
Groundwater Depth [Elevation], feet Initial: 35; Final: 34	Sampling Method(s) 140 Lb Hammer/30" Drop	Drill Hole Backfill Neat Cement Grout

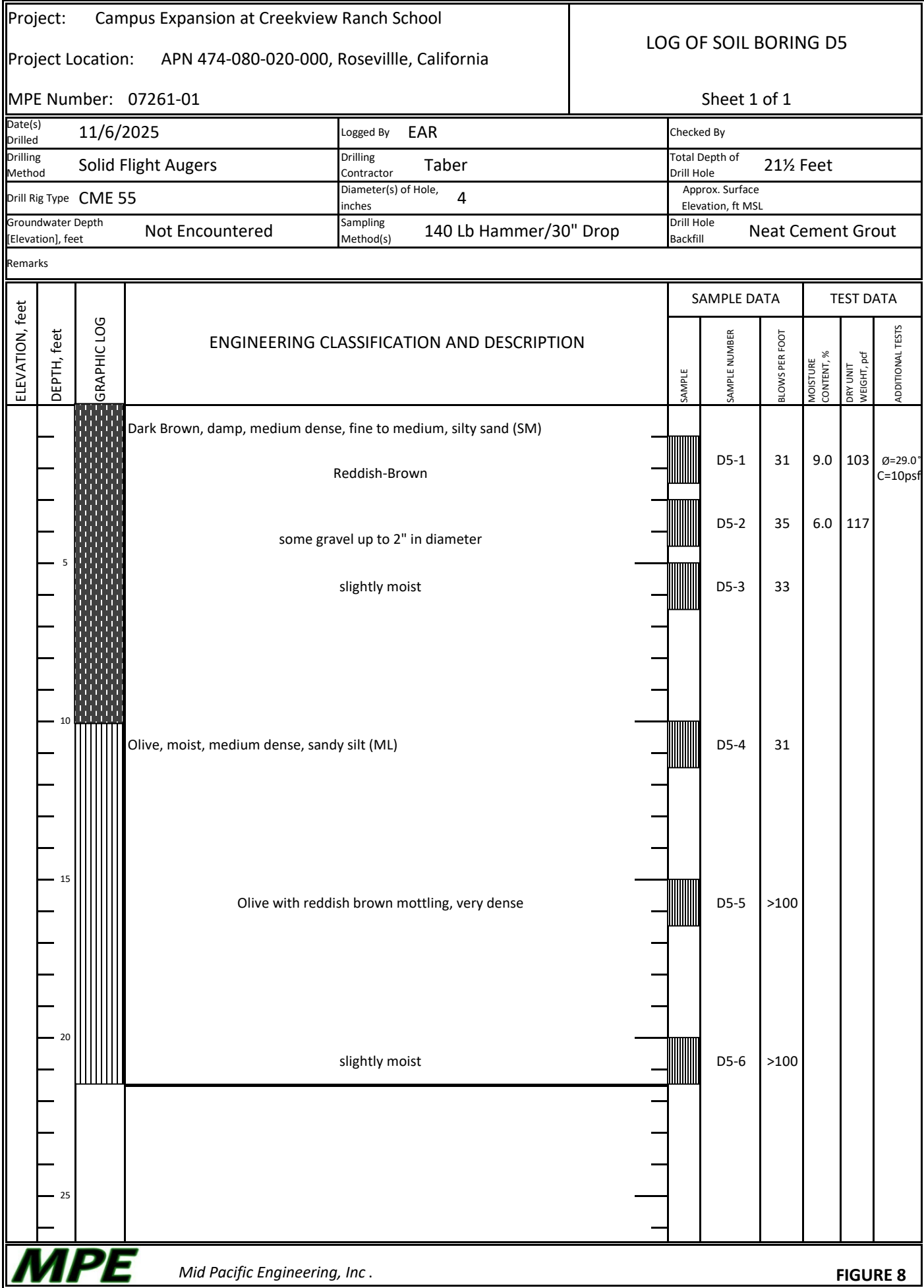
Remarks									
ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA			TEST DATA		
				SAMPLE	SAMPLE NUMBER	BLOWS PER FOOT	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark-Brown, slightly moist, medium dense, fine to medium, silty sand (SM)		D2-1	30			
			Olive-Brown, very dense, partially cemented		D2-2	>100			
	5		Olive-Brown, slightly moist, medium dense, fine to coarse, clayey sand (SC), partially cemented		D2-3	26			
	10		Olive-Brown, moist, medium dense, fine, silty sand (SM)		D2-4	13			
	15		Olive, slightly moist, very dense, fine, sandy silt (ML)		D2-5	65			
	20		Reddish-Brown, hard, clayey silt		D2-6	42			
	25		Olive with black and red mottling, stif		D2-7	15			

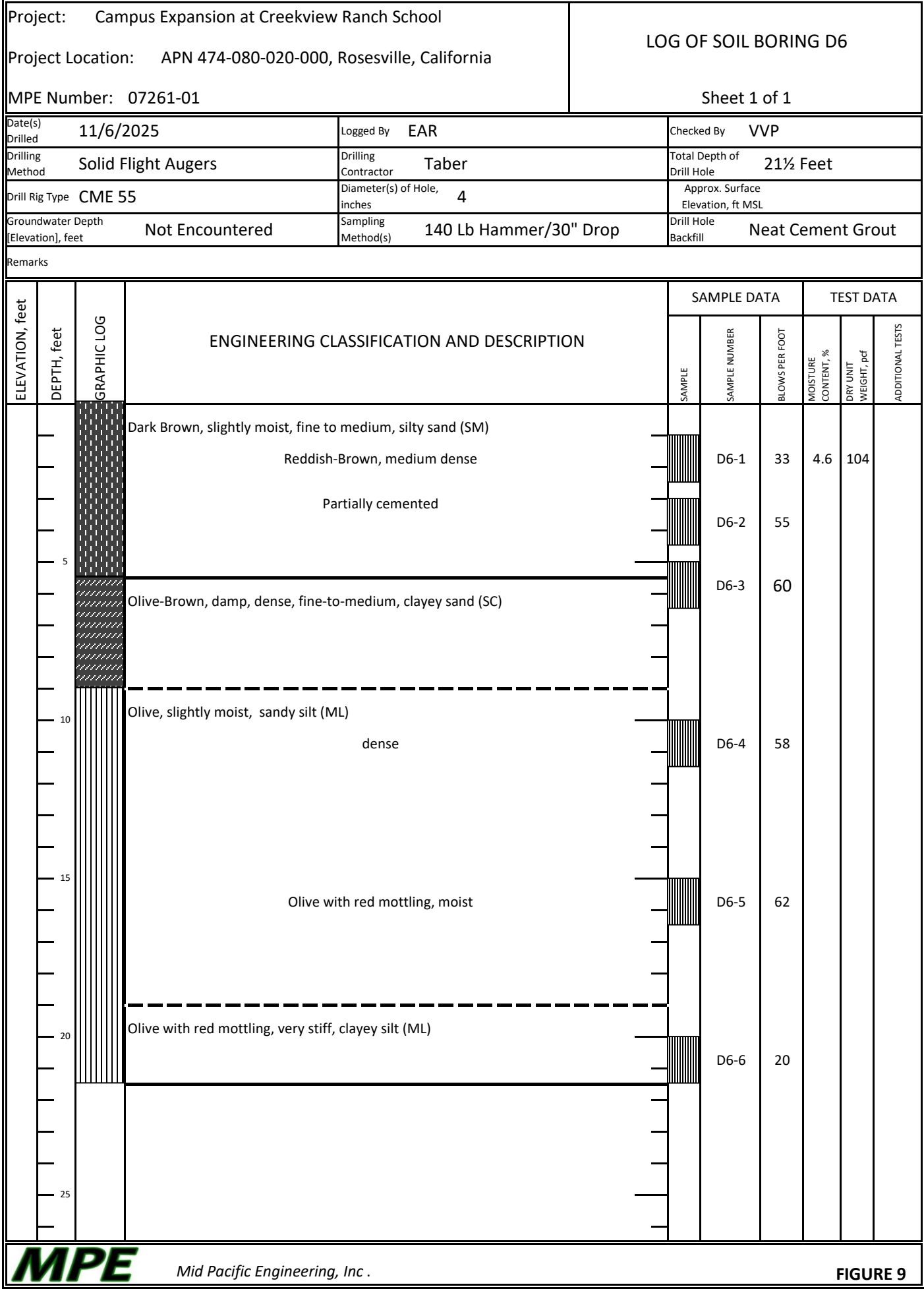
Project: Campus Expansion at Creekview Ranch School Project Location: APN 474-080-020-000, Roseville, California MPE Number: 07261-01	LOG OF SOIL BORING D2 Sheet 2 of 2
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Date(s) Drilled 11/4/2025	Logged By EAR	Checked By VVP
Drilling Method Hollow Stem Augers	Drilling Contractor Taber	Total Depth of Drill Hole 51½ Feet
Drill Rig Type CME 55	Diameter(s) of Hole, inches 6⅝ O.D.; 3¼ I.D.	Approx. Surface Elevation, ft MSL
Groundwater Depth (Elevation), feet Initial: 35; Final: 34	Sampling Method(s) 140 Lb Hammer/30" Drop	Drill Hole Backfill Neat Cement Grout





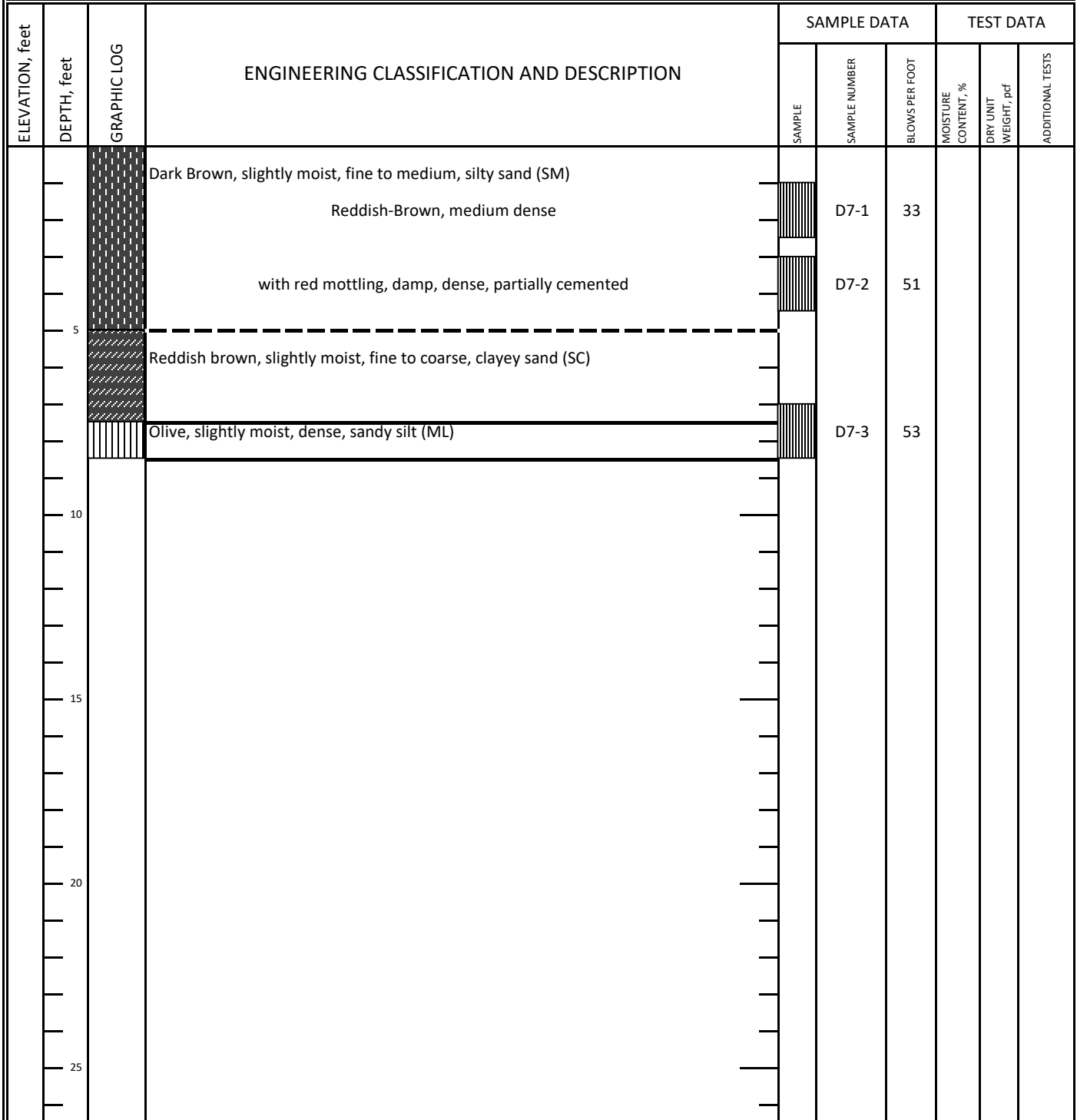




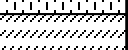
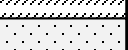
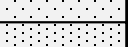
Project: Campus Expansion at Creekview Ranch School	LOG OF SOIL BORING D7
Project Location: APN 474-080-020-000, Roseville, California	
MPE Number: 07261-01	Sheet 1 of 1

Date(s) Drilled 11/6/2025	Logged By EAR	Checked By VVP
Drilling Method Solid Flight Augers	Drilling Contractor Taber	Total Depth of Drill Hole 8½ Feet
Drill Rig Type CME 55	Diameter(s) of Hole, inches 4	Approx. Surface Elevation, ft MSL
Groundwater Depth (Elevation), feet Not Encountered	Sampling Method(s) 140 Lb Hammer/30" Drop	Drill Hole Backfill Excavated Materials

Remarks



UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	CODE	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS (More than 50% of coarse fraction > no. 4 sieve size)	GW		Well graded gravels or gravel - sand mixtures, little or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, little or no fines
		GM		Silty gravels, gravel - sand - silt mixtures
		GC		Clayey gravels, gravel - sand - silt mixtures
	SANDS (50% or more of coarse fraction < no. 4 sieve size)	SW		Well graded sands or gravelly sands, little or no fines
		SP		Poorly graded sands or gravelly sands, little or no fines
		SM		Silty sands, sand - silt mixtures
		SC		Clayey sands, sand clay mixtures
FINE GRAINED SOILS (More than 50% of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL ≥ 50	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils
ROCK		RX		Rocks, weathered to fresh
FILL		FILL		Artificially placed fill material

OTHER SYMBOLS

	= Drive Sample: 2-1/2" O.D. Modified California sampler
	= Hand Driven Sample
	= SPT Sampler
	= Initial Water Level
	= Final Water Level
	= Estimated or gradational material change line
	= Observed material change line
Laboratory Tests	PI = Plasticity Index
	EI = Expansive Index
	UCC = Unconfined Compression Test
	TR = Triaxial Compression Test
	GR = Gradation Analysis (Sieve)
	K = Permeability Test

GRAIN SIZE CLASSIFICATION

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 coarse (c) fine (f)	3" to No. 4	76.2 to 4.76
	3" to 3/4"	76.2 to 19.1
	3/4" to No. 4	19.1 to 4.76
SAND coarse (c) Medium (m) fine (f)	No. 4 to No. 200	4.76 to 0.074
	4 to No. 10	4.76 to 2.00
	No. 10 to No. 40	2.00 to 0.420
SILT & CLAY	Below No. 200	Below 0.074

MPE

Mid Pacific Engineering, Inc.

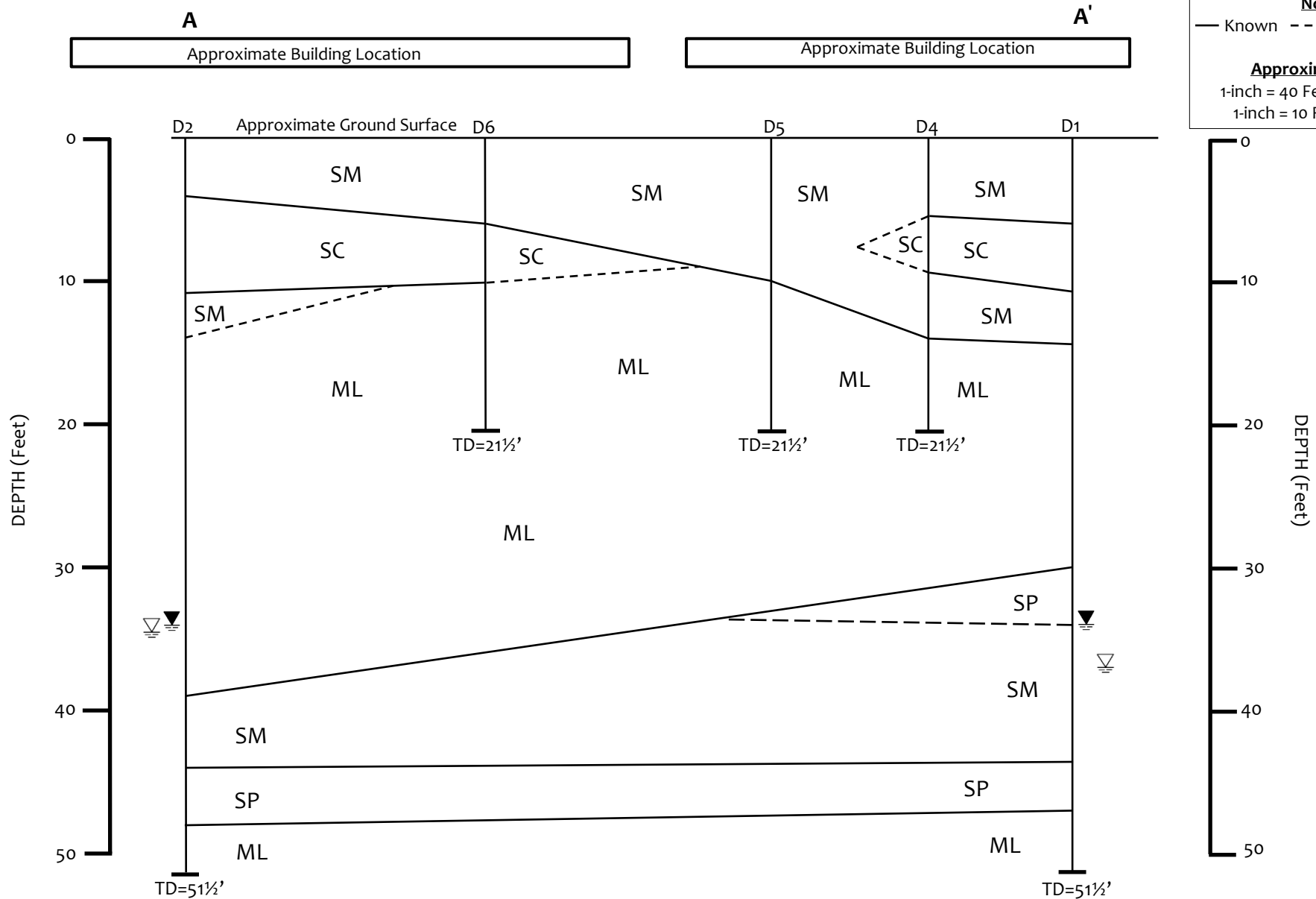
UNIFIED SOIL CLASSIFICATION SYSTEM CAMPUS EXPANSION AT CREEKVIEW RANCH SCHOOL

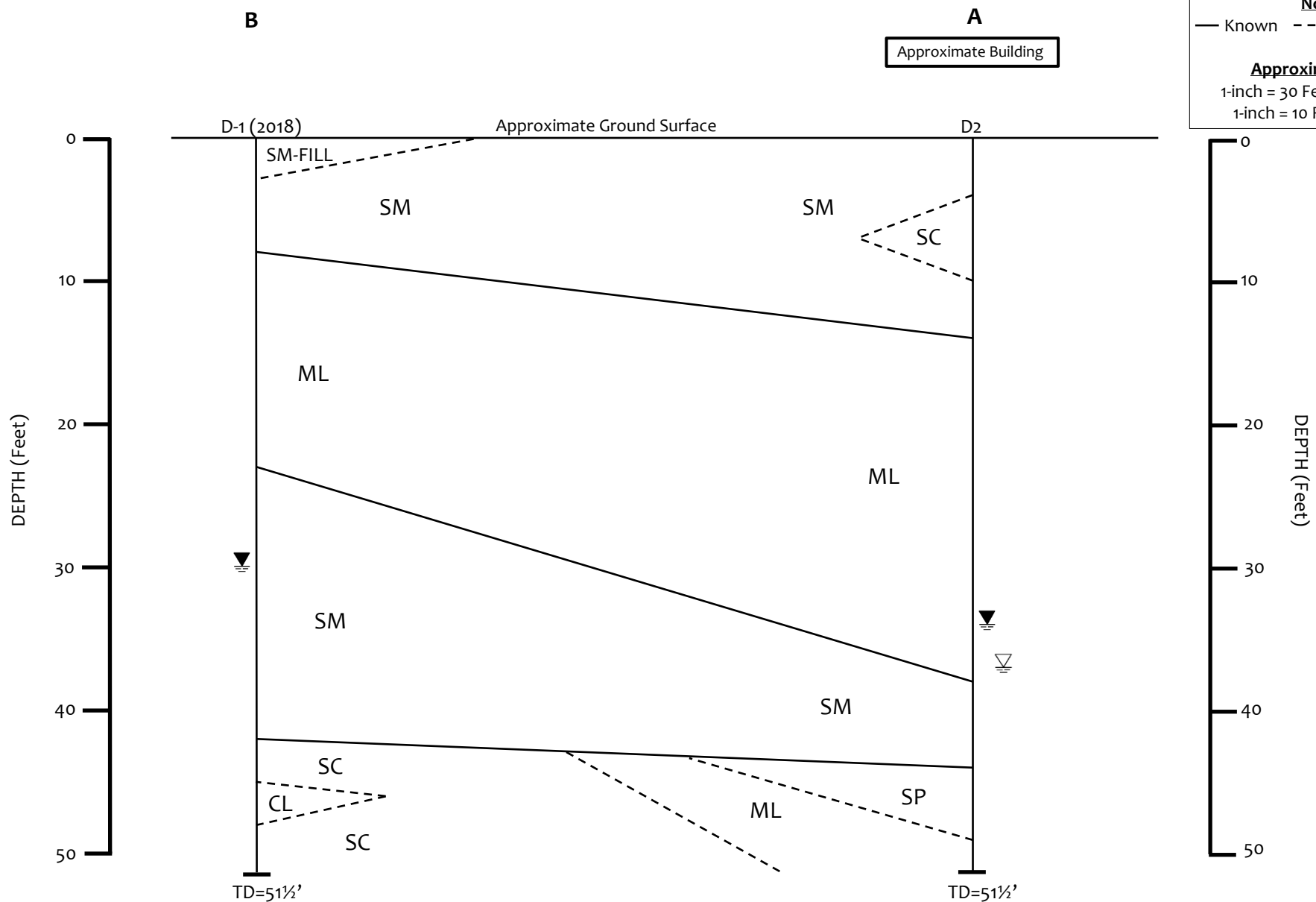
APN 474-080-020-000
Roseville, California

FIGURE 12

Date: 11/25

MPE No. 07261-01





Notes:
 — Known - - - Approximate

Approximate Scale:
 1-inch = 30 Feet (Horizontal)
 1-inch = 10 Feet (Vertical)

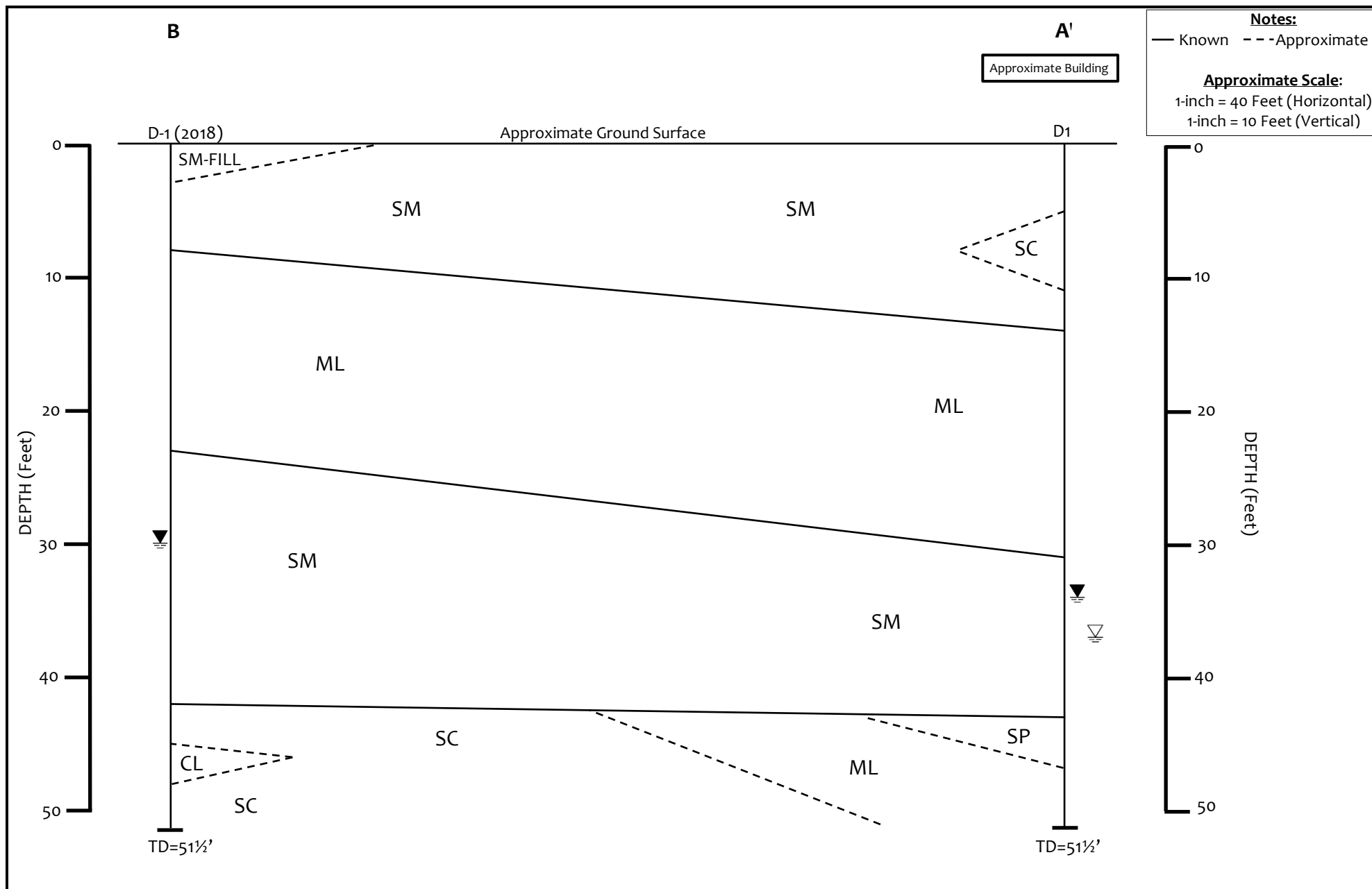


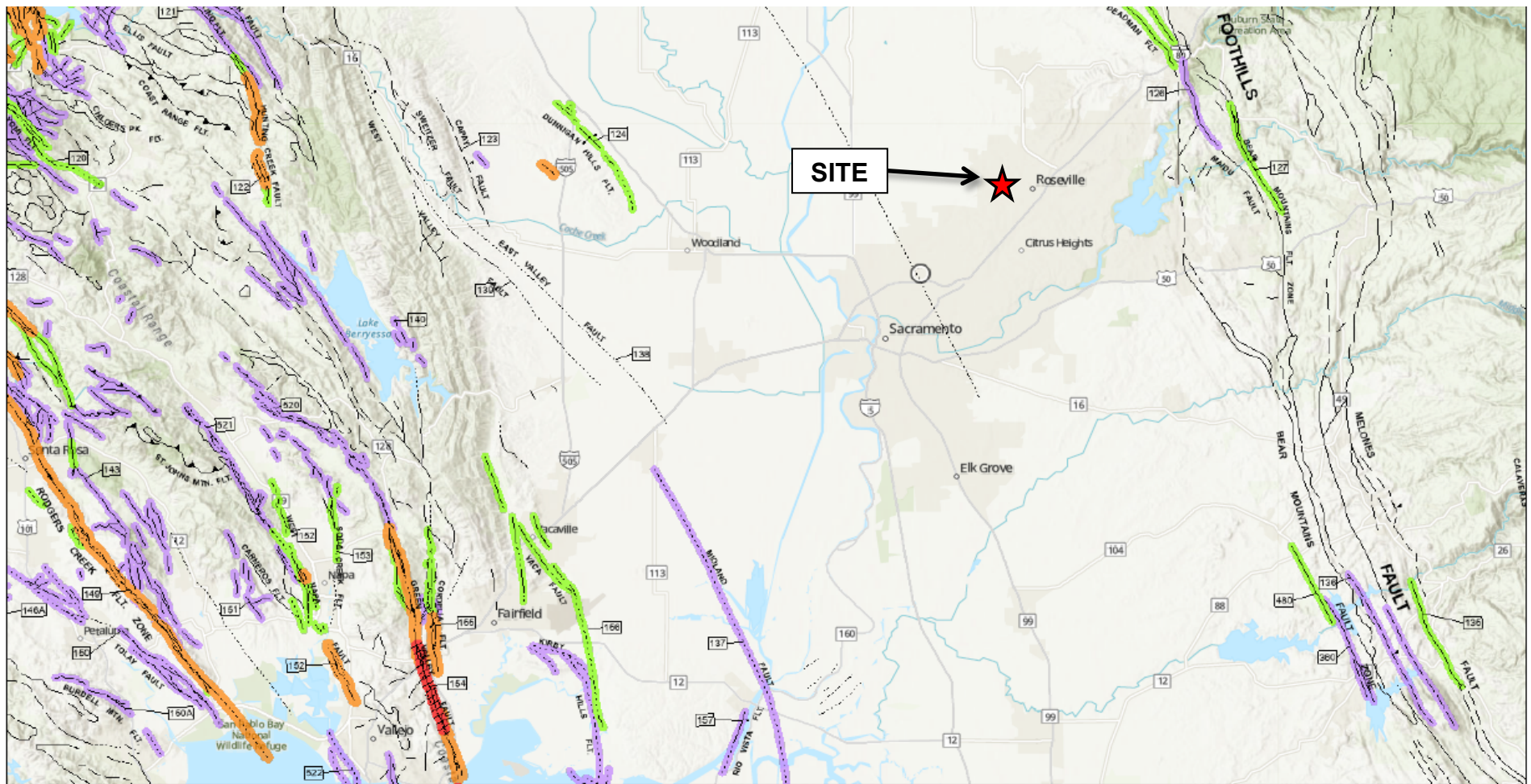
ENGINEERING-GEOLOGIC CROSS SECTION B-A
CAMPUS EXPANSION AT CREEKVIEW RANCH SCHOOL
 APN 474-080-020-000
 Roseville, California

FIGURE 14

Date: 11/25

MPE No. 07261-01

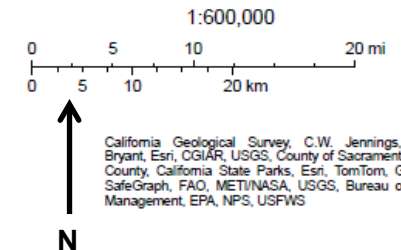




8/13/2024

Structural Discontinuity (Local)	thrust fault, approx. located, queried	fault, concealed	sinistral fault, approx. located	fault, concealed, queried (ball and bar)
structural discontinuity	fault, certain (ball and bar)	fault, concealed, queried	sinistral fault, concealed	fault, concealed, queried (ball and bar, 2)
Pre-Quaternary Faults	fault, approx. located (ball and bar)	thrust fault, certain	thrust fault, certain (2)	fault, certain (dip)
<all other values>	fault, concealed (ball and bar)	thrust fault, approx. located	thrust fault, approx. located (2)	fault, approx. located (dip)
fault, certain	Quaternary Faults	thrust fault, concealed	thrust fault, concealed (2)	fault, concealed (dip)
fault, approx. located	fault, certain	dextral fault, certain	fault, certain (ball and bar)	reverse fault, certain
fault, concealed	fault, approx. located	dextral fault, approx. located	fault, approx. located (ball and bar)	reverse fault, approx. located
thrust fault, certain	fault, approx. located, queried	dextral fault, concealed	fault, concealed (ball and bar)	reverse fault, concealed
thrust fault, approx. located	fault, inferred, queried	sinistral fault, certain	dextral fault, certain (ball and bar)	Fault Creep

Fault Classification
Historic
Holocene
Late Quaternary
Quaternary
World Hillshade



California Geological Survey, C.W. Jennings, W.A. Bryant, Esri, CGIAR, USGS, County of Sacramento, Yolo County, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS

Adapted from the Fault Activity Map of California 2010. California Geological Survey. Compilation and Interpretation by C.W. Jennings and W.A. Bryant.

MPE
MID PACIFIC ENGINEERING, INC.

REGIONAL FAULT MAP
CAMPUS EXPANSION AT CREEKVIEW RANCH SCHOOL
APN 474-080-020-000
Roseville, California

FIGURE 16

Date: 10/25

MPE No. 07261-01

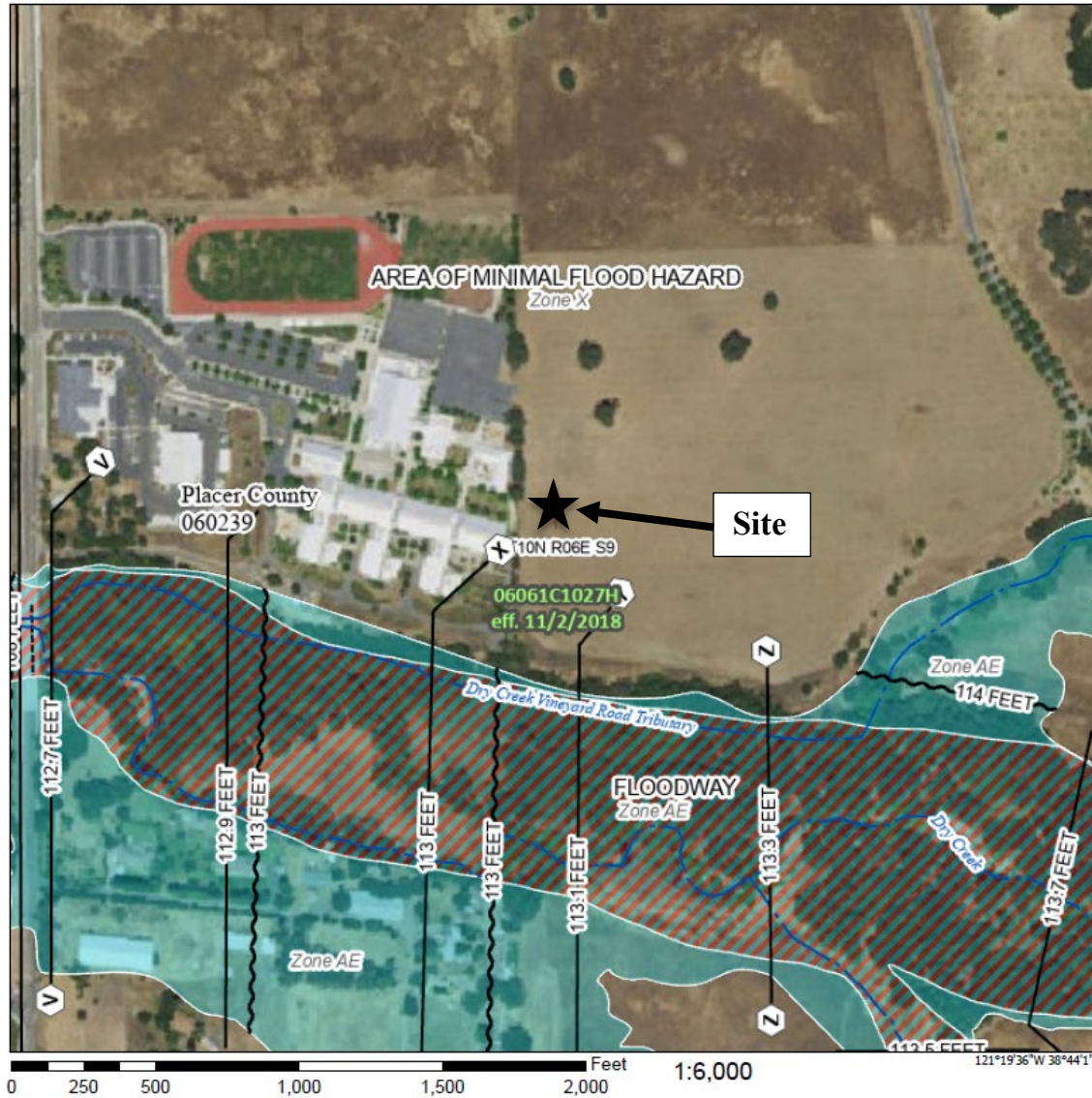


Adapted from the <https://earthquake.usgs.gov/earthquakes/search/>

National Flood Hazard Layer FIRMette



121°20'14"W 38°44'30"N



Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee, See Notes, Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		Coastal Transect
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
OTHER FEATURES		Hydrographic Feature
		Digital Data Available
MAP PANELS		No Digital Data Available
		Unmapped

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/29/2025 at 11:09 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Adapted from: Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map (FIRM), Map Number 06061C1027H, dated November 2, 2018.



FEMA FLOOD MAP
CAMPUS EXPANSION AT CREEKVIEW RANCH SCHOOL
 APN 474-080-020-000
 Roseville, California

FIGURE 18

Date: 10/25

MPE No. 07261-01

APPENDICES

APPENDIX A

APPENDIX A

A. GENERAL INFORMATION

The performance of a *Geologic Hazards and Geotechnical Engineering Report* for the proposed expansion of the Creekview Ranch School campus to be constructed within the property with Assessor Parcel Number (APN) 474-080-020-000 in Roseville, California, was authorized by Jim Ferguson with Dry Creek Joint Elementary School District on September 19, 2025. Authorization was for an investigation as described in our proposal letter of September 17, 2025, sent to our client, Dry Creek Joint Elementary School District, whose mailing address is 9707 Cook Riolo Road, Roseville, California 95747.

B. FIELD EXPLORATION

On November 4 through 6, 2025, eight (8) soil borings were drilled at the approximate locations indicated on Figure 3 utilizing a CME-55, track-mounted drill rig. Two (2) borings were drilled utilizing 6 $\frac{5}{8}$ -inch outside diameter (O.D.), 3 $\frac{1}{4}$ -inch inside diameter (I.D.) hollow stem augers to the maximum depth of 51 $\frac{1}{2}$ feet below ground surface (bgs). Six (6) borings were drilled utilizing 4-inch O.D solid flight augers to the maximum depth of 21 $\frac{1}{2}$ feet bgs.

At various intervals, relatively undisturbed soil samples were recovered with a 2 $\frac{1}{2}$ -inch O.D., 2-inch I.D. Modified California sampler (ASTM D3550), or with a 2-inch O.D., 1 $\frac{3}{8}$ -inch I.D. SPT sampler (ASTM D1586) driven by a 140-pound hammer freely falling 30 inches. The number of blows of the hammer required to drive the 18-inch long sampler each 6-inch interval was recorded with the sum of the blows required to drive the sampler the lower 12-inch interval, or portion thereof, being designated the penetration resistance or "blow count" for that particular drive.

The samples obtained with the modified California sampler were retained in 2-inch diameter by 6-inch long, thin-walled brass tubes contained within the sampler. The samples obtained with the SPT sampler were retained in sealed plastic bags. Immediately after recovery, the field engineer visually classified the soil in the tubes or SPT-sampler. The ends of the tubes were sealed or soils from the SPT sampler were placed in the sealed plastic bags to preserve the natural moisture contents. Disturbed bulk samples of the surface materials also were obtained at various locations and depths. Soil samples were taken to our laboratory for additional classification (ASTM D2488) and selection of samples for testing.

The Logs of Soil Borings, Figures 4 through 11, contain descriptions of the soils encountered in each boring. A Boring Legend explaining the Unified Soil Classification System and the symbols used on the logs is contained on Figure 12.

C. LABORATORY TESTING

Selected undisturbed samples of the soils were tested to determine dry unit weight (ASTM D2937), natural moisture content (ASTM D2216), and triaxial compressive test (ASTM D71181). The results of these tests are included on the boring logs at the depth each sample was obtained.

One bulk sample of the near-surface soils was subjected to an Expansion Index testing (ASTM D4829). The results of the test are presented on Figure A1.

One bulk sample of the anticipated pavement subgrade soils was subjected to Resistance ("R-") value testing. The results of the test were used in the pavement design and presented on Figure A2.

One sample of soil was subjected to Atterberg limits (ASTM D4318) tests. The results of the test are presented on Figure A3.

One sample of near-surface soils was submitted to Sunland Analytical in Rancho Cordova, California, for corrosivity testing in accordance with No. 643 (Modified Small Cell), CT 532, CT 422, and CT 417. The analytical results are presented in the text of the report.

EXPANSION INDEX TEST RESULTS
(ASTM D4829-21)
(UBC 18-2)

Material Description: Dark Brown, sandy silt (ML)
Location: D5 (1 – 3 feet)

Sample Number	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
D5	9.0	13.5	117	2

CLASSIFICATION OF EXPANSIVE SOIL

<u>EXPANSION INDEX</u>	<u>POTENTIAL EXPANSION</u>
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
Above 130	Very High

	<u>EXPANSION INDEX TEST RESULTS</u> CAMPUS EXPANSION AT CREEKVIEW RANCH SCHOOL APN 474-080-020-000 Roseville, California	<u>FIGURE A1</u> Date: 11/25 MPE No. 07261-01
---	---	---

RESISTANCE VALUE TEST RESULTS

(California Test 301)

Material Description: Reddish-Brown, silty sand (SM)
Location: D8 (1' - 3')

Specimen No.	Dry Unit Weight (pcf)	Moisture at Compaction (%)	Exudation Pressure (psi)	Expansion Pressure (psf)	R-Value
5	122.7	11.3	203	0	48
18	120.1	9.8	458	4	49
24	118.7	8.8	784	4	47

Resistance-value at 300 psi = 49



RESISTANCE VALUE TEST RESULTS
CAMPUS EXPANSION AT CREEKVIEW
RANCH SCHOOL
APN 474-080-020-000
Roseville, California

FIGURE A2

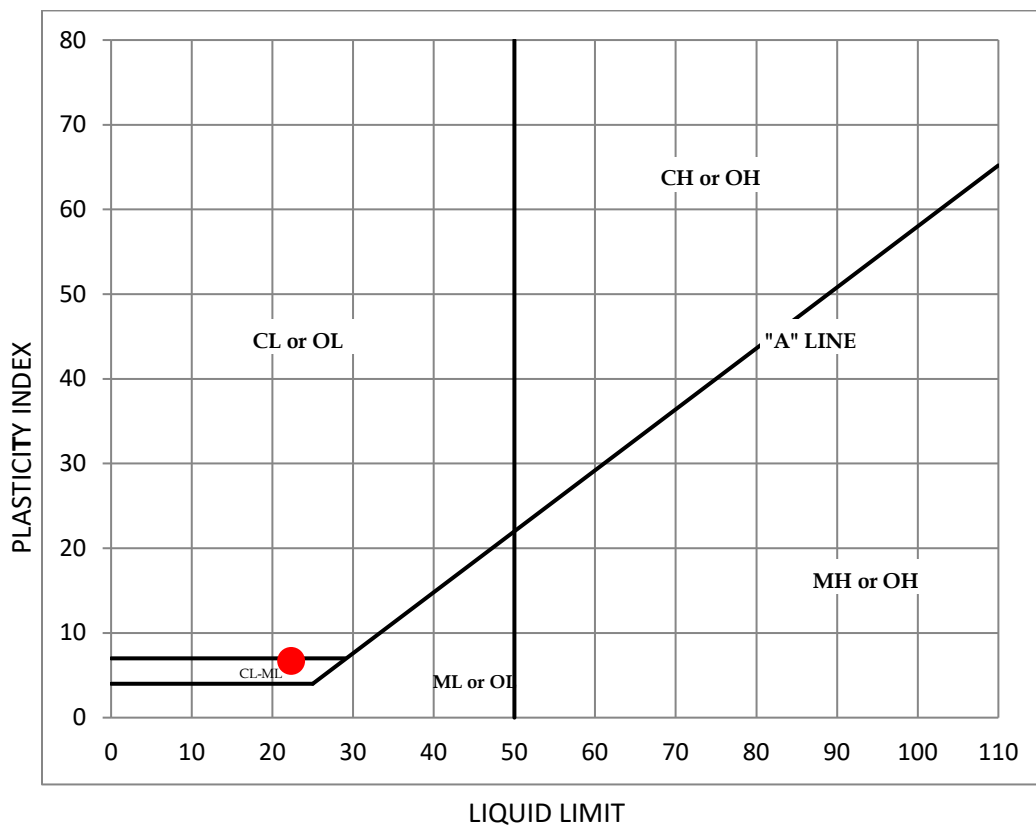
Date: 11/25

MPE No. 07261-01

ATTERBERG LIMITS (ASTM D4318)

Symbol	Sample	Natural Moisture Content (%)	Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)	Percent Passing #200 Sieve	Percent Passing 0.0020 mm
●	D5-1II (1½ - 2')	-	22	15	7	-	-

PLASTICITY CHART



LABORATORY TEST RESULTS
CAMPUS EXPANSION AT CREEKVIEW RANCH
SCHOOL
 APN 474-080-020-000
 Roseville, California

FIGURE A3

Date: 11/25
 MPE No. 07261-01

APPENDIX B

APPENDIX B
GUIDE EARTHWORK SPECIFICATIONS
CAMPUS EXPANSION AT CREEKVIEW RANCH SCHOOL

APN 474-080-020-000

Roseville, California

MPE No. 07261-01

PART 1: GENERAL

1.1 SCOPE

A. General Description

This item shall include clearing of all surface and subsurface structures associated with previous development of the site, existing structures, septic systems, leach lines, concrete slabs, foundations, asphalt concrete, utilities to be relocated or abandoned including all associated backfill, trees, demolition debris, rubbish, rubble, rubbish and associated items; preparation of surfaces to be filled, filling, spreading, compaction, observation and testing of the fill; and all subsidiary work necessary to complete the grading of the building areas to conform with the lines, grades and slopes as shown on the accepted Drawings.

B. Related Work Specified Elsewhere

1. Trenching and backfilling for sanitary sewer system: Section _____.
2. Trenching and backfilling for storm drain system: Section _____.
3. Trenching and backfilling for underground water, natural gas, and electric supplies: Section _____.

C. Geotechnical Engineer

Where specific reference is made to "Geotechnical Engineer" this designation shall be understood to include either him or his representative.

1.2 PROTECTION

- A. Adequate protection measures shall be provided to protect workers and passers-by at the site. Streets and adjacent property shall be fully protected throughout the operations.
- B. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.
- C. Any construction review of the Contractor's performance conducted by the Geotechnical Engineer is not intended to include review of the adequacy of the Contractor's safety measures, in, on or near the construction site.
- D. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.
- E. Surface drainage provisions shall be made during the period of construction in a manner to avoid creating a nuisance to adjacent areas.
- F. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance.

1.3 GEOTECHNICAL REPORT

- A. A Geologic Hazards and Geotechnical Engineering Report (MPE No. 07261-01; dated November 18, 2025) has been prepared for this site by Mid Pacific Engineering, Inc., Geotechnical Engineers. A copy is available for review at the office of Mid Pacific Engineering, Inc., 840 Embarcadero Drive, Suite 20, West Sacramento, California 95605.
- B. The information contained in this report was obtained for design purposes only. The Contractor is responsible for any conclusions he/she may draw from this report; should the Contractor prefer not to assume such risk, he/she should employ their own experts to analyze available information and/or to

make additional borings upon which to base their conclusions, all at no cost to the Owner.

1.4 EXISTING SITE CONDITIONS

The Contractor shall be acquainted with all site conditions. If unshown active utilities are encountered during the work, the Architect shall be promptly notified for instructions. Failure to notify will make the Contractor liable for damage to these utilities arising from Contractor's operations subsequent to the discovery of such unshown utilities.

1.5 SEASONAL LIMITS

Fill material shall not be placed, spread or rolled during unfavorable weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until field tests indicate that the moisture contents of the subgrade and fill materials are satisfactory.

PART 2: PRODUCTS

2.1 MATERIALS

- A. All fill shall be of approved local materials from required excavations, supplemented by imported fill, if necessary. Approved local materials are defined as local soils with a maximum particle size of approximately three inches (3"); free from rubble, rubbish and vegetation; and, having been tested and approved by the Geotechnical Engineer prior to use.
- B. Imported fill materials shall be approved by the Geotechnical Engineer; shall meet the above requirements; shall have plasticity indices not exceeding fifteen (15), when tested in accordance with ASTM D4318; shall have a maximum Expansion Index not exceeding twenty (20) when tested in accordance with ASTM D4829; and, shall be of three-inch (3") maximum particle size. Import fill shall be clean of contamination with appropriate

documentation. All imported materials shall be approved by the Geotechnical Engineer prior to being transported to the site.

- C. Asphalt concrete, aggregate base, aggregate subbase, and other paving products shall comply with the appropriate provisions of the *State of California (Caltrans) Standard Specifications* Standards, latest editions.

PART 3: EXECUTION

3.1 LAYOUT AND PREPARATION

Lay out all work, establish grades, locate existing underground utilities, set markers and stakes, set up and maintain barricades and protection of utilities-all prior to beginning actual earthwork operations.

3.2 CLEARING, GRUBBING AND PREPARING BUILDING PADS AND PAVEMENT AREAS

- A. The site shall be cleared of existing structures designated for removal including (if any) but not limited to, utilities to be relocated or abandoned including all associated backfill, demolition debris, rubbish, rubble and other unsuitable materials. Subsurface utilities to be relocated or abandoned shall be removed from within and to at least five feet (5') beyond the perimeter of the proposed structural areas; remaining piping beyond the structure that is not removed shall be plugged. Trees and shrubs designated to be removed shall include the entire rootball and all roots larger than one-half inch ($\frac{1}{2}$ ") in diameter. Excavations and depressions resulting from the removal of such items, as well as any existing excavations or loose soil deposits, as determined by the Geotechnical Engineer, shall be cleaned out to firm, undisturbed soil and backfilled with suitable materials in accordance with these specifications.
- B. The upper twelve inches (12") of subgrade shall be ripped and cross-ripped to expose any remaining remnants, roots, rubble and debris. All exposed rubble and debris shall be removed from the subgrades. Hand picking of exposed

rubble and debris shall be performed by the Contractor to adequately clear the grades.

- C. The surfaces upon which fill is to be placed, as well as at-grade areas or areas achieved by excavation, shall be plowed or scarified to a depth of at least twelve inches (12") until the surface is free from ruts, hummocks or other uneven features which would tend to prevent uniform compaction by the selected equipment.
- D. Subgrade preparation and compaction shall extend at least five feet (5') beyond the proposed structure lines, or as required by the Geotechnical Engineer based on the exposed soil and site conditions.
- E. When the moisture content of the subgrade is below that required to achieve the specified density, and that minimum content recommended in the geotechnical report, water shall be added until the proper moisture content is achieved.
- F. When the moisture content of the subgrade is too high to permit the specified compaction to be achieved, the subgrade shall be aerated by blading or other methods until the moisture content is satisfactory for compaction.
- G. After the foundations for fill have been cleared, plowed or scarified, they shall be disced or bladed until uniform and free from large clods, brought to the proper moisture content and compacted to not less than ninety percent (90%) for all structural areas of the maximum dry density as determined by the ASTM D1557-91 Compaction Test. Soils compaction shall be performed using a heavy, self-propelled sheepsfoot compactor (Caterpillar 815 or equivalent size compactor) capable of providing compaction to the full depth of soils scarification/ripping. Compaction operations shall be performed in the presence of the Geotechnical Engineer who will evaluate the performance of the materials under compactive load. Unstable soil deposits, as determined by the Geotechnical Engineer, shall be excavated to expose a firm base and grades restored with engineered fill in accordance with these specifications.

3.3 PLACING, SPREADING AND COMPACTING FILL MATERIAL

- A. The selected soil fill material shall be placed in layers which when compacted shall not exceed six inches (6") in thickness. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to promote uniformity of material in each layer.
- B. When the moisture content of the fill material is below that required to achieve the specified density, water shall be added until the proper moisture content of at least the optimum is achieved.
- C. When the moisture content of the fill material is too high to permit the specified degree of compaction to be achieved, the fill material shall be aerated by blading or other methods until the moisture content is satisfactory.
- D. After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted to at least ninety percent (90%) of the ASTM D1557 maximum dry density. Compaction shall be undertaken with a heavy, self-propelled sheepsfoot compactor (Caterpillar 815 or equivalent size compactor) capable of achieving the specified density and shall be accomplished while the fill material is at the required moisture content. Each layer shall be compacted over its entire area until the desired density has been obtained. Each lift of engineered fill shall be properly benched into adjacent side slopes, if present, to remove loose soils and promote uniformity.
- E. The filling operations shall be continued until the fills have been brought to the finished slopes and grades as shown on the accepted Drawings.

3.4 FINAL SUBGRADE PREPARATION

- A. The upper twelve inches (12") of building pads and exterior flatwork subgrades, shall be brought to a uniform moisture content, and shall be uniformly compacted to not less than ninety percent (95%) of the ASTM D1557 maximum dry density.

- B. The upper six inches (6") of all final subgrades supporting pavement sections, shall be brought to a uniform moisture content, and shall be uniformly compacted to not less than ninety-five percent (95%) of the ASTM D1557 maximum dry density.

3.5 TRENCH BACKFILL

Utility trench backfill shall be placed in lifts of no more than six inches (6") in compacted thickness. Each lift shall be compacted to at least ninety percent (90%) compaction, as defined by ASTM D1557, except that backfill supporting sidewalks, streets or other public pavement shall be compacted to comply with applicable City/County Standards, latest editions. The upper six inches (6") in pavement areas, the minimum compaction should be ninety-five (95%) percent of ASTM D1557.

3.6 TESTING AND OBSERVATION

- A. Grading operations shall be observed by the Geotechnical Engineer, serving as the representative of the Owner.
- B. Field density tests shall be made by the Geotechnical Engineer after compaction of each layer of fill. Additional layers of fill shall not be spread until the field density tests indicate that the minimum specified density has been obtained.
- C. Earthwork shall not be performed without the notification or approval of the Geotechnical Engineer. The Contractor shall notify the Geotechnical Engineer at least two (2) working days prior to commencement of any aspect of the site earthwork.
- D. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary readjustments until all work is deemed satisfactory, as determined by the Geotechnical Engineer and the Architect/Engineer. No deviation from the specifications shall be made except upon written approval of the Geotechnical Engineer or Architect/Engineer.

APPENDIX C

*
* E Q S E A R C H *
*
* Version 3.00 *
*

ESTIMATION OF
PEAK ACCELERATION FROM
CALIFORNIA EARTHQUAKE CATALOGS

JOB NUMBER: 07261-01

DATE: 10-20-2025

JOB NAME: Creekview Ranch School Campus Expansion

EARTHQUAKE-CATALOG-FILE NAME: ALLQUAKE.DAT

MAGNITUDE RANGE:

MINIMUM MAGNITUDE: 5.00

MAXIMUM MAGNITUDE: 9.00

SITE COORDINATES:

SITE LATITUDE: 38.7376

SITE LONGITUDE: 121.3319

SEARCH DATES:

START DATE: 1800

END DATE: 2021

SEARCH RADIUS:

62.0 mi

99.8 km

ATTENUATION RELATION: 2) Boore et al. (1997) Horiz. - NEHRP C (520)

UNCERTAINTY (M=Median, S=Sigma): M Number of Sigmas: 0.0

ASSUMED SOURCE TYPE: BT [SS=Strike-slip, DS=Reverse-slip, BT=Blind-thrust]

SCOND: 0 Depth Source: A

Basement Depth: .50 km Campbell SSR: Campbell SHR:

COMPUTE PEAK HORIZONTAL ACCELERATION

MINIMUM DEPTH VALUE (km): 0.0

----- EARTHQUAKE SEARCH RESULTS -----

FILE CODE	LAT. NORTH	LONG. WEST	DATE	TIME (UTC) H M Sec	DEPTH (km)	QUAKE MAG.	SITE ACC. g	SITE MM INT.	APPROX. DISTANCE mi [km]
DMG	38.4000	121.8000	04/30/1892	0 9 0.0	0.0	5.50	0.043	VI	34.4(55.3)
DMG	38.5000	121.9000	04/21/1892	1743 0.0	0.0	6.20	0.062	VI	34.8(55.9)
T-A	39.2500	121.0000	12/01/1867	712 0.0	0.0	5.00	0.030	V	39.6(63.7)
DMG	38.4000	122.0000	04/19/1892	1050 0.0	0.0	6.40	0.059	VI	42.9(69.1)
DMG	38.3000	121.9000	05/19/1902	1831 0.0	0.0	5.50	0.036	V	43.1(69.3)
USG	39.4330	121.4750	08/02/1975	2059 0.0	5.1	5.20	0.028	V	48.6(78.2)
USG	39.4360	121.5230	08/01/1975	202012.0	8.8	5.70	0.036	V	49.3(79.3)
USG	39.4490	121.4730	08/02/1975	202216.2	4.1	5.20	0.028	V	49.7(80.0)
DMG	39.4000	120.9000	03/03/1909	12 0 0.0	0.0	5.00	0.024	V	51.3(82.5)
DMG	39.4000	120.8000	06/23/1909	724 0.0	0.0	5.50	0.031	V	53.9(86.7)
UNR	39.2450	120.4960	11/28/1980	182112.4	1.5	5.20	0.025	V	56.9(91.6)
DMG	38.0000	121.9000	05/19/1889	1110 0.0	0.0	6.00	0.037	V	59.5(95.7)

-END OF SEARCH- 12 EARTHQUAKES FOUND WITHIN THE SPECIFIED SEARCH AREA.

TIME PERIOD OF SEARCH: 1800 TO 2021

LENGTH OF SEARCH TIME: 222 years

THE EARTHQUAKE CLOSEST TO THE SITE IS ABOUT 34.4 MILES (55.3 km) AWAY.

LARGEST EARTHQUAKE MAGNITUDE FOUND IN THE SEARCH RADIUS: 6.4

LARGEST EARTHQUAKE SITE ACCELERATION FROM THIS SEARCH: 0.062 g

COEFFICIENTS FOR GUTENBERG & RICHTER RECURRENCE RELATION:

a-value= 0.004

b-value= 0.288

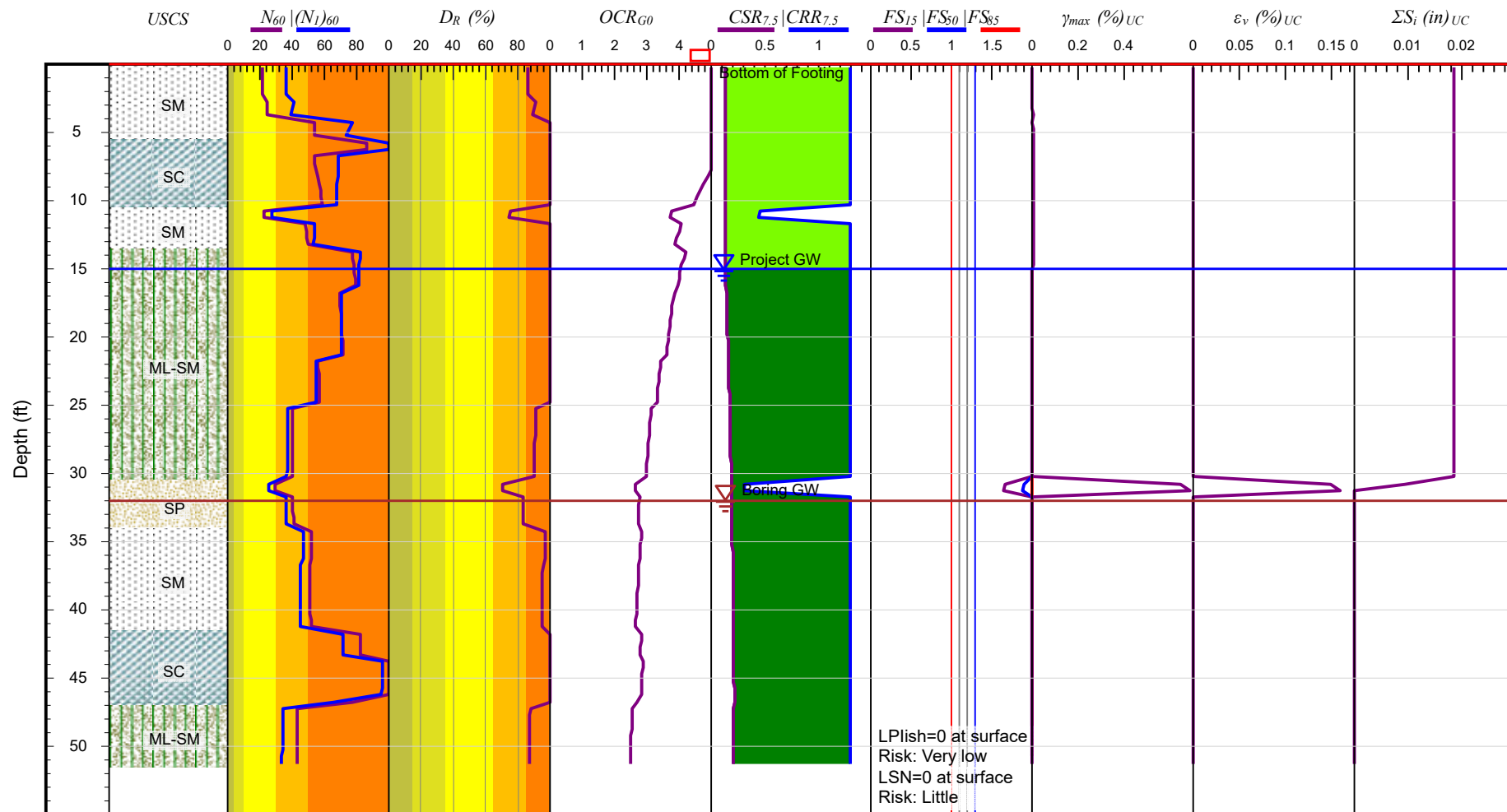
beta-value= 0.662

----- TABLE OF MAGNITUDES AND EXCEEDANCES: -----

Earthquake Magnitude	Number of Times Exceeded	Cumulative No. / Year
4.0	12	0.05405
4.5	12	0.05405
5.0	12	0.05405
5.5	7	0.03153
6.0	3	0.01351

APPENDIX D

R:\07202-00 through 07261-00 DSA\07261-01 Creekview Ranch Campus Expansion GER\4 - GER & Correspondence\Data & Analysis\GeoSuite\01-GW_15\GeoSuite_07261-01_D1-15.cav



Silt Correction:
UCLA method

Earthquake & Groundwater Information:
Magnitude = 7.28
Max. Acceleration = 0.24 g
Project GW = 15 ft
Max. Seismic Settlement = 0.02 in
Settl. @ Bottom of Footing = 0.02 in

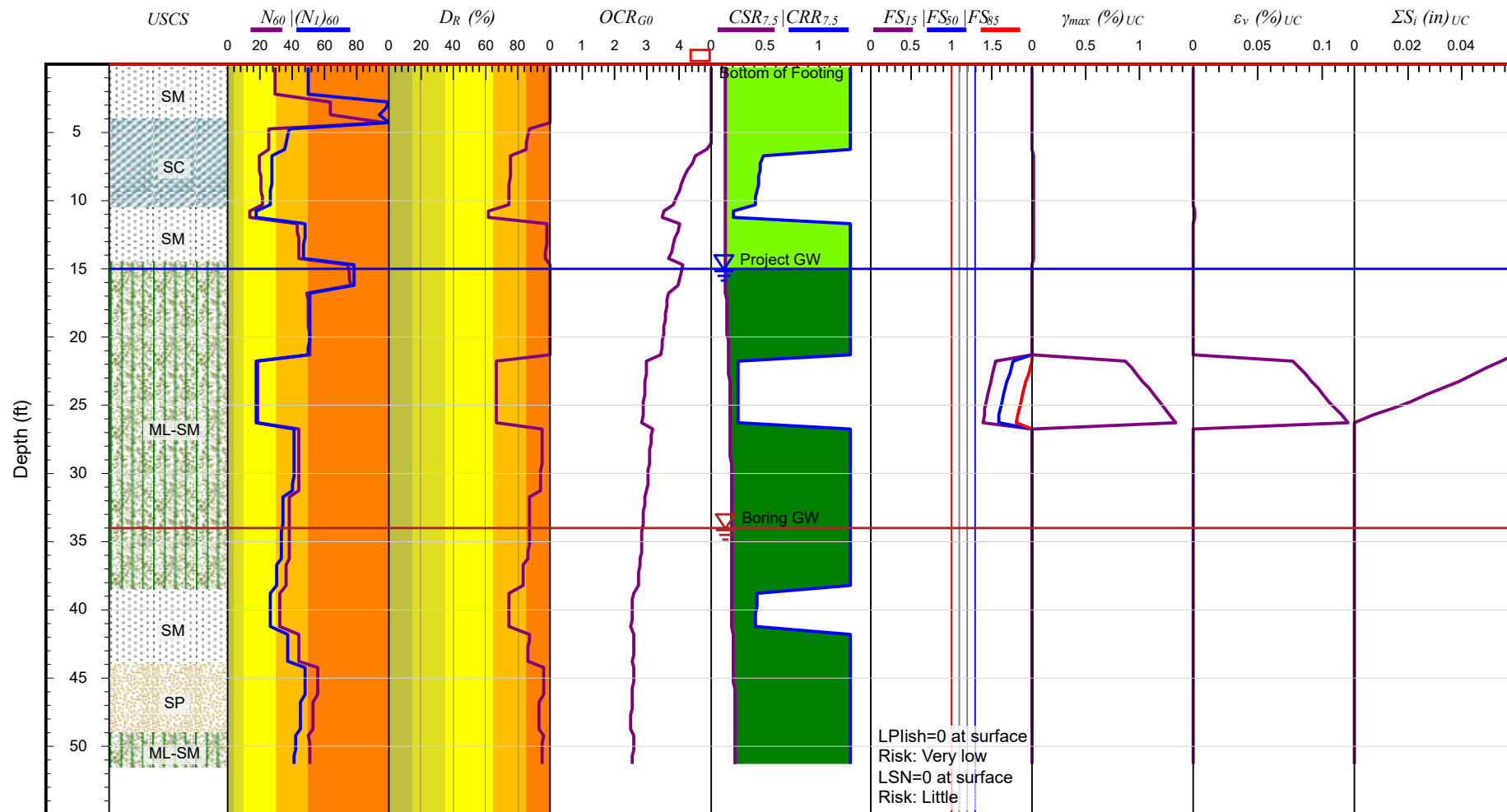
Liquefaction: Boulanger & Idriss (2010-16)
Settl.: [dry] UCLA (2008-14); [sat] Idriss & Boulanger (2008)
Lateral spreading: Idriss & Boulanger (2008)
M correction: [Sand] Boulanger & Idriss(2004)
 σ_v correction: Idriss & Boulanger (2008)
Stress reduction: Idriss & Boulanger (2008)

GeoSuite©+GeoLogs©+GeoPile©

Seismic Settlement Potential - SPT Data

Project:	Creekview Ranch Campus Expansion				
Location:	APN: 474-080-020-000				
Project No.:	07261-01	Boring No.:	D1	Figure:	D-1

R:\07202-00 through 07295-00 DSA\0726-01 Creekview Ranch Campus Expansion GER\4 - GER & Correspondence\Data & Analysis\GeoSuite\02-GW_15\GeoSuite_0726-01_D2-15.cav



Silt Correction:
UCLA method

Earthquake & Groundwater Information:
Magnitude = 7.28
Max. Acceleration = 0.24 g
Project GW = 15 ft
Max. Seismic Settlement = 0.06 in
Settl. @ Bottom of Footing = 0.06 in

Liquefaction: Boulanger & Idriss (2010-16)
Settl.: [dry] UCLA (2008-14); [sat] Idriss & Boulanger (2008)
Lateral spreading: Idriss & Boulanger (2008)
M correction: [Sand] Boulanger & Idriss(2004)
 σ_v correction: Idriss & Boulanger (2008)
Stress reduction: Idriss & Boulanger (2008)

GeoSuite©+GeoLogs©+GeoPile©

Seismic Settlement Potential - SPT Data

Project:	Campus Expansion at Creekview Ranch School				
Location:	APN 474-080-020-000				
Project No.:	07261-01	Boring No.:	D2	Figure:	D-2

APPENDIX E

REFERENCES

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APPENDIX F



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West Sacramento, CA 95691-2116
Office (916) 371-8234
Fax (916) 371-8283

September 23, 2025

Blackburn Consulting
2491 Boatman Avenue
West Sacramento, CA 95691

Subject: SPT – Hammer Energy Measurements
T 61
Yuba County, CA

Greetings:

This letter transmits the Standard Penetration Test (SPT) hammer energy efficiency on July 15 2025, using T 61 auto hammer. Energy measurements for this hammer were obtained in a manner consistent with ASTM D4633-10 using an SPT Analyzer manufactured by Pile Dynamics, Inc. The purpose was to obtain hammer energy measurements and determine hammer efficiency (normalized for 60% efficiency) during sampling.

Dynamic strain and acceleration measurements were obtained through two strain bridge pairs and two accelerometers affixed on a 2-foot-long section of AWJ rod. The AWJ rod was mounted on top of the string of rods and below the hammer. Strain and acceleration signals were conditioned and converted to force and velocity measurements using the SPT Analyzer.

The dynamic force and velocity data was converted to maximum transferred energy using the EFV method: $EFV = \int F(t) \cdot V(t) \cdot dt$. The integration is performed from when energy transfer begins to when the maximum energy occurs. This method is theoretically appropriate regardless of rod length, wave travel time, and the number of non-uniform rod connections. Energy transfer is then calculated as $ETR = EFV/PE$, where ETR is the energy transfer ratio, EVF is the energy transferred to the sampling rods, and PE is the theoretical potential energy.

The average hammer efficiency (ETR) on July 15, 2025, was 95% (based on an EFV of 333 ft- lbs). In accordance with the ASTM testing protocols employed, these results of energy measurement are specific to this hammer, on this date, at this location. A more general use and application of this data should only be made when based on specific professional engineering judgement.

We appreciate the opportunity to be of service.

Very Truly Yours,
Taber Drilling

Franklin Taber

Franklin Taber
GE 816



Attachments: Summary of Field Results, SPT Energy Measurements
SPT Analyzer Data, Per Drive Depth

Taber Exploration and Testing

7-15-y d

8.5

MJ

Interval start: 7/15/2025

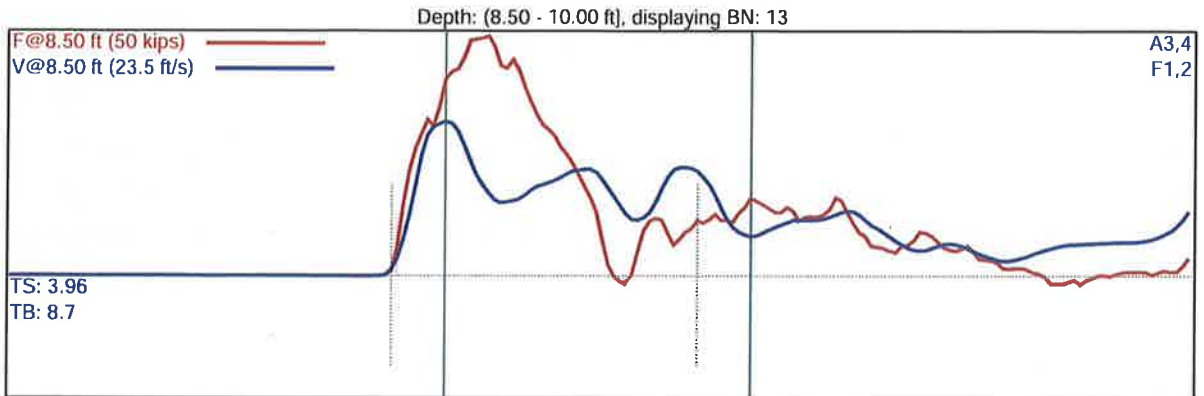
AR: 1.19 in²

SP: 0.492 k/ft³

LE: 8.50 ft

EM: 30000 ksi

WS: 16807.9 ft/s



F1 : [202AWJ2] 222.96 PDICAL (1) FF1
F2 : [202AWJ1] 224.03 PDICAL (1) FF1

A3 (PR): [K12925] 354.726 mv/6.4v/5000g (1) VF1
A4 (PR): [K12930] 443.745 mv/6.4v/5000g (1) VF1

FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute

EFV: Maximum Energy
ETR: Energy Transfer Ratio - Rated

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
1	5	48	15.9	1.9	305	87.1
2	5	50	15.5	33.1	304	87.0
3	5	48	15.8	33.2	308	88.0
4	5	50	15.9	33.0	308	88.0
5	5	50	15.8	33.1	301	85.9
6	5	51	15.6	33.1	310	88.6
7	5	50	15.8	33.0	310	88.5
8	5	50	15.8	33.1	305	87.1
9	5	50	15.7	33.1	308	88.1
10	5	48	14.7	33.1	301	85.9
11	5	49	14.9	33.1	307	87.6
12	5	49	15.0	33.0	309	88.2
13	5	49	14.8	33.2	321	91.7
14	5	48	14.8	33.1	317	90.5
15	5	50	14.5	33.1	325	92.9
Average		49	15.2	33.1	311	88.9
Std Dev		1	0.5	0.0	7	2.0
Maximum		51	15.8	33.2	325	92.9
Minimum		48	14.5	33.0	301	85.9

N-value: 10

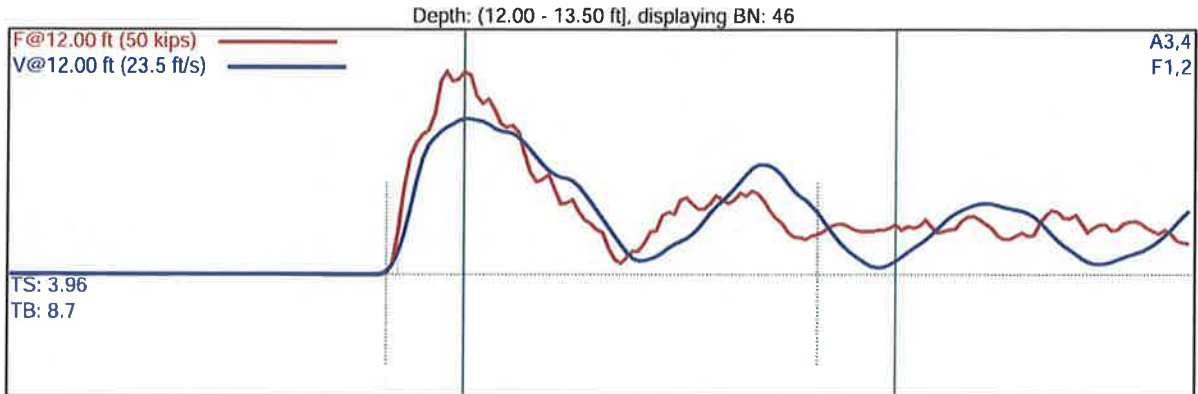
Sample Interval Time: 25.37 seconds.

7-15-d
MJ

8.5
Interval start: 7/15/2025

AR: 1.19 in²
LE: 12.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft³
EM: 30000 ksi



F1 : [202AWJ2] 222.96 PDICAL (1) FF1
F2 : [202AWJ1] 224.03 PDICAL (1) FF1

A3 (PR): [K12925] 354.726 mv/6.4v/5000g (1) VF1
A4 (PR): [K12930] 443.745 mv/6.4v/5000g (1) VF1

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
16	8	42	15.1	1.9	303	86.4
17	8	43	16.1	32.0	333	95.2
18	8	44	16.4	36.3	350	100.1
19	8	44	16.0	36.6	347	99.1
20	8	44	16.0	36.5	347	99.0
21	8	44	16.2	36.4	343	98.0
22	8	44	16.1	36.6	344	98.2
23	8	44	16.1	36.5	353	100.9
24	10	44	16.1	36.4	340	97.2
25	10	44	16.1	36.5	346	98.8
26	10	44	16.0	36.5	344	98.4
27	10	43	16.0	36.5	343	98.1
28	10	43	15.6	36.5	344	98.4
29	10	43	15.6	36.5	342	97.7
30	10	44	15.5	36.5	347	99.2
31	10	43	15.4	36.5	337	96.3
32	10	43	15.5	36.5	342	97.8
33	10	43	15.4	36.6	338	96.6
34	15	44	15.6	36.5	342	97.8
35	15	44	15.4	36.5	337	96.4
36	15	44	15.5	36.4	340	97.1
37	15	43	15.4	36.5	343	98.1
38	15	42	15.1	36.5	331	94.6
39	15	42	15.1	36.5	332	95.0
40	15	43	15.3	36.5	337	96.4
41	15	42	15.2	36.5	336	96.0
42	15	42	15.0	36.6	333	95.1
43	15	42	15.1	36.4	337	96.3
44	15	42	15.1	36.5	338	96.5
45	15	42	15.2	36.5	331	94.5
46	15	41	15.0	36.4	331	94.6
47	15	42	15.0	36.6	334	95.5

48	15	43	15.3	36.5	336	95.9
	Average	43	15.4	36.5	339	96.7
	Std Dev	1	0.3	0.1	5	1.4
	Maximum	44	16.1	36.6	347	99.2
	Minimum	41	15.0	36.4	331	94.5
		N-value: 25				

Sample Interval Time: 52.81 seconds.

7-15-d MJ

8.5

Interval start: 7/15/2025

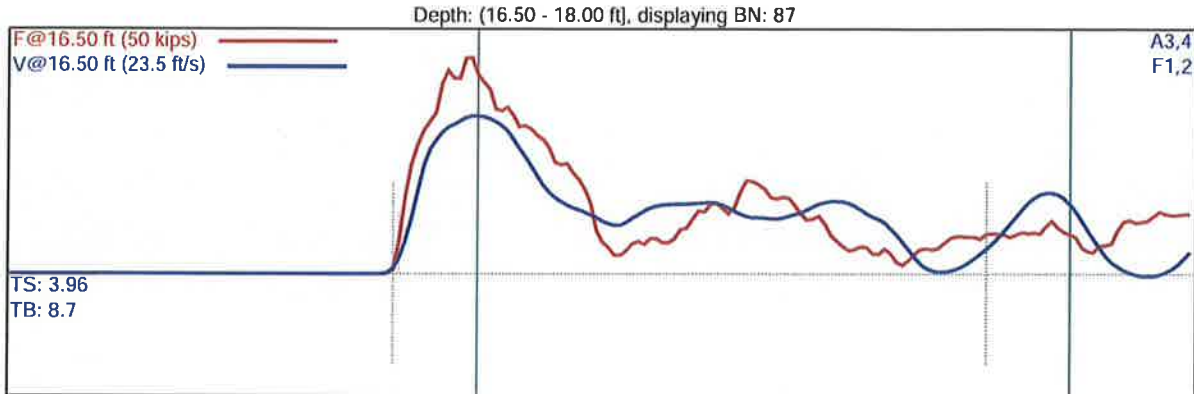
AR: 1.19 in²

SP: 0.492 k/ft³

LE: 16.50 ft

EM: 30000 ksi

WS: 16807.9 ft/s



F1 : [202AWJ2] 222.96 PDICAL (1) FF1
F2 : [202AWJ1] 224.03 PDICAL (1) FF1

A3 (PR): [K12925] 354.726 mv/6.4v/5000g (1) VF1
A4 (PR): [K12930] 443.745 mv/6.4v/5000g (1) VF1

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
49	10	27	10.4	1.9	128	36.4
50	10	44	16.6	32.7	348	99.4
51	10	44	16.5	36.7	352	100.5
52	10	44	16.6	36.8	342	97.6
53	10	43	16.5	36.9	339	96.8
54	10	44	16.6	36.9	333	95.0
55	10	44	16.8	36.8	341	97.5
56	10	44	16.6	36.8	336	96.1
57	10	44	16.4	37.0	339	96.8
58	10	44	16.3	36.7	344	98.4
59	14	43	16.1	36.9	344	98.4
60	14	44	16.1	36.9	347	99.1
61	14	45	16.0	37.1	342	97.9
62	14	45	15.7	36.9	340	97.1
63	14	47	16.0	36.7	357	102.0
64	14	47	15.9	36.8	356	101.6
65	14	47	15.8	37.0	356	101.7
66	14	46	15.9	36.8	348	99.5
67	14	46	15.8	36.8	342	97.6
68	14	44	15.5	36.9	341	97.4
69	14	45	15.9	36.8	345	98.6
70	14	43	15.7	36.8	340	97.1
71	14	45	15.7	36.9	344	98.2
72	14	46	15.9	36.8	348	99.4
73	17	46	15.7	36.9	350	100.0
74	17	45	15.6	36.8	343	98.0
75	17	47	15.5	36.8	356	101.8
76	17	46	15.4	36.8	346	98.9
77	17	46	15.3	36.9	345	98.7
78	17	44	15.0	36.8	349	99.8
79	17	45	14.9	36.8	350	100.1
80	17	45	15.4	36.8	355	101.3

81	17	45	15.3	36.8	350	100.0
82	17	44	14.7	36.9	340	97.2
83	17	45	15.0	36.8	347	99.2
84	17	44	15.0	36.9	358	102.2
85	17	45	15.0	36.8	349	99.9
86	17	44	14.8	36.9	348	99.5
87	17	44	15.2	36.9	345	98.7
88	17	44	14.6	36.7	345	98.7
89	17	44	14.6	36.8	337	96.3
Average		45	15.5	36.8	347	99.2
Std Dev		1	0.5	0.1	5	1.6
Maximum		47	16.1	37.1	358	102.2
Minimum		43	14.6	36.7	337	96.3
N-value: 31						

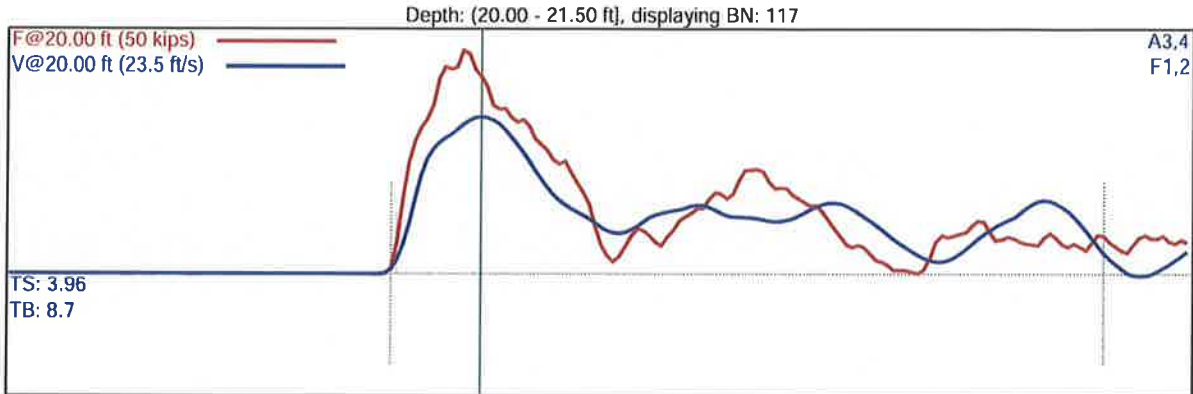
Sample Interval Time: 65.35 seconds.

7-15-d
MJ

8.5
Interval start: 7/15/2025

AR: 1.19 in²
LE: 20.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft³
EM: 30000 ksi



F1 : [202AWJ2] 222.96 PDICAL (1) FF1
F2 : [202AWJ1] 224.03 PDICAL (1) FF1

A3 (PR): [K12925] 354.726 mv/6.4v/5000g (1) VF1
A4 (PR): [K12930] 443.745 mv/6.4v/5000g (1) VF1

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
90	9	34	12.1	1.9	179	51.2
91	9	47	16.3	32.4	344	98.2
92	9	47	16.5	34.1	337	96.2
93	9	47	16.5	34.1	338	96.7
94	9	47	16.2	34.2	346	98.7
95	9	47	15.6	34.1	340	97.3
96	9	47	15.7	33.9	347	99.0
97	9	48	15.5	34.1	340	97.0
98	9	48	15.6	34.1	348	99.3
99	9	48	15.6	34.1	337	96.4
100	9	48	16.0	34.2	340	97.1
101	9	48	15.7	34.1	341	97.5
102	9	47	15.4	34.3	344	98.3
103	9	48	15.6	34.1	348	99.4
104	9	47	15.3	34.1	339	96.8
105	9	46	15.2	34.2	332	95.0
106	9	47	15.4	34.1	342	97.7
107	9	47	15.2	34.1	340	97.2
108	12	45	15.0	34.1	329	93.9
109	12	46	15.0	34.2	324	92.6
110	12	46	15.2	34.2	330	94.4
111	12	45	14.7	34.1	320	91.5
112	12	45	14.9	34.2	326	93.1
113	12	44	14.7	34.2	322	92.0
114	12	47	15.4	34.2	332	94.8
115	12	45	14.8	34.3	328	93.9
116	12	47	15.4	33.9	336	96.1
117	12	46	15.1	34.1	326	93.1
118	12	45	15.0	34.2	325	92.8
119	12	46	15.1	34.0	327	93.4

Average	46	15.2	34.1	333	95.1
Std Dev	1	0.3	0.1	8	2.2
Maximum	48	16.0	34.3	348	99.4
Minimum	44	14.7	33.9	320	91.5

N-value: 21

Sample Interval Time: 51.12 seconds.

7-15-d
MJ

8.5
Interval start: 7/15/2025

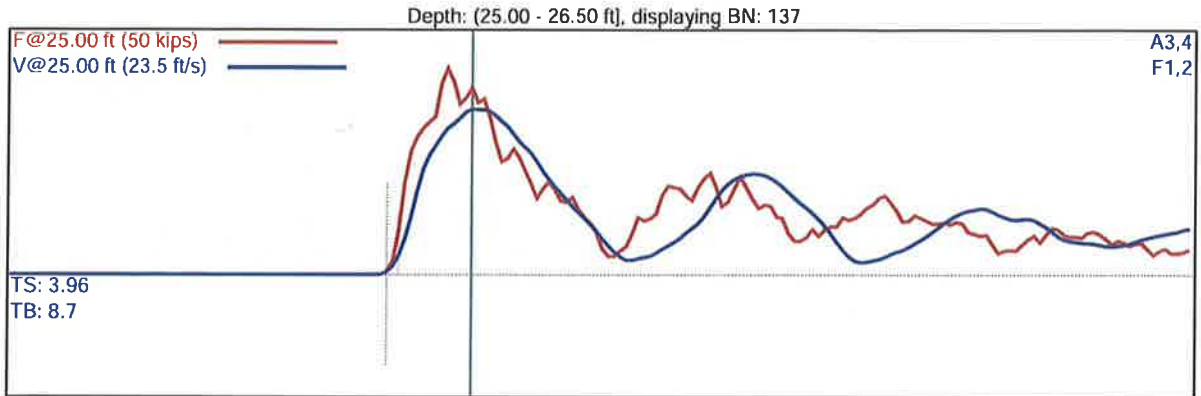
AR: 1.19 in²

SP: 0.492 k/ft³

LE: 25.00 ft

EM: 30000 ksi

WS: 16807.9 ft/s



F1 : [202AWJ2] 222.96 PDICAL (1) FF1
F2 : [202AWJ1] 224.03 PDICAL (1) FF1

A3 (PR): [K12925] 354.726 mv/6.4v/5000g (1) VF1
A4 (PR): [K12930] 443.745 mv/6.4v/5000g (1) VF1

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
120	5	38	13.5	1.9	224	63.9
121	5	45	16.2	31.3	322	91.9
122	5	47	16.4	36.8	326	93.1
123	5	46	16.3	36.9	322	92.0
124	5	46	16.3	36.9	317	90.6
125	7	46	16.2	36.9	309	88.3
126	7	46	16.2	36.9	322	91.9
127	7	45	16.3	36.8	325	92.9
128	7	45	16.2	36.9	324	92.6
129	7	43	16.0	36.9	311	88.8
130	7	45	16.5	37.0	321	91.8
131	7	46	16.5	36.8	327	93.4
132	8	45	16.2	36.8	315	89.9
133	8	46	16.2	36.8	315	90.1
134	8	46	16.1	36.9	312	89.2
135	8	43	15.8	37.0	311	88.8
136	8	42	15.7	36.8	314	89.6
137	8	42	15.9	36.9	321	91.6
138	8	46	16.5	36.8	323	92.4
139	8	43	16.3	36.9	319	91.1
Average		45	16.2	36.9	318	90.8
Std Dev		2	0.2	0.1	6	1.6
Maximum		46	16.5	37.0	327	93.4
Minimum		42	15.7	36.8	309	88.3

N-value: 15

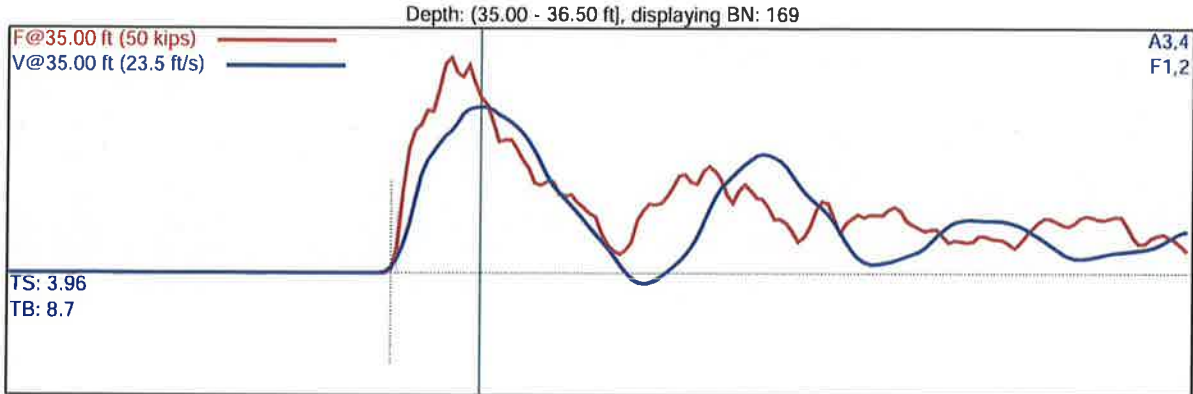
Sample Interval Time: 31.17 seconds.

7-15-d
MJ

8.5
Interval start: 7/15/2025

AR: 1.19 in²
LE: 35.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft³
EM: 30000 ksi



F1 : [202AWJ2] 222.96 PDICAL (1) FF1
F2 : [202AWJ1] 224.03 PDICAL (1) FF1

A3 (PR): [K12925] 354.726 mv/6.4v/5000g (1) VF1
A4 (PR): [K12930] 443.745 mv/6.4v/5000g (1) VF1

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
140	9	38	14.7	1.9	257	73.4
141	9	43	16.1	38.9	317	90.5
142	9	46	16.6	39.9	337	96.3
143	9	45	16.4	40.2	338	96.7
144	9	46	16.7	40.0	341	97.5
145	9	44	16.5	40.2	340	97.1
146	9	45	16.6	40.1	342	97.8
147	9	46	16.7	40.1	338	96.6
148	9	46	16.8	40.1	340	97.1
149	11	46	16.6	40.2	330	94.4
150	11	45	16.5	12.4	331	94.6
151	11	45	16.5	32.4	326	93.1
152	11	45	16.6	32.2	331	94.5
153	11	45	16.4	32.2	326	93.2
154	11	46	16.6	31.5	329	94.0
155	11	46	16.6	32.0	330	94.4
156	11	41	15.9	32.2	322	92.1
157	11	44	16.3	32.2	332	94.8
158	11	45	16.4	32.3	326	93.1
159	11	43	16.2	32.0	331	94.5
160	12	43	16.1	32.1	329	93.9
161	12	41	15.9	32.1	329	94.0
162	12	44	16.4	32.1	327	93.6
163	12	42	16.1	32.1	328	93.8
164	12	42	16.1	32.1	329	94.0
165	12	42	15.8	32.2	325	92.9
166	12	44	16.2	32.3	325	93.0
167	12	42	16.0	32.1	328	93.6
168	12	44	15.8	32.1	329	93.9
169	12	44	16.0	32.2	322	92.1
170	12	43	16.0	32.2	325	92.8
171	12	44	16.1	32.2	324	92.6

Average	44	16.2	31.6	328	93.6
Std Dev	1	0.3	4.4	3	0.8
Maximum	46	16.6	40.2	332	94.8
Minimum	41	15.8	12.4	322	92.1

N-value: 23

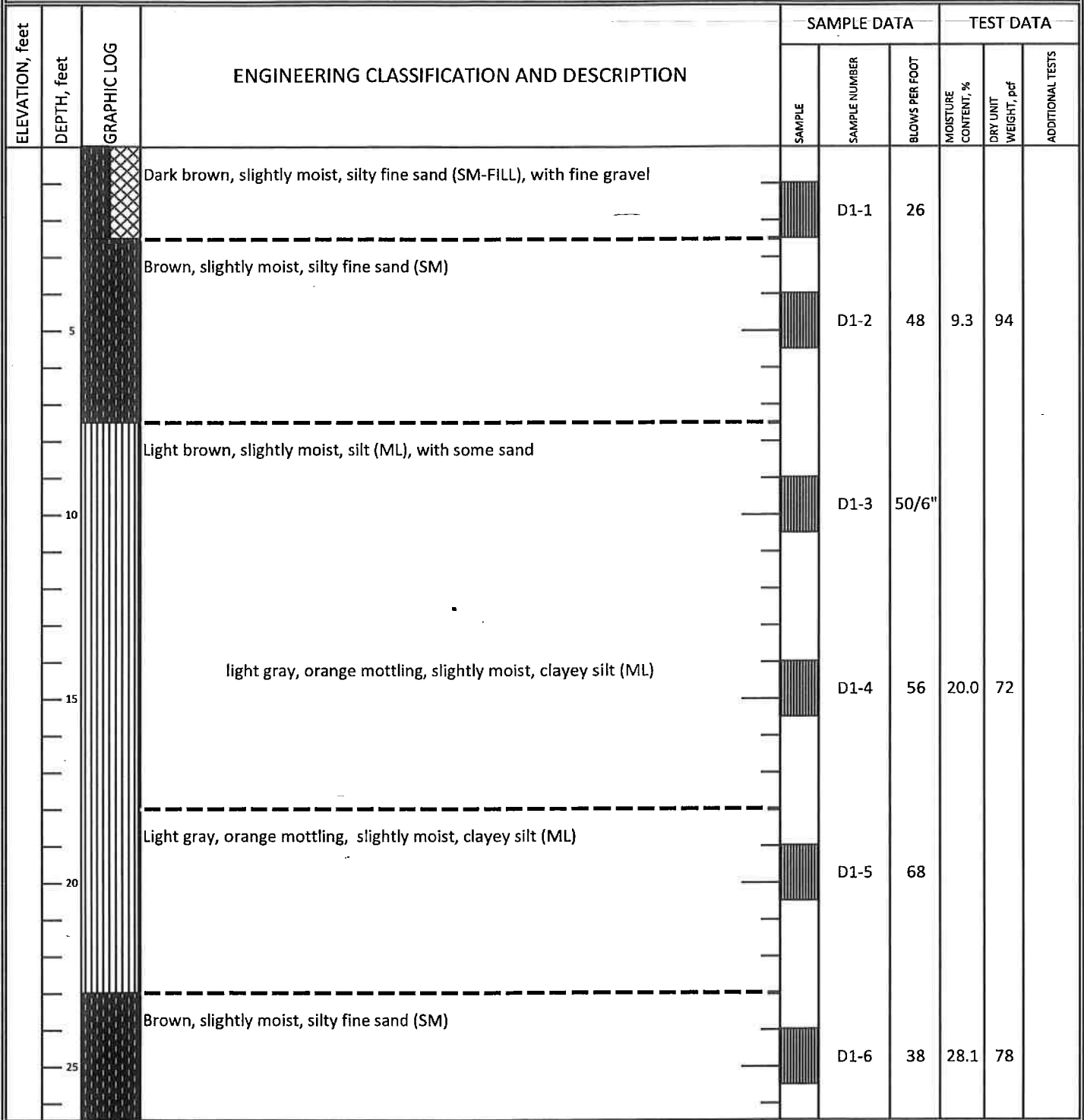
Sample Interval Time: 57.55 seconds.

Summary of SPT Test Results

Project: 7-15-d, Test Date: 7/15/2025				EFV: Maximum Energy				
FMX: Maximum Force				ETR: Energy Transfer Ratio - Rated				
VMX: Maximum Velocity								
BPM: Blows/Minute								
Instr. Length ft	Blows Applied /6"	N Value	N60 Value	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR %
8.50	5-5-5	10	15	49	15.2	33.1	311	88.9
12.00	8-10-15	25	39	43	15.4	36.5	339	96.7
16.50	10-14-17	31	49	45	15.5	36.8	347	99.2
20.00	9-9-12	21	33	46	15.2	34.1	333	95.1
25.00	5-7-8	15	23	45	16.2	36.9	318	90.8
35.00	9-11-12	23	36	44	16.2	31.6	328	93.6
Overall Average Values:				45	15.6	35.1	333	95.2
Standard Deviation:				2	0.5	2.8	13	3.6
Overall Maximum Value:				51	16.6	40.2	358	102.2
Overall Minimum Value:				41	14.5	12.4	301	85.9

APPENDIX G

Project: DCJESD Creekside Ranch New Classroom		LOG OF SOIL BORING D-1	
Project Location: 8779 Cook Riolo Road Roseville, California		Sheet 1 of 2	
MPE Number: 02834-05			
Date(s) Drilled 6/11/2018	Logged By MSO	Checked By	
Drilling Method Hollow Stem Augers	Drilling Contractor V&W Drilling	Total Depth of Drill Hole 51.5 Feet	
Drill Rig Type CME 75	Diameter(s) of Hole, inches 8 Inches	Approx. Surface Elevation, ft MSL +35 feet	
Groundwater Depth (Elevation), feet 30 feet	Sampling Method(s) 140 Lb Hammer/30" Drop	Drill Hole Backfill Neat Cement	
Remarks			

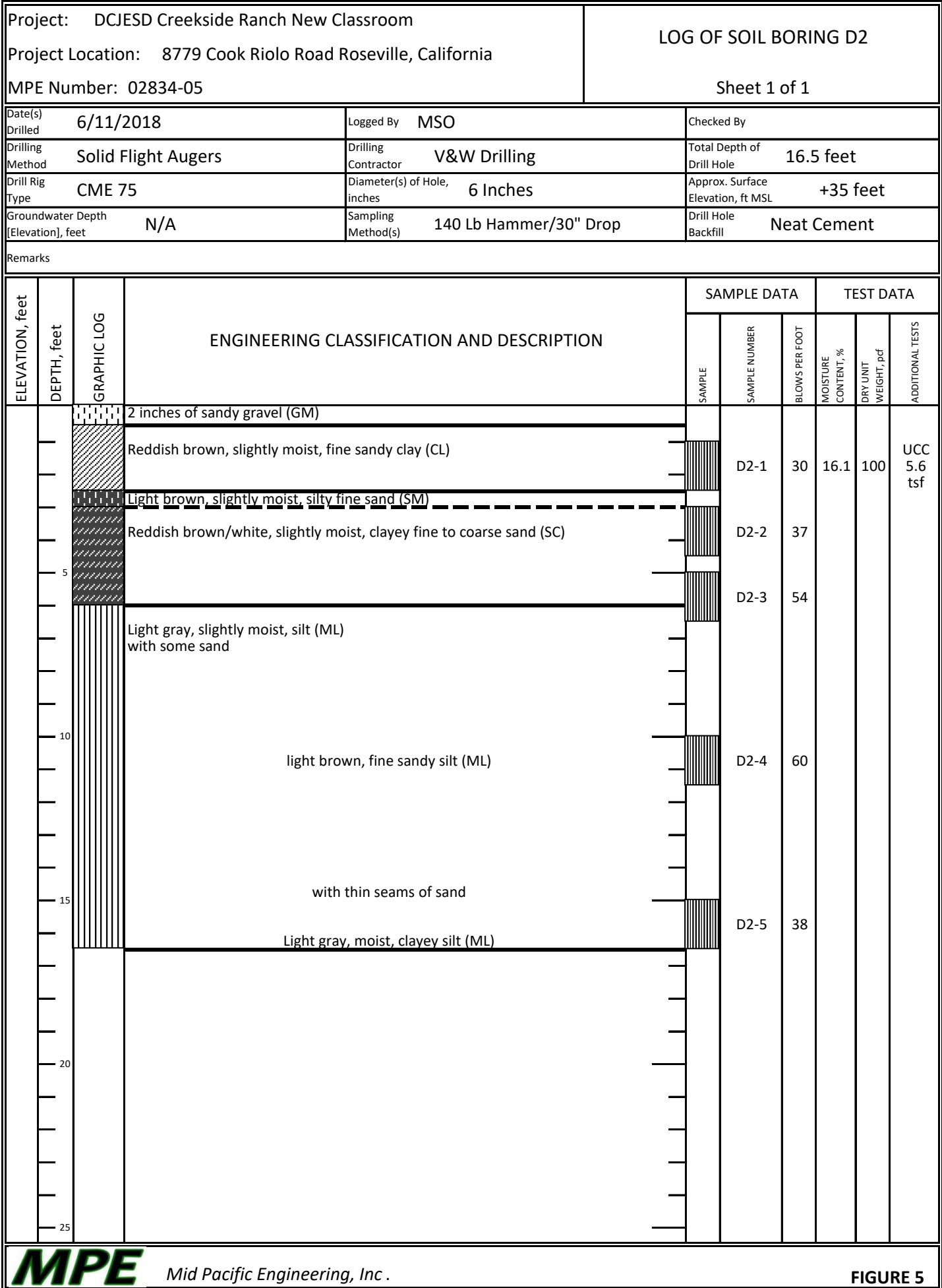


Project: DCJESD Creekside Ranch New Classroom Project Location: Roseville, California MPE Number: 02834-05	LOG OF SOIL BORING D-1 Sheet 2 of 2
--	---

Date(s) Drilled: 6/11/2018	Logged By: MSO	Checked By:
Drilling Method: Hollow Stem Augers	Drilling Contractor: V&W Drilling	Total Depth of Drill Hole: 51.5 Feet
Drill Rig Type: CME 75	Diameter(s) of Hole, inches: 8 INCHES	Approx. Surface Elevation, ft MSL: +35 feet
Groundwater Depth (Elevation), feet: 30 feet	Sampling Method(s): 140 lb hammer/30 inch drop	Drill Hole Backfill: Neat Cement

Remarks:

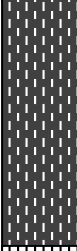
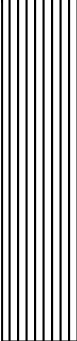
ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE	SAMPLE NUMBER	BLOWS PER FOOT	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			wet, orange mottling						
	30	▽			D1-7	20			%-200 47.6
		▽							
	35				D1-8	22	33.0	90	
	40		fine to medium sand		D1-9	27			%-200 18.0
			Brown, wet, clayey fine to medium sand (SC)						
	45				D1-10	59			
			Light brown, wet, fine sandy clay (CL)						
			Brown, wet, clayey fine to coarse sand (SC)						
	50				D1-11	30 1/2"			



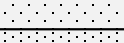
Project: DCJESD Creekview Ranch New Classroom	LOG OF SOIL BORING D3 Sheet 1 of 1
Project Location: 8779 Cook Riolo Road Roseville, California	
MPE Number: 02834-05	

Date(s) Drilled 6/11/2018	Logged By MSO	Checked By
Drilling Method Solid Flight Augers	Drilling Contractor V&W Drilling	Total Depth of Drill Hole 15 feet
Drill Rig Type CME 75	Diameter(s) of Hole, inches 6 Inches	Approx. Surface Elevation, ft MSL +35 feet
Groundwater Depth [Elevation], feet N/A	Sampling Method(s) 140 Lb Hammer/30" Drop	Drill Hole Backfill Cuttings

Remarks

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA			TEST DATA		
				SAMPLE	SAMPLE NUMBER	BLOWS PER FOOT	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Reddish brown, slightly moist, clayey sand (SC)		D3-1	23	12.8	107	
	5		Light brown, slightly moist, silty fine sand (SM)		D3-2	25			
			Brown, moist, fine sandy silt (ML)		D3-3	23	28.6	81	
	10		with thin seams of sand		D3-4	62			
	15		Light brown, slightly moist, clayey silt (ML)						
	20								
	25								

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	CODE	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS (More than 50% of coarse fraction > no. 4 sieve size)	GW		Well graded gravels or gravel - sand mixtures, little or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, little or no fines
		GM		Silty gravels, gravel - sand - silt mixtures
		GC		Clayey gravels, gravel - sand - silt mixtures
	SANDS (50% or more of coarse fraction < no. 4 sieve size)	SW		Well graded sands or gravelly sands, little or no fines
		SP		Poorly graded sands or gravelly sands, little or no fines
		SM		Silty sands, sand - silt mixtures
		SC		Clayey sands, sand clay mixtures
FINE GRAINED SOILS (More than 50% of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL ≥ 50	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils
ROCK		RX		Rocks, weathered to fresh
FILL		FILL		Artificially placed fill material

OTHER SYMBOLS

	= Drive Sample: 2-1/2" O.D. Modified California sampler
	= Hand Driven Sample
	= SPT Sampler
	= Initial Water Level
	= Final Water Level
	= Estimated or gradational material change line
	= Observed material change line
Laboratory Tests	PI = Plasticity Index
	EI = Expansive Index
	UCC = Unconfined Compression Test
	TR = Triaxial Compression Test
	GR = Gradation Analysis (Sieve)
	K = Permeability Test

GRAIN SIZE CLASSIFICATION

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 coarse (c) fine (f)	3" to No. 4	76.2 to 4.76
	3" to 3/4"	76.2 to 19.1
	3/4" to No. 4	19.1 to 4.76
SAND coarse (c) Medium (m) fine (f)	No. 4 to No. 200	4.76 to 0.074
	4 to No. 10	4.76 to 2.00
	No. 10 to No. 40	2.00 to 0.420
	No. 40 to No. 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

- ☒ Project has a geotechnical report or construction documents require special inspection by a geotechnical engineer.
☐ Project does NOT have and does NOT require a geotechnical report.

	TYPE	BY		TYPE	BY
S1 SOILS - GENERAL			C1 CAST-IN-PLACE CONCRETE		
☒ S1a: Site Preparation	Periodic	GE	☒ C1a: Mix Design	Continuous	SI
S2 COMPACTION AND FILL			☒ C1b: Reinforcing Steel	Test	LOR
☒ S2a: Fill Materials	Test	LOR*	☒ C1c: Concrete Material	Test	LOR
☒ S2b: Fill Placement	Continuous	GE*	☒ C1d: Strength Test	Test	LOR
☒ S2c: Compaction	Test	LOR*	☐ C1e: Batch Plant Inspection		SI
S3 DRIVEN DEEP FOUNDATIONS (PILES)			C2 PRESTRESSED CONCRETE		
☐ S3a: Materials and Members	Continuous	GE*	☐ C2a: Tendons and Anchorage	Test	LOR
☐ S3b: Pile Capacity	Test	LOR*	☐ C2b: Tendon Placement	Periodic	SI
☐ S3c: Driving Operations	Continuous	GE*	☐ C2c: Concrete Strength	Periodic	SI
☐ S3d: Pile Installation	Continuous	GE*	☐ C2d: Stressing Operations	Continuous	SI
☐ S3e: Specialty Piles	*	*	C3 PRECAST CONCRETE		
S4 CAST-IN-PLACE DEEP FOUNDATIONS (PIERS)			☐ C3a: General Fabrication	Continuous	SI
☒ S4a: Drilling Operations	Continuous	GE*	☐ C3b: General Erection	Periodic	SI*
☒ S4b: Pier Construction	Continuous	GE*	☐ C3c: Diaphragm Connections	Continuous	SI
☒ S4c: Bearing Strata	Continuous	GE*	☐ C3d: Diaphragm Tolerances	Periodic	SI
S5 RETAINING WALLS			C4 SHOTCRETE		
☐ S5a: Backfill Placement	Continuous	GE*	☐ C4a: Placement	Continuous	SI
☐ S5b: Soil Reinf. and Drainage	Continuous	GE*	☐ C4b: Shotcrete Material	Test	LOR
☐ S5c: Segmental Retaining Walls	Continuous	GE*	C5 POST-INSTALLED ANCHORS		
S6 OTHER SOILS			☒ C5a: Inspection	See notes	SI*
☐ S6a: Soil Improvement Test	Test	GE*	☒ C5b: Test	Test	LOR
☐ S6b: Soil Improvement Inspection	Continuous	GE*	C6 OTHER CONCRETE		
☐ S6c: Not used.	N/A	N/A	☐ C6a: Not used.	N/A	N/A
☐ S6d: Not used.	N/A	N/A	☐ C6b: Not used.	N/A	N/A
☐ S6e: Not used.	N/A	N/A	☐ C6c: Not used.	N/A	N/A
☐ S6f: Not used.	N/A	N/A	☐ C6d: Not used.	N/A	N/A
☐ S6g: Not used.	N/A	N/A	☐ C6e: Not used.	N/A	N/A
☐ S6h: Not used.	N/A	N/A	☐ C6f: Not used.	N/A	N/A
☐ S6i: Not used.	N/A	N/A	☐ C6g: Not used.	N/A	N/A
☐ S6j: Not used.	N/A	N/A	☐ C6h: Not used.	N/A	N/A
☐ S6k: Not used.	N/A	N/A	☐ C6i: Not used.	N/A	N/A
☐ S6l: Not used.	N/A	N/A	☐ C6k: Not used.	N/A	N/A
☐ S6m: Not used.	N/A	N/A	☐ C6l: Not used.	N/A	N/A
☐ S6n: Not used.	N/A	N/A	Not used.		

* See Appendix for additional information.

* See Appendix for additional information.

Project Name: **Creekview Ranch School**
School District: **Dry Creek Joint Elementary School District**

Application No.: **02-123892** Increment: **1**
File No.: **31-15**

LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

	TYPE	BY		TYPE	BY
M1 STRUCTURAL MASONRY f'm PSI:			S/A1 STEEL AND ALUMINUM		
☐ M1a: Mill Certificates - Reinf.	Periodic	SI*	☒ S/A1a: Material Identification	Periodic	*
☐ M1b: Material Certificates	Test	LOR	☒ S/A1b: Unidentified Material	Test	LOR
☐ M1c: Strength Test	Test	LOR	☒ S/A1c: Steel Fabrication	Periodic	SI
☐ M1d: Mortar Proportions	Periodic	SI	☐ S/A1d: Buckling Restrained Brace	Test*	LOR
☐ M1e: Grout Proportions	Periodic	SI	S/A2 HIGH-STRENGTH BOLTS		
☐ M1f: Batch Plant Inspection		SI	☒ S/A2a: Product Verification	Periodic	SI
☐ M1g: Core Tests	Test	LOR	☒ S/A2b: Bolts, Nuts, and Washers	Test	LOR
☐ M1h: Prisms	Continuous	SI	☒ S/A2c: Snug Tight	Periodic	SI
☐ M1i: Dowels and Supports	Periodic	SI	☒ S/A2d: Pretensioned / Slip-Critical	*	SI
☐ M1j: Reinforcement and Members	Periodic	SI	S/A3 WELDING		
☐ M1k: Reinforcement Placement	Continuous	SI	☒ S/A3a: Weld Material	Periodic	SI
☐ M1l: Grout Placement	Continuous	SI	☒ S/A3b: Certificate of Compliance	Periodic	SI
☐ M1m: Unit Layup and Joints	Periodic	SI*	☒ S/A3c: WPS and Qualifications	Periodic	SI
☐ M1n: Cold/Hot Weather Work	Periodic	SI	S/A4 SHOP WELDING		
☐ M1o: Anchors and Embeds	Continuous	SI	☒ S/A4a: Weld Category A	Continuous	SI
☐ M1p: Grout Cavity	Continuous	SI	☒ S/A4b: Weld Category B	Periodic	SI
M2 VENEER OR GLASS BLOCK PARTITIONS			☐ S/A4c: Stairs and Railing	Periodic	SI
☐ M2a: Mortar and Grout	Periodic	SI	☐ S/A4d: Reinf. Steel Weldability	Periodic	SI
☐ M2b: Unit Layup and Joints	Periodic	SI	☐ S/A4e: Reinforcing Steel	Continuous	SI
☐ M2c: Wires and Connector	Periodic	SI	S/A5 FIELD WELDING		
☐ M2d: Anchors and Embeds	Periodic	SI	☐ S/A5a: Weld Category A	Continuous	SI
☐ M2e: Cold/Hot Weather Work	Periodic	SI*	☐ S/A5b: Weld Category B	Periodic	SI
☐ M2f: Adhered Veneer Bond	Test	LOR	☐ S/A5c: End Welded Studs	Periodic	SI
M3 POST-INSTALLED ANCHORS			☐ S/A5d: Deck Welds	Periodic	SI
☐ M3a: Inspection	Varies*	SI*	☐ S/A5e: Cold-Formed Steel	Periodic	SI
☐ M3b: Test	Test	LOR	☐ S/A5f: Stairs and Railing	Periodic	SI
M4 OTHER MASONRY			☐ S/A5g: Reinf. Steel Weldability	Periodic	SI
☐ M4a: Not used.	N/A	N/A	☐ S/A5h: Reinforcing Steel	Continuous	SI
☐ M4b: Not used.	N/A	N/A	S/A6 NONDESTRUCTIVE TESTING		
☐ M4c: Not used.	N/A	N/A	☐ S/A6a: Ultrasonic	Test	LOR
☐ M4d: Not used.	N/A	N/A	☐ S/A6b: Magnetic Particle	Test	LOR
☐ M4e: Not used.	N/A	N/A	☐ S/A6c: Not used.	N/A	N/A
☐ M4f: Not used.	N/A	N/A	☐ S/A6d: Not used.	N/A	N/A
☐ M4g: Not used.	N/A	N/A	☐ S/A6e: Not used.	N/A	N/A
☐ M4h: Not used.	N/A	N/A	S/A7 STEEL JOISTS AND TRUSSES		
☐ M4i: Not used.	N/A	N/A	☐ S/A7a: Fabrication	Continuous	SI
☐ M4j: Not used.	N/A	N/A	S/A8 SPRAYED FIRE-RESISTANT MATERIALS		
☐ M4k: Not used.			☐ S/A8a: Surface and Installation	Periodic	SI
☐ M4l: Not used.			☐ S/A8b: Density	Test	LOR
☐ M4m: Not used.			☐ S/A8c: Bond: Adhesion/Cohesion	Test	LOR
* See Appendix for additional information.			* See Appendix for additional information.		

Project Name: **Creekview Ranch School**

School District: **Dry Creek Joint Elementary School District**

Application No.: **02-123892** Increment: **1**

File No.: **31-15**

LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

	TYPE	BY		TYPE	BY
S/A9 ANCHOR BOLTS AND ANCHOR RODS			X OTHER		
☒ S/A9a: Anchor Rods and Bolts	Test	LOR	☐ X01: Product Load Test*	Test	LOR
☐ S/A9b: Other Threaded Rods	Test	LOR	☐ X02: Non-HSB Installation Torque	Continuous	SI*
S/A10 STORAGE RACK SYSTEMS			☐ X03: Not used.	N/A	N/A
☐ S/A10a: Material Verification	Periodic	SI	☐ X04: Not used.	N/A	N/A
☐ S/A10b: Fabrication	Periodic	SI	☐ X05: Not used.	N/A	N/A
☐ S/A10c: Anchorage	Periodic	SI	☐ X06: Not used.	N/A	N/A
☐ S/A10d: Completed System	Periodic	SI*	☐ X07: Not used.	N/A	N/A
S/A11 OTHER STEEL AND ALUMINUM			☐ X08: Not used.	N/A	N/A
☐ S/A11a: Not used.	N/A	N/A	☐ X09: Not used.	N/A	N/A
☐ S/A11b: Not used.	N/A	N/A	☐ X10: Not used.	N/A	N/A
☐ S/A11c: Not used.	N/A	N/A	EXEMPTIONS		
☐ S/A11d: Not used.	N/A	N/A	Those items identified on the DSA-approved construction documents with a note indicating they are not part of the DSA approval or those items checked below are exempt from test and special inspection requirements. The project inspector shall verify all construction complies with the approved construction documents.		
☐ S/A11e: Not used.	N/A	N/A	☐ Soils: Eligible shallow foundation elements**.		
☐ S/A11f: Not used.	N/A	N/A	☐ Soils: Eligible deep foundation elements - type 1**.		
☐ S/A11g: Not used.	N/A	N/A	☐ Soils: Eligible deep foundation elements - type 2**.		
☐ S/A11h: Not used.	N/A	N/A	☐ Concrete/Masonry: Eligible post-installed anchors**.		
☐ S/A11i: Not used.	N/A	N/A	☒ Concrete: Batch plant inspection for items listed in and complying with CBC Section 1705A.3.3.2.		
☐ S/A11j: Not used.	N/A	N/A	☐ Concrete: Epoxy shear dowels in nonstructural slab-on-grade per CBC Section 1910A.5.4, Exception #4.		
W1 PREFABRICATED WOOD TRUSSES			☐ Concrete/Masonry: Reinforcing bar testing for items listed in and complying with CBC Section 1910A.2.		
☐ W1a: Open Web Truss Fabrication	Continuous	SI	☐ Masonry: Freestanding site walls and retaining walls per DSA IR 21-1.		
☐ W1b: Metal Plate Truss Fabrication	Continuous	SI	☐ Concrete: Eligible precast elements**.		
W2 MANUFACTURED WOOD ELEMENTS			☐ Welding: Eligible fences and gates**.		
☐ W2a: GL Timber Fabrication	Continuous	SI	☐ Welding: Eligible railing and ramps**.		
☐ W2b: CLT Fabrication	Continuous	SI	☐ Welding: Eligible interior cold-formed steel framing**.		
☐ W2c: Mass Timber Erection	Periodic	SI	☒ Welding: Eligible equipment curbs**.		
☐ W2d: Connections Type A	Periodic	SI	☒ Welding: Eligible components supporting MEP distribution systems**.		
☐ W2e: Connections Type B	Continuous	SI	☒ Welding: Eligible mounts and recreational equipment**.		
☐ W2f: Sealants	Periodic	SI	☐ Welding: Eligible nonstructural components**.		
W3 OTHER WOOD					
☐ W3a: Not used.	N/A	N/A			
☐ W3b: Not used.	N/A	N/A			
☐ W3c: Not used.	N/A	N/A			
☐ W3d: Not used.	N/A	N/A			
☐ W3e: Not used.	N/A	N/A			
☐ W3f: Not used.	N/A	N/A			
☐ W3g: Not used.	N/A	N/A			
☐ W3h: Not used.	N/A	N/A			
* See Appendix for additional information.			** See Appendix for eligibility requirements.		

Project Name: **Creekview Ranch School**
School District: **Dry Creek Joint Elementary School District**

Application No.: **02-123892** Increment: **1**
File No.: **31-15**

LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

IMPORTANT: This form is only a summary list of structural tests and some of the special inspections required for the project. Any items indicated on the approved construction documents with a note stating that the items are not part of the DSA approval are not considered in this form. Generally, the structural tests and special inspections noted on this form are those that will be performed by the Geotechnical Engineer of Record, Laboratory of Record, or Special Inspector. The actual complete test and inspection program must be performed as detailed on the DSA approved documents. The exemption appendix at the end of this form identifies work NOT subject to DSA requirements for special inspection or structural testing. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of nonstructural components, etc., per Title 24, Part 2, Chapter 17A.

Legend to TYPE and BY Columns:

Continuous - Indicates continuous special inspection is required.

Periodic - Indicates periodic special inspection is required.

Test - Indicates a test is required.

GE - Indicates special inspection shall be performed by a registered geotechnical engineer or his/her authorized representative, usually associated with the Laboratory of Record.

LOR - Indicates test or special inspection shall be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program (i.e., the Laboratory of Record for the project). See CAC Section 4-335.

PI - Indicates special inspection may be performed by a project inspector when specifically approved by DSA.

SI - Indicates special inspection shall be performed by an appropriately qualified/approved special inspector.

Required Verified Reports:

1. Soils Testing and Inspection: Form DSA 293
2. Structural Testing and Inspection: Form DSA 291
3. Shop Welding Inspection: Form DSA 291 or DSA 292
4. High-Strength Bolting Inspection: Form DSA 291 or DSA 292

Verified reports are required on the following DSA forms:

DSA 291: Laboratory of Record Verified Report

DSA 292: Special Inspectors Employed Directly by the District Verified Report

DSA 293: Geotechnical Verified Report

Note: To facilitate DSA electronic mark-ups and identification stamp application, DSA recommends against using secured electronic or digital signatures.

Name of Design Professional in General Responsible Charge:

Brian J. Maytum

Name of Structural Engineer of Record (when applicable):

N/A

Signature of Architect or Structural Engineer: **Date:**



5/28/2026

Project Name: Creekview Ranch School

School District: Dry Creek Joint Elementary School District

DSA STAMP

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 02-123892 INC: 1
REVIEWED FOR
SS ☒ FLS ☒ ACS ☒
DATE: 7/8/2026

Application No.: **02-123892** Increment: **1**
File No.: **31-15**

Appendix: LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

NOTE: Undefined sections and table references found in this appendix are from the CBC, or California Building Code

S1. GENERAL:	
Test or Special Inspection	Code References and Notes
S1a: Site Preparation Verify that: • Site has been prepared properly prior to placement of controlled fill and/or excavations for foundations. • Foundation excavations are extended to proper depth and have reached proper material. • Materials below footings are adequate to achieve the design bearing capacity.	* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) form for exemptions.)
S2. SOIL COMPACTION AND FILL:	
Test or Special Inspection	Code References and Notes
S2a: Fill Materials Perform classification and testing of fill materials.	* Under the supervision of the geotechnical engineer.
S2b: Fill Placement Verify use of proper materials, densities and inspect lift thicknesses, placement and compaction during placement of fill.	* By geotechnical engineer or his or her qualified representative. (Refer to specific items identified in the Appendix (end of this form) form for exemptions where soils SI and testing may be conducted under the supervision of a geotechnical engineer or LOR's engineering manager. In such cases, the LOR's form DSA 291 shall satisfy the soil SI and test reporting requirements for the exempt items.)
S2c: Compaction Compaction testing.	* Under the supervision of the geotechnical engineer. (Refer to specific items identified in the Appendix (end of this form) for exemptions where soils testing may be conducted under the supervision of a geotechnical engineer or LOR's engineering manager. In such cases, the LOR's form DSA 291 shall satisfy the soil test reporting requirements for the exempt items.)
S3. DRIVEN DEEP FOUNDATIONS (PILES):	
Test or Special Inspection	Code References and Notes
S3a: Materials and Members Verify pile materials, sizes and lengths comply with the requirements.	* By geotechnical engineer or his or her qualified representative.
S3b: Pile Capacity Determine capacities of test piles and conduct additional load tests as required.	* Under the supervision of the geotechnical engineer.
S3c: Driving Operations Inspect driving operations and maintain complete and accurate records for each pile.	* By geotechnical engineer or his or her qualified representative.

Project Name: **Creekview Ranch School**School District: **Dry Creek Joint Elementary School District**Application No.: **02-123892** Increment: **1**File No.: **31-15**

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S3d: Pile Installation Verify locations of piles and their plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and record any pile damage.	* By geotechnical engineer or his or her qualified representative.
S3e: Specialty Piles For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	* As defined on drawings or specifications.

S4. CAST-IN-PLACE DEEP FOUNDATIONS (PIERS):	
Test or Special Inspection	Code References and Note
S4a: Drilling Operations Inspect drilling operations and maintain complete and accurate records for each pier.	* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) for exemptions.)
S4b: Pier Construction Verify pier locations, diameters, plumbness, bell diameters (if applicable), lengths and embedment into bedrock (if applicable); record concrete or grout volumes.	* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) for exemptions.)
S4c: Bearing Strata Confirm adequate end strata bearing capacity.	* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) for exemptions.)

S5. RETAINING WALLS:	
Test or Special Inspection	Code References and Notes
S5a: Backfill Placement Placement, compaction and inspection of backfill.	1705A.6.1. * By geotechnical engineer or his or her qualified representative. (See section S2 above).
S5b: Soil Reinf. and Drainage Placement of soil reinforcement and/or drainage devices.	* By geotechnical engineer or his or her qualified representative.
S5c: Segmental Retaining Walls Segmental retaining walls; inspect placement of units, dowels, connectors, etc.	* By geotechnical engineer or his or her qualified representative. See DSA IR 18-2.

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S6 OTHER SOILS	
Test or Special Inspection	Code References and Notes
S6a Soil Improvements	Submit a comprehensive report documenting final soil improvements constructed, construction observation and the results of the confirmation testing and analysis to CGS (California Geological Survey) for final acceptance. * By geotechnical engineer or his or her qualified representative.
S6b Inspection of Soil Improvements	* By geotechnical engineer or his or her qualified representative.
S6c. Not used.	N/A
S6d. Not used.	N/A
S6e. Not used.	N/A
S6f. Not used.	N/A
S6g. Not used.	N/A
S6h. Not used.	N/A
S6i. Not used.	N/A
S6j. Not used.	N/A
S6k. Not used.	N/A
S6l. Not used.	N/A
S6m. Not used.	N/A
S6n. Not used.	N/A

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C1. CAST-IN-PLACE CONCRETE	
Test or Special Inspection	Code References and Notes
C1a: Mix Design Verify use of required design mix.	Table 1705A.3 Item 5, 1903A.5, 1903A.7, 1904A.1, 1904A.2, 1910A.1 ; ACI 318 Ch. 19, 26.4, 26.13.3.2.
C1b: Reinforcing Steel Identify, sample, and test reinforcing steel.	Table 1705A.3 Item 1, 1705A.3.9, 1908A.1, 1910A.2; ACI 318 Ch. 20 and Sections 25.2, 25.3, 25.5.1, 26.6.1; DSA IR 17-10 and BU 24-02. (See Appendix (end of this form) for exemptions.)
C1c: Concrete Material During concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	Table 1705A.3 Item 6, 1705A.3.9, 1905A.1.17; ASTM C31, ASTM C172; ACI 318 Sections 26.4, 26.5 & 26.12.
C1d: Strength Test Test concrete (f'_c).	1905A.1.17; ACI 318 Section 26.12.
C1e: Batch Plant Inspection Batch plant inspection: Continuous	Default of "Continuous" per 1705A.3.3. If approved by DSA, batch plant inspection may be reduced to "Periodic" subject to requirements in Section 1705A.3.3.1, or not required per 1705A.3.3.2. See IR 17-13. (See Appendix (end of this form) for exemptions.)

C2. PRESTRESSED / POST-TENSIONED CONCRETE (IN ADDITION TO SECTION C1):	
Test or Special Inspection	Code References and Notes
C2a: Tendons and Anchorage Sample and test prestressing tendons and anchorages.	1705A.3.4 Table 1705A.3 Item 1, 1910A.3; ACI 318 Ch. 20 and Sections 25.2, 26.6.1.
C2b: Tendon Placement Inspect placement of prestressing tendons.	1705A.3.4, Table 1705A.3 Items 1 & 9; ACI 318 Ch. 20 and Sections 25.2, 26.6.1-26.6.3.
C2c: Concrete Strength Verify in-situ concrete strength prior to stressing of post-tensioning tendons.	Table 1705A.3 Item 13; ACI 318 Sections 26.10.2, 26.11.2, 26.13.3.3. Special inspector to verify specified concrete strength test prior to stressing.
C2d: Stressing Operations Inspect application of post-tensioning or prestressing forces and grouting of bonded prestressing tendons.	1705A.3.4, Table 1705A.3 Item 9; ACI 318 Sections 26.10.2, 26.13.1, 26.13.3.2.

C3. PRECAST CONCRETE (IN ADDITION TO SECTION C1):	
Test or Special Inspection	Code References and Notes
C3a: General Fabrication 1. Inspect fabrication of precast concrete members. * 2. Inspect reinforcement of the following precast concrete elements or system(s): a. special moment frames. b. boundary elements of special structural walls. c. coupling beams.	1705A.3 Item 1, 7. See Appendix for exemptions. *May be periodic where fabrication occurs in a PCI-certified plant. For underground structures, NPCA plant certification is acceptable. PCI MNL-116-21; PCI MNL-117-13; NPCA Quality Control Manual (QCM) 17th Edition. See IR A-15.

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C3b: General Erection Inspect erection of precast concrete members.	Table 1705A.3 Item 10.
C3c: Diaphragm Connections For precast concrete diaphragm connections or reinforcement at joints classified as moderate or high deformability elements (MDE or HDE) in structures assigned to Seismic Design Category D, E or F, inspect such connections and reinforcement in the field for: 1. Installation of the embedded parts. 2. Completion of the continuity of reinforcement across joints. 3. Completion of connections in the field.	Table 1705A.3 Item 11.
C3d: Diaphragm Tolerances Inspect installation tolerances of precast concrete diaphragm connections for compliance with ACI 550.5.	Table 1705A.3 Item 12

C4. SHOTCRETE (IN ADDITION TO SECTION C1):	
Test or Special Inspection	Code References and Notes
C4a: Placement Inspect shotcrete placement for proper application techniques.	1705A.3.9, Table 1705A.3 Item 7, 1908A.1, 1908A.2, 1908A.3. See ACI 506.2 Section 3.4, and ACI 506R.
C4b: Shotcrete Material Sample and test shotcrete (f'_c).	1908A.2 and 1705A.3.9.

C5. POST-INSTALLED ANCHORS:	
Test or Special Inspection	Code References and Notes
C5a: Inspection Inspect installation of post-installed anchors	1617A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic), 1705A.3.8 (See Appendix (end of this form) for exemptions). ACI 318 Sections 26.7.2, 26.13.1, 26.13.3.2, 26.13.3.3. * May be performed by the project inspector when specifically approved by DSA.
C5b: Test Test post-installed anchors.	1910A.5. (See Appendix (end of this form) for exemptions.)

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C6. OTHER CONCRETE:	
Test or Special Inspection	Code References and Notes
C6a. Not used.	N/A
C6b. Not used.	N/A
C6c. Not used.	N/A
C6d. Not used.	N/A
C6e. Not used.	N/A
C6f. Not used.	N/A
C6g. Not used.	N/A
C6h. Not used.	N/A
C6i. Not used.	N/A
C6j. Not used.	N/A
C6k. Not used.	Not used.
C6l. Not used.	Not used.

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M1. STRUCTURAL MASONRY:	
Test or Special Inspection	Code References and Notes
M1a: Mill Certificates - Reinf. Mill certificate indicates compliance with requirements for reinforcement, anchors, ties, fasteners and metal accessories. See item C1(b) for identification, sampling and testing of reinforcing steel.	2103A.4; TMS 602-16 Article 1.5B.2 & 2.4. * To be performed by qualified LOR representative. Applicable testing by LOR. See IR 17-10 for unidentified reinforcing steel.
M1b: Material Certificates Producer's certificate of compliance for masonry units, mortar and grout materials.	1705A.4, 2103A.2, 2103A.3, 2103A.5; TMS 602 Articles 1.5B.2, 2.1, 2.2, 2.6A and 2.6B, and Table 6 footnote 3.
M1c: Strength Test Test masonry (f_m).	1705A.4. For Unit Strength: 2105A.3; TMS 602 Articles 1.4B.2, 1.5B.1 & 1.5B.2. For Prism (required when $f_m > 2000$ psi): 2105A.2; TMS 602 Articles 1.4B.3, 1.4B.4, 1.5B.1 & 1.5B.2.
M1d: Mortar Proportions Verify proportions or properties of site-prepared, premixed or preblended mortar.	TMS 602, Table 3 (row 5), Table 4 Item 1a. DSA PR 20-01. (See Appendix (end of this form) for exemptions.)
M1e: Grout Proportions Verify proportions or properties of site-prepared, premixed or preblended grout.	TMS 602, Table 3 (row 5), Table 4 Item 2d. (See Appendix (end of this form) for exemptions.)
M1f: Batch Plant Inspection Batch plant inspection: Periodic	Default of ' Continuous ' per 1705A.3.3 . If approved by DSA, batch plant inspection may be reduced to ' Periodic ' subject to requirements in Section 1705A.3.3.1 , or not required per 1705A.3.3.2 . See IR 17-13. Refer to TMS 602 Table 3 and Table 4, Item #3a. (See Appendix (end of this form) for exemptions.)
M1g: Core Tests Test core-drilled samples.	2105A.4. (See Appendix (end of this form) for exemptions.)
M1h: Prisms Inspect preparation of prisms.	TMS 602 Articles 1.4.B.3 & 1.4.B.4 & Table 4 Item 4.
M1i: Dowels and Supports Verify size, location and condition of all dowels, construction supporting masonry, etc.	
M1j: Reinforcement and Members Verify size, grade and type of reinforcement, connectors, and anchor bolts. Verify size and location of structural members.	TMS 602 Table 4, Items 1c & 3c.
M1k: Reinforcement Placement Inspect placement of reinforcement, anchor bolts, and connectors.	TMS 602 Table 4 Item 2c.
M1l: Grout Placement Placement, consolidation, and reconsolidation of grout.	TMS 602 Table 4 Item 3h.
M1m: Unit Layup and Joints Inspect placement of masonry units and construction of mortar joints.	TMS 602 Table 4 Item 3b.
M1n: Cold/Hot Weather Work Verify preparation, construction and protection of masonry during cold weather (temperature below 40° F) or hot weather (temperature above 90° F).	TMS 602 Table 4 Item 3f. * May be performed by the project inspector when specifically approved by DSA.
M1o: Anchors and Embeds Inspect type, size and location of anchors and all other items to be embedded in masonry including other details of anchorage of masonry	TMS 602 Table 4 Item 3d.

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to structural members, frames and other construction.	
M1p: Grout Cavity Inspect grout space, including mortar protrusions, prior to placement of grout.	TMS 602 Table 4 Item 2a.

M2. VENEER OR GLASS BLOCK PARTITIONS:	
Test or Special Inspection	Code References and Notes
M2a: Mortar and Grout Verify proportions of site prepared mortar and grout and/or verify certification of premixed mortar.	TMS 602 Table 3 (row 5) and Table 4 Items 1a & 2d.
M2b: Unit Layup and Joints Inspect placement of units and construction of mortar joints.	TMS 602 Table 4 Item 3b.
M2c: Wires and Connector Inspect placement of wire, connectors and anchors	TMS 602 Table 4 Item 2c.
M2d: Anchors and Embeds Inspect type, size and location of anchors and all other items to be embedded in masonry veneer including details of anchorage of masonry to veneer backing, frames and other construction.	TMS 602 Table 4 Item 3d.
M2e: Cold/Hot Weather Work Verify preparation, construction and protection of masonry during cold weather (temperature below 40° F) or hot weather (above 90° F).	TMS 602 Table 4 Item 3f. * May be performed by the project inspector when specifically approved by DSA.
M2f: Adhered Veneer Bond Test adhered veneer bond strength.	1410.2.1 (Field-constructed mock-up using specified unit, mortar, and substrate, laboratory tested in accordance with ASTM C1823).

M3. POST-INSTALLED ANCHORS IN MASONRY:	
Test or Special Inspection	Code References and Notes
M3a: Inspection Inspect installation of post-installed anchors	1617A.1.19, 1705A.4, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic); ACI 318 Section 26.13. * May be performed by the project inspector when specifically approved by DSA. (See Appendix (end of this form) for exemptions.)
M3b: Test Test post-installed anchors.	1705A.4, 1910A.5. (See Appendix (end of this form) for exemptions.)

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M4. OTHER MASONRY:	
Test or Special Inspection	Code References and Notes
M4a. Not used.	N/A
M4b. Not used.	N/A
M4c. Not used.	N/A
M4d. Not used.	N/A
M4e. Not used.	N/A
M4f. Not used.	N/A
M4g. Not used.	N/A
M4h. Not used.	N/A
M4i. Not used.	N/A
M4j. Not used.	N/A
M4k. Not used.	Not used.
M4l. Not used.	Not used.

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S/A1. STRUCTURAL STEEL, COLD-FORMED STEEL AND ALUMINUM USED FOR STRUCTURAL PURPOSES	
Test or Special Inspection	Code References and Notes
S/A1a: Material Identification Verify identification of all materials and: • Mill certificates indicate material properties that comply with requirements. • Material sizes, types and grades comply with requirements.	Table 1705A.2.1 Item 3a–3c. 2202A.1; AISI S100 Section A3.1 & A3.2, AISI S240 Section A3 & A5, AISI S220 Sections A4 & A6. *By special inspector or qualified technician when performed off-site.
S/A1b: Unidentified Material Test unidentified materials	2202A.1.
S/A1c: Steel Fabrication Verify and document steel fabrication per DSA- approved construction documents.	Not applicable to cold-formed steel light-frame construction, except for trusses (1705A.2.4).
S/A1d: Buckling Restrained Brace Verify and document steel fabrication per DSA-approved construction documents.	Testing and special inspections in accordance with IR 22-4. For DSA accepted fabrication shops, BRB manufacturer's Certificate of Compliance in lieu of testing and special inspections. See IR 22-4.

S/A2. HIGH-STRENGTH BOLTS:	
Test or Special Inspection	Code References and Notes
S/A2a: Product Verification Verify identification markings and manufacturer's certificates of compliance conform to ASTM standards specified in the DSA-approved documents.	Table 1705A.2.1 Items 1a & 1b, 2202A.1; AISC 360 Section A3.3, J3.1, and N3.2; RCSC Section 1.5 & 2.1; DSA IR 17-8 & DSA IR 17-9.
S/A2b: Bolts, Nuts, and Washers Test high-strength bolts, nuts and washers.	Table 1705A.2.1 Item 1c, 2213A.1; RCSC Section 7.2; DSA IR 17-8.
S/A2c: Snug Tight Bearing-type ("snug tight") connections.	Table 1705A.2.1 Item 2a, 1705A.2.6, 2204A.2; AISC 360 J3.1, J3.2, M2.5 & N5.6; RCSC Section 9.1; DSA IR 17-9.
S/A2d: Pretensioned / Slip-Critical Pretensioned and slip-critical connections.	Table 1705A.2.1 Items 2b & 2c, 1705A.2.6, 2204A.2; AISC 360 J3.1, J3.2, M2.5 & N5.6; RCSC Sections 9.2 & 9.3; DSA IR 17-9 **"Continuous" or "Periodic" depends on the tightening method used.

S/A3. WELDING:	
Test or Special Inspection	Code References and Notes
S/A3a: Weld Material Verify weld filler material identification markings per AWS designation listed on the DSA-approved documents and the WPS.	1705A.2.5, Table 1705A.2.1 Items 4 & 5; AWS D1.1 and AWS D1.8 for structural steel; AWS D1.2 for Aluminum; AWS D1.3 for cold-formed steel; AWS D1.4 for reinforcing steel; DSA IR 17-3.
S/A3b: Certificate of Compliance Verify weld filler material manufacturer's certificate of compliance.	DSA IR 17-3.
S/A3c: WPS and Qualifications Verify WPS, welder qualifications and equipment.	DSA IR 17-3.

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S/A4. SHOP WELDING (IN ADDITION TO SECTION S/A3):	
Test or Special Inspection	Code References and Notes
S/A4a: Weld Category A Inspect groove welds, multi-pass fillet welds, single pass fillet welds > 5/16", plug and slot welds.	Table 1705A.2.1 Items 5a.1–4; AISC 360 (and AISC 341 as applicable); DSA IR 17-3.
S/A4b: Weld Category B Inspect single-pass fillet welds ≤ 5/16", floor and roof deck welds.	1705A.2.2, Table 1705A.2.1 Items 5a.5 & 5a.6; AISC 360 (and AISC 341 as applicable); DSA IR 17-3.
S/A4c: Stairs and Railing Inspect welding of stairs and railing systems.	1705A.2.1; AISC 360 (and AISC 341 as applicable); AWS D1.1 & D1.3; DSA IR 17-3.
S/A4d: Reinf. Steel Weldability Verification of reinforcing steel weldability other than ASTM A706.	1705A.3.1; AWS D1.4; DSA IR 17-3. Verify carbon equivalent reported on mill certificates.
S/A4e: Reinforcing Steel Inspect welding of reinforcing steel.	Table 1705A.2.1 Item 5b, 1705A.3.1, Table 1705A.3 Item 2, 1903A.8; AWS D1.4; DSA IR 17-3.
S/A5. FIELD WELDING (IN ADDITION TO SECTION S/A3):	
Test or Special Inspection	Code References and Notes
S/A5a: Weld Category A Inspect groove welds, multi-pass fillet welds, single pass fillet welds > 5/16", plug and slot welds.	Table 1705A.2.1 Items 5a.1–4; AISC 360 (AISC 341 as applicable); DSA IR 17-3.
S/A5b: Weld Category B Inspect single-pass fillet welds ≤ 5/16".	Table 1705A.2.1 Item 5a.5; AISC 360 (AISC 341 as applicable); DSA IR 17-3.
S/A5c: End Welded Studs Inspect end-welded studs (ASTM A-108) installation (including bend test).	2213A.2; AISC 360 (AISC 341 as applicable); AWS D1.1; DSA IR 17-3.
S/A5d: Deck Welds Inspect floor and roof deck welds.	1705A.2.2, Table 1705A.2.1 Item 5a.6; AISC 360 (AISC 341 as applicable); AWS D1.3; DSA IR 17-3.
S/A5e: Cold-Formed Steel Inspect welding of structural cold-formed steel.	1705A.2.5; AWS D1.3; DSA IR 17-3. The quality control provisions of AISI S240 Chapter D shall also apply. * May be performed by the project inspector when specifically approved by DSA.
S/A5f: Stairs and Railing Inspect welding of stairs and railing systems.	1705A.2.1; AISC 360 (AISC 341 as applicable); AWS D1.1 & D1.3; DSA IR 17-3. * May be performed by the project inspector when specifically approved by DSA.
S/A5g: Reinf. Steel Weldability Verification of reinforcing steel weldability.	1705A.3.1; AWS D1.4; DSA IR 17-3. Verify carbon equivalent reported on mill certificates.
S/A5h: Reinforcing Steel Inspect welding of reinforcing steel.	Table 1705A.2.1 Item 5b, 1705A.3.1, Table 1705A.3 Item 2, 1903A.8; AWS D1.4; DSA IR 17-3.

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S/A6. NONDESTRUCTIVE TESTING:	
Test or Special Inspection	Code References and Notes
S/A6a: Ultrasonic Ultrasonic	1705A.2.1, Table 1705A.2.1 Item 4c, 1705A.2.5; AISC 341 J6.2, AISC 360 N5.5; AWS D1.1, AWS D1.8; DSA IR 17-2.
S/A6b: Magnetic Particle Magnetic Particle	1705A.2.1, Table 1705A.2.1 Item 4c, 1705A.2.5; AISC 341 J6.2, AISC 360 N5.5; AWS D1.1, AWS D1.8; DSA IR 17-2.
S/A6c: Not used.	N/A
S/A6d: Not used.	N/A
S/A6e: Not used.	N/A

S/A7. STEEL JOISTS AND TRUSSES:	
Test or Special Inspection	Code References and Notes
S/A7a: Fabrication Verify size, type and grade for all chord and web members as well as connectors and weld filler material; verify joist profile, dimensions and camber (if applicable); verify all weld locations, lengths and profiles; mark or tag each joist.	1705A.2.3, Table 1705A.2.3; AWS D1.1; DSA IR 22-3 for steel joists only. 1705A.2.4; AWS D1.3 for cold-formed steel trusses.

S/A8. SPRAYED FIRE-RESISTANT MATERIALS:	
Test or Special Inspection	Code References and Notes
S/A8a: Surface and Installation Examine structural steel surface conditions, inspect application, take samples, measure thickness and verify compliance of all aspects of application with DSA-approved documents.	1705A.15, 1705A.15.1, 1705A.15.2, 1705A.15.3, 1705A.15.4, 1705A.15.5, 1705A.15.6.
S/A8b: Density Test density.	1705A.15.1, 1705A.15.5, ASTM E605
S/A8c: Bond: Adhesion/Cohesion Bond strength adhesion/cohesion.	1705A.15.1, 1705A.15.6, ASTM E736

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S/A9. ANCHOR BOLTS AND ANCHOR RODS:	
Test or Special Inspection	Code References and Notes
S/A9a: Anchor Rods and Bolts Anchor Bolts and Anchor Rods	Identify, sample and test anchor bolts and anchor rods not meeting exemptions identified in Section 1 of IR 17-11.
S/A9b: Other Threaded Rods Threaded rod not used for foundation anchorage.	Identify, sample and test threaded rods not meeting exemptions identified in Section 1 of IR 17-11.

S/A10. STORAGE RACK SYSTEMS:	
Test or Special Inspection	Code References and Notes
S/A10a: Material Verification Materials used, to verify compliance with one or more of the material test reports in accordance with the approved construction documents.	Table 1705A.13.7
S/A10b: Fabrication Fabricated storage rack elements.	1704A.2.5; Table 1705A.13.7
S/A10c: Anchorage Storage rack anchorage installation.	ANSI/MH16.1 Section 7.3.2; Table 1705A.13.7
S/A10d: Completed System Completed storage rack system to indicate compliance with the approved construction documents.	Table 1705A.13.7; * May be preformed by the project inspector when specifically approved by DSA.

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S/A11. Other Steel	
Test or Special Inspection	Code References and Notes
S/A11a. Not used.	N/A
S/A11b. Not used.	N/A
S/A11c. Not used.	N/A
S/A11d. Not used.	N/A
S/A11e. Not used.	N/A
S/A11f. Not used.	N/A
S/A11g. Not used.	N/A
S/A11h. Not used.	N/A
S/A11i. Not used.	N/A
S/A11j. Not used.	N/A
S/A11k. Not used.	Not used.
S/A11l. Not used.	Not used.

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W1. PREFABRICATED WOOD TRUSSES:	
Test or Special Inspection	Code References and Notes
W1a: Open Web Truss Fabrication Inspect fabrication of manufactured open-web trusses.	1705A.5.6 ; DSA IR 23-8.
W1b: Metal Plate Truss Fabrication Inspect fabrication of manufactured metal-plate- connected trusses.	1705A.5.6, 1705A.5.7 ; DSA IR 23-4.
W2. MANUFACTURED WOOD STRUCTURAL ELEMENTS:	
Test or Special Inspection	Code References and Notes
W2a: GLS Timber Fabrication Inspect fabrication of structural glued-laminated timber.*	* See 1705A.5.5 for exceptions
W2b: CLT Fabrication Inspect fabrication of cross-laminated timber.	1705A.5.5
W2c: Mass Timber Erection Inspect erection of mass timber.	Table 1705A.5.3 , Item 2
W2d: Connections Type A Inspect mass timber connections with threaded fasteners, bolts, and/or adhesive anchors other than described in item e below. Inspect concealed mass timber connections.	Table 1705A.5.3 , Items 3.1, 3.3, 3.4, 3.5. For threaded fasteners: Verify use of proper installation equipment. Verify use of pre-drilled holes where required. Inspect screws, including diameter, length, head type, spacing, installation angle, and depth.
W2e: Connections Type B Inspect mass timber connections with adhesive anchors installed in a horizontal or upward orientation.	Table 1705A.5.3 , Item 3.2
W2f: Sealants Inspect application of sealants or adhesives applied to mass timber elements.	1705A.20

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Appendix: LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

W3. OTHER Wood:	
Test or Special Inspection	Code References and Notes
W3a. Not used.	N/A
W3b. Not used.	N/A
W3c. Not used.	N/A
W3d. Not used.	N/A
W3e. Not used.	N/A
W3f. Not used.	N/A
W3g. Not used.	N/A
W3h. Not used.	N/A
W3i. Not used.	N/A
W3j. Not used.	N/A
W3k. Not used.	Not used.
W3l. Not used.	Not used.

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X1. OTHER:	
Test or Special Inspection	Code References and Notes
X01. Load test for identified product(s):	1709A.2, 1709A.3. Testing is not required for: 1) a product with a valid evaluation service report per DSA IR A-5, or 2) a product that can be justified by structural calculation.
X02. Installation torque for non-HS bolts on communication tower identified as essential service facility projects (ESFP).	Calibrated wrench use required, verified by SI during installation. DSA Policy PL 18-01: Communication Towers, Poles and Buildings Utilized by State Agencies for Essential Services Communications. *EXCEPTION: Non-ESFP may use PI without need for notification to DSA.
X03. Not used.	N/A
X04. Not used.	N/A
X05. Not used.	N/A
X06. Not used.	N/A
X07. Not used.	N/A
X08. Not used.	N/A
X09. Not used.	N/A
X10. Not used.	N/A

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EXEMPTIONS

SOILS - EXEMPTIONS:

Soils: Eligible shallow foundation elements | Shallow foundations, are exempt from special inspections and testing by a Geotechnical Engineer for the following cases: A) buildings without a geotechnical report and meeting the exception Item #1 criteria in CBC Section 1803A.2 supported by native soil (any excavation depth) or fill soil (not exceeding 12" depth per CBC, Section 1804A.6), B) soil scarification/recompaction not exceeding 12" depth, C) native or fill soil supporting exterior non-structural flatwork (e.g., sidewalks, site concrete ramps, site stairs, parking lots, driveways, etc.), D) unpaved landscaping and playground areas, or E) utility trench backfill with depth not exceeding 12". These exempt structures shall be identified on the approved construction documents.

Soils: Eligible deep foundation elements, Type 1 | Deep foundation acting as cantilever footing with a design based on minimum allowable pressures per CBC Table 1806A.2 and without a geotechnical report are exempt from special inspection and testing by a Geotechnical Engineer for the following cases: A) free standing sign or scoreboard, B) cell or antenna towers and poles less than 35'-0" tall (e.g., lighting poles, flag poles, poles supporting open mesh fences, etc.). These exempt structures shall be identified on the approved construction documents.

Soils: Eligible deep foundation elements Type 2 | Deep foundation acting as cantilever footing with a design based on minimum allowable pressures per CBC Table 1806A.2 and without a geotechnical report are exempt from special inspection and testing by a Geotechnical Engineer for the following cases: A) single-story open fabric shade structure, or B) covered walkway structure with an apex height less than 10'-0" above adjacent grade. These exempt structures shall be identified on the approved construction documents.

CONCRETE/MASONRY - EXEMPTIONS:

Concrete/Masonry: Eligible post-installed anchors | Post-installed anchors for the following: A) exempt non-structural components (e.g., mechanical, electrical, plumbing equipment – see item 7 for "Welding" in the Appendix below) given in CBC Section 1617A.1.18 or B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding" in the Appendix below.

Concrete: Batch plant inspection for items listed in and complying with CBC Section 1705A.3.3.2. | Concrete batch plant inspection is not required for items given in CBC Section 1705A.3.3.2 subject to the requirements and limitations in that section.

Concrete: Epoxy shear dowels in nonstructural slab-on-grade per CBC Section 1910A.5.4, Exception #4. | Epoxy shear dowels in site flatwork and/or other nonstructural concrete.

Concrete/Masonry: Reinforcing bar testing for items listed in and complying with CBC Section 1910A.2. | Testing of reinforcing bars is not required for items given in CBC Section 1910A.2 subject to the requirements and limitations in that section. These exempt structures shall be identified on the approved construction documents.

Masonry: Freestanding site walls and retaining walls per DSA IR 21-1. | Freestanding and site retaining masonry walls may be exempt from certain DSA masonry testing and special inspection items as allowed per DSA IR 21-1.

Eligible precast elements | Structural tests and special inspections are not required for the following concrete precast elements. Provide a certificate of compliance at delivery. Exemptions shall be identified on the approved construction documents.

1. Underground vaults no greater than 5 feet x 5 feet x unlimited height and pipe manufactured to an ASTM standard, 5 foot or less in diameter.
2. Elements manufactured in a PCI or NPCA certified manufacturing plant:

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Appendix: LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

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|----|---|
| A. | Underground vaults no greater than 16 feet in both length and width, of unlimited height, not subject to loading greater than HS 20-44. |
| B. | Pipe. |
| C. | Stair treads, landing planks. |

WELDING - EXEMPTIONS:

Welding: Eligible fences and gates | Fences, gates with maximum leaf span of 10', and gates with a maximum rolling section of 10' all having an apex height less than 8'-0" above lowest adjacent grade.

Welding: Eligible railing and ramps | Handrails, guardrails, and modular or relocatable ramps associated with walking surfaces less than 30" above adjacent grade; fillet welds shall not be ground flush.

Welding: Eligible interior cold-formed steel framing | Non-bearing non-shearwall interior cold-formed steel framing spanning less than 15'-0" in height and header less than 10'-0" in opening width, such as in interior partitions, interior soffits, etc.

Welding: Eligible equipment curbs | Manufactured support frames and curbs using hot rolled or cold-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment weighing less than 2000# (equipment only) (connections of such frames to superstructure elements using welding will require special inspection.)

Welding: Eligible components supporting MEP distribution systems | Manufactured components (e.g., Tolco, B-Line, Afcon, etc.) for mechanical, electrical, or plumbing hanger support and bracing (connections of such components to superstructure elements using welding will require special inspection.)

Welding: Eligible mounts and recreational equipment | TV Brackets, projector mounts with a valid listing (see DSA IR A-5) and recreational equipment (e.g., playground structures, basketball backstops, etc.) (connections of such elements to superstructure elements using welding will require special inspection.)

Welding: Eligible nonstructural components | Any support for exempt non-structural components given in CBC Section 1617A.1.18 meeting the following: A) when supported on a floor/roof, <400# or resulting composite center of mass (including component's center of mass) $\leq 4'$ above supporting floor/roof, B) when hung from a wall or roof/floor, and <20# for discrete units or <5 plf for distributed systems.

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