April 29, 2021

NOTICE TO ALL BIDDERS

Re: **College Center Expansion – Building 600**
RFP No 20-21-17
Addendum #4

RFI Questions and Response

1. **Question**: Can you tell me what the Engineers Estimate is?
   Response: The District prefers to not disclose this information.

2. **Question:** Edwards EST3 Voice/System is an Acceptable Manufacturer of Approve Equivalent. Please note ENKO Systems is an Edwards Authorized U.L listed Fire & Life safety strategic partner.
   Response: See attached for response to this RFI

3. **Question:** Confirm if a new data wall mount rack enclosure cabinet will be required.
   Response: See attached for response to this RFI

4. **Question:** Is there a Hazardous Material Report for this project? Will there be abatement required?
   Response: The District does not have a Hazardous Material Report for this facility. If any abatement is required it will be performed by separate contract.

5. **Question:** Is there a Soils Report for this project?
   Response: See attached Geotechnical Report dated September 16, 2021

6. **Question:** Is there a possibility of increasing the project duration to reduce the need for overtime?
   Response: Project schedule fixed as of now. The District will keep to the schedule unless a major unforeseen circumstance occurs.

7. **Question:** Please provide a Bid Form that will accommodate the 2 Bid Alternates.
   Response: See attached form

8. **Question:** May we only provide the Name, Trade and License Number on Bid Day? The Subcontractor List would be completed in its entirety and submitted within 24 Hours. **Response:** The subcontractor list constitutes a complete package. Any submittal that does not include the subcontractor list will be deemed incomplete. Incomplete, inaccurate, or untrue responses or information provided therein by a Bidder shall be grounds for the District to reject such Bidder's Bid Proposal for non- responsiveness.

9. **Question:** On Sheet G0.02 callout 21/A1.02 was eliminated, is there any work in this area?

Detail 21 on Sheet A1.02 was changed removing (N) for the new concrete ramp symbol. As drawn, are we to replace truncated dome panel, install a sign and stripe the area. Please be specific.
Response: The call out 21/A1.02 on sheet G0.02 was added back into the drawings and the detail was modified on the attached revised Addendum 1 (ADD_01_V2).

10. **Question:** The Keynotes on sheet A3.01 were deleted in Addendum 1. Note 05.13 is missing from the original this.
    Response: See added keynotes on the attached revised Addendum 1 (ADD_01_V2).

11. **Question:** Page A6.04 has callouts for the Drop Ceiling Details on A10.03 which has not been provided.
    Response: See sheet A10.03 on the attached revised Addendum 1 (ADD_01_V2).

12. **Question:** Sheet A9.01 Note #4 refers to window alternates on Sheet A2.01, is this applicable to this project?
    Response: Delete note 4 from Storefront Schedule Notes listed on sheet A9.02.

13. **Question:** Spec Section 08 41 13 – Aluminum-framed Entrances and Storefronts is missing in the project manual
    Response: See the attached specification section requested above.

Document Additions, Revisions and Clarifications

A. Addendum 1 has been submitted and reviewed by DSA. Attached is version 2 (ADD_01_V2) submitted to DSA for review based on DSA's original comments ADD_01-_V2 shall replace ADD_01_V1 in the bid documents.

B. Add the following specifications to the Project Manual
   01 45 24 - Import Materials Testing
   08 41 13 - Aluminum-Framed Entrances and Storefronts

C. Add note 3 to the Plot Plan Notes on sheet A1.01 and detail 7/A1.02; "Reference the Geotechnical Report dated September 16, 2021 for subgrade preparation for all new site concrete.

END OF ADDENDUM #4

ENKO SYSTEMS

1001 SOUTH ARROWHEAD AVE.
SAN BERNARDINO, CA 92408
PHONE (909) 885-7771
FAX (909) 885-7773
CONTRACTOR LIC. # 691828 C-7, C-10/DIR#1000001947
ALARM LIC. # ACO 1739

REQUEST FOR INFORMATION

Date: 4/16/2021

Page # 1 of 1 pages.

Job Number: **RFI# 001**

To:
Imperial Valley College
380 E Aten RD
Imperial, CA 92251

Attn: Joe Jackson

Phone: (760) 355-6235

Job Name / Location:
B600 Expansion Project Number 20-21-17
380 E Aten Rd
Imperial, CA 92251

Fax Phone:

Information Requested: **Edwards EST3 Voice/System is an Acceptable Manufacturer or Approve Equivalent.**
Please note ENKO Systems is an Edwards Authorized U.L listed Fire & Life safety Strategic partner.

28 31 00 Fire Detection and Alarm

1.8 ACCEPTABLE MANUFACTURER

A. All fire alarm system devices and equipment shall be manufactured by [Manufacturer] or approved equivalent. No other manufacturers will be accepted.

B. All equipment, materials, accessories, devices, etc. covered by the specifications and/or noted on the contract drawings shall be new and unused and be U.L. listed for their

NAME (PRINT OR TYPE) Roger Molina **DATE:** 4/16/2021

Information Reply:

Reviewed and Edward EST3 Voice/System is acceptable. Please ensure that all the necessary contract document requirements are met.

Please be aware: This change in manufacturer will likely drive a DSA construction change directive (CCD) as the systems are not one-for-one interchangeable; with associated costs impacts.

-Pannee Chakma, Rex Wang
LEAF Engineers
04/26/2021

NAME (PRINT OR TYPE) _____ DATE _____

SIGNATURE _____

601 N.W. Loop 410, Suite: 460
San Antonio, Texas 78216 USA
Phone: 210.638.7200
Fax: 210.829.0578

Request for Information

Project: Imperial Valley College **RFI No.:** 002

LEAF Project No.: 20190 **Date:** 4/26/2021

RFI from Contractor:
Information Requested: Confirm if a new Data wall mount rack enclosure cabinet will be required
Please advise.

LEAF Response:

The current IDF has no space for a new rack. The contractor will provide a new patch panel and coordinate the new cabling termination with the owner's IT department.

Response by: Anthony Cruz **Date:** 4/26/2021

cc: File

ENKO SYSTEMS

1001 SOUTH ARROWHEAD AVE.
SAN BERNARDINO, CA 92408
PHONE (909) 885-7771
FAX (909) 885-7773
CONTRACTOR LIC. # 691828 C-7, C-10/DIR#1000001947
ALARM LIC. # ACO 1739

REQUEST FOR INFORMATION

Date: 4/16/2021

Page # 1 of 1 pages.

Job Number: **RFI# 002**

To:
Imperial Valley College
380 E Aten RD
Imperial, CA 92251

Attn: Joe Jackson

Phone: (760) 355-6235

Fax Phone:

Job Name / Location:
B600 Expansion Project Number 20-21-17
380 E Aten Rd
Imperial, CA 92251

Information Requested: Confirm if a new Data wall mount rack enclosure cabinet will be required

7 INDICATES THE APPROXIMATE LOCATION OF THE EXISTING MDF/IDF. ALL SYSTEM CABLING SHALL BE RUN BACK TO THIS POINT AND BE TERMINATED IN COORDINATION WITH THE OWNER'S IT DEPARTMENT.

Please advise.

NAME (PRINT OR TYPE) Roger Molina **DATE:** 4/16/2021

Information Reply:

The current IDF has no space for a new rack. The contractor will provide a new patch panel and coordinate the new cabling termination with the owner's IT department.

NAME (PRINT OR TYPE) _____ DATE _____

SIGNATURE _____

Geotechnical Report

600 Building Expansion
Imperial Valley College
Imperial, California

Prepared for:

Imperial Community College District
380 East Aten Road
Imperial, CA 92251

Prepared by:

Landmark Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243
(760) 370-3000

September 2020

LANDMARK
Geo-Engineers and Geologists

780 N. 4th Street
El Centro, CA 92243
(760) 370-3000
landmark@landmark-ca.com

77-948 Wildcat Drive
Palm Desert, CA 92211
(760) 360-0665
gchandra@landmark-ca.com

September 16, 2020

Mr. Joe Jackson
Imperial Community College District
380 East Aten Road
Imperial, CA 92251

Geotechnical Report
600 Building Expansion
Imperial Valley College
380 East Aten Road
Imperial, California
LCI Report No. LE20129

Dear Mr. Jackson:

Attached hereto is our geotechnical report for the proposed 3,208 square-foot addition to the 600 Building located on the southwestern portion of the Imperial Valley College campus located at 380 East Aten Road in Imperial, California. Our geotechnical investigation was conducted in response to your request for our services. The enclosed report describes our soil engineering investigation and presents our professional opinions regarding geotechnical aspects for design and construction of the project.

This executive summary presents ***selected*** elements of our findings and professional opinions only. It ***does not*** present all details needed for the proper application of our findings and professional opinions. Our findings, professional opinions, and application options are related ***only through reading the full report***, and are best evaluated with the active participation of the engineer of record who developed them.

The findings of this study are summarized below:

- The soils at the building addition site consists of silty clay (CL) of medium expansion potential.

- The proposed footings may be supported on compacted granular fill soils

- The clay soils are aggressive to concrete and steel. Concrete mixes should have a maximum water cement ratio of 0.45 and a minimum compressive strength of 4,500 psi (minimum of 6 sacks Type V cement per cubic yard).

- All reinforcing bars, anchor bolts and hold down bolts should have a minimum concrete cover of 3.0 inches unless epoxy coated (ASTM D3963/A934). Hold-down straps are not allowed at the foundation perimeter.

- Evaluation of liquefaction potential at the site indicates that isolated, interbedded sandy silt to silty sand layers at depths of 8½ to 50 feet may liquefy under seismically induced groundshaking, potentially resulting in approximately ¾ inch of deep-seated settlement. About 8 to 12 feet of non-liquefiable soils overlie the potentially liquefiable soil layer; therefore, there is a low to moderate probability of rapid deformation or punching bearing failures of the surface soils should liquefaction occur. The potential for generalized liquefaction is low. Deep foundations or deep soil improvement is not required at this project site.

The site is suitable for the proposed building addition, provided the professional opinions expressed in this report are implemented in the design and construction of this project.

We appreciate the opportunity to provide our professional services. If you have any questions or comments regarding our findings, please call our office at (760) 370-3000.

Respectfully Submitted,
Landmark Consultants, Inc.

Susana Kemmerrer, GE
Geotechnical Engineer

REGISTERED PROFESSIONAL ENGINEER
SUSANA KEMMERRER
No. 2287
Exp. 6/30/21
GEOTECHNICAL
STATE OF CALIFORNIA

Steven K. Williams, PG, CEG
Senior Engineering Geologist

PROFESSIONAL GEOLOGIST
STEVEN K. WILLIAMS
CERTIFIED ENGINEERING GEOLOGIST
CEG 2261
STATE OF CALIFORNIA

TABLE OF CONTENTS

LIST OF ATTACHMENTS

Tables:

Figures:

Appendices:

Section 1
INTRODUCTION

1.1 Project Description

The proposed project will consist of the construction of a 3,208 square-foot Dinning Hall addition to the existing Student Center (600 Building). The Student Center is situated on the southwestern portion of the Imperial Valley College campus located at 380 East Aten Road in Imperial, California.

As planned, the proposed addition will be of wood-frame construction with a slab-on-grade and shallow foundations. For the purposes of our analysis and report, we have assumed that structural loads will not exceed 5 kips per linear foot for wall footings and 30 kips for the column footings. ***If structural loads exceed those used in our analysis, we should be notified so we may evaluate their impact on settlement estimates for the foundations*** Site development will include building pad preparation, underground utility installation including trench backfill, concrete foundation construction, and concrete hardscape placement.

1.2 Purpose and Scope of Work

The purpose of our geotechnical investigation was to evaluate the physical characteristics of the on-site soils and to provide geotechnical criteria for site grading, design of foundations and slabs. Our scope of work included the following:

- Review of background information including available published geologic maps and literature.
- Field exploration consisting of performing two (2) Cone Penetrometer Test (CPT) soundings to depths of 25 to 50 feet below the existing ground surface.
- Laboratory testing of selected soil samples including: grain size analysis, plasticity index tests, and chemical analyses consisting of soluble sulfate and chloride contents, pH, and resistivity.
- Engineering analysis and evaluation of the data collected.
- Preparation of this report presenting our findings, professional opinions, and design criteria for the geotechnical aspects of the project development.

Our scope of work specifically excluded an evaluation of the site for the presence of hazardous materials or conditions.

1.3 Authorization

Dr. Martha Garcia, Imperial Community College District Superintendent, provided written authorization to proceed with our work on August 25, 2020. We conducted our work according to our written proposal dated July 14, 2020.

Section 2
METHODS OF INVESTIGATION

2.1 Field Exploration

The subsurface exploration was performed on September 14, 2020 using Kehoe Testing and Engineering, Inc. of Huntington Beach, California to advance two (2) electric CPT soundings to approximate depths of 25 to 50 feet below existing ground surface. The soundings were completed at the approximate locations shown on the Site and Exploration Plan (Plate A-2). Shallow (3-foot deep) hand auger borings (3-inch diameter) were made adjacent to the CPT soundings in order to obtain near surface soil samples for laboratory testing. The approximate sounding locations were established in the field and plotted on the site map by sighting to discernible site features.

CPT soundings provide a continuous profile of the soil stratigraphy with readings every 2.5 cm (1 inch) in depth. The CPTs were conducted by hydraulically advancing an instrumented 15 cm^2 conical probe into the ground at a rate of 2 centimeters per second (cm/s) using a 30-ton truck as a reaction mass. An electronic data acquisition system recorded a nearly continuous log of the resistance of the soil against the cone tip (Q_c) and soil friction against the cone sleeve (F_s) as the probe was advanced. Empirical relationships (Robertson and Campanella, 1989) were then applied to the data to obtain a continuous profile of the soil stratigraphy. Interpretation of CPT data provides correlations for Standard Penetration Test (SPT) blow count, phi (ϕ) angle (soil friction angle), undrained shear strength (S_u) of clays and over-consolidation ratio (OCR). These correlations may then be used to evaluate vertical and lateral soil bearing capacities and consolidation characteristics of the subsurface soil.

Interpretive logs of the CPT soundings are presented on Plates B-1 and B-2 in Appendix B. A key to the interpretation of CPT soundings is presented on Plate B-3. The stratification lines shown on the subsurface logs represent the approximate boundaries between the various strata. However, the transition from one stratum to another may be gradual over some range of depth.

2.2 Laboratory Testing

Laboratory tests were conducted on selected bulk soil samples obtained from the hollow-stem auger borings to aid in classification and evaluation of selected engineering properties of the near surface soils. The tests were conducted in general conformance to the procedures of the American Society for Testing and Materials (ASTM) or other standardized methods as referenced below. The laboratory testing program consisted of the following tests:

- Plasticity Index (ASTM D4318) – used for soil classification and expansive soil design criteria
- Grain Size Analysis (ASTM D422) – used for soil classification
- Chemical Analyses (soluble sulfates & chlorides, pH, and resistivity) (Caltrans Methods) – used for concrete mix design parameters and corrosion protection requirements.

The laboratory test results are presented on Plates C-1 through C-3 in Appendix C of this report.

Section 3
DISCUSSION

3.1 Site Conditions

The Imperial Valley College campus is located at 380 East Aten Road in Imperial, California. The campus location is depicted on Plate A-1, Vicinity Map. The coordinates of the project site are 32.8277N / -115.5048W. The proposed building addition will be located in the southwestern portion of the college campus as shown on Plate A-2. The planned building addition footprint is located in a covered patio area on the southwest side of the Student Center (600 Building). Concrete sidewalks, an existing covered patio, trees, and grass are located in the area of the proposed expansion site. The topography in the site vicinity is planar as depicted on Plate A-4, Topographic Map.

3.2 Geologic Setting

The project site is located in the Salton Trough physiographic province of southern California. The Salton Trough is a geologic structural depression resulting from large scale regional faulting. The trough is bounded on the northeast by the San Andreas Fault and on the southwest by faults of the San Jacinto Fault Zone. The Salton Trough represents the northward extension of the Gulf of California, which has experienced continual in-filling with both marine and non-marine sediments since the Miocene Epoch. The tectonic activity that formed the trough continues to the present at a high rate as evidenced by deformed young sedimentary deposits and high levels of historic seismicity.

The site is directly underlain by Holocene (1 to 11,000 years before present) Cahuilla Lake bed deposits, which consist of interbedded lenticular and tabular silts, sands, and clays. The Holocene Lake deposits are probably less than 100 feet thick beneath the site. The Pleistocene Brawley Formation underlies the Cahuilla Lake bed deposits. The Brawley Formation consists of at least 2,000 feet of gray clays, sands, and pebbles, which in turn overlie about 6,000 feet of the late Pliocene Borrego Formation. The Borrego Formation consists of lacustrine clays and sands. The Borrego Formation overlies an undetermined thickness of the Pliocene marine Imperial Formation, Alverson Andesite, and Miocene continental sediments of the Split Mountain Formation.

Basement rock consisting of Mesozoic granite and possibly Paleozoic metamorphic rocks are estimated to exist at depths between 15,000 and 20,000 feet below the surface. The surface geology of the site is depicted on Plate A-5.

3.3 Site Subsurface Conditions

The results of our subsurface investigation at the site, along with the review of available geologic maps and literature, indicate that the site is underlain by Cahuilla Lake bed deposits to the maximum depth explored of 50 feet. Stiff silty clays (CL) were encountered from the ground surface to a depth of about 8 feet. A 2 to 5-foot thick medium dense silty sand (SM) to sandy silt (ML) layer extends from about 8 and 12 to 11 to 17 feet. Stiff silty clays (CL) extend from 18 to 48 feet below ground surface. A medium dense silty sand (SM) was encountered from 48 to 50 feet, the maximum depth of exploration. A schematic geologic cross section is presented on Plate A-6.

Groundwater was not measured in the CPT soundings during the exploration. Groundwater was reported at a depth of about 8.9 feet during a previous geotechnical investigation performed at Imperial Valley College by Landmark. There is uncertainty in the accuracy of short-term water level measurements, particularly in fine-grained soil. Groundwater levels may fluctuate with precipitation, irrigation of adjacent properties, drainage, and site grading. The referenced groundwater level should not be interpreted to represent an accurate or permanent condition.

Historic groundwater levels are approximately 8 feet below ground surface at the project site. USGS Professional Paper 486-K, Plate 1 shows the project site being located between the -60 and -80 foot groundwater elevation contours. Historical groundwater is estimated to be at an elevation of -73 feet at the project site. The site elevation is approximately 65 feet below sea level which would equate to a historical groundwater depth of about 8 feet.

3.4 Seismic Hazards

3.4.1 Faulting and Seismicity

The project site is located in the seismically active southern California region and is expected to be subjected to moderate to strong ground shaking during the design life of the project.

A fault map illustrating known active faults relative to the site is presented on Figure 1, *Regional Fault Map*. Figure 2 shows the project site in relation to local faults.

The criterion for fault classification adopted by the California Geological Survey defines Earthquake Fault Zones along Holocene-active or pre-Holocene faults (CGS, 2018b). Earthquake Fault Zones are regulatory zones that address the hazard of surface fault rupture. A Holocene-active fault is one that has ruptured during Holocene time (within the last 11,700 years). A pre-Holocene fault is a fault that has not ruptured in the last 11,700 years. Pre-Holocene faults may still be capable of surface rupture in the future, but are not regulated by the A-P Act. Table 1 lists the known active faults or seismic zones that lie within a 33 mile (53 kilometer) radius of the project site.

The site is not located within a currently designated Earthquake Fault-Rupture Hazard Zone (CGS, 2020b). Review of the current Alquist-Priolo Earthquake Fault Zone maps (CGS, 2020a) indicates that the nearest mapped Earthquake Fault Zone is the Imperial fault, located approximately 0.4 miles northeast of the site. The possibility of ground surface rupture related to active faulting on currently unrecognized faults exists throughout the seismically active Imperial Valley region. However, given the current state of knowledge regarding seismicity of the Imperial Valley, the potential for fault rupture at the project site is considered low.

3.4.2 Historic Seismicity

The Imperial Valley is one of the most seismically active regions in the United States, and has experienced several historical events of magnitude 5.5 or more. The following briefly outlines seismic events that have significantly affected the Imperial Valley in the past 100 years.

Imperial Valley Events: June 22, 1915. Two earthquakes with magnitudes of 6.0 and 5.9 occurred about an hour apart near El Centro.

El Centro Event: May 19, 1940: A magnitude 7+ earthquake ruptured the Imperial Fault with horizontal offsets up to 19 feet at the international border with Mexico. This earthquake triggered widespread liquefaction as evidenced by sand boils throughout the Imperial Valley.

Imperial Valley Event: October 15, 1979. A magnitude 6.6 earthquake ruptured the Imperial Fault with horizontal offsets up to 2 feet and damage to buildings in El Centro, Imperial, and Calexico. This event triggered widespread liquefaction as evidenced by sand boils throughout the Valley.

A magnitude 5.8 aftershock occurred along the Brawley Fault on that same evening causing severe damage to several unreinforced masonry buildings in Brawley.

Westmorland Event: April 26, 1981. A magnitude 6.0 earthquake occurred 4 miles north of Westmorland triggering liquefaction in the epicentral region. Although there was no evidence of surface rupture associated with this event, canals and buildings were damaged. Liquefaction reportedly occurred in the Brawley Seismic Zone during magnitude 5+ events in 1930, 1950 and 1957.

Superstition Hills Events: November 24, 1987. A magnitude 6.6 earthquake ruptured the Superstition Hills fault, causing 15 miles of surface rupture displaying a right lateral offset (maximum 26 inch offset). The earthquake triggered liquefaction in areas from the Salton Sea to Seeley. A magnitude 6.2 event occurred as a foreshock along the Elmore Ranch fault. The Elmore Ranch fault had not been recognized until this event.

El Mayor-Cucapah Event: April 4, 2010. A magnitude 7.2M_w earthquake ruptured the Laguna Salada, Borrego and Pescadores faults south of Mexicali, Mexico. The Borrego and Pescadores faults exhibited approximately 60 miles of surface rupture with a dip-slip displacement of up to 250 cm (8 feet). Widespread liquefaction and lateral spreading occurred in the Mexicali and Imperial Valleys during this event.

Brawley Swarm Event: August 26-28, 2012. An earthquake swarm with eleven (11) earthquakes above magnitude 4.0 (the largest being 5.5M_w) occurred approximately 2 miles northwest of Brawley, California. Although there was no evidence of surface rupture associated with this event, numerous structures in Brawley were damaged.

3.5 Site Specific Ground Motion Analysis

The California Building Code (CBC) requires that a site-specific ground motion hazard analysis be performed in accordance with ASCE 7-16 Section 11.4.8 for structures on Site Class D and E sites with S_1 greater than or equal to 0.2 and Site Class E sites with S_s greater than or equal to 1.0. This project site has been classified as Site Class D by previous geotechnical reports for the Imperial Valley College campus.

Landmark conducted a site-specific ground motion analysis in accordance with ASCE 7-16 Section 21.2 and 2019 CBC Section 1803A.6. Our analysis was performed using the computer program EZ-Frisk, version 8.06 (Risk Engineering, 2020).

The analysis utilized the maximum rotated component (MCR) to determine the ground motions using the Next Generation Attenuation (NGA) relationships of Abrahamson-Silva (2008), Boore-Atkinson (2008), Campbell-Bozorgnia (2008), and Chiou-Youngs (2008).

The probabilistic (MCE_R) ground motion at the project site was determined in accordance with ASCE 7-16 Section 21.2.1.1 Method 1. The probabilistic ground motion response spectrum was determined as the product of the risk coefficient (C_R) and the spectral response acceleration from a 5% damped acceleration response spectrum having a 2% probability of exceedance within a 50-year period. The value of the risk coefficient was determined from the values of C_{RS} (0.949) and C_{R1} (0.923) obtained from ASCE 7-16 Figures 22-18A and 22-19A using the online Structural Engineers Association of California (SEAOC) and Office of Statewide Health Planning and Development (OSHPD) Seismic Design Maps Web Application (SEAOC, 2020). The probabilistic response spectrum is shown on Figure 4 and Table 3.

The deterministic seismic hazard analysis at the site was completed in accordance with ASCE 7-16 Section 21.2.2 using the computer program EZ-Frisk 8.06 to obtain the deterministic seismic response (MCE_R) for the project site. The deterministic analysis indicates that the fault controlling the ground motion at the project site is the Imperial fault (MCE = 6.9) located approximately 0.4 miles northeast of the project site. The deterministic MCE_R acceleration response spectrum is defined as the largest 84^{th}-percentile 5% damped spectral response spectral response acceleration in the direction of maximum horizontal response computed at that period. The deterministic ground motion response spectrum shall not be taken at lower than the corresponding ordinates of the response spectrum determined in accordance with ASCE 7-16 Figure 21.2-1 (Deterministic Lower Limit) and the 84^{th} percentile values. The ordinates for the Deterministic Lower Limit were calculated for Site Class D taking F_a as 1.0 and F_v as 2.5. The deterministic response spectrum was calculated as the maximum of the Deterministic Lower Limit and the 84^{th} percentile values. The deterministic response spectrum is shown on Figure 3 and Table 3.

The site-specific MCE_R spectral response spectrum was taken as the lesser of the spectral response accelerations from the probabilistic ground motions and the deterministic ground motions. The site-specific response spectrum is provided in Figure 4 and Table 3.

The design spectral response acceleration is defined in ASCE 7-16 Section 21.3 as ⅔ of the site specific MCE_R, but not less than 80% of the general design response spectrum determined in accordance with ASCE 7-16 Section 11.4.6 taking F_a as 1.0 and F_v as 2.5. The site-specific design response spectrum is provided in Figure 5 and Table 4.

Since the site-specific ground motion procedures were used to determine the design ground motion in accordance with ASCE Section 21.3, site-specific design acceleration parameters (S_{DS}, S_{D1}, S_{MS}, and S_{M1}) were determined in accordance with ASCE 7-16 Section 21.4. The parameter S_{DS} shall be taken as 90% of the maximum spectral acceleration S_a obtained from the site-specific spectrum, at any period within the range from 0.2 to 5.0 seconds, inclusive. S_{DS} is determined to be 1.58g. The parameter S_{D1} shall be taken as the maximum value of the product, TS_a, for periods from 1 to 5 seconds for sites with $v_{s,30} \leq 1{,}200$ ft/s. S_{D1} is determined to be 1.57g. The parameters S_{MS} and S_{M1} shall be taken as 1.5 times S_{DS} and S_{D1}, therefore, S_{MS} = 2.37 and S_{M1} = 2.36. The values so obtained shall not be less than 80% of the values determined in accordance with ASCE 7-16 Section 11.4.3 for S_{MS} and S_{M1} and Section 11.4.5 for S_{DS} and S_{D1}. S_{MS} is determined to be 2.37g (1.5 x 1.32g = 2.37, 80% of CBC general S_{MS} (2.25g) = 1.80g). S_{M1} is determined to be 2.36g (1.5 x 1.57g = 2.36g, 80% of CBC general S_{MS} (1.36g) = 1.09g). Site-specific design acceleration parameters are provided in the following table.

Site-Specific Design Acceleration Parameters

Parameter	Value
S_{DS}	1.58
S_{D1}	1.57
S_{MS}	2.37
S_{M1}	2.36

The Maximum Considered Earthquake Geometric Mean (MCE_G) peak ground acceleration (PGA) was determined in accordance with ASCE 7-16 Section 21.5. The site specific MCE_G PGA is calculated as the lesser of the probabilistic and deterministic geometric mean PGA. The site specific MCE_G PGA shall not be taken as less than 80% of the PGA_M determined from ASCE 7-16 Equation 11.8-1.

The probabilistic MCE_G peak ground acceleration shall be taken as the geometric mean peak ground acceleration with a 2% probability of exceedance within a 50-year period. The probabilistic MCE_G PGA is 1.42g.

The deterministic geometric mean PGA is the largest 84th-percentile geometric mean PGA for characteristic earthquakes on all know active faults within the site region. The deterministic geometric mean PGA shall not be taken as lower than $0.5F_{PGA}$, where F_{PGA} is determined using ASCE 7-16 Table 11.8-1. The 84th-percentile geometric mean PGA is 0.84g and $0.5F_{PGA}$ = 0.6g (0.6 x 1.00 = 0.6g); therefore, the deterministic geometric mean PGA is 0.84g.

The site-specific MCE_G peak ground acceleration (PGA_M) shall be taken as the lessor of the probabilistic geometric mean peak ground acceleration and the deterministic geometric mean peak ground acceleration, but not less than 80% of the PGA_M determined from ASCE 7-16 Equation 11.8-1. The PGA_M determined from ASCE 7-16 Equation 11.8-1 is 1.03g and 80% of the PGA_M is 0.82g (1.03g x 80% = 0.82g). ***Therefore, the site-specific peak ground acceleration (PGA) for this project site is 0.84g.***

3.6 Liquefaction

Liquefaction occurs when granular soils below the water table are subjected to vibratory motions, such as produced by earthquakes. With strong ground shaking, an increase in pore water pressure develops as the soil tends to reduce in volume. If the increase in pore water pressure is sufficient to reduce the vertical effective stress (suspending the soil particles in water), the soil strength decreases and the soil behaves as a liquid (similar to quicksand). Liquefaction can produce excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations. Four conditions are generally required for liquefaction to occur:

(1) the soil must be saturated (relatively shallow groundwater);
(2) the soil must be loosely packed (low to medium relative density);
(3) the soil must be relatively cohesionless (not clayey); and
(4) groundshaking of sufficient intensity must occur to function as a trigger mechanism.

All of these conditions exist to some degree at this site.

Methods of Analysis: The liquefaction potential at the project site was evaluated using the 1998 NCEER Liquefaction Workshop method. The 1998 NCEER method utilizes CPT readings from the site explorations and earthquake magnitude/PGA estimates from the seismic hazard analysis. The resistance to liquefaction is plotted on a chart of cyclic shear stress ratio (CSR) versus a corrected $Q_{tn,cs}$. The analysis was performed using a site-specific PGA_M value of 0.84g, a groundwater depth of 8 feet and a threshold factor of safety (FS) of 1.3.

The computer program CLiq (Version 2.2.0.32, Geologismiki, 2017) was utilized for liquefaction assessment of the project site. The estimated settlements have been adjusted for transition zones between layers and the post liquefaction volumetric strain has been weighed with depth (Robertson, 2014 and Cetin et al., 2009). Computer printouts of the liquefaction analyses are provided in Appendix D.

The fine content of the liquefiable sands and silts increases their liquefaction resistance in that more ground motion cycles are required to fully develop the increased pore pressures. The CPT tip pressures (Q_c) were adjusted to an equivalent clean sand pressure ($Q_{tn,cs}$) in accordance with 1998 NCEER method.

The soil encountered at the points of exploration included saturated sandy silts and silty sands that could liquefy during a Risk-Targeted Maximum Considered Earthquake (MCE_R). Liquefaction can occur within isolated, interbedded sandy silt to silty sand layers at depths of 8½ to 50 feet. The likely triggering mechanism for liquefaction appears to be strong groundshaking associated with the rupture of the Imperial, Brawley, and Superstition Hills faults.

Liquefaction Induced Settlements: ***Based on empirical relationships, total induced settlements are estimated to be about ¾ inch should liquefaction occur.*** The magnitude of liquefaction induced *differential* settlement is estimated at be two-thirds of the *total* potential settlement in accordance with California Special Publication 117; therefore, ***there is a potential for ½ inch of liquefaction induced differential settlement at the project site.*** The differential settlement based on seismic settlements is estimated at ½ inch over a distance of 30 feet.

Generally stiff to hard clays and dense silty sands and sandy silts about 8½ to 12 feet in thickness overlie the liquefiable layer. The non-liquefiable materials may act as a bridge over the liquefiable layer resulting in a fairly uniform ground surface settlement; therefore, wide area subsidence of the overburden soils would be the expected effect of liquefaction.

Liquefaction Induced Ground Failure: Based on research from Ishihara (1985) and Youd and Garris (1995) because of the thickness of the overlying non-liquefiable soil, there is a low to moderate potential for formation of small ground fissures or sand boils. Sand boils are conical piles of sand derived from the upward flow of groundwater caused by excess porewater pressures created during strong ground shaking. Sand boils are not inherently damaging by themselves, but are an indication that liquefaction occurred at depth (Jones, 2003). Liquefaction induced lateral spreading is not expected to occur at this site due to the planar topography. According to Youd (2005), if the liquefiable layer lies at a depth greater that about twice the height of a free face, lateral spread is not likely to develop. No slopes or free faces occur at this site.

Liquefaction effects have not been reported after large earthquakes proximal to the Imperial Valley College project site. Review of McCrink, et al (2011) and Youd and Wieczorek (1982) indicate that the effects of liquefaction (sand boils, lateral spread, slumps) were observed after the 1979 Imperial Valley Earthquake and the 2010 El Mayor-Cucapah Earthquake approximately 3¾ miles east of the college campus along the Alamo River.

Mitigation: Based on an estimate of about ¾ inch of total liquefaction induced settlements (½ inch differential settlement). Structural slabs and/or grade beams may be used to resist the effects of the estimated settlements.

3.7 Other Geologic Hazards

Landsliding. No indications of landsliding were observed within the immediate vicinity of the project site from the geologic maps and during our site investigation. Based on the relatively planar topography of the site, the potential for landsliding is considered remote.

Volcanic hazards. The site is not located proximal to any known volcanically active area and the risk of volcanic hazards is considered very low. Obsidian Butte and Red Hill, located at the south end of the Salton Sea approximately 24 miles north of the project site, are small remnants of volcanic domes formed about 2,000 to 7,500 years ago.

The subsurface brine fluids around the domes have a high heat flow and are currently being utilized to produce geothermal energy.

Tsunamis, sieches, and flooding. The site does not lie near any large bodies of water, so the threat of tsunami, sieches, or other seismically-induced flooding is unlikely. The project site is located in FEMA Flood Zone X (Plate A-9), an area determined to be outside the 0.2% annual chance floodplain (FIRM Panel 06025C1725C).

Expansive soil. The soils at the project site consist of silty clays and clays with a Plasticity Index (PI) of 15 and are considered to be moderately expansive (Expansion Index (EI) = 51 to 90). The clay is expansive when wetted and can shrink with moisture loss (drying). Development of building foundations and concrete flatwork will require provisions for mitigating potential soil expansion forces.

Hazardous Materials. The site is not located in proximity to any known hazardous materials (methane gas, tar seeps, hydrogen sulfide gas), and the risk of hazardous materials is considered very low.

Radon 222 Gas. Radon gas is not believed to be a potential hazard at the site.

Naturally occurring asbestos. The site is not located in proximity to any known naturally occurring asbestos, and the risk of naturally occurring asbestos is considered very low.

Hydrocollapse. The site is dominantly underlain by stiff silty clays and clays that are not susceptible to collapse with the addition of water to the site. The risk of hydrocollapse is considered very low.

Regional Subsidence. The project site is not located within a known area of regional subsidence.

Section 4
CONCLUSIONS

Based on the results of our field investigation and laboratory tests, it is our opinion that construction of the proposed building addition is feasible from a geotechnical standpoint, provided that the conclusions and professional opinions contained in this report are incorporated in the project plans and specifications and implemented during construction of the project. The following summarizes some of the pertinent geotechnical issues identified in our study:

- No known active or potentially active faults cross the site. The closest active fault to the site is the Imperial fault, located approximately 0.4 miles to the northeast.
- The site is considered likely to be subjected to moderate to high ground accelerations due to regional fault activity. A site-specific ground motion value of 0.84g was estimated for liquefaction and seismic settlement analysis in accordance with CGS Note 48.
- The on-site soils consist of moderate plasticity silty clay (CL) which are moderately expansive. If these soils are allowed to exist in close proximity to exterior flatwork, specialized design and construction procedures will be necessary to resist expansive forces. Building wall foundation and floor support will require provisions to avoid results of soil heave due to wetting of expansive soils.
- To provide more uniform support, one of the following options for mitigating the effects of expansive soils and liquefaction on the proposed improvements may be implemented:

  OPTION 1: Remove the upper 3 feet of soils beneath building and the upper 18 inches beneath hardscaped areas and replace with compacted non-expansive granular fill. A minimum of 18 inches of compacted granular fill should underlie the footings.

  OPTION 2: Support the structures on foundation and slab systems designed to resist expansive soil movement. This design method requires grade-beam stiffening of floor slabs at a maximum spacing of 18 feet on center or grade-beam stiffened post-tensioned slabs.

- Isolated, interbedded sandy silt to silty sand layers were encountered at depths of 8½ to 50 feet. These layers may liquefy under seismically induced groundshaking, potentially resulting in about ¾ inch of deep seated settlement. An 8½ to 12-foot non-liquefiable layer present above the liquefiable layer. The potential for liquefaction induced soil deformation at ground surface is considered low to moderate. The potential for generalized liquefaction risk is low.
- The potential for other geologic hazards including landsliding, tsunamis/seiches, volcanic hazards, hazardous materials, radon gas, naturally occurring asbestos, hydrocollapse, and regional subsidence are considered low.
- Groundwater is expected to be encountered at a depth of about 8 feet below ground surface.
- The on-site native soils are considered to have a high corrosion potential with respect to buried steel and sulfate attack to concrete materials.

Section 5
DESIGN CRITERIA

5.1 Site Preparation

5.1.1 Clearing and Grubbing

At the time of construction, all existing pavement, debris and vegetation such as grass or trees on the site should be removed. Organic strippings should be hauled from the site and should not be incorporated into any engineered fills. Any trash, construction debris, concrete slabs, old pavement, landfill, and buried obstructions should be located by the grading contractor and removed under the observation of a qualified geotechnical firm. Excavations resulting from site clearing should be dish-shaped to the lowest depth of disturbance and backfilled with engineered fill as described below under continuous observations by the geotechnical engineer's representative.

Native soil, free of concentrations of vegetation or other deleterious materials, may be used as engineered fill placed in loose lifts not exceeding 8 inches, moisture conditioned to 5 to 10% above optimum and compacted to 85 to 90% of ASTM D1557 maximum density.

5.1.2 Building Addition Foundation

The exposed surface soil within the building addition area should be removed to a minimum depth of 3 feet below the bottom of the proposed building pad elevation or existing natural surface grade (whichever is lower), and should extend 5 feet beyond all exterior wall/column lines (including concreted areas adjacent to the building). A "saw-tooth" or slot-cut excavation method should be utilized along the existing foundation to prevent undermining of the existing footings as described in Section 5.5.

Prior to placement of the fill, the exposed subgrade should be scarified to a depth of 8 inches, uniformly moisture conditioned to 5 to 10% above optimum moisture content and recompacted to 85 to 90% of the maximum dry density determined in accordance with ASTM D1557 methods.

An engineered building support pad consisting of a minimum of 3 feet of non-expansive compacted granular soil, placed in maximum 8-inch lifts (loose), compacted to a minimum of 90% of ASTM D1557 maximum density at 2% below to 4% above optimum moisture, should be placed below the bottom of the slab. The on-site soils are not considered suitable material for fill.

The imported non-expansive soils should meet the USCS classifications of ML (non-plastic), SM, SP-SM, or SW-SM with a maximum rock size of 3 inches and no less than 5% passing the No. 200 sieve. The geotechnical engineer should approve imported fill soil sources before hauling material to the site.

In areas other than the building pad which are to receive sidewalks or area concrete slabs, the upper 18 inches should be removed and replaced with granular fill compacted to a minimum of 90% of ASTM D1557 maximum density.

Before placement of concrete for footings, the bottom of the footing excavation should be moisture conditioned to 2% below to 4% above optimum moisture content to a minimum depth of 12 inches. Surface grades should be designed to drain away from the structure.

5.1.3 Observation and Density Testing

All site preparation and fill placement should be continuously observed and tested by a representative of a qualified geotechnical engineering firm as required by the CBC. This includes the excavation and scarification process to detect any undesirable materials, conditions or soft areas that may be encountered in the construction area.

The geotechnical firm that provides observation and testing during construction shall assume the responsibility of "*geotechnical engineer of record*", and as such, shall perform additional testing/investigation as necessary to satisfy themselves as to the site conditions and the geotechnical recommendations for site development. The geotechnical engineer should provide a verified report of the as-graded site and building support pad conditions.

5.2 Foundations and Settlements

Shallow spread footings are suitable to support the building addition provided they are structurally tied with grade-beams to continuous perimeter wall footings to resist differential movement associated with expansive soils and potential liquefaction induced settlement. Exterior footings shall have a minimum embedment depth of 18 inches below the finish subgrade. Interior footings shall have a minimum embedment depth of 12 inches. All footings should be underlain by at least 18 inches of compacted non-expansive granular fill. The foundations may be designed using an allowable soil bearing pressure of 2,000 psf when foundations are supported on compacted granular fill.

The allowable soil pressure may be increased by 20% for each foot of embedment depth of the footings in excess of 18 inches to a maximum of 3,000 psf, provided that at least 18 inches of compacted granular fill is maintained beneath the footings. A one-third increase may be considered for short term loads induced by winds or seismic events.

To mitigate the potential for differential movement between the addition and the existing structure, we recommend that the new foundations be dowelled into the existing foundations.

As an alternative to shallow spread foundations, flat plate structural mats or grade-beam reinforced foundations may be used to mitigate expansive soil heave and/or liquefaction related movement.

Flat Plate Structural Mats: Flat plate structural mats may be used to mitigate the liquefaction induced settlement or expansive soils at the project site. The structural mat shall have a double mat of steel (minimum No. 4's @ 12 inches O.C. each way – top and bottom) and a minimum thickness of 10 inches. Mat edges shall have a minimum edge footing of 12 inches width and 24 inches depth (below the building pad surface). Mats may be designed in accordance with the CBC Chapter 18, Section 1808A.6.2 methods (*WRI/CRSI Design of Slab-on-Ground Foundations*).

Structural mats may be designed for a modulus of subgrade reaction (k_s) of 300 pci when placed on 3 feet of compacted granular fill. Mats shall overlay 2 inches of sand and a 10-mil polyethylene vapor retarder. The building support pad shall be moisture conditioned and recompacted as specified in Section 5.1 of this report.

Grade-beam Reinforced Foundations: Structures with grade beam reinforced foundations placed on the native soils shall have a maximum grade-beam spacing of 25 feet in accordance with the CBC Chapter 18 Section 1808.6.2 (*WRI/CRSI Design of Slab-on-Ground Foundations).*

All exterior footings should be embedded a minimum of 18 inches below the building support pad or lowest adjacent final grade, whichever is deeper. Minimum embedment depth of interior slab stiffening elements should be at least 12 inches into the building support pad.

Interior and exterior embedment depths listed herein are minimum depths and greater depths/widths may be required by the structural engineer/designer and should be sufficient to limit differential movement to L/480 for center lift and L/720 for edge lift to comply with the current standards. Continuous wall footings should have a minimum width of 12 inches. Spread footings should have a minimum dimension of 24 inches and should be structurally tied to perimeter footings or grade beams. Concrete reinforcement and sizing for all footings should be provided by the structural engineer.

Resistance to horizontal loads will be developed by passive earth pressure on the sides of footings and frictional resistance developed along the bases of footings and concrete slabs supported on compacted granular fill. Passive resistance to lateral earth pressure may be calculated using an equivalent fluid pressure of 300 pcf to resist lateral loadings.

The top one foot of embedment should not be considered in computing passive resistance unless the adjacent area is confined by a slab or pavement. An allowable friction coefficient of 0.35 may also be used at the base of the footings to resist lateral loading.

Foundation movement under the estimated static (non-seismic) loadings and static site conditions are estimated to not exceed 1 inch with differential movement of about two-thirds of total movement for the loading assumptions stated above when the subgrade preparation guidelines given above are followed. Seismically induced liquefaction settlement of the surrounding land mass and structure may be on the order of ¾ inch with differential settlement estimated to be on the order of ½ inch.

5.3 Slabs-On-Grade

Structural Concrete: Structural concrete slabs are those slabs (foundations) that underlie structures or patio covers (shades). These slabs that are placed over native clay soil should be designed in accordance with Chapter 18 of the 2019 CBC. Due to expansive soil conditions these slabs shall be a minimum of 5 inches. No special requirements exist for slabs placed on 3 feet of granular fill compacted to a minimum of 90% of ASTM D1557 maximum dry density. Concrete floor slabs shall be monolithically placed with the footings (no cold joints) unless placed on 3 feet of granular fill.

American Concrete Institute (ACI) guidelines (ACI 302.1R-7 Chapter 3, Section 3.2.3) provide recommendations regarding the use of moisture barriers beneath concrete slabs. The concrete floor slabs should be underlain by a 10-mil polyethylene vapor retarder that works as a capillary break to reduce moisture migration into the slab section. The vapor retarder should be properly lapped and continuously sealed and extend a minimum of 12 inches into the footing excavations. The vapor retarder may lie directly on the granular fill with 2 inches of clean sand cover.

Concrete slabs may be placed without a sand cover directly over a 15-mil vapor retarder (Stego-Wrap or equivalent), provided that the concrete mix uses a low-water cement ratio and concrete curing methods are employed to compensate for release of bleed water through the top of the slab. For areas with moisture sensitive flooring materials, the concrete slab should be placed directly on a 15-mil vapor retarder constructed in accordance with ASTM E1643 and E1745.

Structural concrete slab reinforcement should consist of chaired rebar slab reinforcement (minimum of No. 3 bars at 16-inch centers, both horizontal directions) placed at slab mid-height to resist potential swell forces and cracking. Slab thickness and steel reinforcement are minimums only and should be verified by the structural engineer/designer knowing the actual project loadings.

All steel components of the foundation system should be protected from corrosion by maintaining a 3-inch minimum concrete cover of densely consolidated concrete at footings (by use of a vibrator).

The construction joint between the foundation and any mowstrips/sidewalks placed adjacent to foundations should be sealed with a polyurethane based non-hardening sealant to prevent moisture migration between the joint. Epoxy coated embedded steel components (ASTM D3963/A934) or permanent waterproofing membranes placed at the exterior footing sidewall may also be used to mitigate the corrosion potential of concrete placed in contact with native soil.

Control joints should be provided in all concrete slabs-on-grade at a maximum spacing (in feet) of 2 to 3 times the slab thickness (in inches) as recommended by American Concrete Institute (ACI) guidelines. All joints should form approximately square patterns to reduce randomly oriented contraction cracks. Contraction joints in the slabs should be tooled at the time of the pour or sawcut (¼ of slab depth) within 6 to 8 hours of concrete placement. Construction (cold) joints in foundations and area flatwork should either be thickened butt-joints with dowels or a thickened keyed-joint designed to resist vertical deflection at the joint. All joints in flatwork should be sealed to prevent moisture, vermin, or foreign material intrusion. Precautions should be taken to prevent curling of slabs in this arid desert region (refer to ACI guidelines).

Non-structural Concrete: All non-structural independent flatwork (sidewalks adjacent to the modular building foundation and uncovered patios) shall be a minimum of 4 inches thick and should be placed on a minimum of 24 inches of concrete sand or aggregate base, dowelled to the perimeter foundations where adjacent to the building to prevent separation. The flatwork should be sloped 2% (sidewalks) or 1 to 2% (patios) away from the building.

Patio slabs with shade structures shall have an 18-inch deep perimeter footing and shall have interior grade beams at 15 feet on centers. Planters that trap water between sidewalks and foundations are not allowed.

A minimum of 24 inches of compacted non-expansive fill and 8 inches of compacted subgrade (85 to 90%) should underlie all independent flatwork. The moisture content of the subgrade should be maintained 5 to 10% above optimum. Flatwork which contains steel reinforcing (except wire mesh) should be underlain by a 10-mil (minimum) polyethylene separation sheet and at least a 2-inch sand cover. All flatwork should be jointed in square patterns and at irregularities in shape at a maximum spacing of 8 feet or the least width of the sidewalk.

5.4 Concrete Mixes and Corrosivity

Selected chemical analyses for corrosivity were conducted on samples from the project site (Plate C-3). The native soils were found to have severe (S2) sulfate ion concentrations (6,085 ppm). Sulfate ions in high concentrations can attack the cementitious material in concrete, causing weakening of the cement matrix and eventual deterioration by raveling.

The following table provides American Concrete Institute (ACI) recommended cement types, water-cement ratio and minimum compressive strengths for concrete in contact with soils:

Concrete Mix Design Criteria due to Soluble Sulfate Exposure

Sulfate Exposure Class	Water-soluble Sulfate (SO_4) in soil, ppm	Cement Type	Maximum Water-Cement Ratio by weight	Minimum Strength f'c (psi)
S0	0-1,000	–	–	–
S1	1,000-2,000	II	0.50	4,000
S2	2,000-20,000	V	0.45	4,500
S3	Over 20,000	V (plus Pozzolon)	0.45	4,500

Note: From ACI 318-14 Table 19.3.1.1 and Table 19.3.2.1

However, in consideration of general corrosive environment in the vicinity, a minimum of 6.0 sacks per cubic yard of concrete (4,500 psi) of Type V Portland Cement with a maximum water/cement ratio of 0.45 (by weight) should be used for concrete placed in contact with native soil on this project (sitework including sidewalks, hardscape areas, and foundations). Admixtures may be required to allow placement of this low water/cement ratio concrete. Thorough concrete consolidation and hard trowel finishes should be used due to the aggressive soil exposure.

The native soils were also found to have severe chloride ion concentrations (1,000 ppm). Chloride ions can cause corrosion of reinforcing steel and buried utilities. Resistivity determinations (240 Ohm-cm) on the soils indicate severe potential for metal loss due to electrochemical corrosion processes.

Mitigation of the corrosion of steel can either be achieved by using steel pipes coated with epoxy corrosion inhibitors, asphaltic coatings, cathodic protection or by encapsulating the portion of the pipe with densely consolidated concrete.

A minimum concrete cover of three (3) inches should be provided around steel reinforcing or embedded components exposed to native soil or landscape water (to 18 inches above grade). Additionally, the concrete should be thoroughly vibrated during placement to decrease the permeability of the concrete.

Due to the potential for corrosion of metallic piping, all water supply lines should be placed overhead, not beneath the slab. No portion of metallic piping on site should be placed in direct contact with native soils. Copper water lines shall be wrapped or fully encapsulated prior to installation in native soils. A corrosion engineer should be consulted to obtain final design recommendations.

5.5 Excavations

To prevent undermining of the existing building foundations, a "saw-tooth" or slot-cut excavation method should be used when excavating along the existing foundations. This method requires that removal sections be no longer than 5 feet when measured parallel to the foundations and that each excavated section be spaced at least 10 feet from the end of any concurrently excavated section.

Temporary excavations in native clay soils should stand nearly vertical for short duration. The contractor is solely responsible for the safety of workers entering excavations and trenches. Temporary excavations deeper than 5 feet should be shored or sloped at 1.5 to 1 (horizontal to vertical). Groundwater is anticipated to be encountered at a depth of approximately 8 feet below ground surface.

Surcharge loads of stockpiled soils or construction materials and equipment should be set back from the top of the slopes a minimum distance equal to 10 feet or the height of the slope (whichever is greatest). Permanent slopes should not be steeper than 3 to 1 (horizontal to vertical) to reduce wind and rain erosion.

5.6 Utility Trench Backfill

Utility Trench Backfill: Prior to placement of utility bedding, the exposed subgrade at the bottom of trench excavations should be examined for soft, loose, or unstable soil. Loose materials at trench bottoms resulting from excavation disturbance should be removed to firm material. If extensive soft or unstable areas are encountered, these areas should be over-excavated to a depth of at least 2 feet or to a firm base and be replaced with additional bedding material.

Backfill Materials: Pipe zone backfill (i.e., material beneath and in the immediate vicinity of the pipe) should consist of a 4 to 8 inch bed of ⅜-inch crushed rock, sand/cement slurry (3 sack cement factor), and/or crusher fines (sand) extending to a minimum of 12 inches above the top of pipe. If crushed rock is used for pipe zone backfill for utilities, the crushed rock material should be completed surrounded by a non-woven filter fabric such as Mirafi 140N or equivalent. The filter fabric shall cover the trench bottom, sidewalls and over the top of the crushed rock. The filter fabric is recommended to inhibit the migration of fine material into void spaces in the crushed rock which may create the potential for sinkholes or depressions to develop at the ground surface.

Pipe bedding should be in accordance with pipe manufacturer's recommendations. Recommendations provided above for pipe zone backfill are minimum requirements only. More stringent material specifications may be required to fulfill local codes and/or bedding requirements for specific types of pipes.

On-site soil free of debris, vegetation, and other deleterious matter may be suitable for use as utility trench backfill above pipezone, but may be difficult to uniformly maintain at specified moistures and compact to the specified densities. Native backfill should only be placed and compacted after encapsulating buried pipes with suitable bedding and pipe envelope material.

Compaction Criteria: Mechanical compaction is recommended; ponding or jetting should not be allowed, especially in areas supporting structural loads or beneath concrete slabs supported-on-grade, pavements, or other improvements. All trench backfill should be placed and compacted in accordance with recommendations provided in this report for engineered fill.

The pipe zone material (crusher fines, sand) shall be compacted to a minimum of 95% of ASTM D1557 maximum dry density. Pipe deflection should be checked to not exceed 2% of pipe diameter. Native clay/silt soils may be used to backfill the remainder of the trench. Soils used for trench backfill shall be placed in maximum 6 inch lifts (loose), compacted to a minimum of 90% of ASTM D1557 maximum dry density at a minimum of 4% above optimum moisture.

Imported granular material is acceptable for backfill of utility trenches. Granular trench backfill used in building pad areas should be plugged with a solid (no clods or voids) 2-foot width of native clay soils at each end of the building foundation to prevent landscape water migration into the trench below the building.

Backfill soil of utility trenches within paved areas should be uniformly moisture conditioned to a minimum of 4% above optimum moisture, placed in layers not more than 6 inches in thickness and mechanically compacted to a minimum of 90% of the ASTM D1557 maximum dry density, except that the top 12 inches shall be compacted to 95% (if granular trench backfill).

5.6 Seismic Design

This site is located in the seismically active southern California area and the site structures are subject to strong ground shaking due to potential fault movements along the Superstition Hills, Imperial and Brawley faults. Engineered design and earthquake-resistant construction are the common solutions to increase safety and development of seismic areas. Designs should comply with the latest edition of the CBC for Site Class D using the seismic coefficients given in Section 3.5 and Table 4 of this report.

Section 6
LIMITATIONS AND ADDITIONAL SERVICES

6.1 Limitations

The professional opinions and conclusions within this report are based on current information regarding the proposed construction of 3,208 square foot addition to the 600 Building located on the southwestern portion of the Imperial Valley College campus located at 380 East Aten Road in Imperial, California. The conclusions of this report are invalid if:

- Structural loads change from those stated or the structures are relocated.
- The Additional Services section of this report is not followed.
- This report is used for adjacent or other property.
- Changes of grade or groundwater occur between the issuance of this report and construction other than those anticipated in this report.
- Any other change that materially alters the project from that proposed at the time this report was prepared.

We have based our findings and professional opinions in this report on selected points of field exploration, laboratory testing, and our understanding of the proposed project. Furthermore, findings and professional opinions are based on the assumption that soil conditions do not vary significantly from those found at specific exploratory locations. Variations in soil conditions could exist between and beyond the exploration points and groundwater conditions may change. These conditions may require additional studies, consultation, and possible design revisions.

This report contains information that may be useful in the preparation of contract specifications. However, the report is not worded is such a manner that we recommend its use as a construction specification document without proper modification. The use of information contained in this report for bidding purposes should be done at the contractor's option and risk.

This report was prepared according to the generally accepted *geotechnical engineering standards of practice* that existed in Imperial County at the time the report was prepared. No warranty, express or implied, is made in connection with our services. Because of potential changes in the Geotechnical Engineering Standards of Practice, this report should be considered invalid for periods after three years from the report date without a review of the validity of the findings and professional opinions by our firm.

The client has responsibility to see that all parties to the project including designer, contractor, subcontractor, and future owners are made aware of this entire report. The use of information contained in this report for bidding purposes should be done at the contractor's option and risk.

6.2 Additional Services

The professional opinions presented in this report are based on the assumption that an adequate program of tests and observations will be conducted during construction to check the field subsurface conditions and compliance of the professional opinions that are the basis of this report. *The geotechnical engineering firm providing the tests and observations shall assume the responsibility of geotechnical engineer of record.*

Additional tests and observations should include, but not necessarily be limited to the following:

- Review of project plans and specifications, prior to their issuance for bidding, to check for compatibility with our professional opinions and conclusions;
- Observation and testing by the geotechnical consultant of record during site clearing, grading, excavation, placement of fills, building pad and subgrade preparation, and backfilling of utility trenches;
- Observation of foundation excavations and reinforcing steel before concrete placement;
- Consultation as may be required during construction.

Additional information concerning the scope and cost of these services can be obtained from our office.

Section 7

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TABLES

Table 1
Summary of Characteristics of Closest Known Active Faults

Fault Name	Approximate Distance (miles)	Approximate Distance (km)	Maximum Moment Magnitude (Mw)	Fault Length (km)	Slip Rate (mm/yr)
Imperial	0.4	0.7	7	62 ± 6	20 ± 5
Brawley *	1.8	3.0			
Superstition Hills	5.7	9.1	6.6	23 ± 2	4 ± 2
Rico *	6.2	9.8			
Superstition Mountain	11.3	18.1	6.6	24 ± 2	5 ± 3
Unnamed 2*	14.3	22.8			
Unnamed 1*	15.3	24.5			
Yuha*	17.2	27.5			
Shell Beds	19.6	31.4			
Yuha Well *	19.8	31.7			
Borrego (Mexico)*	20.8	33.2			
Laguna Salada	21.9	35.0	7	67 ± 7	3.5 ± 1.5
Cerro Prieto *	22.4	35.9			
Vista de Anza*	23.1	37.0			
Painted Gorge Wash*	23.6	37.7			
Elmore Ranch	24.2	38.8	6.6	29 ± 3	1 ± 0.5
Pescadores (Mexico)*	25.2	40.3			
Cucapah (Mexico)*	26.2	41.9			
Ocotillo*	27.3	43.7			
Elsinore - Coyote Mountain	30.7	49.1	6.8	39 ± 4	4 ± 2
San Jacinto - Borrego	31.0	49.6	6.6	29 ± 3	4 ± 2
Algodones *	32.8	52.4			

* Note: Faults not included in CGS database.

Table 2
2019 California Building Code (CBC) and ASCE 7-16
General Procedure Ground Motion Parameters

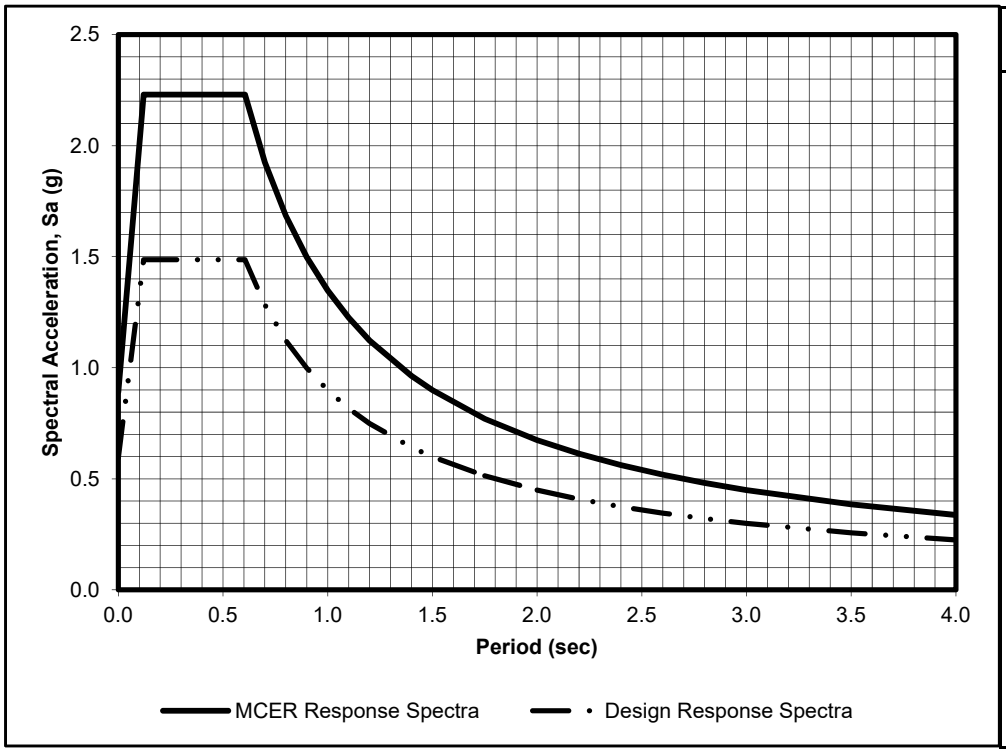
			ASCE 7-16 Reference
Soil Site Class:	**D**		Table 20.3-1
Latitude:	32.8277	N	
Longitude:	-115.5048	W	
Risk Category:	III		
Seismic Design Category:	E		

Maximum Considered Earthquake (MCE) Ground Motion

Mapped MCE_R Short Period Spectral Response	S_s	2.230 g	ASCE Figure 22-1	
Mapped MCE_R 1 second Spectral Response	S_1	0.793 g	ASCE Figure 22-2	
Short Period (0.2 s) Site Coefficient	F_a	1.00	ASCE Table 11.4-1	
Long Period (1.0 s) Site Coefficient	F_v	1.70	ASCE Table 11.4-2	
MCE_R Spectral Response Acceleration Parameter (0.2 s)	S_{MS}	2.230 g	= Fa * S_s	ASCE Equation 11.4-1
MCE_R Spectral Response Acceleration Parameter (1.0 s)	S_{M1}	1.348 g	= Fv * S_1	ASCE Equation 11.4-2

Design Earthquake Ground Motion

Design Spectral Response Acceleration Parameter (0.2 s)	S_{DS}	1.487 g	= 2/3*S_{MS}	ASCE Equation 11.4-3
Design Spectral Response Acceleration Parameter (1.0 s)	S_{D1}	0.899 g	= 2/3*S_{M1}	ASCE Equation 11.4-4
Risk Coefficient at Short Periods (less than 0.2 s)	C_{RS}	0.950		ASCE Figure 22-17
Risk Coefficient at Long Periods (greater than 1.0 s)	C_{R1}	0.923		ASCE Figure 22-18
	T_L	8.00 sec		ASCE Figure 22-12
	T_O	0.12 sec	=0.2*S_{D1}/S_{DS}	
	T_S	0.60 sec	=S_{D1}/S_{DS}	
Peak Ground Acceleration	PGA_M	1.02 g		ASCE Equation 11.8-1



Period T (sec)	Sa (g)	MCE_R Sa (g)
0.00	0.59	0.89
0.12	1.49	2.23
0.60	1.49	2.23
0.70	1.28	1.93
0.80	1.12	1.69
0.90	1.00	1.50
1.00	0.90	1.35
1.10	0.82	1.23
1.20	0.75	1.12
1.20	0.75	1.12
1.40	0.64	0.96
1.50	0.60	0.90
1.75	0.51	0.77
2.00	0.45	0.67
2.20	0.41	0.61
2.40	0.37	0.56
2.60	0.35	0.52
2.80	0.32	0.48
3.00	0.30	0.45
3.50	0.26	0.39
4.00	0.22	0.34

Table 3: Data for Site Specific Response Spectrum

Period	2% in 50 Years Probabilistic Spectrum (g) per ASCE 7-16 §21.2.1.1 Method 1	Risk Coefficients per ASCE 7-16 §21.2.1.1 Method 1	Probabilistic (MCE_R) Ground Motions per ASCE 7-16 §21.2.1.1 Method 1	84th Percentile Deterministic (MCE_R) Ground Motions per ASCE 7-16 §21.2.2	Site-Specific MCE_R (S_{aM}) per ASCE 7-16 §21.2.3	80% of 2016 CBC General Spectrum (g) per ASCE 7-16 §21.3	Sa = $(2/3)S_{aM}$ per ASCE 7-16 §21.3	Sa = (2/3)SaM per ASCE 7-16 §11.4.6	80% of Sa = (2/3)SaM per ASCE 7-16 §11.4.6	Design Response Spectrum per ASCE 7-16 §21.3
0.00	1.49	0.950	1.42	0.84	0.84	0.48	0.56	0.59	0.48	0.56
0.01	1.53	0.950	1.45	0.85	0.85	0.53	0.57	0.65	0.52	0.57
0.02	1.56	0.950	1.48	0.87	0.87	0.59	0.58	0.70	0.56	0.58
0.04	1.62	0.950	1.54	0.90	0.90	0.71	0.60	0.80	0.64	0.64
0.06	1.75	0.950	1.66	0.96	0.96	0.83	0.64	0.90	0.72	0.72
0.08	1.95	0.950	1.85	1.04	1.04	0.95	0.70	1.00	0.80	0.80
0.10	2.14	0.950	2.03	1.13	1.13	1.07	0.75	1.10	0.88	0.88
0.12	2.27	0.950	2.16	1.21	1.21	1.19	0.81	1.20	0.96	0.96
0.14	2.41	0.950	2.29	1.29	1.29	1.19	0.86	1.30	1.04	1.04
0.16	2.54	0.950	2.41	1.37	1.37	1.19	0.91	1.40	1.12	1.12
0.18	2.67	0.950	2.54	1.45	1.45	1.19	0.96	1.49	1.19	1.19
0.20	2.80	0.950	2.66	1.52	1.52	1.19	1.02	1.49	1.19	1.19
0.22	2.83	0.949	2.68	1.55	1.55	1.19	1.04	1.49	1.19	1.19
0.24	2.87	0.949	2.70	1.58	1.58	1.19	1.05	1.49	1.19	1.19
0.26	2.90	0.948	2.73	1.61	1.61	1.19	1.07	1.49	1.19	1.19
0.28	2.93	0.947	2.76	1.64	1.64	1.19	1.09	1.49	1.19	1.19
0.30	2.96	0.947	2.79	1.67	1.67	1.19	1.11	1.49	1.19	1.19
0.32	2.98	0.946	2.81	1.68	1.68	1.19	1.12	1.49	1.19	1.19
0.34	3.00	0.945	2.82	1.70	1.70	1.19	1.13	1.49	1.19	1.19
0.36	3.01	0.945	2.84	1.71	1.71	1.19	1.14	1.49	1.19	1.19
0.38	3.03	0.944	2.85	1.73	1.73	1.19	1.15	1.49	1.19	1.19
0.40	3.05	0.943	2.87	1.74	1.74	1.19	1.16	1.49	1.19	1.19
0.42	3.05	0.943	2.88	1.75	1.75	1.19	1.16	1.49	1.19	1.19
0.44	3.05	0.942	2.88	1.75	1.75	1.19	1.17	1.49	1.19	1.19
0.46	3.06	0.941	2.87	1.75	1.75	1.19	1.17	1.49	1.19	1.19
0.48	3.06	0.941	2.87	1.76	1.76	1.19	1.17	1.49	1.19	1.19
0.50	3.06	0.940	2.87	1.76	1.76	1.19	1.17	1.49	1.19	1.19
0.52	3.04	0.939	2.86	1.75	1.75	1.19	1.17	1.49	1.19	1.19
0.54	3.03	0.939	2.85	1.75	1.75	1.19	1.16	1.49	1.19	1.19
0.56	3.02	0.938	2.83	1.74	1.74	1.19	1.16	1.49	1.19	1.19
0.58	3.00	0.937	2.82	1.73	1.73	1.19	1.16	1.49	1.19	1.19
0.60	2.99	0.937	2.81	1.73	1.73	1.19	1.15	1.49	1.19	1.19
0.62	2.97	0.936	2.79	1.72	1.72	1.16	1.15	1.49	1.19	1.19
0.64	2.96	0.935	2.77	1.72	1.72	1.12	1.14	1.49	1.19	1.19
0.66	2.95	0.934	2.76	1.71	1.71	1.09	1.14	1.49	1.19	1.19
0.68	2.93	0.934	2.74	1.70	1.70	1.05	1.14	1.49	1.19	1.19
0.70	2.92	0.933	2.73	1.70	1.70	1.02	1.13	1.49	1.19	1.19
0.72	2.90	0.932	2.71	1.69	1.69	0.99	1.13	1.49	1.19	1.19
0.74	2.89	0.932	2.70	1.69	1.69	0.97	1.12	1.49	1.19	1.19
0.75	2.88	0.931	2.69	1.68	1.68	0.96	1.12	1.49	1.19	1.19
0.80	2.84	0.930	2.65	1.66	1.66	0.90	1.11	1.49	1.19	1.19
0.85	2.80	0.928	2.61	1.64	1.64	0.84	1.09	1.49	1.19	1.19
0.90	2.76	0.926	2.57	1.61	1.61	0.80	1.07	1.46	1.17	1.17
0.95	2.72	0.925	2.52	1.59	1.59	0.75	1.06	1.39	1.11	1.11
1.00	2.68	0.923	2.48	1.57	1.57	0.72	1.04	1.32	1.05	1.05
1.50	2.35	0.923	2.17	1.35	1.35	0.48	0.90	0.88	0.70	0.90
2.00	2.03	0.923	1.87	1.13	1.13	0.36	0.75	0.66	0.53	0.75
2.50	1.69	0.923	1.56	0.95	0.95	0.29	0.63	0.53	0.42	0.63
3.00	1.36	0.923	1.25	0.77	0.77	0.24	0.52	0.44	0.35	0.52
3.50	1.19	0.923	1.10	0.67	0.67	0.20	0.45	0.38	0.30	0.45
4.00	1.02	0.923	0.94	0.57	0.57	0.18	0.38	0.33	0.26	0.38

Table 4: Site-Specific Design Response Spectrum

Period	Site Specific MCE (g)	2/3 Site Specific MCE (g)	80% CBC General Spectrum	Design Response Spectrum (g)
0.00	0.84	0.56	0.48	0.56
0.05	0.91	0.61	0.68	0.68
0.10	1.13	0.75	0.88	0.88
0.12	1.21	0.81	0.96	0.96
0.20	1.52	1.02	1.19	1.19
0.25	1.60	1.06	1.19	1.19
0.30	1.67	1.11	1.19	1.19
0.35	1.71	1.14	1.19	1.19
0.40	1.74	1.16	1.19	1.19
0.45	1.75	1.17	1.19	1.19
0.50	1.76	1.17	1.19	1.19
0.55	1.74	1.16	1.19	1.19
0.65	1.71	1.14	1.19	1.19
0.70	1.70	1.13	1.19	1.19
0.75	1.68	1.12	1.19	1.19
0.80	1.66	1.11	1.19	1.19
0.90	1.61	1.07	1.17	1.17
1.00	1.57	1.04	1.05	1.05
1.50	1.35	0.90	0.70	0.90
2.00	1.13	0.75	0.53	0.75
2.50	0.95	0.63	0.42	0.63
3.00	0.77	0.52	0.35	0.52
3.50	0.67	0.45	0.30	0.45
4.00	0.57	0.38	0.26	0.38

FIGURES

Source: California Geological Survey 2010 Fault Activity Map of California
http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html#

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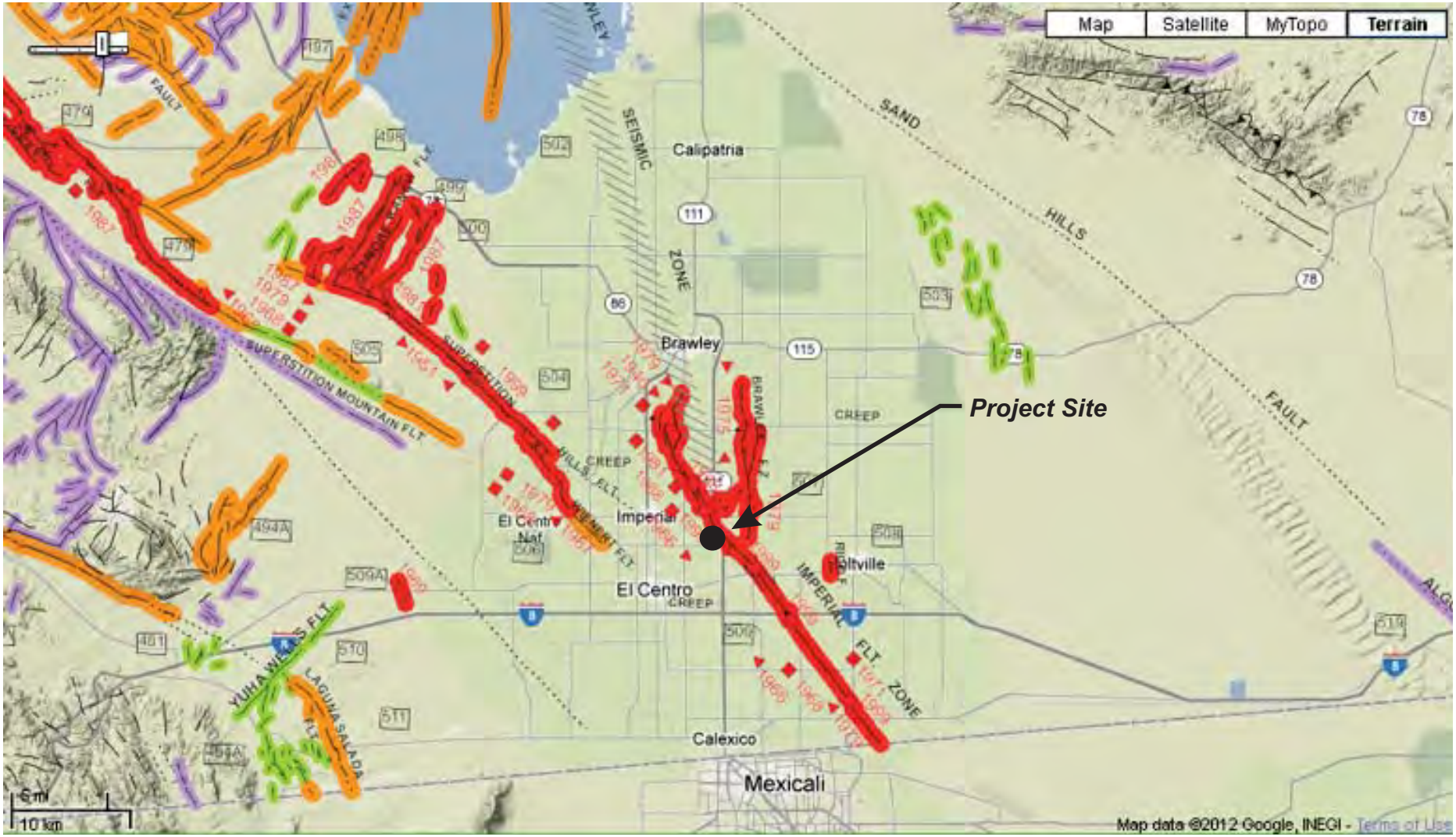
Regional Fault Map

Figure 1



Source: California Geological Survey 2010 Fault Activity Map of California
http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html#

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Map of Local Faults

Figure 2

EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traces are queried where continuation or existence is uncertain. Concealed faults in the Great Valley are based on maps of selected subsurface horizons, so locations shown are approximate and may indicate structural trend only. All offshore faults based on seismic reflection profile records are shown as solid lines where well defined, dashed where inferred, queried where uncertain.

FAULT CLASSIFICATION COLOR CODE
(Indicating Recency of Movement)

Fault along which historic (last 200 years) displacement has occurred and is associated with one or more of the following:

(a) a recorded earthquake with surface rupture. (Also included are some well-defined surface breaks caused by ground shaking during earthquakes, e.g. extensive ground breakage, not on the White Wolf fault, caused by the Arvin-Tehachapi earthquake of 1952). The date of the associated earthquake is indicated. Where repeated surface ruptures on the same fault have occurred, only the date of the latest movement may be indicated, especially if earlier reports are not well documented as to location of ground breaks.

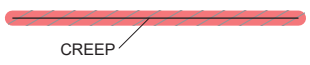
(b) fault creep slippage - slow ground displacement usually without accompanying earthquakes.

(c) displaced survey lines.

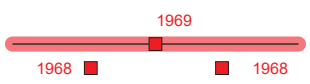
A triangle to the right or left of the date indicates termination point of observed surface displacement. Solid red triangle indicates known location of rupture termination point. Open black triangle indicates uncertain or estimated location of rupture termination point.

Date bracketed by triangles indicates local fault break.

No triangle by date indicates an intermediate point along fault break.



Fault that exhibits fault creep slippage. Hachures indicate linear extent of fault creep. Annotation (creep with leader) indicates representative locations where fault creep has been observed and recorded.



Square on fault indicates where fault creep slippage has occured that has been triggered by an earthquake on some other fault. Date of causative earthquake indicated. Squares to right and left of date indicate terminal points between which triggered creep slippage has occurred (creep either continuous or intermittent between these end points).

Holocene fault displacement (during past 11,700 years) without historic record. Geomorphic evidence for Holocene faulting includes sag ponds, scarps showing little erosion, or the following features in Holocene age deposits: offset stream courses, linear scarps, shutter ridges, and triangular faceted spurs. Recency of faulting offshore is based on the interpreted age of the youngest strata displaced by faulting.

Late Quaternary fault displacement (during past 700,000 years). Geomorphic evidence similar to that described for Holocene faults except features are less distinct. Faulting may be younger, but lack of younger overlying deposits precludes more accurate age classification.

Quaternary fault (age undifferentiated). Most faults of this category show evidence of displacement sometime during the past 1.6 million years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age. Unnumbered Quaternary faults were based on Fault Map of California, 1975. See Bulletin 201, Appendix D for source data.

Pre-Quaternary fault (older that 1.6 million years) or fault without recognized Quaternary displacement. Some faults are shown in this category because the source of mapping used was of reconnaissnce nature, or was not done with the object of dating fault displacements. Faults in this category are not necessarily inactive.

ADDITIONAL FAULT SYMBOLS

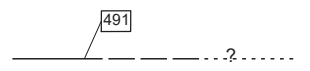
Bar and ball on downthrown side (relative or apparent).

Arrows along fault indicate relative or apparent direction of lateral movement.

Arrow on fault indicates direction of dip.

Low angle fault (barbs on upper plate). Fault surface generally dips less than 45° but locally may have been subsequently steepened. On offshore faults, barbs simply indicate a reverse fault regardless of steepness of dip.

OTHER SYMBOLS



Numbers refer to annotations listed in the appendices of the accompanying report. Annotations include fault name, age of fault displacement, and pertinent references including Earthquake Fault Zone maps where a fault has been zoned by the Alquist-Priolo Earthquake Fault Zoning Act. This Act requires the State Geologist to delineate zones to encompass faults with Holocene displacement.

Structural discontinuity (offshore) separating differing Neogene structural domains. May indicate discontinuities between basement rocks.

Brawley Seismic Zone, a linear zone of seismicity locally up to 10 km wide associated with the releasing step between the Imperial and San Andreas faults.

Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
						ON LAND	OFFSHORE
Quaternary	Late Quaternary	Historic				Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	200		?	Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
		Pleistocene	11,700		?	Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
	Early Quaternary		700,000		?	Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary			1,600,000*		?	Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.
			4.5 billion (Age of Earth)				

* Quaternary now recognized as extending to 2.6 Ma (Walker and Geissman, 2009). Quaternary faults in this map were established using the previous 1.6 Ma criterion.

Figure 3: Deterministic Maximum Considered Earthquake (ASCE 7-16 Section 21.2.2)

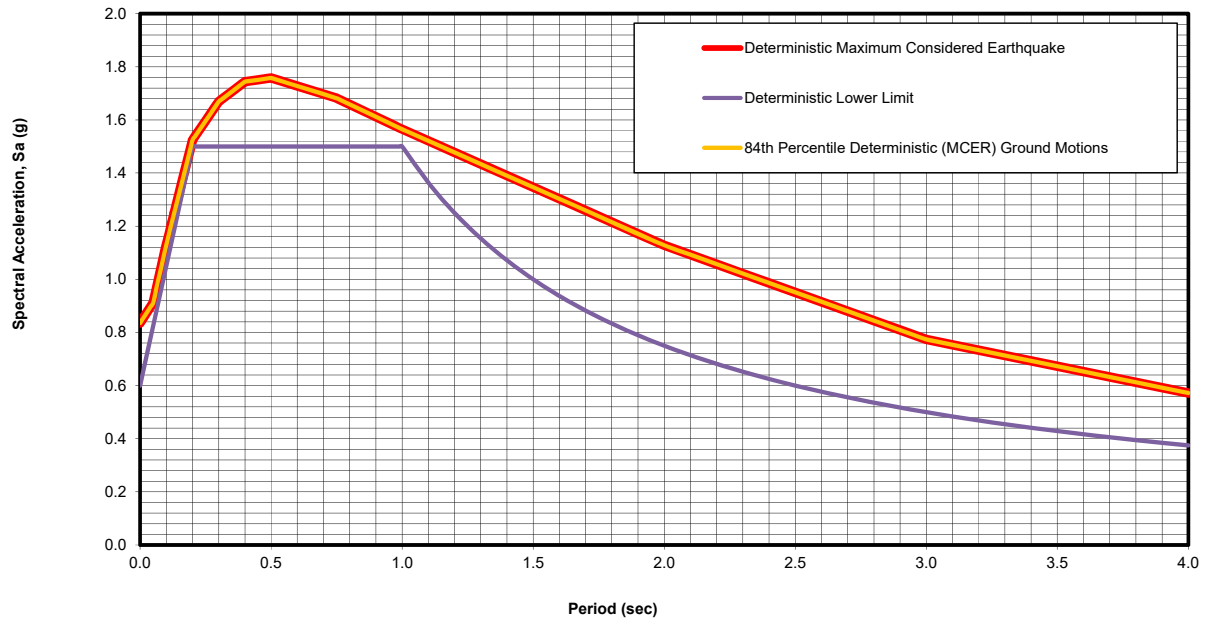


Figure 4: Site-Specific Maximum Considered Earthquake (ASCE 7-16 Section 21.2.3)

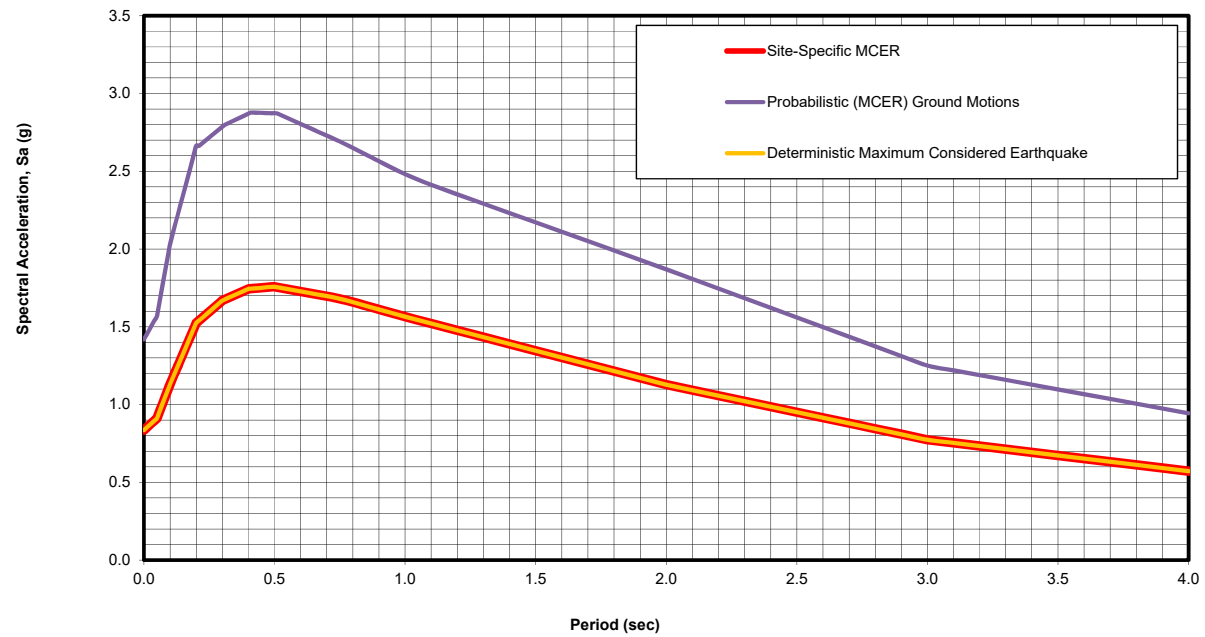
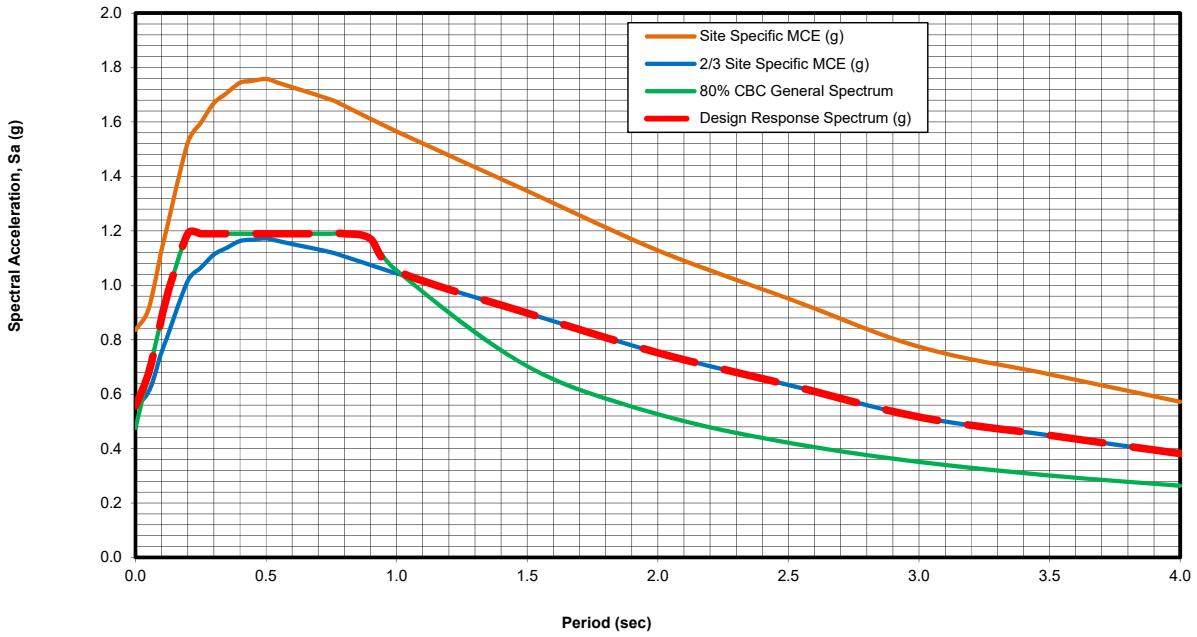
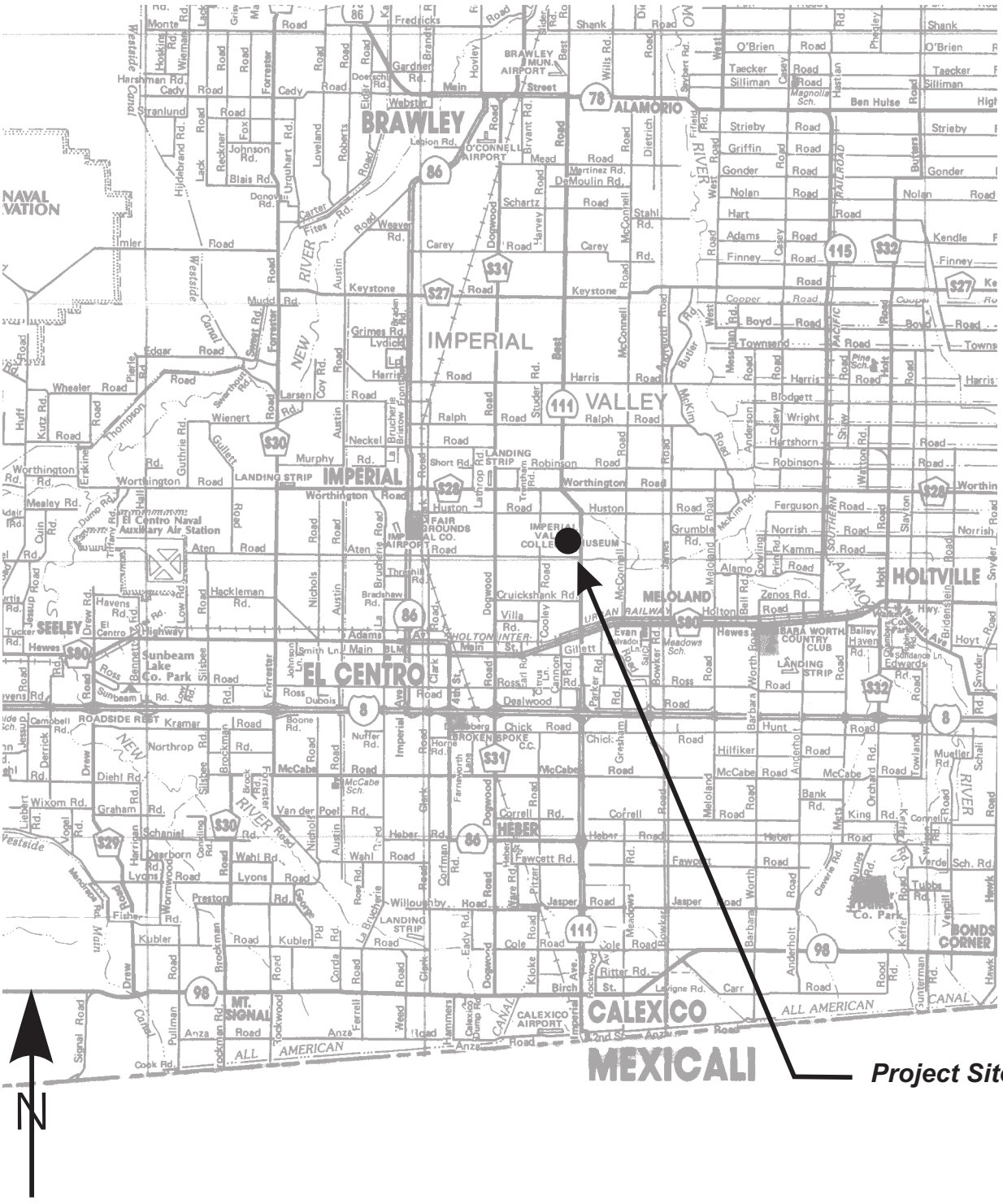


Figure 5: Site-Specific Design Response Spectrum (ASCE 7-16 Section 21.3)



APPENDIX A

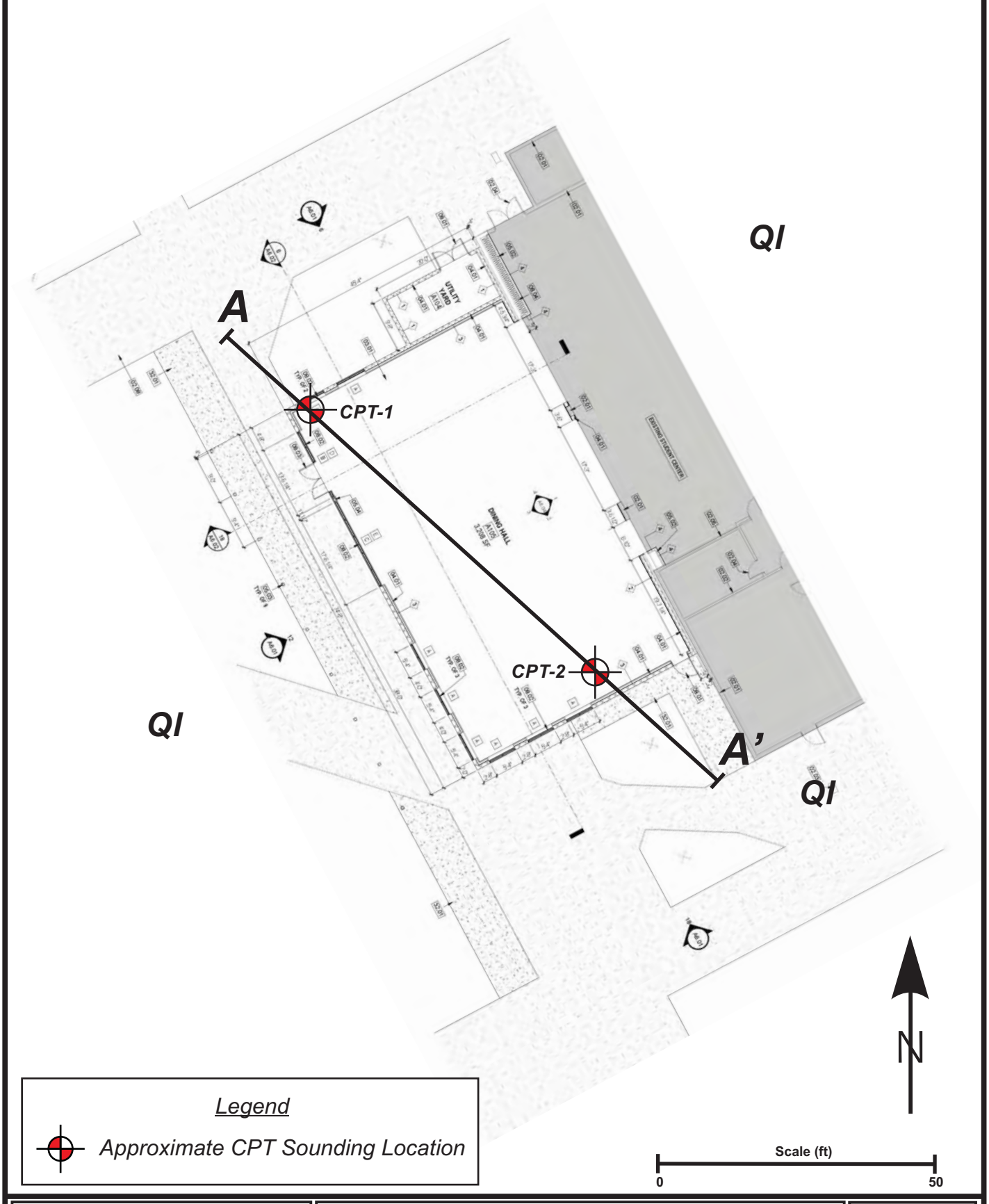


LANDMARK
Geo-Engineers and Geologists

Project No.: LE20129

Vicinity Map

Plate A-1

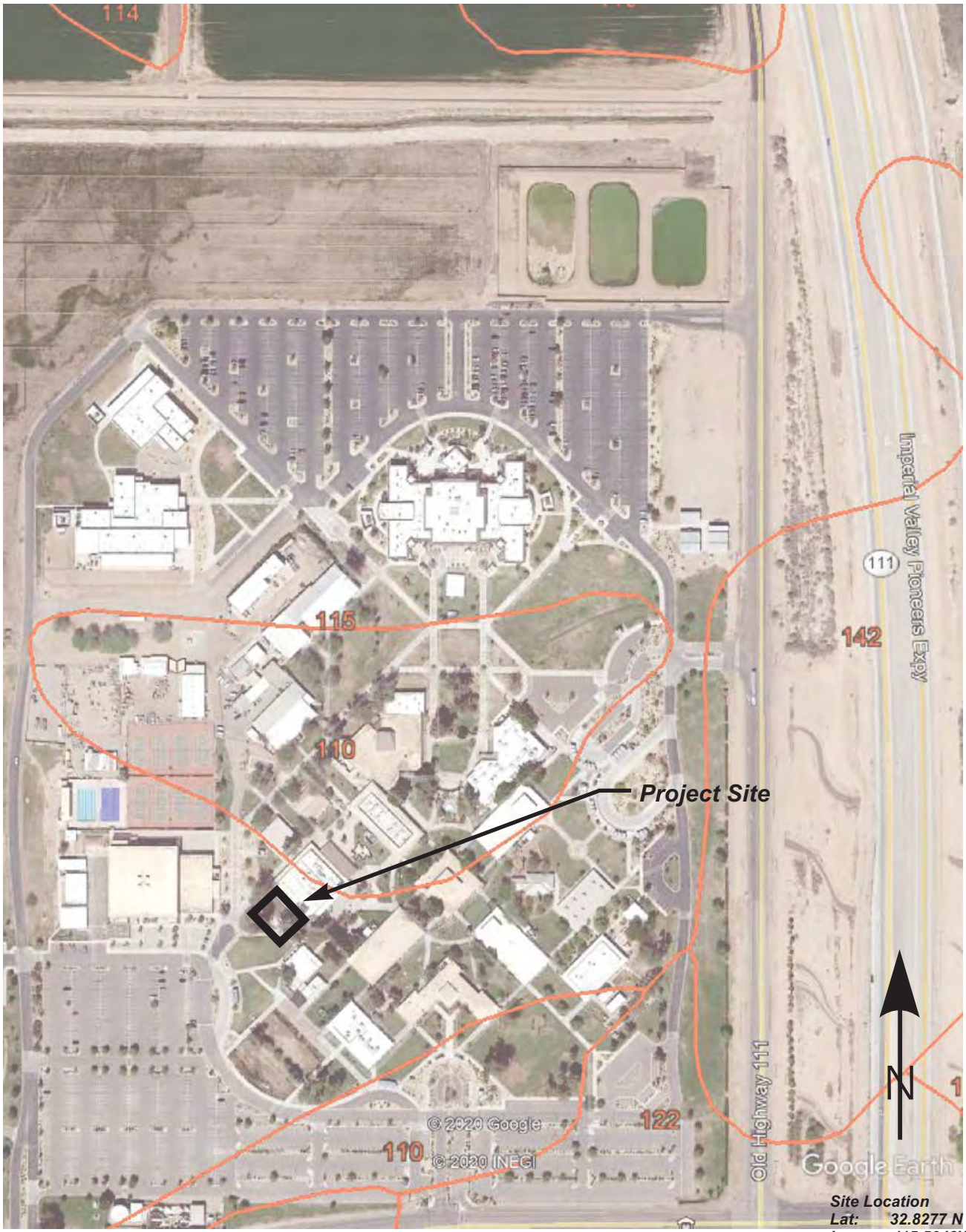


LANDMARK
Geo-Engineers and Geologists

Project No.: LE20129

Site and Exploration Map

Plate
A-2



Site Location
Lat: 32.8277 N
Long: -115.5048W

LANDMARK
Geo-Engineers and Geologists

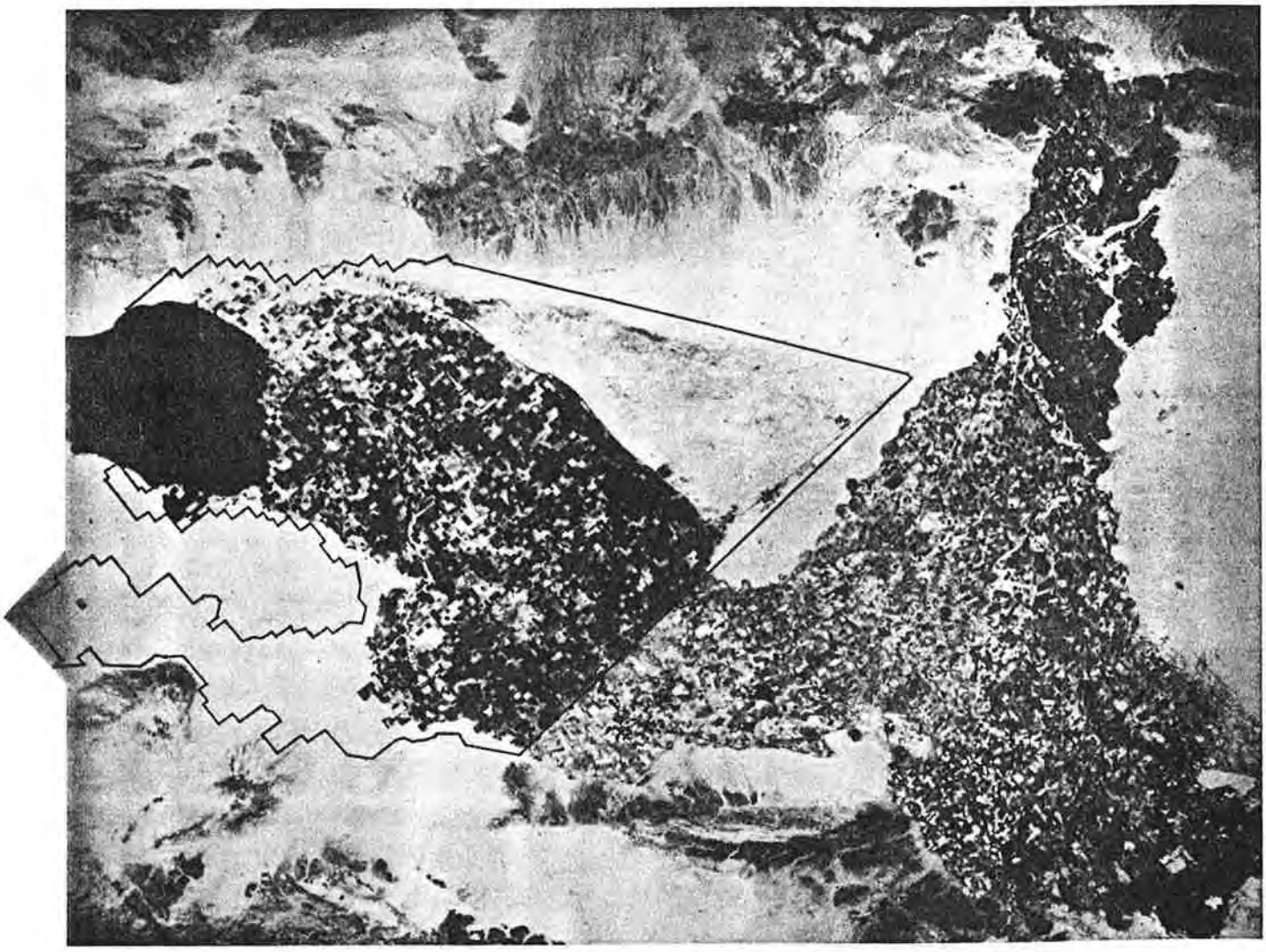
Project No.: LE20129

Soil Survey Map

Plate A-3

Soil Survey of

IMPERIAL COUNTY CALIFORNIA IMPERIAL VALLEY AREA



United States Department of Agriculture Soil Conservation Service
in cooperation with
University of California Agricultural Experiment Station
and
Imperial Irrigation District

TABLE 11.--ENGINEERING INDEX PROPERTIES

[The symbol > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
100---------- Antho	0-13	Loamy fine sand	SM	A-2	0	100	100	75-85	10-30	---	NP
	13-60	Sandy loam, fine sandy loam.	SM	A-2, A-4	0	90-100	75-95	50-60	15-40	---	NP
101*:											
Antho----------	0-8	Loamy fine sand	SM	A-2	0	100	100	75-85	10-30	---	NP
	8-60	Sandy loam, fine sandy loam.	SM	A-2, A-4	0	90-100	75-95	50-60	15-40	---	NP
Superstition------	0-6	Fine sand-------	SM	A-2	0	100	95-100	70-85	15-25	---	NP
	6-60	Loamy fine sand, fine sand, sand.	SM	A-2	0	100	95-100	70-85	15-25	---	NP
102*. Badland											
103---------- Carsitas	0-10	Gravelly sand---	SP, SP-SM	A-1, A-2	0-5	60-90	50-85	30-55	0-10	---	NP
	10-60	Gravelly sand, gravelly coarse sand, sand.	SP, SP-SM	A-1	0-5	60-90	50-85	25-50	0-10	---	NP
104* Fluvaquents											
105---------- Glenbar	0-13	Clay loam-------	CL	A-6	0	100	100	90-100	70-95	35-45	15-30
	13-60	Clay loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-95	35-45	15-30
106---------- Glenbar	0-13	Clay loam-------	CL	A-6, A-7	0	100	100	90-100	70-95	35-45	15-25
	13-60	Clay loam, silty clay loam.	CL	A-6, A-7	0	100	100	90-100	70-95	35-45	15-25
107*---------- Glenbar	0-13	Loam----------	ML, CL-ML, CL	A-4	0	100	100	100	70-80	20-30	NP-10
	13-60	Clay loam, silty clay loam.	CL	A-6, A-7	0	100	100	95-100	75-95	35-45	15-30
108---------- Holtville	0-14	Loam----------	ML	A-4	0	100	100	85-100	55-95	25-35	NP-10
	14-22	Clay, silty clay	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
	22-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	65-85	25-35	NP-10
109---------- Holtville	0-17	Silty clay------	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
	17-24	Clay, silty clay	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
	24-35	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	65-85	25-35	NP-10
	35-60	Loamy very fine sand, loamy fine sand.	SM, ML	A-2, A-4	0	100	100	75-100	20-55	---	NP
110---------- Holtville	0-17	Silty clay------	CH, CL	A-7	0	100	100	95-100	85-95	40-65	20-35
	17-24	Clay, silty clay	CH, CL	A-7	0	100	100	95-100	85-95	40-65	20-35
	24-35	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	55-85	25-35	NP-10
	35-60	Loamy very fine sand, loamy fine sand.	SM, ML	A-2, A-4	0	100	100	75-100	20-55	---	NP

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
111*:											
Holtville	0-10	Silty clay loam	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
	10-22	Clay, silty clay	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
	22-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	65-85	25-35	NP-10
Imperial	0-12	Silty clay loam	CL	A-7	0	100	100	100	85-95	40-50	10-20
	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
112	0-12	Silty clay	CH	A-7	0	100	100	100	85-95	50-70	25-45
Imperial	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
113	0-12	Silty clay	CH	A-7	0	100	100	100	85-95	50-70	25-45
Imperial	12-60	Silty clay, clay, silty clay loam.	CH	A-7	0	100	100	100	85-95	50-70	25-45
114	0-12	Silty clay	CH	A-7	0	100	100	100	85-95	50-70	25-45
Imperial	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
115*:											
Imperial	0-12	Silty clay loam	CL	A-7	0	100	100	100	85-95	40-50	10-20
	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
Glenbar	0-13	Silty clay loam	CL	A-6, A-7	0	100	100	90-100	70-95	35-45	15-25
	13-60	Clay loam, silty clay loam.	CL	A-6, A-7	0	100	100	90-100	70-95	35-45	15-25
116*:											
Imperial	0-13	Silty clay loam	CL	A-7	0	100	100	100	85-95	40-50	10-20
	13-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
Glenbar	0-13	Silty clay loam	CL	A-6, A-7	0	100	100	90-100	70-95	35-45	15-25
	13-60	Clay loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-95	35-45	15-30
117, 118	0-12	Loam	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
Indio	12-72	Stratified loamy very fine sand to silt loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
119*:											
Indio	0-12	Loam	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
	12-72	Stratified loamy very fine sand to silt loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
Vint	0-10	Loamy fine sand	SM	A-2	0	95-100	95-100	70-80	25-35	---	NP
	10-60	Loamy sand, loamy fine sand.	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
120*	0-12	Loam	ML, CL-ML	A-4	0	100	95-100	75-85	55-65	20-30	NP-10
Laveen	12-60	Loam, very fine sandy loam.	ML, CL-ML	A-4	0	95-100	85-95	70-80	55-65	15-25	NP-10

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

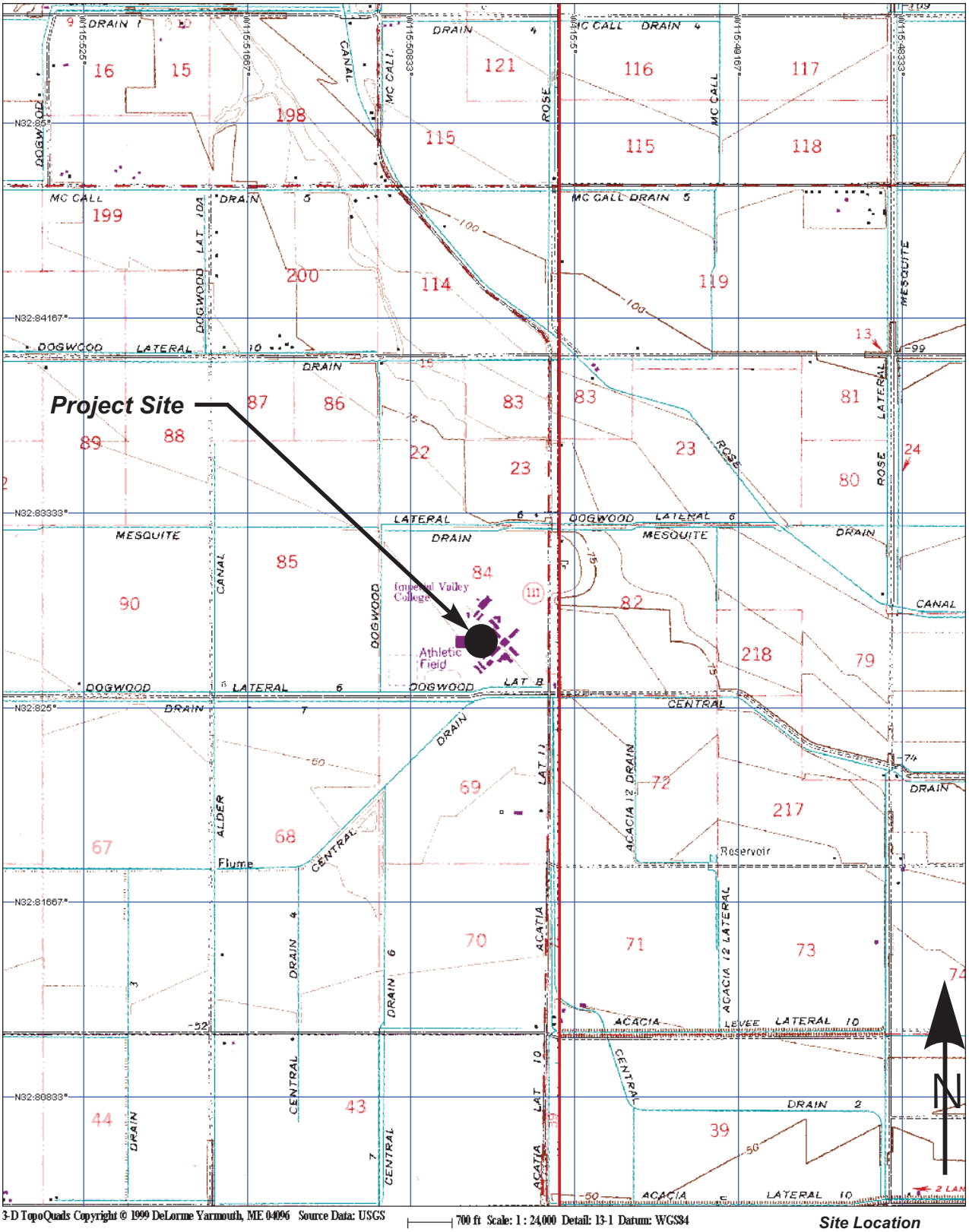
Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
121---------- Meloland	0-12	Fine sand-------	SM, SP-SM	A-2, A-3	0	95-100	90-100	75-100	5-30	---	NP
	12-26	Stratified loamy fine sand to silt loam.	ML	A-4	0	100	100	90-100	50-65	25-35	NP-10
	26-71	Clay, silty clay, silty clay loam.	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-40
122---------- Meloland	0-12	Very fine sandy loam.	ML	A-4	0	95-100	95-100	95-100	55-85	25-35	NP-10
	12-26	Stratified loamy fine sand to silt loam.	ML	A-4	0	100	100	90-100	50-70	25-35	NP-10
	26-71	Clay, silty clay, silty clay loam.	CH, CL	A-7	0	100	100	95-100	85-95	40-65	20-40
123*: Meloland----------	0-12	Loam----------	ML	A-4	0	95-100	95-100	95-100	55-85	25-35	NP-10
	12-26	Stratified loamy fine sand to silt loam.	ML	A-4	0	100	100	90-100	50-70	25-35	NP-10
	26-38	Clay, silty clay, silty clay loam.	CH, CL	A-7	0	100	100	95-100	85-95	40-65	20-40
	38-60	Stratified silt loam to loamy fine sand.	SM, ML	A-4	0	100	100	75-100	35-55	25-35	NP-10
Holtville---------	0-12	Loam----------	ML	A-4	0	100	100	85-100	55-95	25-35	NP-10
	12-24	Clay, silty clay	CH, CL	A-7	0	100	100	95-100	85-95	40-65	20-35
	24-36	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	55-85	25-35	NP-10
	36-60	Loamy very fine sand, loamy fine sand.	SM, ML	A-2, A-4	0	100	100	75-100	20-55	---	NP
124, 125---------- Niland	0-23	Gravelly sand---	SM, SP-SM	A-2, A-3	0	90-100	70-95	50-65	5-25	---	NP
	23-60	Silty clay, clay, clay loam.	CL, CH	A-7	0	100	100	85-100	80-95	40-65	20-40
126---------- Niland	0-23	Fine sand-------	SM, SP-SM	A-2, A-3	0	90-100	90-100	50-65	5-25	---	NP
	23-60	Silty clay------	CL, CH	A-7	0	100	100	85-100	80-95	40-65	20-40
127---------- Niland	0-23	Loamy fine sand	SM	A-2	0	90-100	90-100	50-65	15-30	---	NP
	23-60	Silty clay------	CL, CH	A-7	0	100	100	85-100	80-95	40-65	20-40
128*: Niland----------	0-23	Gravelly sand---	SM, SP-SM	A-2, A-3	0	90-100	70-95	50-65	5-25	---	NP
	23-60	Silty clay, clay, clay loam.	CL, CH	A-7	0	100	100	85-100	80-100	40-65	20-40
Imperial----------	0-12	Silty clay------	CH	A-7	0	100	100	100	85-95	50-70	25-45
	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
129*: Pits											
130, 131---------- Rositas	0-27	Sand----------	SP-SM	A-3, A-1, A-2	0	100	80-100	40-70	5-15	---	NP
	27-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
132, 133, 134, 135-Rositas	0-9	Fine sand-------	SM	A-3, A-2	0	100	80-100	50-80	10-25	---	NP
	9-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
136----------	0-4	Loamy fine sand	SM	A-1, A-2	0	100	80-100	40-85	10-35	---	NP
Rositas	4-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
137----------	0-12	Silt loam-------	ML	A-4	0	100	100	90-100	70-90	20-30	NP-5
Rositas	12-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
138*:											
Rositas----------	0-4	Loamy fine sand	SM	A-1, A-2	0	100	80-100	40-85	10-35	---	NP
	4-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
Superstition------	0-6	Loamy fine sand	SM	A-2	0	100	95-100	70-85	15-25	---	NP
	6-60	Loamy fine sand, fine sand, sand.	SM	A-2	0	100	95-100	70-85	15-25	---	NP
139----------	0-6	Loamy fine sand	SM	A-2	0	100	95-100	70-85	15-25	---	NP
Superstition	6-60	Loamy fine sand, fine sand, sand.	SM	A-2	0	100	95-100	70-85	15-25	---	NP
140*:											
Torriorthents											
Rock outcrop											
141*:											
Torriorthents											
Orthids											
142----------	0-10	Loamy very fine sand.	SM, ML	A-4	0	100	100	85-95	40-65	15-25	NP-5
Vint	10-60	Loamy fine sand	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
143----------	0-12	Fine sandy loam	ML, CL-ML, SM, SM-SC	A-4	0	100	100	75-85	45-55	15-25	NP-5
Vint	12-60	Loamy sand, loamy fine sand.	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
144*:											
Vint----------	0-10	Very fine sandy loam.	SM, ML	A-4	0	100	100	85-95	40-65	15-25	NP-5
	10-40	Loamy fine sand	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
	40-60	Silty clay------	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
Indio----------	0-12	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
	12-40	Stratified loamy very fine sand to silt loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
	40-72	Silty clay------	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35

* See description of the map unit for composition and behavior characteristics of the map unit.



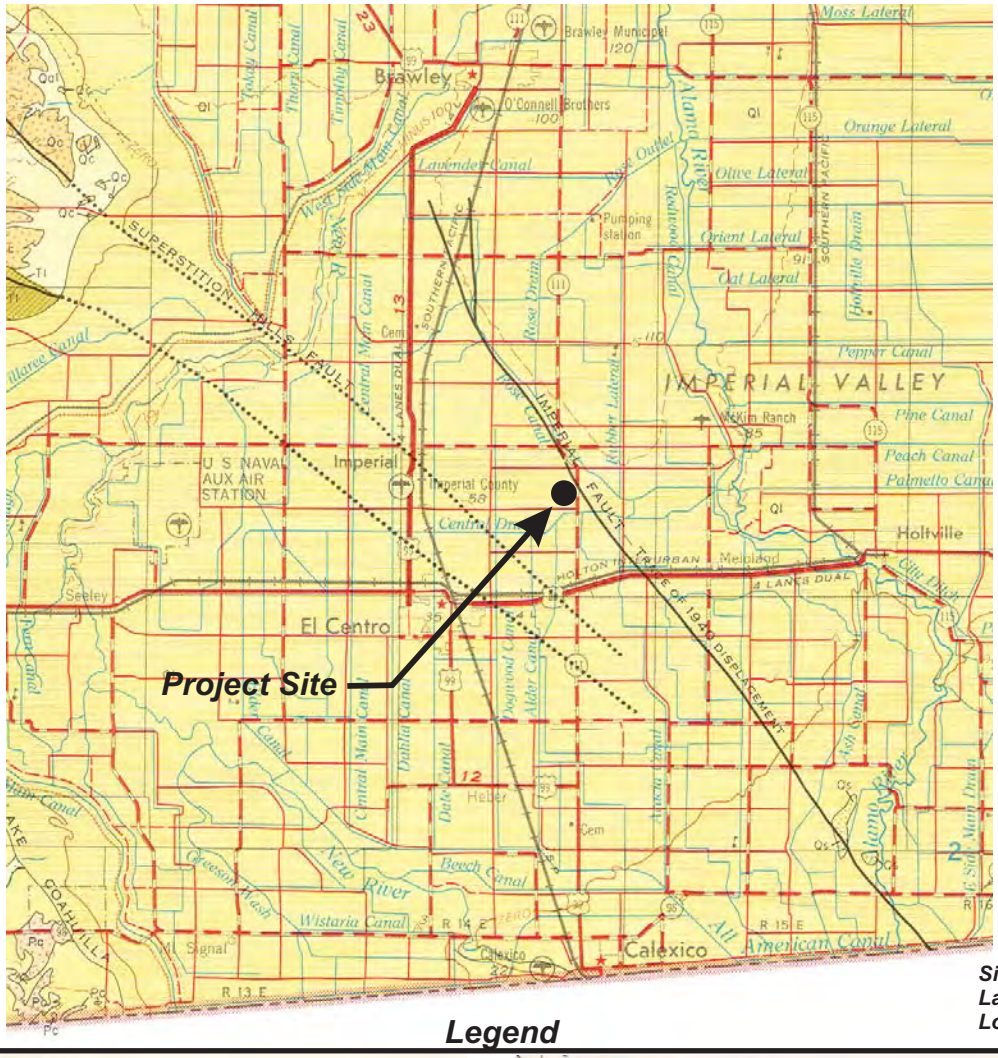
Site Location
Lat: 32.8277 N
Long: -115.5048 W

LANDMARK
Geo-Engineers and Geologists

Project No.: LE20129

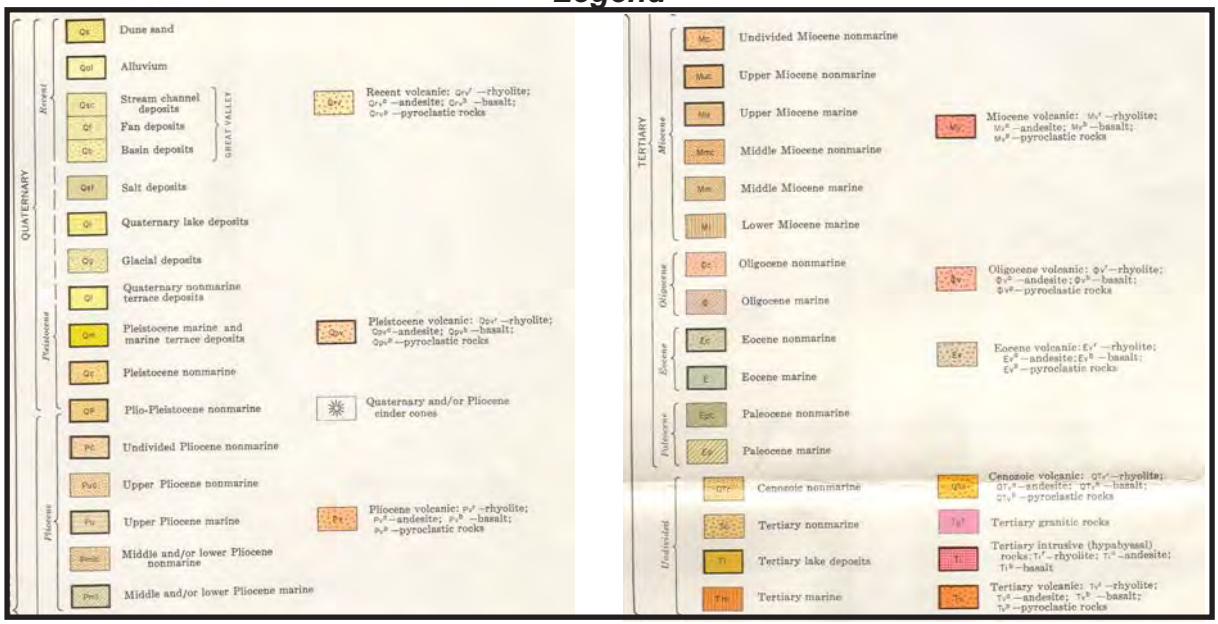
Topographic Map

Plate
A-4



Site Location
Lat: 32.8277 N
Long: -115.5048 W

Legend

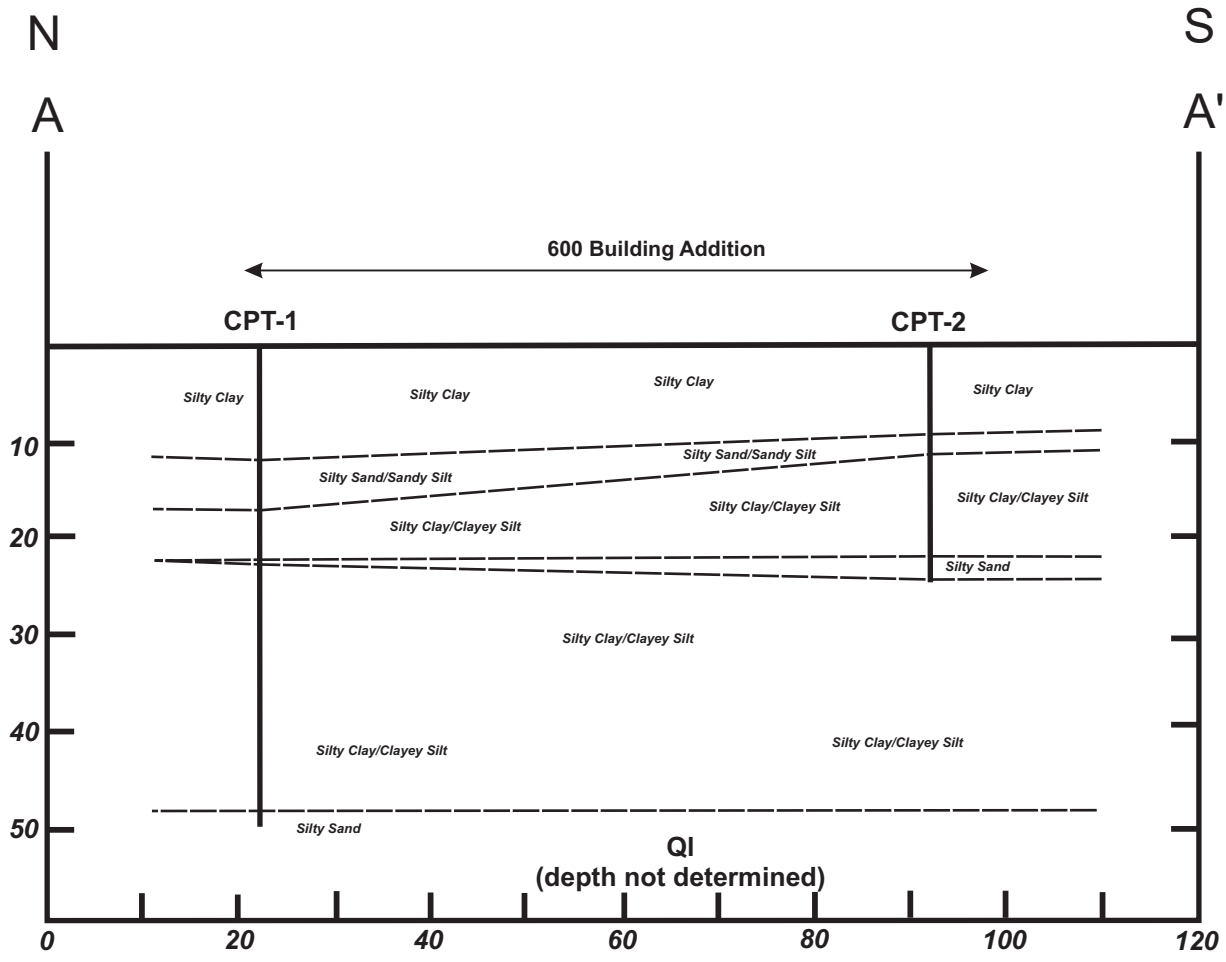


LANDMARK
Geo-Engineers and Geologists

Project No.: LE20129

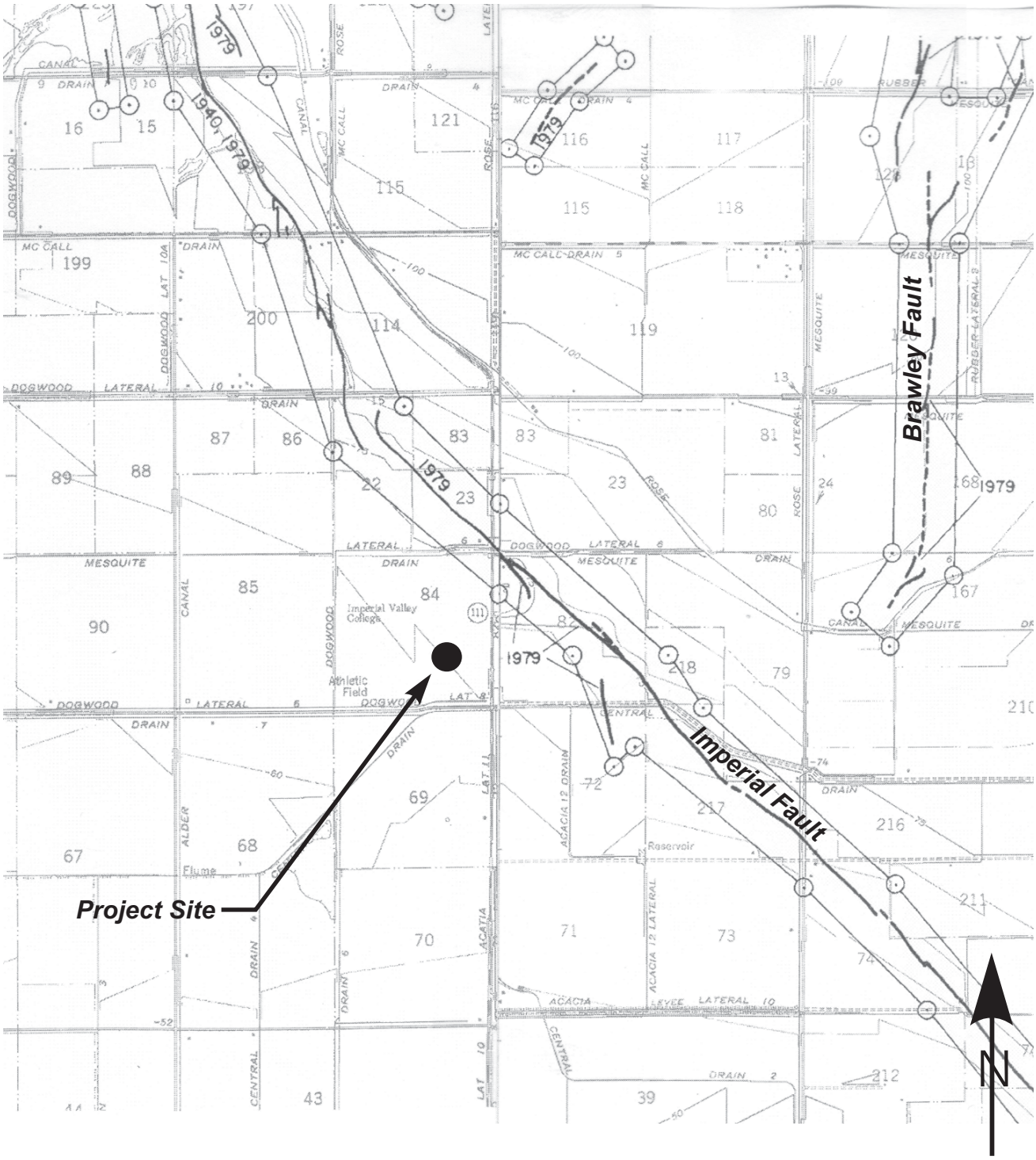
Regional Geologic Map

Plate A-5



Scale
1" = 20' Horizontal
1" = 20' Vertical

LANDMARK Geo-Engineers and Geologists **Project No.: LE20129**	**Schematic Geologic Cross-section (A-A')**	**Plate A-6**



Site Location
Lat: 32.8277 N
Long: -115.5048 W

LANDMARK Geo-Engineers and Geologists **Project No.: LE20129**	**A-P Earthquake Fault Map**	**Plate** **A-7**

Site Location
Lat: 32.8277 N
Long: -115.5048 W

LANDMARK
Geo-Engineers and Geologists

Project No.: LE20129

Earthquake Zones of Required Investigation Map

Plate A-8

APPENDIX B

CLIENT: Imperial Community College District
PROJECT: 600 Building Addition - Imperial, CA

CONE PENETROMETER: Kehoe Testing & Engineering Truck Mounted Electric Cone with 30 ton reaction weight

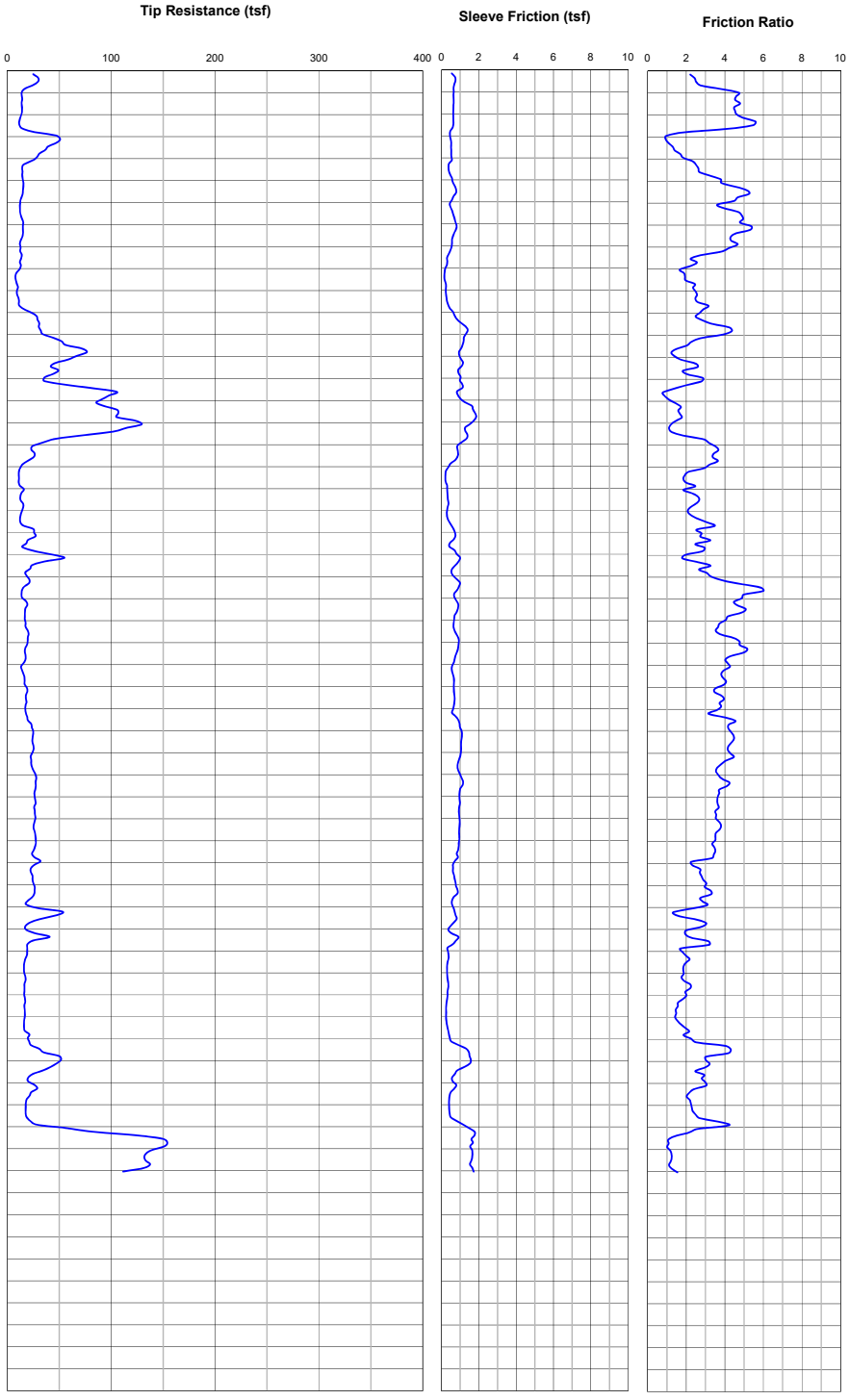
LOCATION: See Site and Boring Location Plan

DATE: 9/14/2020

CONE SOUNDING DATA CPT-1

DEPTH	INTERPRETED SOIL PROFILE From Robertson and Campanella (1989		
	GROUND ELEVATION +/-		
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Clay	CL/CH	stiff
	Silty Clay to Clay	CL	very stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
5	Clayey Silt to Silty Clay	ML/CL	stiff
	Clay	CL/CH	stiff
	Clay	" "	stiff
	Clay	" "	stiff
	Clayey Silt to Silty Clay	ML/CL	stiff
10	Clayey Silt to Silty Clay	" "	firm
	Clayey Silt to Silty Clay	" "	stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sandy Silt to Clayey Silt	ML	medium dense
15	Silty Sand to Sandy Silt	SM/ML	dense
	Sand to Silty Sand	SP/SM	dense
	Sandy Silt to Clayey Silt	ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Clayey Silt to Silty Clay	" "	stiff
20	Clayey Silt to Silty Clay	" "	stiff
	Clayey Silt to Silty Clay	" "	stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clay	CL/CH	stiff
25	Clay	" "	stiff
	Silty Clay to Clay	CL	very stiff
	Clay	CL/CH	stiff
	Silty Clay to Clay	CL	stiff
	Silty Clay to Clay	" "	stiff
30	Silty Clay to Clay	" "	very stiff
	Silty Clay to Clay	" "	very stiff
	Silty Clay to Clay	" "	very stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
35	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Sandy Silt to Clayey Silt	ML	loose
40	Sandy Silt to Clayey Silt	" "	loose
	Clayey Silt to Silty Clay	ML/CL	stiff
	Clayey Silt to Silty Clay	" "	stiff
	Sandy Silt to Clayey Silt	ML	very loose
	Sandy Silt to Clayey Silt	" "	very loose
45	Clayey Silt to Silty Clay	ML/CL	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Sand to Silty Sand	SP/SM	dense
50	Sand to Silty Sand	" "	dense
55			

END OF SOUNDING AT 50 ft.



Project No.		PLATE
LE20129	LANDMARK Geo-Engineers and Geologists	B-1

LANDMARK CONSULTANTS, INC.

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: 600 Building Addition - Imperial, CA **Project No:** LE20129 **Date:** 9/14/2020

CONE SOUNDING: CPT-1

Est. GWT (ft): 8

Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
0.15	0.5	28.03	2.39	Sandy Silt to Clayey Silt	ML	very dense	115	8	53.0	55	97	42		
0.30	1.0	18.49	3.77	Silty Clay to Clay	CL	very stiff	125	11		80			1.08	>10
0.45	1.5	13.93	4.64	Clay	CL/CH	stiff	125	11		95			0.81	>10
0.60	2.0	13.94	4.55	Clay	CL/CH	stiff	125	11		95			0.81	>10
0.75	2.5	11.82	5.35	Clay	CL/CH	stiff	125	9		100			0.69	>10
0.93	3.0	28.90	2.32	Sandy Silt to Clayey Silt	ML	medium dense	115	8	54.6	55	61	37		
1.08	3.5	45.77	1.11	Silty Sand to Sandy Silt	SM/ML	dense	115	10	86.5	30	73	38		
1.23	4.0	31.89	1.65	Sandy Silt to Clayey Silt	ML	medium dense	115	9	60.3	45	60	36		
1.38	4.5	17.85	2.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	7		70			1.03	>10
1.53	5.0	14.51	3.24	Silty Clay to Clay	CL	stiff	125	8		80			0.84	>10
1.68	5.5	15.15	4.69	Clay	CL/CH	stiff	125	12		90			0.87	>10
1.83	6.0	12.84	4.25	Clay	CL/CH	stiff	125	10		95			0.73	>10
1.98	6.5	12.33	4.51	Clay	CL/CH	stiff	125	10		100			0.70	>10
2.13	7.0	14.72	5.04	Clay	CL/CH	stiff	125	12		95			0.84	>10
2.28	7.5	14.81	4.72	Clay	CL/CH	stiff	125	12		95			0.85	>10
2.45	8.0	12.56	4.41	Clay	CL/CH	stiff	125	10		95			0.71	>10
2.60	8.5	13.13	2.94	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		85			0.74	>10
2.75	9.0	12.27	2.15	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		80			0.69	>10
2.90	9.5	8.20	1.93	Clayey Silt to Silty Clay	ML/CL	firm	120	3		95			0.45	9.19
3.05	10.0	9.45	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	120	4		95			0.52	>10
3.20	10.5	10.39	2.54	Clayey Silt to Silty Clay	ML/CL	stiff	120	4		95			0.58	>10
3.35	11.0	16.43	2.91	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		80			0.93	>10
3.50	11.5	29.26	2.88	Clayey Silt to Silty Clay	ML/CL	very stiff	120	12		65			1.69	>10
3.65	12.0	32.10	4.16	Silty Clay to Clay	CL	very stiff	125	18		70			1.85	>10
3.80	12.5	50.68	2.35	Sandy Silt to Clayey Silt	ML	medium dense	115	14	63.4	45	59	36		
3.95	13.0	71.86	1.37	Silty Sand to Sandy Silt	SM/ML	medium dense	115	16	88.9	30	69	38		
4.13	13.5	48.97	2.28	Sandy Silt to Clayey Silt	ML	medium dense	115	14	60.0	45	57	36		
4.28	14.0	43.08	2.25	Sandy Silt to Clayey Silt	ML	medium dense	115	12	52.2	50	53	35		
4.43	14.5	57.74	2.05	Silty Sand to Sandy Silt	SM/ML	medium dense	115	13	69.3	40	62	37		
4.58	15.0	98.25	0.93	Sand to Silty Sand	SP/SM	dense	115	18	116.7	20	77	39		
4.73	15.5	95.17	1.59	Silty Sand to Sandy Silt	SM/ML	dense	115	21	112.0	30	76	39		
4.88	16.0	116.14	1.51	Sand to Silty Sand	SP/SM	dense	115	21	135.3	25	81	39		
5.03	16.5	96.75	1.41	Sand to Silty Sand	SP/SM	dense	115	18	111.7	25	76	39		
5.18	17.0	35.18	3.21	Clayey Silt to Silty Clay	ML/CL	hard	120	14		65			2.03	>10
5.33	17.5	24.89	3.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		80			1.42	>10
5.48	18.0	15.89	3.26	Silty Clay to Clay	CL	stiff	125	9		95			0.89	>10
5.65	18.5	11.07	1.96	Clayey Silt to Silty Clay	ML/CL	stiff	120	4		100			0.61	7.70
5.80	19.0	12.93	2.11	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		95			0.71	>10
5.95	19.5	12.90	2.54	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.71	9.79
6.10	20.0	14.78	2.23	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		95			0.82	>10
6.25	20.5	12.51	2.64	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.69	8.41
6.40	21.0	21.87	2.94	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		85			1.24	>10
6.55	21.5	21.75	2.82	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		85			1.23	>10
6.70	22.0	26.75	2.58	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		75			1.52	>10
6.85	22.5	38.02	2.55	Sandy Silt to Clayey Silt	ML	medium dense	115	11	39.4	65	45	34		
7.00	23.0	19.27	3.01	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		95			1.08	>10
7.18	23.5	19.33	4.81	Clay	CL/CH	very stiff	125	15		100			1.08	8.27
7.33	24.0	13.91	5.29	Clay	CL/CH	stiff	125	11		100			0.76	4.57
7.48	24.5	18.16	4.74	Clay	CL/CH	very stiff	125	15		100			1.01	6.88
7.63	25.0	16.84	4.37	Clay	CL/CH	stiff	125	13		100			0.93	6.00
7.78	25.5	18.10	3.64	Silty Clay to Clay	CL	very stiff	125	10		100			1.01	8.70
7.93	26.0	19.90	4.33	Silty Clay to Clay	CL	very stiff	125	11		100			1.11	>10
8.08	26.5	17.61	4.82	Clay	CL/CH	stiff	125	14		100			0.98	6.00
8.23	27.0	15.59	4.15	Clay	CL/CH	stiff	125	12		100			0.86	4.78
8.38	27.5	15.23	3.89	Silty Clay to Clay	CL	stiff	125	9		100			0.83	5.76
8.53	28.0	17.32	3.84	Silty Clay to Clay	CL	stiff	125	10		100			0.96	6.88
8.68	28.5	18.31	3.75	Silty Clay to Clay	CL	very stiff	125	10		100			1.01	7.41
8.85	29.0	17.67	3.71	Silty Clay to Clay	CL	stiff	125	10		100			0.98	6.76
9.00	29.5	18.85	3.90	Silty Clay to Clay	CL	very stiff	125	11		100			1.04	7.41
9.15	30.0	23.78	4.24	Silty Clay to Clay	CL	very stiff	125	14		100			1.33	>10
9.30	30.5	24.32	4.42	Silty Clay to Clay	CL	very stiff	125	14		100			1.36	>10
9.45	31.0	24.77	4.21	Silty Clay to Clay	CL	very stiff	125	14		100			1.39	>10
9.60	31.5	22.77	4.11	Silty Clay to Clay	CL	very stiff	125	13		100			1.27	9.79
9.75	32.0	25.37	3.61	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		100			1.42	>10
9.90	32.5	27.46	4.06	Silty Clay to Clay	CL	very stiff	125	16		100			1.55	>10
10.05	33.0	26.39	3.69	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		100			1.48	>10
10.20	33.5	26.57	3.64	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		100			1.49	>10
10.38	34.0	26.63	3.53	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		100			1.49	>10
10.53	34.5	25.61	3.75	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		100			1.43	>10
10.68	35.0	26.90	3.52	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		100			1.51	>10
10.83	35.5	26.48	3.44	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		100			1.48	>10
10.98	36.0	27.31	3.01	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		95			1.53	>10
11.13	36.5	23.88	2.64	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		100			1.33	>10
11.28	37.0	25.07	2.96	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		100			1.40	>10
11.43	37.5	25.34	3.10	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		100			1.41	>10
11.58	38.0	22.17	2.73	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.22	>10
11.73	38.5	44.16	1.81	Silty Sand to Sandy Silt	SM/ML	medium dense	115	10	36.8	65	43	34		

LANDMARK CONSULTANTS, INC.

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: 600 Building Addition - Imperial, CA **Project No:** LE20129 **Date:** 9/14/2020

CONE SOUNDING: CPT-1

Est. GWT (ft): 8 Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
11.88	39.0	19.09	2.61	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.04	7.13
12.05	39.5	30.73	2.44	Sandy Silt to Clayey Silt	ML	loose	115	9	25.3	90	32	32		
12.20	40.0	19.18	2.23	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.05	6.88
12.35	40.5	17.53	2.04	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.95	5.88
12.50	41.0	16.07	1.86	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.86	5.00
12.65	41.5	17.08	1.96	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.92	5.42
12.80	42.0	16.33	2.06	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.87	5.00
12.95	42.5	16.78	1.66	Sandy Silt to Clayey Silt	ML	very loose	115	5	13.4	100	13	30		
13.10	43.0	16.75	1.45	Sandy Silt to Clayey Silt	ML	very loose	115	5	13.3	100	13	30		
13.25	43.5	16.07	1.74	Sandy Silt to Clayey Silt	ML	very loose	115	5	12.7	100	12	30		
13.40	44.0	19.18	2.09	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.04	6.10
13.58	44.5	24.83	3.63	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		100			1.37	9.79
13.73	45.0	45.50	3.41	Clayey Silt to Silty Clay	ML/CL	hard	120	18		85			2.59	>10
13.88	45.5	41.20	2.88	Sandy Silt to Clayey Silt	ML	loose	115	12	32.1	85	39	33		
14.03	46.0	21.42	2.91	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.17	6.88
14.18	46.5	25.94	2.53	Sandy Silt to Clayey Silt	ML	loose	115	7	20.0	100	25	31		
14.33	47.0	18.85	2.19	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.01	5.42
14.48	47.5	17.92	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.96	4.89
14.63	48.0	35.87	3.49	Clayey Silt to Silty Clay	ML/CL	hard	120	14		100			2.01	>10
14.78	48.5	119.67	1.54	Sand to Silty Sand	SP/SM	medium dense	115	22	90.8	40	70	38		
14.93	49.0	148.33	1.09	Sand to Silty Sand	SP/SM	dense	115	27	112.0	30	76	39		
15.10	49.5	132.89	1.23	Sand to Silty Sand	SP/SM	dense	115	24	100.0	35	72	38		
15.25	50.0	126.97	1.30	Sand to Silty Sand	SP/SM	dense	115	23	95.2	35	71	38		

CLIENT: Imperial Community College District
PROJECT: 600 Building Addition - Imperial, CA

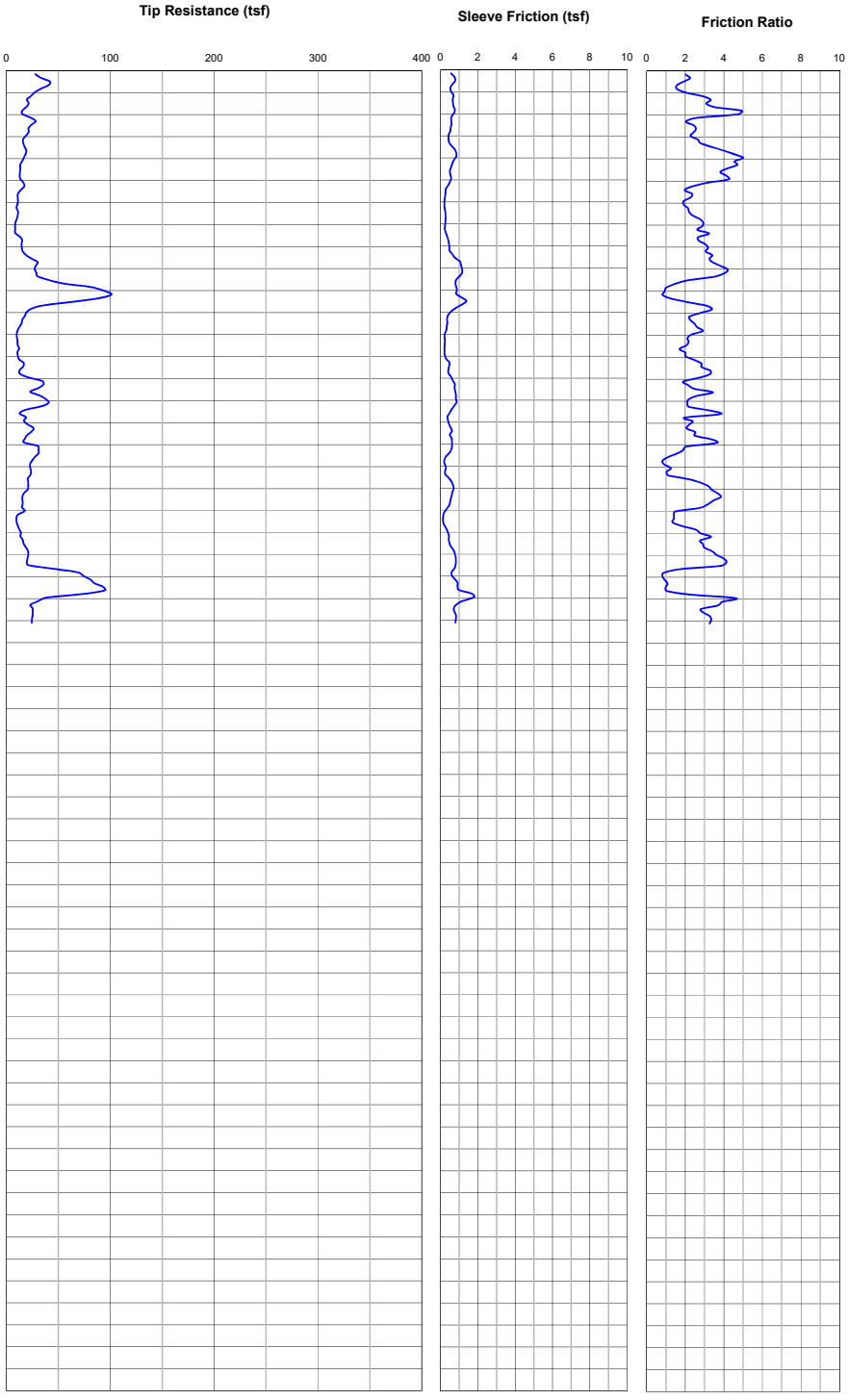
CONE PENETROMETER: Kehoe Testing & Engineering Truck Mounted Electric Cone with 30 ton reaction weight

LOCATION: See Site and Boring Location Plan

DATE: 9/14/2020

CONE SOUNDING DATA CPT-2

DEPTH	INTERPRETED SOIL PROFILE From Robertson and Campanella (1989		
	GROUND ELEVATION +/-		
	Sandy Silt to Clayey Silt	ML	very dense
	Silty Clay to Clay	CL	very stiff
	Sandy Silt to Clayey Silt	ML	medium dense
	Silty Clay to Clay	CL	very stiff
5	Clay	CL/CH	stiff
	Clayey Silt to Silty Clay	ML/CL	stiff
	Silty Clay to Clay	CL	stiff
	Silty Clay to Clay	" "	stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
10	Sandy Silt to Clayey Silt	ML	medium dense
	Sandy Silt to Clayey Silt	" "	medium dense
	Clayey Silt to Silty Clay	ML/CL	stiff
	Clayey Silt to Silty Clay	" "	stiff
	Clayey Silt to Silty Clay	" "	stiff
15	Sandy Silt to Clayey Silt	ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Sandy Silt to Clayey Silt	ML	loose
	Sandy Silt to Clayey Silt	" "	loose
20	Clayey Silt to Silty Clay	ML/CL	stiff
	Clayey Silt to Silty Clay	" "	stiff
	Clayey Silt to Silty Clay	" "	stiff
	Sandy Silt to Clayey Silt	ML	medium dense
	Silty Sand to Sandy Silt	SM/ML	medium dense
25	Clayey Silt to Silty Clay	ML/CL	very stiff



END OF SOUNDING AT 25 ft.

Project No.		PLATE
LE20129	LANDMARK Geo-Engineers and Geologists	B-2

LANDMARK CONSULTANTS, INC.

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: 600 Building Addition - Imperial, CA **Project No:** LE20129 **Date:** 9/14/2020

CONE SOUNDING: CPT-2

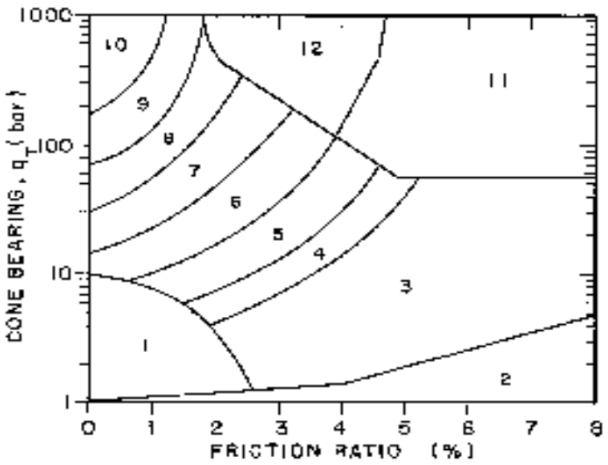
Est. GWT (ft): 8

Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
0.15	0.5	34.27	2.05	Sandy Silt to Clayey Silt	ML	very dense	115	10	64.8	45	103	42		
0.30	1.0	33.82	1.73	Sandy Silt to Clayey Silt	ML	dense	115	10	63.9	45	86	40		
0.45	1.5	21.64	3.11	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		70			1.27	>10
0.60	2.0	16.76	4.40	Clay	CL/CH	stiff	125	13		85			0.98	>10
0.75	2.5	25.05	2.33	Sandy Silt to Clayey Silt	ML	medium dense	115	7	47.4	55	61	36		
0.93	3.0	20.56	2.42	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		65			1.20	>10
1.08	3.5	16.52	2.93	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		75			0.96	>10
1.23	4.0	18.20	4.50	Clay	CL/CH	very stiff	125	15		85			1.06	>10
1.38	4.5	14.07	4.48	Clay	CL/CH	stiff	125	11		95			0.81	>10
1.53	5.0	13.05	4.07	Clay	CL/CH	stiff	125	10		95			0.75	>10
1.68	5.5	14.75	2.44	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		75			0.85	>10
1.83	6.0	10.87	2.04	Clayey Silt to Silty Clay	ML/CL	stiff	120	4		80			0.62	>10
1.98	6.5	10.59	2.24	Clayey Silt to Silty Clay	ML/CL	stiff	120	4		85			0.60	>10
2.13	7.0	9.07	2.86	Silty Clay to Clay	CL	stiff	125	5		95			0.51	>10
2.28	7.5	9.97	2.85	Silty Clay to Clay	CL	stiff	125	6		90			0.56	>10
2.45	8.0	14.85	2.98	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		80			0.85	>10
2.60	8.5	19.19	3.24	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		75			1.10	>10
2.75	9.0	28.53	3.83	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		65			1.65	>10
2.90	9.5	33.16	3.20	Clayey Silt to Silty Clay	ML/CL	very stiff	120	13		60			1.92	>10
3.05	10.0	77.04	1.13	Sand to Silty Sand	SP/SM	dense	115	14	103.3	20	73	38		
3.20	10.5	85.69	1.40	Sand to Silty Sand	SP/SM	dense	115	16	113.5	25	76	39		
3.35	11.0	26.43	3.10	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		65			1.52	>10
3.50	11.5	15.87	2.33	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		75			0.90	>10
3.65	12.0	11.08	2.62	Clayey Silt to Silty Clay	ML/CL	stiff	120	4		95			0.62	>10
3.80	12.5	10.54	2.11	Clayey Silt to Silty Clay	ML/CL	stiff	120	4		90			0.58	>10
3.95	13.0	11.28	1.91	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		85			0.63	>10
4.13	13.5	14.96	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		85			0.84	>10
4.28	14.0	15.61	3.09	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		90			0.88	>10
4.43	14.5	33.46	2.17	Sandy Silt to Clayey Silt	ML	medium dense	115	10	40.3	55	46	34		
4.58	15.0	30.95	2.72	Sandy Silt to Clayey Silt	ML	medium dense	115	9	36.9	65	43	34		
4.73	15.5	30.80	2.51	Sandy Silt to Clayey Silt	ML	medium dense	115	9	36.3	65	43	34		
4.88	16.0	17.15	2.60	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		85			0.97	>10
5.03	16.5	23.40	2.36	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		70			1.34	>10
5.18	17.0	21.54	3.02	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		80			1.22	>10
5.33	17.5	29.81	1.50	Sandy Silt to Clayey Silt	ML	medium dense	115	9	33.8	55	40	34		
5.48	18.0	23.50	1.00	Sandy Silt to Clayey Silt	ML	loose	115	7	26.4	55	33	33		
5.65	18.5	22.47	1.44	Sandy Silt to Clayey Silt	ML	loose	115	6	25.0	65	32	32		
5.80	19.0	20.86	3.12	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		85			1.18	>10
5.95	19.5	15.95	3.66	Silty Clay to Clay	CL	stiff	125	9		100			0.89	>10
6.10	20.0	16.07	2.47	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		90			0.90	>10
6.25	20.5	10.21	1.39	Clayey Silt to Silty Clay	ML/CL	stiff	120	4		100			0.55	6.00
6.40	21.0	12.30	2.38	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.67	8.00
6.55	21.5	15.20	3.01	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.84	>10
6.70	22.0	20.11	3.34	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		95			1.13	>10
6.85	22.5	20.35	4.01	Silty Clay to Clay	CL	very stiff	125	12		100			1.15	>10
7.00	23.0	62.68	1.12	Silty Sand to Sandy Silt	SM/ML	medium dense	115	14	64.5	35	60	36		
7.18	23.5	86.18	1.00	Sand to Silty Sand	SP/SM	medium dense	115	16	88.0	25	69	38		
7.33	24.0	69.08	2.64	Sandy Silt to Clayey Silt	ML	medium dense	115	20	70.1	50	62	37		
7.48	24.5	26.28	3.48	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		90			1.49	>10
7.63	25.0	24.99	3.19	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		90			1.41	>10

Simplified Soil Classification Chart

After Robertson & Campanella (1989)



Geotechnical Parameters from CPT Data:

Equivalent SPT N(60) blow count = Qc/(Qc/N Ratio)

N1(60) = Cn*N(60) Normalized SPT blow count

Cn = 1/(p'o)^0.5 < 1.6 max. from Liao & Whitman (1986)

p'o = effective overburden pressure (tsf) using unit densities given below and estimated groundwater table.

Dr = Relative density (%) from Jamiolkowski et. al. (1986) relationship

= -98 +68*log(Qc/p'o^0.5) where Qc, p'o in tonne/sqm

Note: 1 tonne/sqm = 0.1024 tsf, 1 bar =1.0443 tsf

Phi = Friction Angle estimated from either:

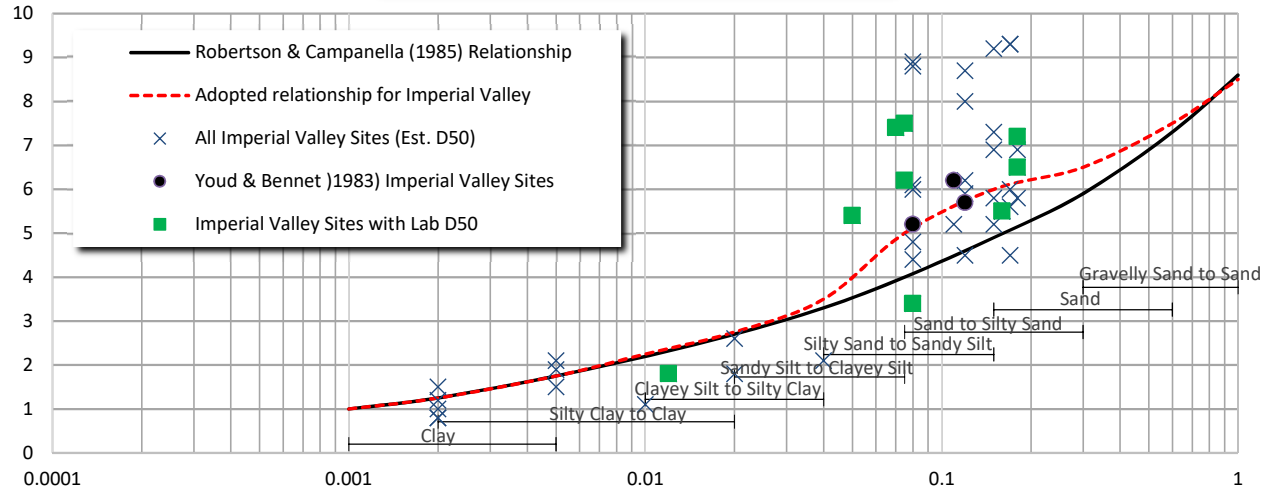
1. Roberton & Campanella (1983) chart:
   Phi = 5.3 + 24*(log(Qc/p'o))+3(log(Qc/p'o))^2
2. Peck, Hansen & Thornburn (1974) N-Phi Correlation
3. Schmertman (1978) chart [Phi = 28+0.14*Dr for fine uniform sands]

Su = undrained shear strength (tsf)

= (Qc-p'o)/Nk where Nk varies from 10 to 22, 17 for OC clays

OCR = Overconsolidation Ratio estimated from Schmertman (1978) chart using Su/p'o ratio and estimated normal consolidated Su/p'o

Variation of Qc/N Ratio with Grain Size



Note: Assumed Properties and Adopted Qc/N Ratio based on correlations from Imperial Valley, California soils

Table of Soil Types and Assumed Properties

Zone	Soil Classification	UCS	Density (pcf)	R&C Qc/N	Adopted Qc/N	Est. PI	Fines (%)	D50 (mm)
1	Sensitive fine grained	ML	120	2	2	NP-15	65-100	0.02
2	Organic Material	OL/OH	120	1	1	--	--	--
3	Clay	CL/CH	125	1	1.25	25-40+	90-100	0.002
4	Silty Clay to Clay	CL	125	1.5	2	15-40	90-100	0.01
5	Clayey Silt to Silty Clay	ML/CL	120	2	2.75	25-May	90-100	0.02
6	Sandy Silt to Clayey Silt	ML	115	2.5	3.5	NP-10	65-100	0.04
7	Silty Sand to Sandy Silt	SM/ML	115	3	5	NP	35-75	0.075
8	Sand to Silty Sand	SP/SM	115	4	6	NP	May-35	0.15
9	Sand	SP	110	5	6.5	NP	0-5	0.3
10	Gravelly Sand to Sand	SW	115	6	7.5	NP	0-5	0.6
11	Overconsolidated Soil	--	120	1	1	NP	90-100	0.01
12	Sand to Clayey Sand	SP/SC	115	2	2	NP-5	--	---

Su (tsf)	Consistency
0-0.13	very soft
0.13-.25	soft
0.25-0.5	firm
0.5-1.0	stiff
1.0-2.0	very stiff
>2.0	hard
Dr (%)	**Relative Density**
0-15	very loose
15-35	loose
35-65	medium dense
65-85	dense
>85	very dense

LANDMARK
Geo-Engineers and Geologists

Project No: LE20129

Key to CPT Interpretation of Logs

Plate B-3

APPENDIX C

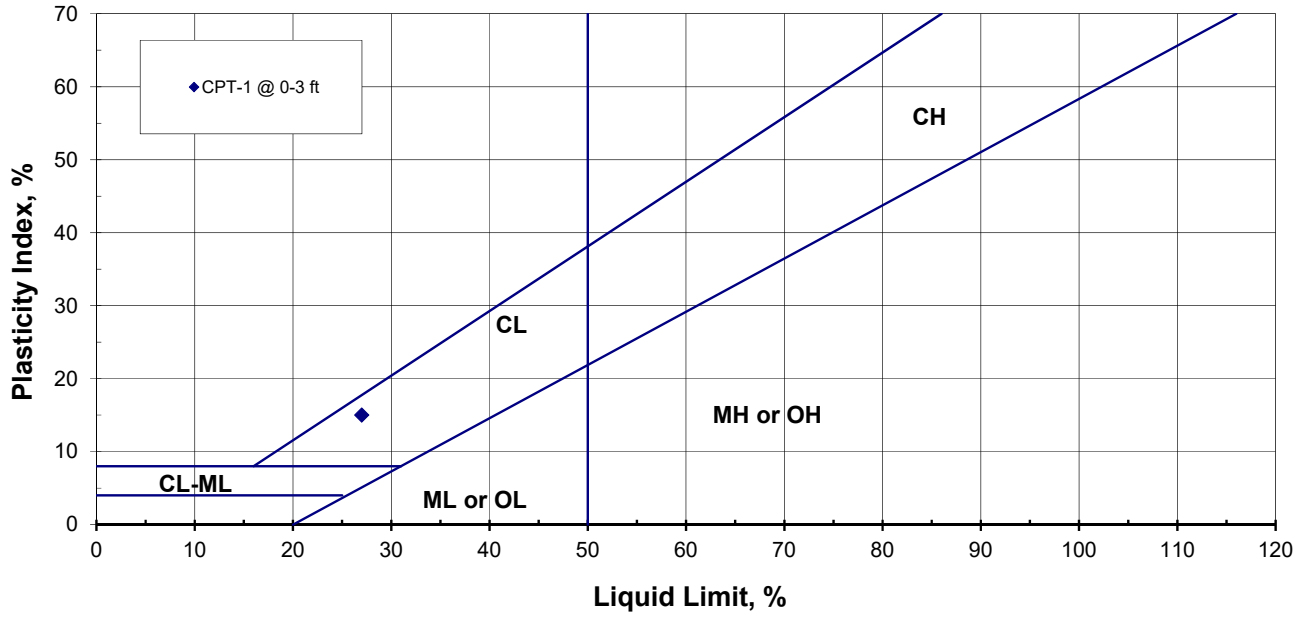
LANDMARK CONSULTANTS, INC.

CLIENT: Imperial Community College District
PROJECT: 600 Building Addition - Imperial, CA
JOB No.: LE20129
DATE: 09/08/20

ATTERBERG LIMITS (ASTM D4318)

Sample Location	Sample Depth (ft)	Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)	USCS Classification
CPT-1	0-3	27	12	15	CL

PLASTICITY CHART



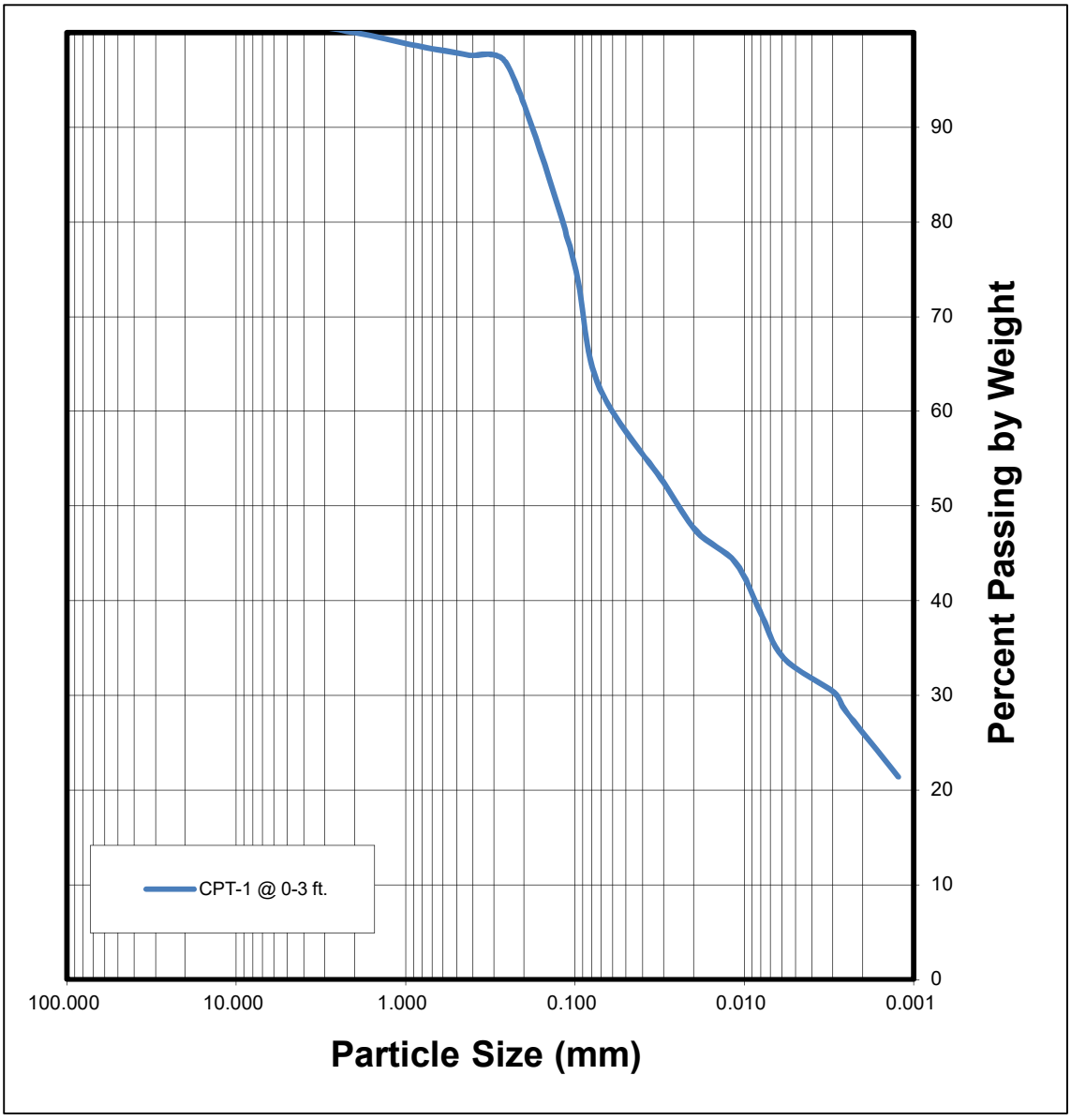
LANDMARK
Geo-Engineers and Geologists

Project No.: LE20129

Atterberg Limits Test Results

Plate C-1

SIEVE ANALYSIS					HYDROMETER ANALYSIS
Gravel		Sand			Silt and Clay Fraction
Coarse	Fine	Coarse	Medium	Fine	



LANDMARK
Geo-Engineers and Geologists

Project No.: LE20129

Grain Size Analysis

Plate C-2

LANDMARK CONSULTANTS, INC.

CLIENT: Imperial Community College District
PROJECT: 600 Building Addition - Imperial, CA
JOB No.: LE201029
DATE: 09/08/20

CHEMICAL ANALYSIS

Boring:	CPT-1	**Caltrans**
Sample Depth, ft:	0-3	**Method**
pH:	7.7	**643**
Electrical Conductivity (mmhos):	3.5	**424**
Resistivity (ohm-cm):	240	**643**
Chloride (Cl), ppm:	1,000	**422**
Sulfate (SO4), ppm:	6,085	**417**

General Guidelines for Soil Corrosivity

Material Affected	Chemical Agent	Range of Values	Degree of Corrosivity
Concrete	Soluble Sulfates (ppm)	0 - 1,000	Low
		1,000 - 2,000	Moderate
		2,000 - 20,000	Severe
		> 20,000	Very Severe
Normal Grade Steel	Soluble Chlorides (ppm)	0 - 200	Low
		200 - 700	Moderate
		700 - 1,500	Severe
		> 1,500	Very Severe
Normal Grade Steel	Resistivity (ohm-cm)	1 - 1,000	Very Severe
		1,000 - 2,000	Severe
		2,000 - 10,000	Moderate
		> 10,000	Low

LANDMARK
Geo-Engineers and Geologists

Project No.: LE201029

Selected Chemical Test Results

Plate C-3

APPENDIX D

Landmark Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243

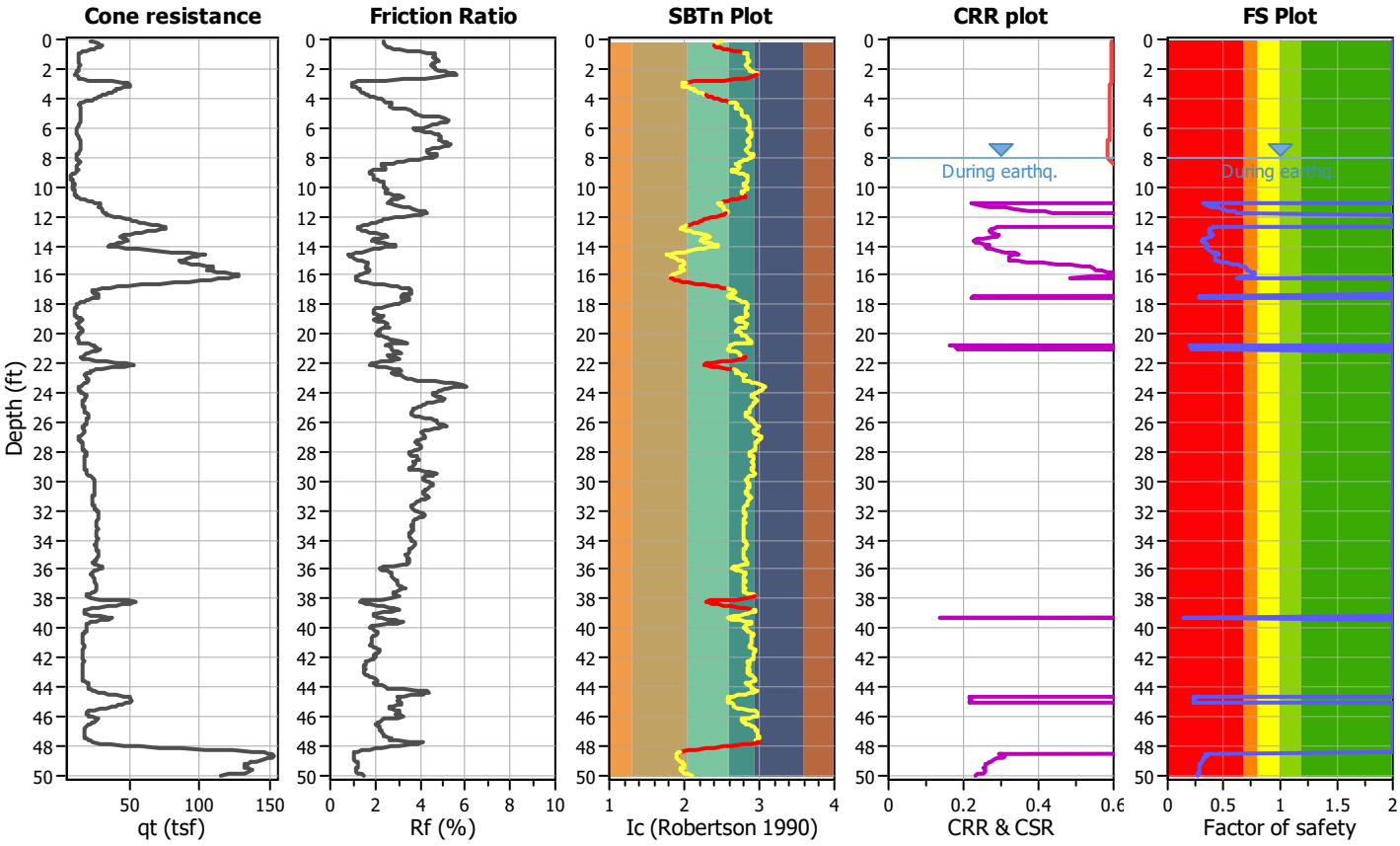
LIQUEFACTION ANALYSIS REPORT

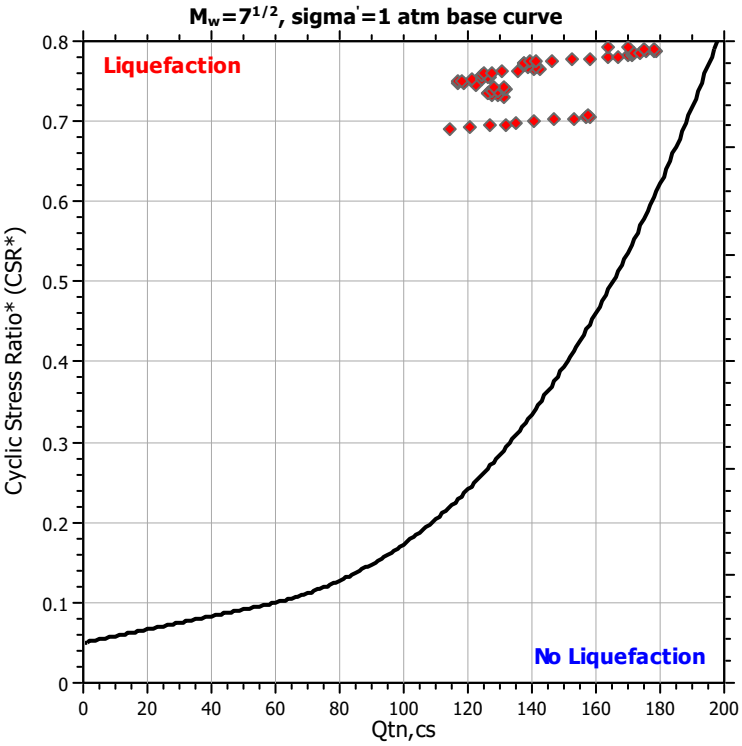
Project title : IVC 600 Building Addition **Location : Imperial, CA**

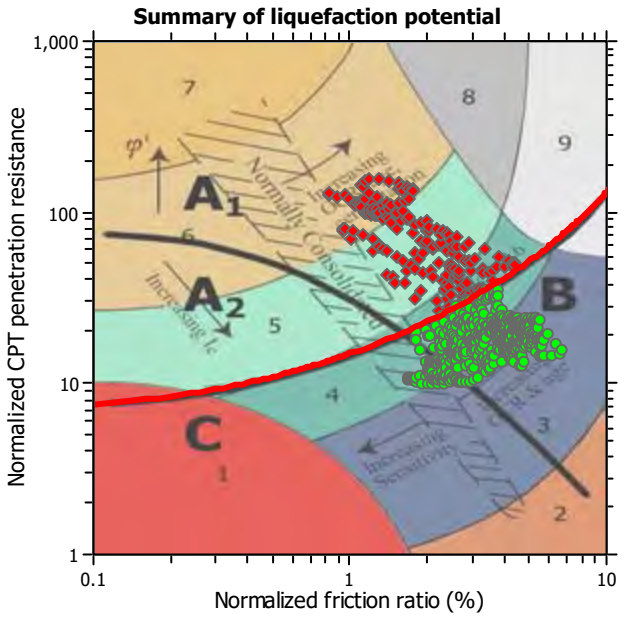
CPT file : CPT-01

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	8.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.84	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

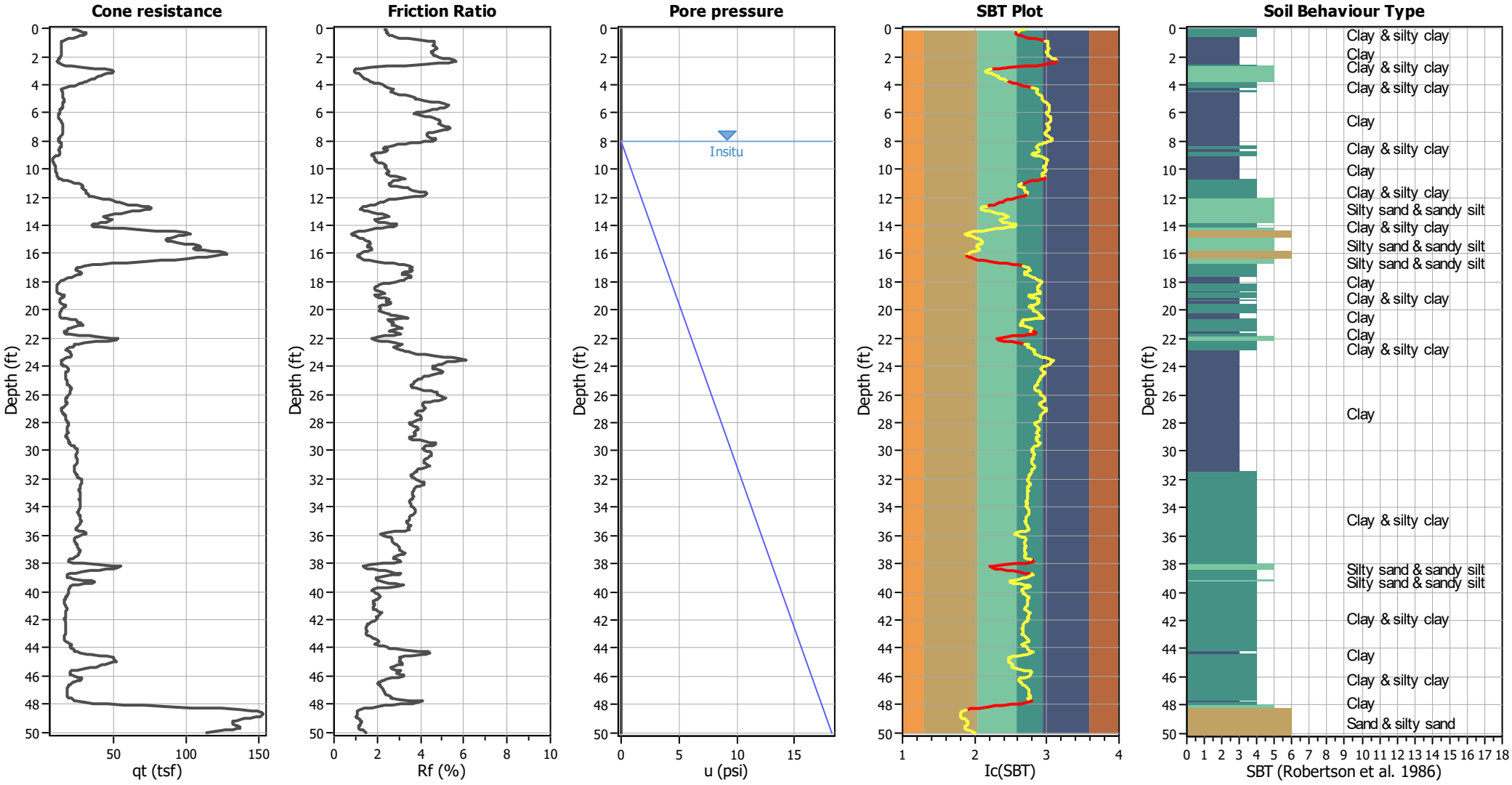






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



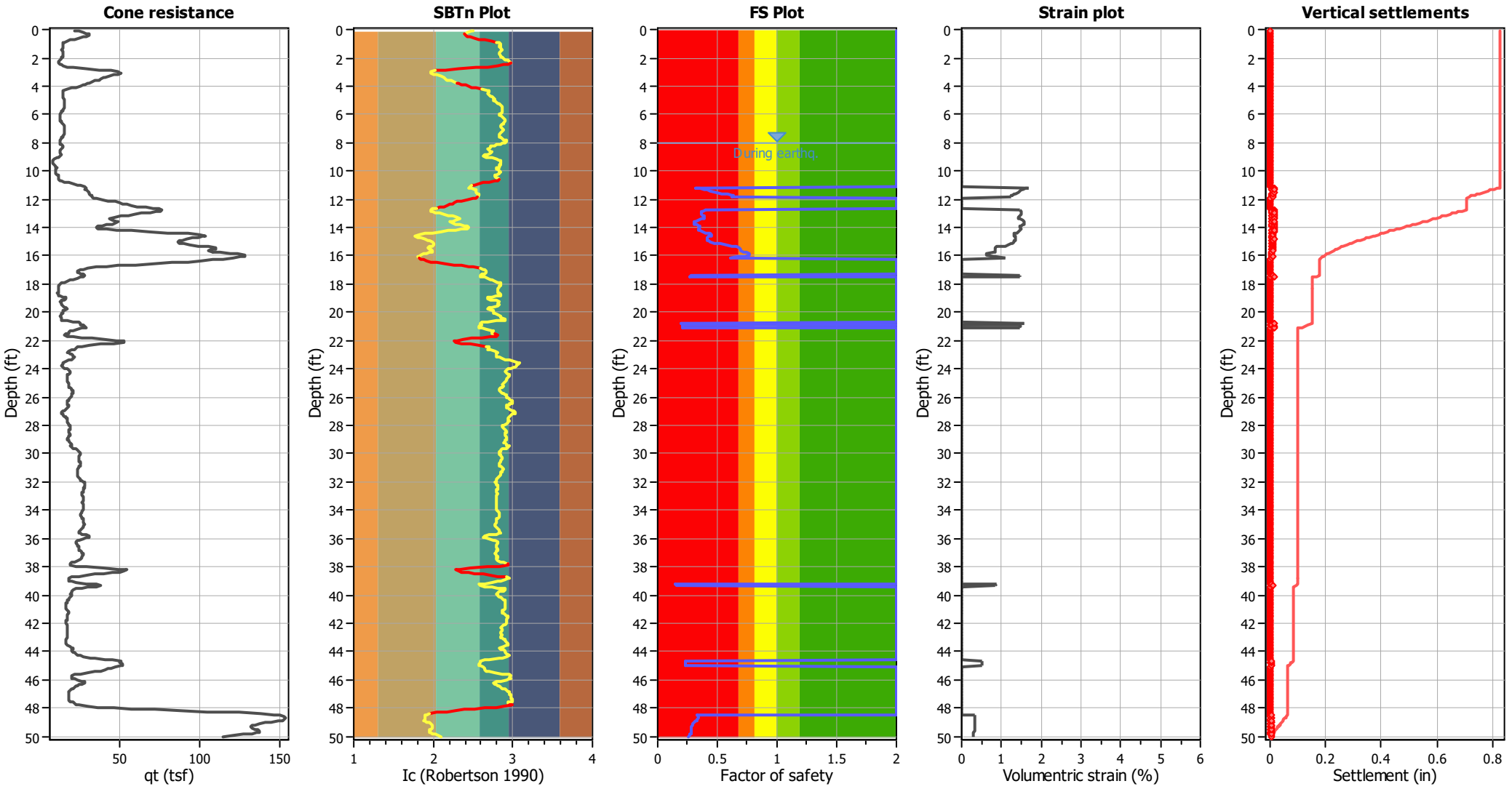
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.84	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
8.02	104.56	2.00	0.00	0.86	0.00	8.10	101.72	2.00	0.00	0.86	0.00
8.14	98.29	2.00	0.00	0.86	0.00	8.24	96.01	2.00	0.00	0.86	0.00
8.28	92.46	2.00	0.00	0.86	0.00	8.36	88.81	2.00	0.00	0.86	0.00
8.40	83.82	2.00	0.00	0.86	0.00	8.48	79.96	2.00	0.00	0.86	0.00
8.56	77.73	2.00	0.00	0.85	0.00	8.60	78.50	2.00	0.00	0.85	0.00
8.68	80.10	2.00	0.00	0.85	0.00	8.77	80.20	2.00	0.00	0.85	0.00
8.81	77.13	2.00	0.00	0.85	0.00	8.89	73.02	2.00	0.00	0.85	0.00
8.93	69.04	2.00	0.00	0.85	0.00	9.01	66.68	2.00	0.00	0.85	0.00
9.10	64.64	2.00	0.00	0.85	0.00	9.14	62.90	2.00	0.00	0.85	0.00
9.22	61.74	2.00	0.00	0.84	0.00	9.26	60.96	2.00	0.00	0.84	0.00
9.34	60.63	2.00	0.00	0.84	0.00	9.39	61.19	2.00	0.00	0.84	0.00
9.46	62.66	2.00	0.00	0.84	0.00	9.55	65.05	2.00	0.00	0.84	0.00
9.59	67.98	2.00	0.00	0.84	0.00	9.67	70.62	2.00	0.00	0.84	0.00
9.75	72.70	2.00	0.00	0.83	0.00	9.79	73.12	2.00	0.00	0.83	0.00
9.87	72.84	2.00	0.00	0.83	0.00	9.92	72.40	2.00	0.00	0.83	0.00
10.00	72.25	2.00	0.00	0.83	0.00	10.04	72.70	2.00	0.00	0.83	0.00
10.13	73.61	2.00	0.00	0.83	0.00	10.17	75.02	2.00	0.00	0.83	0.00
10.25	75.79	2.00	0.00	0.83	0.00	10.34	76.44	2.00	0.00	0.82	0.00
10.38	77.45	2.00	0.00	0.82	0.00	10.47	79.32	2.00	0.00	0.82	0.00
10.51	82.76	2.00	0.00	0.82	0.00	10.59	87.04	2.00	0.00	0.82	0.00
10.67	90.93	2.00	0.00	0.82	0.00	10.72	93.28	2.00	0.00	0.82	0.00
10.80	94.43	2.00	0.00	0.82	0.00	10.84	97.05	2.00	0.00	0.82	0.00
10.92	100.93	2.00	0.00	0.81	0.00	10.96	105.00	2.00	0.00	0.81	0.00
11.04	108.00	2.00	0.00	0.81	0.00	11.12	110.57	2.00	0.00	0.81	0.00
11.17	114.51	0.32	1.70	0.81	0.01	11.24	120.42	0.35	1.62	0.81	0.01
11.32	126.76	0.39	1.55	0.81	0.02	11.35	131.57	0.42	1.51	0.81	0.01
11.43	135.22	0.44	1.47	0.81	0.01	11.51	140.66	0.48	1.42	0.80	0.01
11.59	146.79	0.53	1.37	0.80	0.01	11.63	153.06	0.59	1.31	0.80	0.01
11.71	156.72	0.62	1.27	0.80	0.01	11.75	158.33	0.64	1.25	0.80	0.01
11.84	157.38	0.62	1.26	0.80	0.01	11.91	155.16	2.00	0.00	0.80	0.00
11.95	151.73	2.00	0.00	0.80	0.00	12.02	146.62	2.00	0.00	0.80	0.00
12.11	141.15	2.00	0.00	0.79	0.00	12.15	138.40	2.00	0.00	0.79	0.00
12.23	137.34	2.00	0.00	0.79	0.00	12.30	136.55	2.00	0.00	0.79	0.00
12.34	135.18	2.00	0.00	0.79	0.00	12.42	133.72	2.00	0.00	0.79	0.00
12.51	132.93	2.00	0.00	0.79	0.00	12.55	133.08	2.00	0.00	0.79	0.00
12.63	133.20	2.00	0.00	0.79	0.00	12.67	132.73	2.00	0.00	0.79	0.00
12.75	131.05	0.40	1.47	0.78	0.01	12.83	129.18	0.38	1.48	0.78	0.01
12.88	127.43	0.37	1.50	0.78	0.01	12.96	126.26	0.36	1.51	0.78	0.01
13.00	126.00	0.36	1.51	0.78	0.01	13.08	127.33	0.37	1.49	0.78	0.01
13.16	129.22	0.38	1.47	0.78	0.01	13.20	131.33	0.39	1.45	0.78	0.01
13.28	131.77	0.39	1.44	0.77	0.01	13.36	131.38	0.39	1.45	0.77	0.01
13.40	128.34	0.37	1.47	0.77	0.01	13.47	122.70	0.34	1.52	0.77	0.01
13.55	118.49	0.31	1.57	0.77	0.02	13.59	116.67	0.30	1.58	0.77	0.01
13.67	117.11	0.31	1.58	0.77	0.02	13.75	118.11	0.31	1.56	0.77	0.01
13.79	120.97	0.33	1.53	0.77	0.01	13.87	124.33	0.34	1.49	0.76	0.01
13.91	126.92	0.36	1.47	0.76	0.01	13.99	126.19	0.35	1.47	0.76	0.01
14.08	124.56	0.34	1.49	0.76	0.01	14.12	124.40	0.34	1.49	0.76	0.01
14.21	125.31	0.35	1.47	0.76	0.01	14.24	127.62	0.36	1.45	0.76	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
14.33	130.61	0.38	1.42	0.76	0.01	14.40	135.33	0.41	1.38	0.76	0.01
14.44	140.64	0.44	1.33	0.76	0.01	14.53	142.22	0.45	1.32	0.75	0.01
14.57	141.32	0.45	1.33	0.75	0.01	14.65	138.91	0.43	1.34	0.75	0.01
14.73	137.38	0.42	1.35	0.75	0.01	14.77	137.38	0.42	1.35	0.75	0.01
14.85	137.38	0.42	1.35	0.75	0.01	14.93	137.76	0.42	1.34	0.75	0.01
14.97	139.36	0.43	1.33	0.75	0.01	15.05	141.51	0.44	1.31	0.74	0.01
15.09	146.22	0.48	1.27	0.74	0.01	15.17	152.20	0.52	1.23	0.74	0.01
15.25	158.31	0.58	1.16	0.74	0.01	15.30	163.50	0.62	1.10	0.74	0.01
15.37	167.06	0.66	0.88	0.74	0.01	15.45	169.89	0.69	0.86	0.74	0.01
15.49	171.12	0.70	0.85	0.74	0.00	15.58	171.26	0.70	0.84	0.74	0.01
15.66	171.62	0.70	0.84	0.73	0.01	15.70	173.54	0.72	0.82	0.73	0.00
15.78	175.74	0.74	0.81	0.73	0.01	15.82	178.12	0.77	0.64	0.73	0.00
15.89	178.69	0.77	0.64	0.73	0.01	15.98	178.08	0.77	0.64	0.73	0.01
16.02	174.76	0.73	0.81	0.73	0.00	16.10	169.73	0.68	0.84	0.73	0.01
16.14	163.48	0.61	1.08	0.73	0.01	16.22	157.75	2.00	0.00	0.73	0.00
16.30	152.77	2.00	0.00	0.72	0.00	16.34	147.70	2.00	0.00	0.72	0.00
16.42	143.15	2.00	0.00	0.72	0.00	16.50	139.45	2.00	0.00	0.72	0.00
16.54	138.03	2.00	0.00	0.72	0.00	16.62	137.13	2.00	0.00	0.72	0.00
16.70	136.44	2.00	0.00	0.72	0.00	16.74	132.93	2.00	0.00	0.72	0.00
16.82	129.29	2.00	0.00	0.71	0.00	16.90	126.86	2.00	0.00	0.71	0.00
16.94	123.66	2.00	0.00	0.71	0.00	17.02	119.01	2.00	0.00	0.71	0.00
17.06	116.12	2.00	0.00	0.71	0.00	17.15	117.06	2.00	0.00	0.71	0.00
17.23	119.22	2.00	0.00	0.71	0.00	17.27	119.50	2.00	0.00	0.71	0.00
17.34	117.11	2.00	0.00	0.71	0.00	17.41	115.74	0.28	1.46	0.70	0.01
17.49	115.01	0.27	1.47	0.70	0.01	17.53	115.90	2.00	0.00	0.70	0.00
17.61	114.35	2.00	0.00	0.70	0.00	17.67	109.93	2.00	0.00	0.70	0.00
17.75	103.80	2.00	0.00	0.70	0.00	17.78	97.62	2.00	0.00	0.70	0.00
17.86	92.38	2.00	0.00	0.70	0.00	17.94	87.19	2.00	0.00	0.70	0.00
17.99	81.61	2.00	0.00	0.70	0.00	18.06	76.02	2.00	0.00	0.69	0.00
18.15	71.16	2.00	0.00	0.69	0.00	18.19	67.80	2.00	0.00	0.69	0.00
18.27	66.08	2.00	0.00	0.69	0.00	18.32	64.94	2.00	0.00	0.69	0.00
18.40	64.60	2.00	0.00	0.69	0.00	18.47	64.34	2.00	0.00	0.69	0.00
18.52	64.46	2.00	0.00	0.69	0.00	18.60	64.86	2.00	0.00	0.68	0.00
18.64	66.05	2.00	0.00	0.68	0.00	18.72	68.75	2.00	0.00	0.68	0.00
18.80	71.75	2.00	0.00	0.68	0.00	18.85	73.30	2.00	0.00	0.68	0.00
18.93	72.79	2.00	0.00	0.68	0.00	18.97	72.05	2.00	0.00	0.68	0.00
19.05	72.40	2.00	0.00	0.68	0.00	19.13	73.68	2.00	0.00	0.68	0.00
19.17	75.79	2.00	0.00	0.68	0.00	19.25	77.06	2.00	0.00	0.67	0.00
19.29	76.55	2.00	0.00	0.67	0.00	19.37	75.15	2.00	0.00	0.67	0.00
19.46	75.36	2.00	0.00	0.67	0.00	19.50	78.00	2.00	0.00	0.67	0.00
19.58	79.84	2.00	0.00	0.67	0.00	19.62	79.56	2.00	0.00	0.67	0.00
19.70	77.58	2.00	0.00	0.67	0.00	19.78	76.10	2.00	0.00	0.66	0.00
19.82	75.29	2.00	0.00	0.66	0.00	19.90	73.95	2.00	0.00	0.66	0.00
19.99	72.30	2.00	0.00	0.66	0.00	20.03	71.15	2.00	0.00	0.66	0.00
20.11	71.26	2.00	0.00	0.66	0.00	20.16	72.62	2.00	0.00	0.66	0.00
20.24	74.11	2.00	0.00	0.66	0.00	20.28	75.90	2.00	0.00	0.66	0.00
20.36	77.09	2.00	0.00	0.65	0.00	20.42	79.19	2.00	0.00	0.65	0.00
20.50	83.85	2.00	0.00	0.65	0.00	20.58	88.84	2.00	0.00	0.65	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
20.62	92.18	2.00	0.00	0.65	0.00	20.70	92.23	2.00	0.00	0.65	0.00
20.74	93.17	2.00	0.00	0.65	0.00	20.82	95.99	0.19	1.56	0.65	0.02
20.90	99.28	2.00	0.00	0.65	0.00	20.94	101.65	0.21	1.49	0.65	0.01
21.02	103.01	0.21	1.47	0.64	0.01	21.10	103.28	0.21	1.46	0.64	0.01
21.14	102.24	2.00	0.00	0.64	0.00	21.22	100.64	2.00	0.00	0.64	0.00
21.26	98.09	2.00	0.00	0.64	0.00	21.34	93.73	2.00	0.00	0.64	0.00
21.42	88.34	2.00	0.00	0.64	0.00	21.46	84.42	2.00	0.00	0.64	0.00
21.54	83.55	2.00	0.00	0.63	0.00	21.62	84.87	2.00	0.00	0.63	0.00
21.67	90.42	2.00	0.00	0.63	0.00	21.75	95.70	2.00	0.00	0.63	0.00
21.79	99.49	2.00	0.00	0.63	0.00	21.87	99.59	2.00	0.00	0.63	0.00
21.95	100.11	2.00	0.00	0.63	0.00	21.99	102.50	2.00	0.00	0.63	0.00
22.07	105.68	2.00	0.00	0.63	0.00	22.11	108.91	2.00	0.00	0.63	0.00
22.20	109.19	2.00	0.00	0.62	0.00	22.28	108.59	2.00	0.00	0.62	0.00
22.32	106.73	2.00	0.00	0.62	0.00	22.40	104.95	2.00	0.00	0.62	0.00
22.48	102.68	2.00	0.00	0.62	0.00	22.52	98.29	2.00	0.00	0.62	0.00
22.60	93.10	2.00	0.00	0.62	0.00	22.64	89.39	2.00	0.00	0.62	0.00
22.72	88.73	2.00	0.00	0.61	0.00	22.80	90.28	2.00	0.00	0.61	0.00
22.84	92.85	2.00	0.00	0.61	0.00	22.92	96.09	2.00	0.00	0.61	0.00
23.00	99.57	2.00	0.00	0.61	0.00	23.04	103.95	2.00	0.00	0.61	0.00
23.12	108.36	2.00	0.00	0.61	0.00	23.16	114.33	2.00	0.00	0.61	0.00
23.24	118.53	2.00	0.00	0.61	0.00	23.33	121.04	2.00	0.00	0.60	0.00
23.37	120.52	2.00	0.00	0.60	0.00	23.45	118.31	2.00	0.00	0.60	0.00
23.53	115.36	2.00	0.00	0.60	0.00	23.57	111.44	2.00	0.00	0.60	0.00
23.65	107.84	2.00	0.00	0.60	0.00	23.69	104.30	2.00	0.00	0.60	0.00
23.77	102.64	2.00	0.00	0.60	0.00	23.85	101.91	2.00	0.00	0.60	0.00
23.89	102.68	2.00	0.00	0.60	0.00	23.98	103.80	2.00	0.00	0.59	0.00
24.02	106.03	2.00	0.00	0.59	0.00	24.09	108.95	2.00	0.00	0.59	0.00
24.18	111.85	2.00	0.00	0.59	0.00	24.21	114.04	2.00	0.00	0.59	0.00
24.30	114.56	2.00	0.00	0.59	0.00	24.38	114.36	2.00	0.00	0.59	0.00
24.42	113.07	2.00	0.00	0.59	0.00	24.50	111.51	2.00	0.00	0.58	0.00
24.54	109.10	2.00	0.00	0.58	0.00	24.62	106.32	2.00	0.00	0.58	0.00
24.70	103.56	2.00	0.00	0.58	0.00	24.74	101.47	2.00	0.00	0.58	0.00
24.82	100.36	2.00	0.00	0.58	0.00	24.90	99.56	2.00	0.00	0.58	0.00
24.94	99.04	2.00	0.00	0.58	0.00	25.03	98.25	2.00	0.00	0.58	0.00
25.07	97.22	2.00	0.00	0.58	0.00	25.15	96.46	2.00	0.00	0.57	0.00
25.23	96.00	2.00	0.00	0.57	0.00	25.27	96.22	2.00	0.00	0.57	0.00
25.35	96.94	2.00	0.00	0.57	0.00	25.40	98.55	2.00	0.00	0.57	0.00
25.48	100.83	2.00	0.00	0.57	0.00	25.56	103.13	2.00	0.00	0.57	0.00
25.60	105.83	2.00	0.00	0.57	0.00	25.68	108.16	2.00	0.00	0.56	0.00
25.73	110.84	2.00	0.00	0.56	0.00	25.80	112.50	2.00	0.00	0.56	0.00
25.89	113.41	2.00	0.00	0.56	0.00	25.93	113.19	2.00	0.00	0.56	0.00
26.01	112.32	2.00	0.00	0.56	0.00	26.09	111.61	2.00	0.00	0.56	0.00
26.13	111.41	2.00	0.00	0.56	0.00	26.21	111.50	2.00	0.00	0.56	0.00
26.25	110.54	2.00	0.00	0.56	0.00	26.33	108.52	2.00	0.00	0.55	0.00
26.41	106.18	2.00	0.00	0.55	0.00	26.44	104.36	2.00	0.00	0.55	0.00
26.52	102.73	2.00	0.00	0.55	0.00	26.60	101.04	2.00	0.00	0.55	0.00
26.65	99.86	2.00	0.00	0.55	0.00	26.73	98.92	2.00	0.00	0.55	0.00
26.81	97.75	2.00	0.00	0.55	0.00	26.85	95.99	2.00	0.00	0.54	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
26.93	94.11	2.00	0.00	0.54	0.00	26.97	91.90	2.00	0.00	0.54	0.00
27.05	90.07	2.00	0.00	0.54	0.00	27.13	88.73	2.00	0.00	0.54	0.00
27.17	88.28	2.00	0.00	0.54	0.00	27.25	88.78	2.00	0.00	0.54	0.00
27.34	89.66	2.00	0.00	0.54	0.00	27.38	91.25	2.00	0.00	0.54	0.00
27.46	92.67	2.00	0.00	0.53	0.00	27.50	94.37	2.00	0.00	0.53	0.00
27.58	95.49	2.00	0.00	0.53	0.00	27.66	96.17	2.00	0.00	0.53	0.00
27.70	95.97	2.00	0.00	0.53	0.00	27.79	95.36	2.00	0.00	0.53	0.00
27.83	94.72	2.00	0.00	0.53	0.00	27.91	94.36	2.00	0.00	0.53	0.00
27.99	94.14	2.00	0.00	0.53	0.00	28.03	94.15	2.00	0.00	0.53	0.00
28.11	94.16	2.00	0.00	0.52	0.00	28.15	94.55	2.00	0.00	0.52	0.00
28.23	94.97	2.00	0.00	0.52	0.00	28.31	95.43	2.00	0.00	0.52	0.00
28.35	96.01	2.00	0.00	0.52	0.00	28.43	96.54	2.00	0.00	0.52	0.00
28.51	96.78	2.00	0.00	0.52	0.00	28.55	96.39	2.00	0.00	0.52	0.00
28.63	95.60	2.00	0.00	0.51	0.00	28.71	94.94	2.00	0.00	0.51	0.00
28.75	94.42	2.00	0.00	0.51	0.00	28.83	93.73	2.00	0.00	0.51	0.00
28.88	92.57	2.00	0.00	0.51	0.00	28.96	91.64	2.00	0.00	0.51	0.00
29.04	91.03	2.00	0.00	0.51	0.00	29.08	89.56	2.00	0.00	0.51	0.00
29.16	90.77	2.00	0.00	0.51	0.00	29.24	93.61	2.00	0.00	0.50	0.00
29.28	99.09	2.00	0.00	0.50	0.00	29.37	102.44	2.00	0.00	0.50	0.00
29.41	105.11	2.00	0.00	0.50	0.00	29.49	106.91	2.00	0.00	0.50	0.00
29.53	108.41	2.00	0.00	0.50	0.00	29.61	109.25	2.00	0.00	0.50	0.00
29.69	109.57	2.00	0.00	0.50	0.00	29.73	110.06	2.00	0.00	0.50	0.00
29.81	110.43	2.00	0.00	0.49	0.00	29.89	111.09	2.00	0.00	0.49	0.00
29.93	112.46	2.00	0.00	0.49	0.00	30.01	114.17	2.00	0.00	0.49	0.00
30.09	115.47	2.00	0.00	0.49	0.00	30.13	115.90	2.00	0.00	0.49	0.00
30.21	115.70	2.00	0.00	0.49	0.00	30.25	115.38	2.00	0.00	0.49	0.00
30.32	114.75	2.00	0.00	0.49	0.00	30.40	113.90	2.00	0.00	0.48	0.00
30.49	113.20	2.00	0.00	0.48	0.00	30.53	112.80	2.00	0.00	0.48	0.00
30.60	112.59	2.00	0.00	0.48	0.00	30.65	112.47	2.00	0.00	0.48	0.00
30.73	112.37	2.00	0.00	0.48	0.00	30.81	112.13	2.00	0.00	0.48	0.00
30.85	111.76	2.00	0.00	0.48	0.00	30.93	111.40	2.00	0.00	0.48	0.00
30.97	111.38	2.00	0.00	0.48	0.00	31.06	111.05	2.00	0.00	0.47	0.00
31.14	110.10	2.00	0.00	0.47	0.00	31.18	108.26	2.00	0.00	0.47	0.00
31.25	106.15	2.00	0.00	0.47	0.00	31.34	104.41	2.00	0.00	0.47	0.00
31.38	103.27	2.00	0.00	0.47	0.00	31.46	102.54	2.00	0.00	0.47	0.00
31.50	101.88	2.00	0.00	0.47	0.00	31.58	101.39	2.00	0.00	0.46	0.00
31.66	101.02	2.00	0.00	0.46	0.00	31.70	101.46	2.00	0.00	0.46	0.00
31.78	102.46	2.00	0.00	0.46	0.00	31.86	103.96	2.00	0.00	0.46	0.00
31.90	105.58	2.00	0.00	0.46	0.00	31.98	107.50	2.00	0.00	0.46	0.00
32.05	109.29	2.00	0.00	0.46	0.00	32.10	111.33	2.00	0.00	0.46	0.00
32.18	112.89	2.00	0.00	0.45	0.00	32.22	114.35	2.00	0.00	0.45	0.00
32.30	114.76	2.00	0.00	0.45	0.00	32.38	114.43	2.00	0.00	0.45	0.00
32.42	113.31	2.00	0.00	0.45	0.00	32.49	111.46	2.00	0.00	0.45	0.00
32.56	109.21	2.00	0.00	0.45	0.00	32.63	106.95	2.00	0.00	0.45	0.00
32.72	105.66	2.00	0.00	0.45	0.00	32.76	105.23	2.00	0.00	0.44	0.00
32.84	105.35	2.00	0.00	0.44	0.00	32.88	105.04	2.00	0.00	0.44	0.00
32.96	104.61	2.00	0.00	0.44	0.00	33.03	104.37	2.00	0.00	0.44	0.00
33.08	104.75	2.00	0.00	0.44	0.00	33.16	105.18	2.00	0.00	0.44	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
33.24	105.42	2.00	0.00	0.44	0.00	33.27	105.33	2.00	0.00	0.44	0.00
33.35	104.71	2.00	0.00	0.43	0.00	33.43	103.74	2.00	0.00	0.43	0.00
33.48	102.83	2.00	0.00	0.43	0.00	33.55	102.23	2.00	0.00	0.43	0.00
33.63	102.06	2.00	0.00	0.43	0.00	33.68	102.30	2.00	0.00	0.43	0.00
33.76	102.59	2.00	0.00	0.43	0.00	33.80	103.00	2.00	0.00	0.43	0.00
33.88	103.29	2.00	0.00	0.43	0.00	33.96	103.64	2.00	0.00	0.42	0.00
34.00	104.03	2.00	0.00	0.42	0.00	34.08	104.26	2.00	0.00	0.42	0.00
34.16	104.37	2.00	0.00	0.42	0.00	34.20	104.21	2.00	0.00	0.42	0.00
34.27	103.70	2.00	0.00	0.42	0.00	34.35	103.16	2.00	0.00	0.42	0.00
34.39	102.80	2.00	0.00	0.42	0.00	34.47	102.51	2.00	0.00	0.42	0.00
34.55	102.20	2.00	0.00	0.41	0.00	34.60	102.00	2.00	0.00	0.41	0.00
34.68	101.93	2.00	0.00	0.41	0.00	34.72	101.86	2.00	0.00	0.41	0.00
34.80	101.88	2.00	0.00	0.41	0.00	34.88	101.93	2.00	0.00	0.41	0.00
34.92	101.74	2.00	0.00	0.41	0.00	35.00	101.10	2.00	0.00	0.41	0.00
35.05	100.37	2.00	0.00	0.41	0.00	35.13	100.10	2.00	0.00	0.40	0.00
35.21	100.13	2.00	0.00	0.40	0.00	35.29	100.00	2.00	0.00	0.40	0.00
35.34	99.52	2.00	0.00	0.40	0.00	35.38	98.32	2.00	0.00	0.40	0.00
35.45	96.90	2.00	0.00	0.40	0.00	35.50	95.61	2.00	0.00	0.40	0.00
35.57	95.91	2.00	0.00	0.40	0.00	35.65	96.68	2.00	0.00	0.40	0.00
35.73	96.43	2.00	0.00	0.39	0.00	35.77	92.89	2.00	0.00	0.39	0.00
35.85	87.75	2.00	0.00	0.39	0.00	35.93	83.48	2.00	0.00	0.39	0.00
35.97	81.82	2.00	0.00	0.39	0.00	36.06	81.96	2.00	0.00	0.39	0.00
36.10	82.56	2.00	0.00	0.39	0.00	36.17	82.87	2.00	0.00	0.39	0.00
36.26	82.92	2.00	0.00	0.39	0.00	36.30	82.77	2.00	0.00	0.38	0.00
36.38	82.65	2.00	0.00	0.38	0.00	36.42	83.22	2.00	0.00	0.38	0.00
36.50	84.36	2.00	0.00	0.38	0.00	36.58	85.67	2.00	0.00	0.38	0.00
36.62	86.70	2.00	0.00	0.38	0.00	36.70	87.64	2.00	0.00	0.38	0.00
36.78	88.63	2.00	0.00	0.38	0.00	36.82	89.61	2.00	0.00	0.38	0.00
36.90	90.25	2.00	0.00	0.37	0.00	36.98	90.75	2.00	0.00	0.37	0.00
37.02	91.43	2.00	0.00	0.37	0.00	37.10	92.23	2.00	0.00	0.37	0.00
37.15	93.66	2.00	0.00	0.37	0.00	37.22	94.82	2.00	0.00	0.37	0.00
37.30	95.39	2.00	0.00	0.37	0.00	37.35	94.50	2.00	0.00	0.37	0.00
37.42	91.71	2.00	0.00	0.37	0.00	37.50	88.07	2.00	0.00	0.36	0.00
37.55	84.01	2.00	0.00	0.36	0.00	37.63	81.35	2.00	0.00	0.36	0.00
37.67	79.67	2.00	0.00	0.36	0.00	37.74	79.29	2.00	0.00	0.36	0.00
37.83	79.21	2.00	0.00	0.36	0.00	37.87	80.34	2.00	0.00	0.36	0.00
37.95	81.55	2.00	0.00	0.36	0.00	38.03	82.54	2.00	0.00	0.36	0.00
38.07	81.24	2.00	0.00	0.35	0.00	38.14	81.25	2.00	0.00	0.35	0.00
38.22	82.30	2.00	0.00	0.35	0.00	38.26	82.98	2.00	0.00	0.35	0.00
38.35	84.37	2.00	0.00	0.35	0.00	38.39	86.31	2.00	0.00	0.35	0.00
38.46	88.42	2.00	0.00	0.35	0.00	38.53	89.36	2.00	0.00	0.35	0.00
38.61	87.68	2.00	0.00	0.35	0.00	38.68	85.03	2.00	0.00	0.34	0.00
38.72	81.14	2.00	0.00	0.34	0.00	38.81	77.54	2.00	0.00	0.34	0.00
38.85	73.06	2.00	0.00	0.34	0.00	38.93	69.37	2.00	0.00	0.34	0.00
38.98	65.62	2.00	0.00	0.34	0.00	39.06	65.89	2.00	0.00	0.34	0.00
39.13	69.13	2.00	0.00	0.34	0.00	39.18	77.17	2.00	0.00	0.34	0.00
39.25	84.74	0.15	0.90	0.33	0.01	39.33	90.53	0.16	0.85	0.33	0.01
39.41	92.55	2.00	0.00	0.33	0.00	39.45	91.86	2.00	0.00	0.33	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
39.53	90.17	2.00	0.00	0.33	0.00	39.57	86.51	2.00	0.00	0.33	0.00
39.65	80.62	2.00	0.00	0.33	0.00	39.73	73.64	2.00	0.00	0.33	0.00
39.77	66.97	2.00	0.00	0.33	0.00	39.86	63.87	2.00	0.00	0.32	0.00
39.94	62.67	2.00	0.00	0.32	0.00	39.98	63.81	2.00	0.00	0.32	0.00
40.05	64.82	2.00	0.00	0.32	0.00	40.11	65.54	2.00	0.00	0.32	0.00
40.19	65.75	2.00	0.00	0.32	0.00	40.23	65.90	2.00	0.00	0.32	0.00
40.31	65.66	2.00	0.00	0.32	0.00	40.39	64.99	2.00	0.00	0.32	0.00
40.43	63.60	2.00	0.00	0.31	0.00	40.51	62.29	2.00	0.00	0.31	0.00
40.55	60.95	2.00	0.00	0.31	0.00	40.63	60.07	2.00	0.00	0.31	0.00
40.71	59.43	2.00	0.00	0.31	0.00	40.75	59.36	2.00	0.00	0.31	0.00
40.83	59.61	2.00	0.00	0.31	0.00	40.91	59.98	2.00	0.00	0.31	0.00
40.96	60.25	2.00	0.00	0.31	0.00	41.03	60.21	2.00	0.00	0.30	0.00
41.11	60.16	2.00	0.00	0.30	0.00	41.16	60.58	2.00	0.00	0.30	0.00
41.24	61.35	2.00	0.00	0.30	0.00	41.28	62.29	2.00	0.00	0.30	0.00
41.36	63.14	2.00	0.00	0.30	0.00	41.44	63.88	2.00	0.00	0.30	0.00
41.48	64.47	2.00	0.00	0.30	0.00	41.54	64.54	2.00	0.00	0.30	0.00
41.61	63.89	2.00	0.00	0.29	0.00	41.69	62.74	2.00	0.00	0.29	0.00
41.77	61.67	2.00	0.00	0.29	0.00	41.81	61.30	2.00	0.00	0.29	0.00
41.89	61.38	2.00	0.00	0.29	0.00	41.93	61.40	2.00	0.00	0.29	0.00
42.01	61.11	2.00	0.00	0.29	0.00	42.09	60.66	2.00	0.00	0.29	0.00
42.13	59.85	2.00	0.00	0.29	0.00	42.21	58.67	2.00	0.00	0.28	0.00
42.29	57.52	2.00	0.00	0.28	0.00	42.33	56.68	2.00	0.00	0.28	0.00
42.41	56.29	2.00	0.00	0.28	0.00	42.45	55.69	2.00	0.00	0.28	0.00
42.53	55.11	2.00	0.00	0.28	0.00	42.61	54.68	2.00	0.00	0.28	0.00
42.65	54.75	2.00	0.00	0.28	0.00	42.74	55.30	2.00	0.00	0.28	0.00
42.82	55.66	2.00	0.00	0.27	0.00	42.86	55.41	2.00	0.00	0.27	0.00
42.94	54.81	2.00	0.00	0.27	0.00	43.02	54.42	2.00	0.00	0.27	0.00
43.06	54.67	2.00	0.00	0.27	0.00	43.14	55.10	2.00	0.00	0.27	0.00
43.18	56.01	2.00	0.00	0.27	0.00	43.26	57.07	2.00	0.00	0.27	0.00
43.34	57.99	2.00	0.00	0.27	0.00	43.38	58.95	2.00	0.00	0.26	0.00
43.46	60.55	2.00	0.00	0.26	0.00	43.54	62.10	2.00	0.00	0.26	0.00
43.58	63.36	2.00	0.00	0.26	0.00	43.66	64.01	2.00	0.00	0.26	0.00
43.74	64.63	2.00	0.00	0.26	0.00	43.78	65.76	2.00	0.00	0.26	0.00
43.86	67.06	2.00	0.00	0.26	0.00	43.90	69.55	2.00	0.00	0.26	0.00
43.98	71.80	2.00	0.00	0.25	0.00	44.06	73.43	2.00	0.00	0.25	0.00
44.10	77.81	2.00	0.00	0.25	0.00	44.18	84.70	2.00	0.00	0.25	0.00
44.26	92.83	2.00	0.00	0.25	0.00	44.31	100.30	2.00	0.00	0.25	0.00
44.39	105.69	2.00	0.00	0.25	0.00	44.43	110.05	2.00	0.00	0.25	0.00
44.51	112.49	2.00	0.00	0.25	0.00	44.56	113.13	2.00	0.00	0.24	0.00
44.63	113.34	2.00	0.00	0.24	0.00	44.71	113.10	0.23	0.51	0.24	0.01
44.79	114.04	0.23	0.51	0.24	0.00	44.83	114.68	0.24	0.50	0.24	0.00
44.90	114.43	0.24	0.50	0.24	0.00	44.98	114.00	0.23	0.50	0.24	0.00
45.03	113.86	0.23	0.50	0.24	0.00	45.08	112.17	2.00	0.00	0.24	0.00
45.16	108.84	2.00	0.00	0.23	0.00	45.24	104.18	2.00	0.00	0.23	0.00
45.28	99.10	2.00	0.00	0.23	0.00	45.36	93.75	2.00	0.00	0.23	0.00
45.44	89.00	2.00	0.00	0.23	0.00	45.47	85.63	2.00	0.00	0.23	0.00
45.56	82.78	2.00	0.00	0.23	0.00	45.63	79.45	2.00	0.00	0.23	0.00
45.68	76.75	2.00	0.00	0.23	0.00	45.76	75.35	2.00	0.00	0.22	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
45.84	75.17	2.00	0.00	0.22	0.00	45.88	77.47	2.00	0.00	0.22	0.00
45.96	80.70	2.00	0.00	0.22	0.00	46.00	83.91	2.00	0.00	0.22	0.00
46.08	84.58	2.00	0.00	0.22	0.00	46.16	83.19	2.00	0.00	0.22	0.00
46.20	79.67	2.00	0.00	0.22	0.00	46.27	75.95	2.00	0.00	0.22	0.00
46.35	72.63	2.00	0.00	0.21	0.00	46.40	70.03	2.00	0.00	0.21	0.00
46.48	68.20	2.00	0.00	0.21	0.00	46.52	66.47	2.00	0.00	0.21	0.00
46.60	65.59	2.00	0.00	0.21	0.00	46.68	65.04	2.00	0.00	0.21	0.00
46.72	64.83	2.00	0.00	0.21	0.00	46.80	64.62	2.00	0.00	0.21	0.00
46.88	64.41	2.00	0.00	0.21	0.00	46.92	64.47	2.00	0.00	0.20	0.00
47.00	64.65	2.00	0.00	0.20	0.00	47.08	64.79	2.00	0.00	0.20	0.00
47.12	64.84	2.00	0.00	0.20	0.00	47.20	64.83	2.00	0.00	0.20	0.00
47.28	64.93	2.00	0.00	0.20	0.00	47.32	65.61	2.00	0.00	0.20	0.00
47.41	66.74	2.00	0.00	0.20	0.00	47.45	68.48	2.00	0.00	0.20	0.00
47.52	69.91	2.00	0.00	0.19	0.00	47.58	72.23	2.00	0.00	0.19	0.00
47.65	77.86	2.00	0.00	0.19	0.00	47.73	85.08	2.00	0.00	0.19	0.00
47.77	93.70	2.00	0.00	0.19	0.00	47.85	100.33	2.00	0.00	0.19	0.00
47.93	105.19	2.00	0.00	0.19	0.00	47.97	107.28	2.00	0.00	0.19	0.00
48.05	109.54	2.00	0.00	0.19	0.00	48.13	112.26	2.00	0.00	0.18	0.00
48.17	115.90	2.00	0.00	0.18	0.00	48.24	119.11	2.00	0.00	0.18	0.00
48.32	123.50	2.00	0.00	0.18	0.00	48.40	127.46	2.00	0.00	0.18	0.00
48.45	130.58	2.00	0.00	0.18	0.00	48.53	132.71	0.33	0.33	0.18	0.00
48.57	134.73	0.34	0.32	0.18	0.00	48.65	135.48	0.34	0.32	0.18	0.00
48.73	135.28	0.34	0.32	0.17	0.00	48.77	133.98	0.33	0.32	0.17	0.00
48.85	132.35	0.33	0.32	0.17	0.00	48.89	130.56	0.32	0.32	0.17	0.00
48.97	128.97	0.31	0.32	0.17	0.00	49.04	127.85	0.30	0.32	0.17	0.00
49.08	126.66	0.30	0.32	0.17	0.00	49.16	125.46	0.29	0.32	0.17	0.00
49.24	124.56	0.29	0.32	0.17	0.00	49.28	124.23	0.29	0.32	0.16	0.00
49.36	124.09	0.28	0.32	0.16	0.00	49.44	123.63	0.28	0.32	0.16	0.00
49.48	123.44	0.28	0.32	0.16	0.00	49.56	123.46	0.28	0.31	0.16	0.00
49.64	123.61	0.28	0.31	0.16	0.00	49.68	123.85	0.28	0.31	0.16	0.00
49.75	123.69	0.28	0.31	0.16	0.00	49.84	123.05	0.28	0.31	0.16	0.00
49.88	121.56	0.27	0.31	0.15	0.00	49.95	119.35	0.26	0.31	0.15	0.00
50.03	117.88	0.26	0.31	0.15	0.00						

Total estimated settlement: 0.83

Abbreviations

$Q_{tn,cs}$: Equivalent clean sand normalized cone resistance
FS: Factor of safety against liquefaction
e_v (%): Post-liquefaction volumentric strain
DF: e_v depth weighting factor
Settlement: Calculated settlement

Landmark Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243

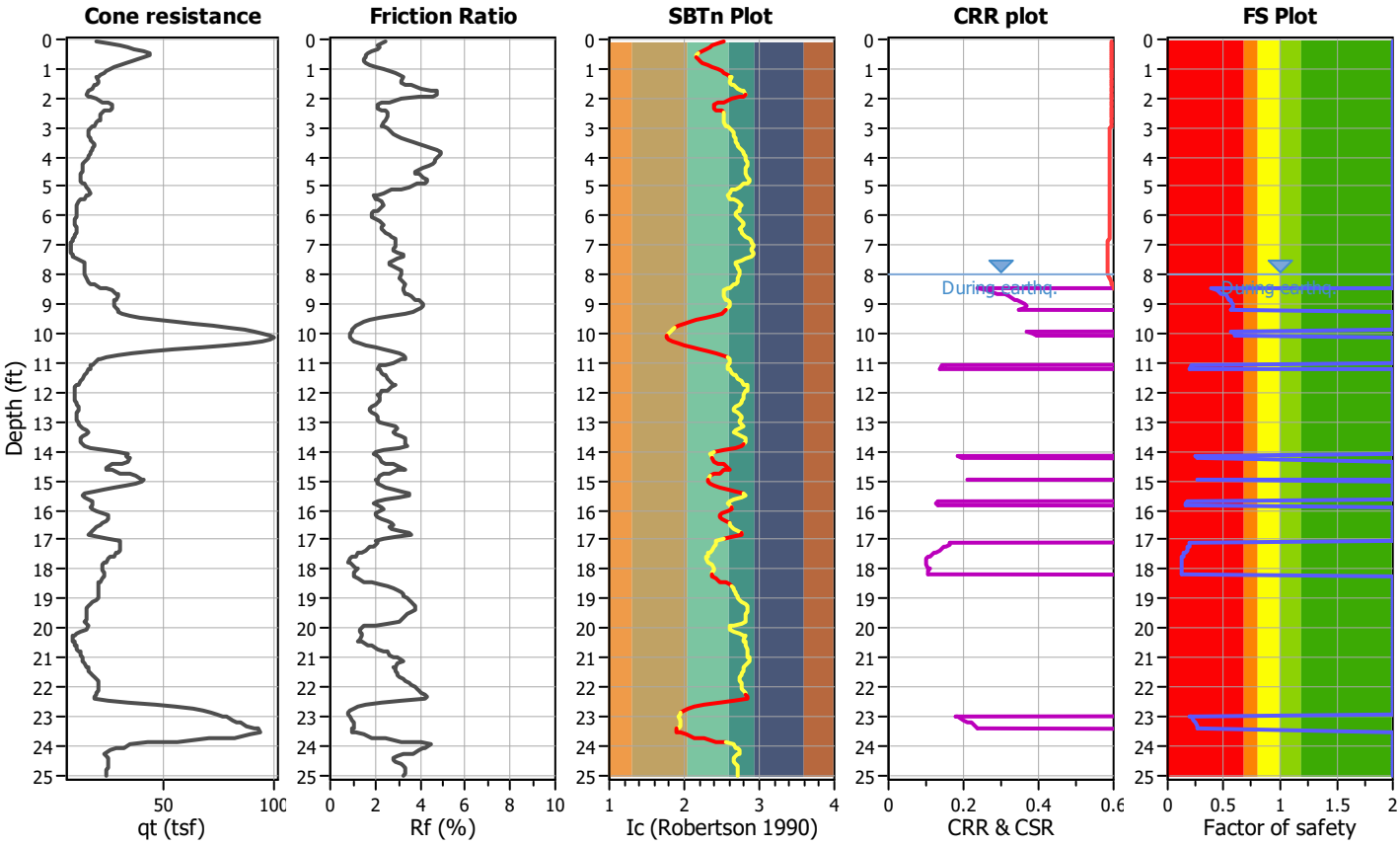
LIQUEFACTION ANALYSIS REPORT

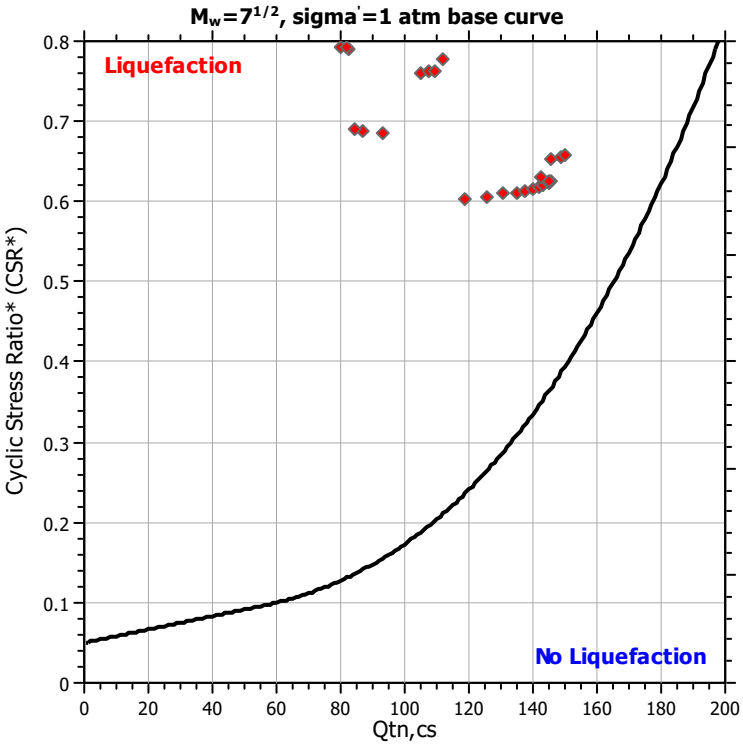
Project title : IVC 600 Building Addition **Location : Imperial, CA**

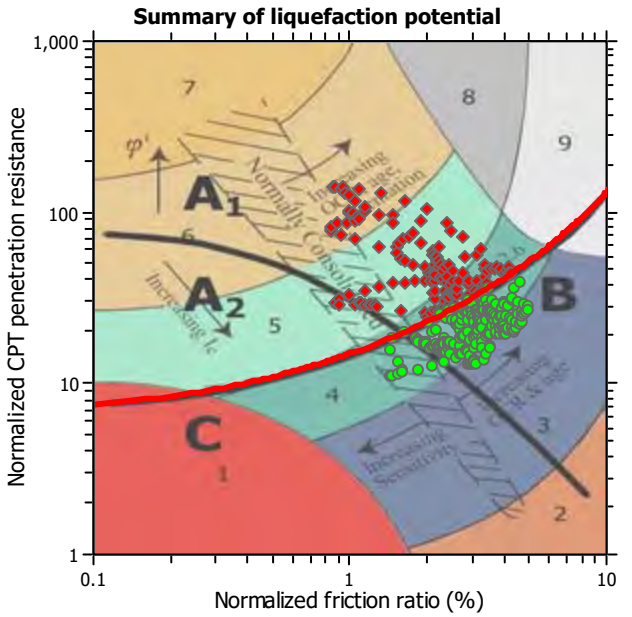
CPT file : CPT-02

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	8.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.84	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

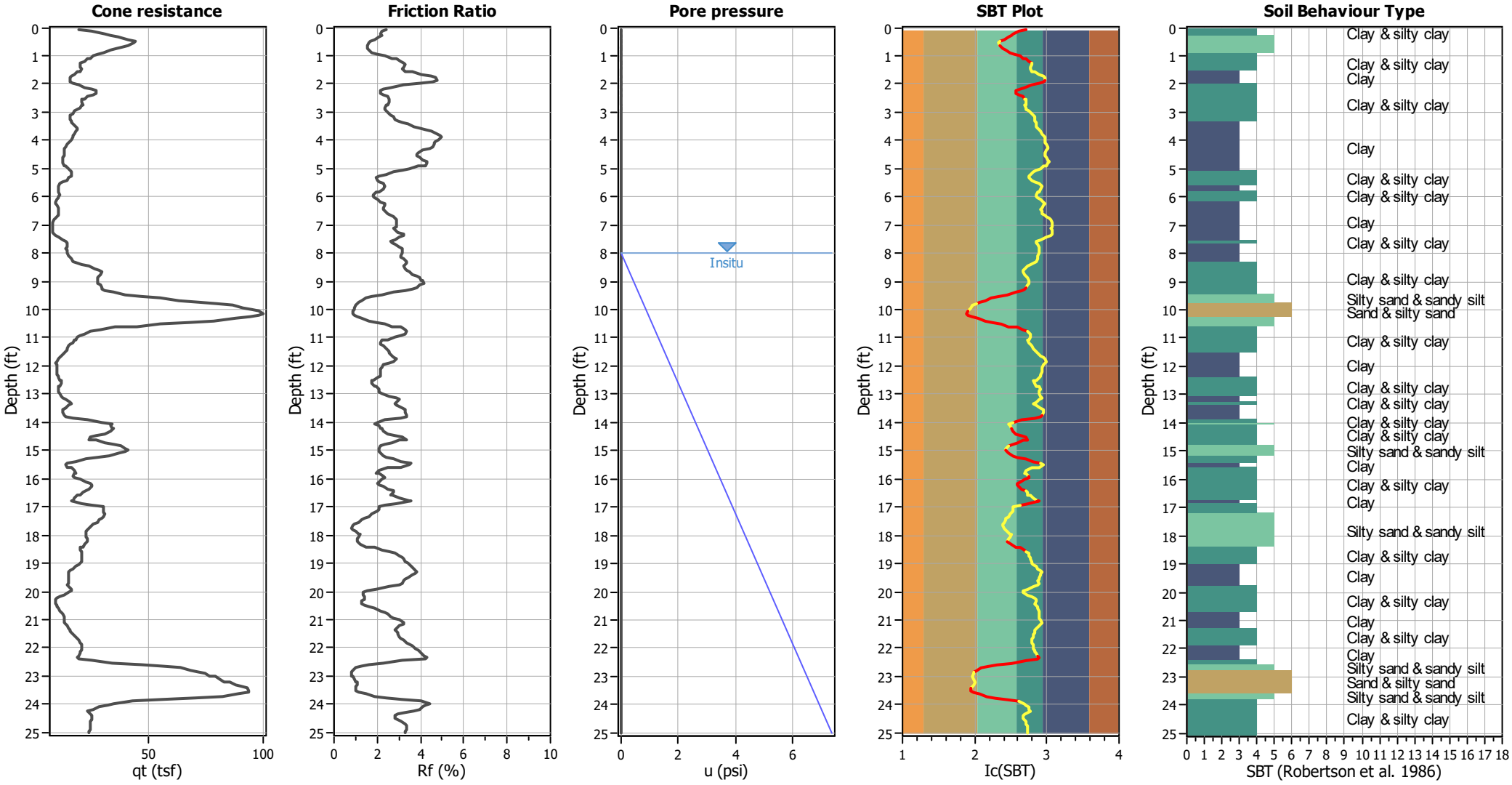






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



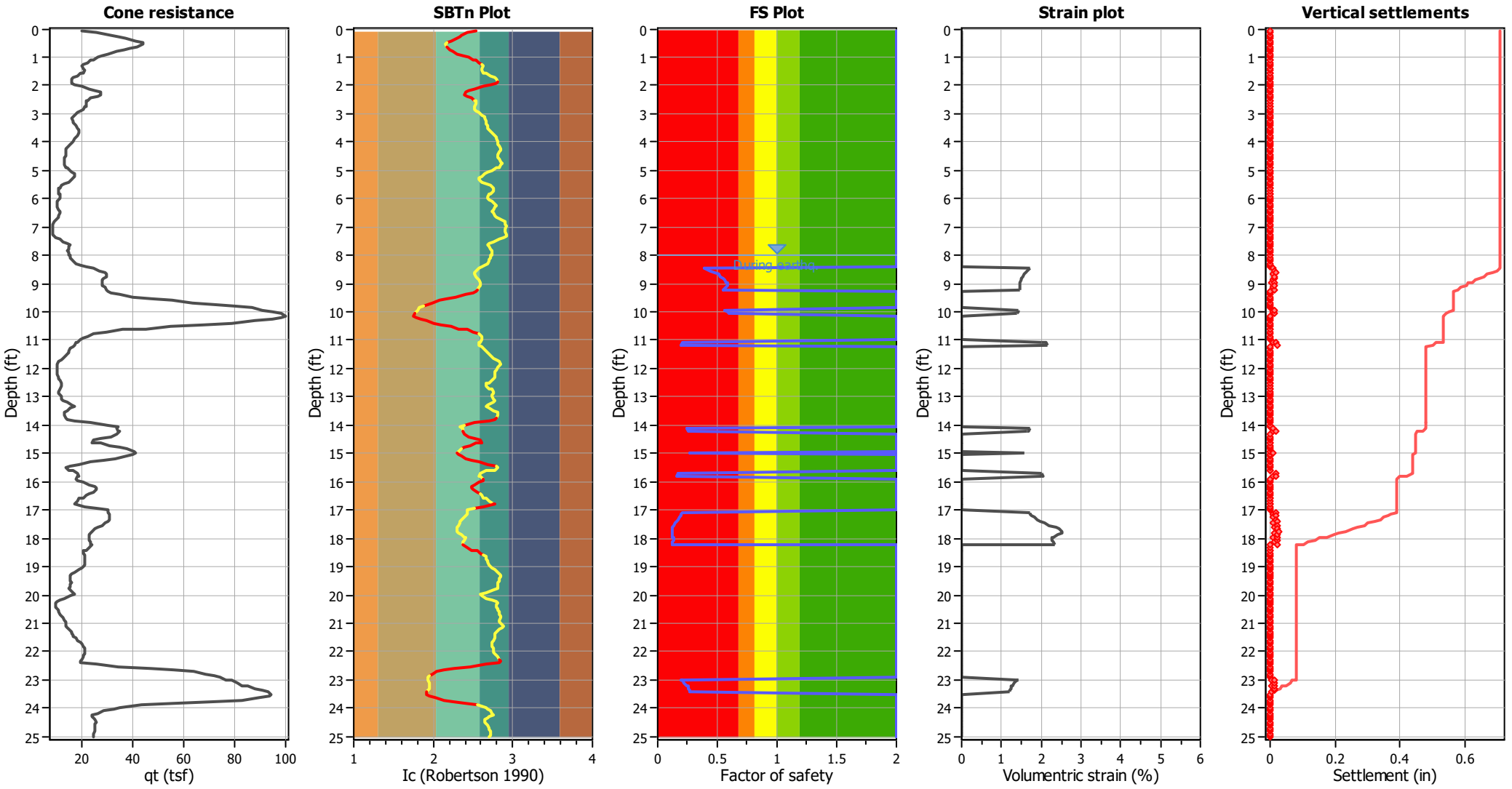
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.84	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
8.02	97.53	2.00	0.00	0.86	0.00	8.10	97.42	2.00	0.00	0.86	0.00
8.14	98.67	2.00	0.00	0.86	0.00	8.22	102.40	2.00	0.00	0.86	0.00
8.30	106.48	2.00	0.00	0.86	0.00	8.35	110.64	2.00	0.00	0.86	0.00
8.43	114.05	2.00	0.00	0.86	0.00	8.47	118.94	0.39	1.74	0.86	0.01
8.55	125.41	0.43	1.66	0.86	0.02	8.63	130.82	0.47	1.60	0.85	0.02
8.67	135.14	0.51	1.56	0.85	0.01	8.76	137.61	0.53	1.53	0.85	0.02
8.83	139.90	0.54	1.51	0.85	0.01	8.87	141.65	0.56	1.49	0.85	0.01
8.96	143.19	0.57	1.48	0.85	0.01	8.99	144.74	0.58	1.46	0.85	0.01
9.08	145.56	0.59	1.45	0.85	0.01	9.12	144.77	0.58	1.46	0.85	0.01
9.20	142.46	0.55	1.48	0.84	0.01	9.28	139.50	2.00	0.00	0.84	0.00
9.32	134.48	2.00	0.00	0.84	0.00	9.40	127.22	2.00	0.00	0.84	0.00
9.49	120.96	2.00	0.00	0.84	0.00	9.53	119.05	2.00	0.00	0.84	0.00
9.60	121.10	2.00	0.00	0.84	0.00	9.69	124.80	2.00	0.00	0.84	0.00
9.73	130.72	2.00	0.00	0.84	0.00	9.81	136.12	2.00	0.00	0.83	0.00
9.85	142.29	2.00	0.00	0.83	0.00	9.94	145.70	0.56	1.43	0.83	0.01
9.98	148.83	0.59	1.42	0.83	0.01	10.06	150.27	0.60	1.40	0.83	0.01
10.14	151.49	2.00	0.00	0.83	0.00	10.18	152.33	2.00	0.00	0.83	0.00
10.27	153.14	2.00	0.00	0.83	0.00	10.31	154.01	2.00	0.00	0.83	0.00
10.39	153.05	2.00	0.00	0.82	0.00	10.47	151.10	2.00	0.00	0.82	0.00
10.51	147.31	2.00	0.00	0.82	0.00	10.59	142.73	2.00	0.00	0.82	0.00
10.64	136.92	2.00	0.00	0.82	0.00	10.72	130.16	2.00	0.00	0.82	0.00
10.79	122.60	2.00	0.00	0.82	0.00	10.86	116.46	2.00	0.00	0.82	0.00
10.90	109.65	2.00	0.00	0.82	0.00	10.98	101.16	2.00	0.00	0.81	0.00
11.06	92.90	0.23	2.02	0.81	0.02	11.10	86.93	0.21	2.13	0.81	0.01
11.18	84.51	0.20	2.17	0.81	0.02	11.22	83.28	2.00	0.00	0.81	0.00
11.31	83.88	2.00	0.00	0.81	0.00	11.39	84.94	2.00	0.00	0.81	0.00
11.43	85.55	2.00	0.00	0.81	0.00	11.51	85.27	2.00	0.00	0.80	0.00
11.55	84.43	2.00	0.00	0.80	0.00	11.63	83.74	2.00	0.00	0.80	0.00
11.71	83.17	2.00	0.00	0.80	0.00	11.76	81.67	2.00	0.00	0.80	0.00
11.84	78.49	2.00	0.00	0.80	0.00	11.92	74.93	2.00	0.00	0.80	0.00
11.96	72.01	2.00	0.00	0.80	0.00	12.04	70.78	2.00	0.00	0.80	0.00
12.09	70.26	2.00	0.00	0.80	0.00	12.17	70.52	2.00	0.00	0.79	0.00
12.21	71.24	2.00	0.00	0.79	0.00	12.29	71.82	2.00	0.00	0.79	0.00
12.37	71.64	2.00	0.00	0.79	0.00	12.41	70.29	2.00	0.00	0.79	0.00
12.50	68.67	2.00	0.00	0.79	0.00	12.54	67.76	2.00	0.00	0.79	0.00
12.62	67.92	2.00	0.00	0.79	0.00	12.70	68.57	2.00	0.00	0.78	0.00
12.74	69.70	2.00	0.00	0.78	0.00	12.83	70.81	2.00	0.00	0.78	0.00
12.87	71.21	2.00	0.00	0.78	0.00	12.95	71.81	2.00	0.00	0.78	0.00
12.99	74.67	2.00	0.00	0.78	0.00	13.08	80.66	2.00	0.00	0.78	0.00
13.16	87.14	2.00	0.00	0.78	0.00	13.20	92.51	2.00	0.00	0.78	0.00
13.28	95.01	2.00	0.00	0.77	0.00	13.32	95.85	2.00	0.00	0.77	0.00
13.41	95.04	2.00	0.00	0.77	0.00	13.49	94.30	2.00	0.00	0.77	0.00
13.53	93.72	2.00	0.00	0.77	0.00	13.62	93.62	2.00	0.00	0.77	0.00
13.66	93.73	2.00	0.00	0.77	0.00	13.74	95.99	2.00	0.00	0.77	0.00
13.82	98.96	2.00	0.00	0.77	0.00	13.85	101.23	2.00	0.00	0.77	0.00
13.92	98.36	2.00	0.00	0.76	0.00	13.99	98.52	2.00	0.00	0.76	0.00
14.08	100.48	2.00	0.00	0.76	0.00	14.12	104.69	0.25	1.71	0.76	0.01
14.20	107.25	0.26	1.68	0.76	0.02	14.24	109.40	0.26	1.65	0.76	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
14.32	109.66	2.00	0.00	0.76	0.00	14.40	110.66	2.00	0.00	0.76	0.00
14.45	113.09	2.00	0.00	0.76	0.00	14.52	116.45	2.00	0.00	0.75	0.00
14.60	118.51	2.00	0.00	0.75	0.00	14.65	116.95	2.00	0.00	0.75	0.00
14.73	114.63	2.00	0.00	0.75	0.00	14.77	112.51	2.00	0.00	0.75	0.00
14.85	111.37	2.00	0.00	0.75	0.00	14.93	111.28	2.00	0.00	0.75	0.00
14.97	111.89	0.27	1.59	0.75	0.01	15.05	111.70	2.00	0.00	0.74	0.00
15.09	109.66	2.00	0.00	0.74	0.00	15.18	106.85	2.00	0.00	0.74	0.00
15.26	104.92	2.00	0.00	0.74	0.00	15.30	104.36	2.00	0.00	0.74	0.00
15.38	102.87	2.00	0.00	0.74	0.00	15.46	101.04	2.00	0.00	0.74	0.00
15.50	97.64	2.00	0.00	0.74	0.00	15.58	93.71	2.00	0.00	0.74	0.00
15.62	87.59	2.00	0.00	0.74	0.00	15.70	82.72	0.17	2.00	0.73	0.02
15.78	80.27	0.16	2.05	0.73	0.02	15.83	81.95	0.17	2.01	0.73	0.01
15.91	84.66	2.00	0.00	0.73	0.00	15.95	86.75	2.00	0.00	0.73	0.00
16.03	87.35	2.00	0.00	0.73	0.00	16.12	88.03	2.00	0.00	0.73	0.00
16.16	89.90	2.00	0.00	0.73	0.00	16.24	92.10	2.00	0.00	0.72	0.00
16.28	95.59	2.00	0.00	0.72	0.00	16.36	99.27	2.00	0.00	0.72	0.00
16.44	102.32	2.00	0.00	0.72	0.00	16.48	100.03	2.00	0.00	0.72	0.00
16.56	94.95	2.00	0.00	0.72	0.00	16.60	94.68	2.00	0.00	0.72	0.00
16.68	98.12	2.00	0.00	0.72	0.00	16.76	103.43	2.00	0.00	0.72	0.00
16.81	104.07	2.00	0.00	0.72	0.00	16.89	100.91	2.00	0.00	0.71	0.00
16.94	98.03	2.00	0.00	0.71	0.00	17.01	96.36	2.00	0.00	0.71	0.00
17.10	96.68	0.20	1.71	0.71	0.02	17.14	95.65	0.20	1.72	0.71	0.01
17.22	93.17	0.19	1.75	0.71	0.02	17.26	89.14	0.18	1.82	0.71	0.01
17.34	84.55	0.17	1.89	0.71	0.02	17.43	79.75	0.16	1.98	0.70	0.02
17.47	74.58	0.14	2.09	0.70	0.01	17.55	69.69	0.14	2.21	0.70	0.02
17.59	64.11	0.13	2.36	0.70	0.01	17.67	60.83	0.12	2.46	0.70	0.02
17.75	58.92	0.12	2.52	0.70	0.02	17.79	59.25	0.12	2.51	0.70	0.01
17.87	62.03	0.12	2.41	0.70	0.02	17.95	65.24	0.13	2.31	0.70	0.02
17.99	67.00	0.13	2.26	0.70	0.01	18.07	66.14	0.13	2.27	0.69	0.02
18.12	64.59	0.13	2.32	0.69	0.01	18.20	63.72	0.13	2.34	0.69	0.02
18.24	63.88	2.00	0.00	0.69	0.00	18.33	67.12	2.00	0.00	0.69	0.00
18.41	72.10	2.00	0.00	0.69	0.00	18.45	78.95	2.00	0.00	0.69	0.00
18.53	85.71	2.00	0.00	0.69	0.00	18.61	92.16	2.00	0.00	0.68	0.00
18.65	98.01	2.00	0.00	0.68	0.00	18.73	101.19	2.00	0.00	0.68	0.00
18.77	103.57	2.00	0.00	0.68	0.00	18.85	104.56	2.00	0.00	0.68	0.00
18.93	105.61	2.00	0.00	0.68	0.00	18.98	106.47	2.00	0.00	0.68	0.00
19.06	106.42	2.00	0.00	0.68	0.00	19.10	105.39	2.00	0.00	0.68	0.00
19.18	103.73	2.00	0.00	0.67	0.00	19.26	102.35	2.00	0.00	0.67	0.00
19.31	101.29	2.00	0.00	0.67	0.00	19.38	100.10	2.00	0.00	0.67	0.00
19.42	98.20	2.00	0.00	0.67	0.00	19.51	95.97	2.00	0.00	0.67	0.00
19.59	93.97	2.00	0.00	0.67	0.00	19.63	92.69	2.00	0.00	0.67	0.00
19.71	91.34	2.00	0.00	0.67	0.00	19.79	88.66	2.00	0.00	0.66	0.00
19.83	82.20	2.00	0.00	0.66	0.00	19.91	74.47	2.00	0.00	0.66	0.00
19.95	66.31	2.00	0.00	0.66	0.00	20.03	61.26	2.00	0.00	0.66	0.00
20.12	57.88	2.00	0.00	0.66	0.00	20.16	56.49	2.00	0.00	0.66	0.00
20.24	55.60	2.00	0.00	0.66	0.00	20.28	53.76	2.00	0.00	0.66	0.00
20.36	52.07	2.00	0.00	0.65	0.00	20.44	51.82	2.00	0.00	0.65	0.00
20.48	54.90	2.00	0.00	0.65	0.00	20.56	58.75	2.00	0.00	0.65	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

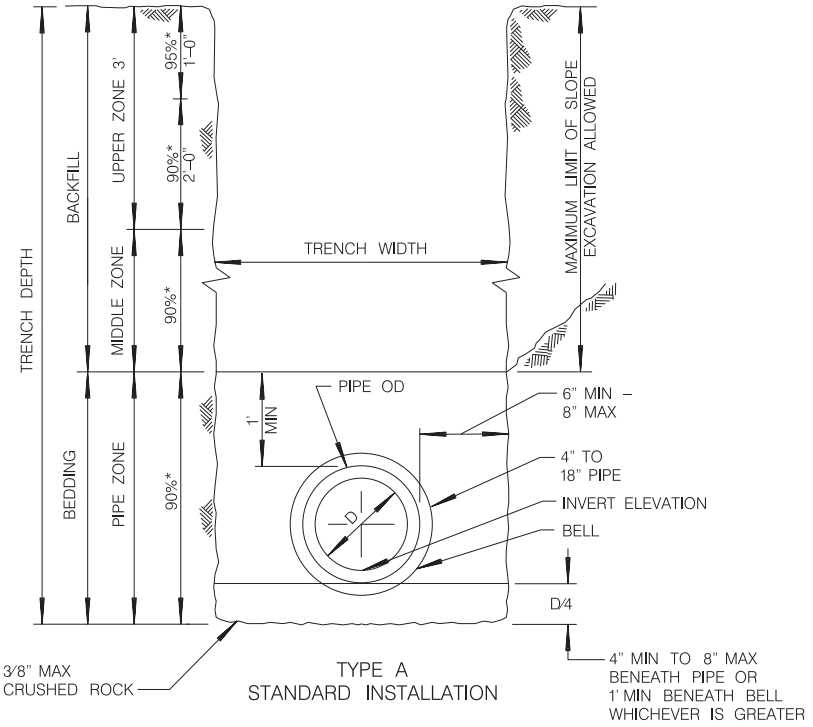
Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
20.61	63.38	2.00	0.00	0.65	0.00	20.69	67.73	2.00	0.00	0.65	0.00
20.77	71.82	2.00	0.00	0.65	0.00	20.81	75.34	2.00	0.00	0.65	0.00
20.89	78.39	2.00	0.00	0.65	0.00	20.97	81.47	2.00	0.00	0.64	0.00
21.01	84.68	2.00	0.00	0.64	0.00	21.10	86.64	2.00	0.00	0.64	0.00
21.14	87.50	2.00	0.00	0.64	0.00	21.22	86.70	2.00	0.00	0.64	0.00
21.29	86.05	2.00	0.00	0.64	0.00	21.34	86.51	2.00	0.00	0.64	0.00
21.42	87.61	2.00	0.00	0.64	0.00	21.46	89.16	2.00	0.00	0.64	0.00
21.54	91.08	2.00	0.00	0.63	0.00	21.62	93.45	2.00	0.00	0.63	0.00
21.66	96.46	2.00	0.00	0.63	0.00	21.74	99.81	2.00	0.00	0.63	0.00
21.82	103.00	2.00	0.00	0.63	0.00	21.86	105.82	2.00	0.00	0.63	0.00
21.94	107.99	2.00	0.00	0.63	0.00	22.02	109.87	2.00	0.00	0.63	0.00
22.06	111.27	2.00	0.00	0.63	0.00	22.14	111.83	2.00	0.00	0.62	0.00
22.19	112.28	2.00	0.00	0.62	0.00	22.27	112.75	2.00	0.00	0.62	0.00
22.34	113.17	2.00	0.00	0.62	0.00	22.39	112.68	2.00	0.00	0.62	0.00
22.47	107.25	2.00	0.00	0.62	0.00	22.54	100.67	2.00	0.00	0.62	0.00
22.58	95.97	2.00	0.00	0.62	0.00	22.66	95.33	2.00	0.00	0.62	0.00
22.70	95.69	2.00	0.00	0.62	0.00	22.79	95.98	2.00	0.00	0.61	0.00
22.87	96.93	2.00	0.00	0.61	0.00	22.91	99.16	2.00	0.00	0.61	0.00
22.99	101.36	0.20	1.41	0.61	0.01	23.03	104.62	0.21	1.37	0.61	0.01
23.11	108.38	0.22	1.33	0.61	0.01	23.19	112.25	0.24	1.29	0.61	0.01
23.23	115.37	0.25	1.26	0.61	0.01	23.31	117.39	0.26	1.24	0.60	0.01
23.39	118.80	0.27	1.22	0.60	0.01	23.43	119.53	0.27	1.22	0.60	0.01
23.51	120.65	2.00	0.00	0.60	0.00	23.56	124.62	2.00	0.00	0.60	0.00
23.63	130.16	2.00	0.00	0.60	0.00	23.72	135.53	2.00	0.00	0.60	0.00
23.76	140.72	2.00	0.00	0.60	0.00	23.84	145.47	2.00	0.00	0.60	0.00
23.90	149.02	2.00	0.00	0.59	0.00	23.97	144.55	2.00	0.00	0.59	0.00
24.05	135.28	2.00	0.00	0.59	0.00	24.09	126.99	2.00	0.00	0.59	0.00
24.17	119.18	2.00	0.00	0.59	0.00	24.25	111.60	2.00	0.00	0.59	0.00
24.29	104.55	2.00	0.00	0.59	0.00	24.37	100.70	2.00	0.00	0.59	0.00
24.41	98.12	2.00	0.00	0.59	0.00	24.49	98.79	2.00	0.00	0.58	0.00
24.58	100.30	2.00	0.00	0.58	0.00	24.62	103.44	2.00	0.00	0.58	0.00
24.69	105.79	2.00	0.00	0.58	0.00	24.77	107.16	2.00	0.00	0.58	0.00
24.82	107.12	2.00	0.00	0.58	0.00	24.89	106.24	2.00	0.00	0.58	0.00
24.97	105.26	2.00	0.00	0.58	0.00	25.01	104.70	2.00	0.00	0.58	0.00

Total estimated settlement: 0.71

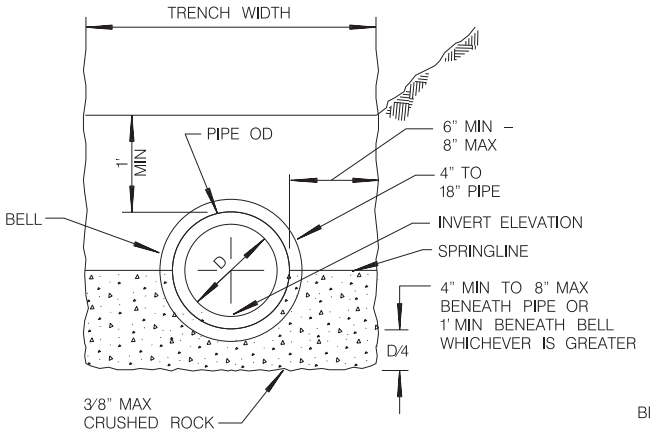
Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

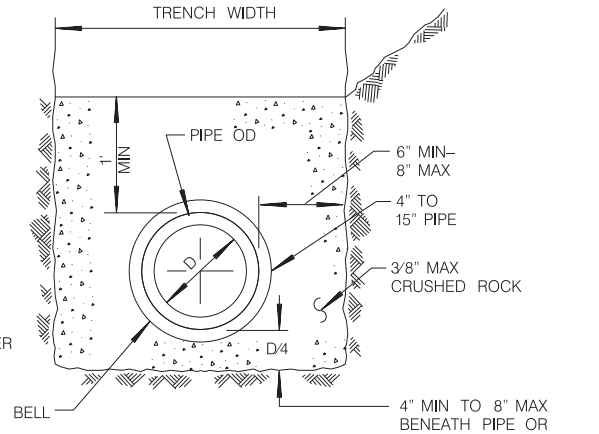
APPENDIX E



TYPE A
STANDARD INSTALLATION



TYPE B
ROCK TO SPRINGLINE



TYPE C
ROCK ENVELOPE

NOTES

1. FOR TRENCH RESURFACING IN IMPROVED STREETS, SEE STANDARD DRAWINGS SDG–107 AND SDG–108.
2. (*) INDICATES MINIMUM RELATIVE COMPACTION.
3. MINIMUM DEPTH OF COVER FROM THE TOP OF PIPE TO FINISH GRADE FOR PVC SDR 35 SEWER MAIN SHALL BE 5'. FOR SHALLOWER DEPTH, SPECIAL DESIGN IS REQUIRED. SEE SDS–101.
4. SEE TYPE A INSTALLATION FOR DETAILS NOT SHOWN FOR TYPES B AND C.
5. FOR PIPE SIZE ENCASEMENT LARGER THAN 15", MAXIMUM SIDE WALL CLEARANCE SHALL BE 12" OR AS SHOWN ON THE PLANS.
6. 6" METAL TAPE SHALL BE INSTALLED ABOVE PIPE 4" BELOW TRENCH CAP AND 12" BELOW FINISH GRADE IN UNIMPROVED STREETS.
7. 1' SAND CUSHION OR A 6" MINIMUM SAND CUSHION WITH 1" NEOPRENE PAD SHALL BE PLACED FOR CROSSINGS UTILITIES WHEN VERTICAL CLEARANCE IS 1' OR LESS. THE NEOPRENE PAD SHALL BE PLACED ON THE MOST FRAGILE UTILITY.

From: City of San Diego Standard Drawing SDS-110 (2016)

LANDMARK Geo-Engineers and Geologists **Project No.: LE20129**	**Pipe Bedding and Trench Backfill Recommendations**	**Plate E-1**

ATTACHMENT A
ALTERNATE BID ITEMS PROPOSAL

Project: **COLLEGE CENTER EXPANSION – BUILDING 600**

Bidder Name: _____

Bidders must provide a proposal price for each Alternate Bid Item set forth herein; failure to do so will result in rejection of the Bid Proposal for non-responsiveness. The amount proposed for each Alternate Bid Item by the above-identified Bidder is set forth hereinbelow:

1. Alternate Bid Item. Delete dropped ceiling in dining hall 140; Remove dropped acoustic tile ceiling, framing and associated seismic joint from dining hall 140. Reference sheets: DA10.01, A6.02, A6.04, A10.01, M, E and associated details.
   - ☐ Add to Base Bid Proposal Amount
   - ☐ Deduct From Base Bid Proposal Amount

   (Check appropriate box indicating additive or deductive cost; failure to do so will result in rejection of Bid Proposal for non-responsiveness)

2. Alternate Bid Item. Delete expansion of (E) openings between dining hall 140 and student dining 106; The existing opening in the masonry wall will not be enlarged. The folding panel partition wall will be reduced in size to accommodate the (E) openings. Reference sheets: D2.02, A2.01, A6.02, A10.01, S, M, E and associated details.
   - ☐ Add to Base Bid Proposal Amount
   - ☐ Deduct From Base Bid Proposal Amount

   (Check appropriate box indicating additive or deductive cost; failure to do so will result in rejection of Bid Proposal for non-responsiveness)

_____ Dollars ($_____)
(in words; printed or typed)

(in words; printed or typed)

Dated _____

By: _____
(Signature of Bidder's Authorized Officer or Representative)

_____
(Typed or Printed Name)

Title: _____

DSA **140**

APPLICATION FOR SUBMITTAL OF POST-APPROVAL DOCUMENT

This application is for submittal of documents, after the initial approval of the project (post-approval documents), that require Division of the State Architect (DSA) review and approval.This form shall be completed by the Design Professional in General Responsible Charge of the project, in accordance with California Code of Regulations, Title 24, Part 1, Sections 4-317, 4-323 and 4-338 and in compliance with DSA IR A-6: Construction Change Document Submittal and Approval Process.

DSA documents referenced within this form are available on the DSA Forms or DSA Publications webpages.

1. SUBMITTAL TYPE: (Is this a resubmittal? Yes ☑ No ☐)

Deferred Submittal ☐	Addendum Number: 01	Revision Number:	CCD Number: Category A ☐ or B ☐

2. PROJECT INFORMATION:

School District/Owner: Imperial Community College District	DSA File Number: 13 C1
Project Name/School: Imperial Valley College B600 Expansion	DSA Application Number 04 119487

3. APPLICANT INFORMATION:

Date Submitted: 04/22/21	Attached Pages? No ☐ Yes ☑ Number of pages? 40		
Firm Name: PBK Architects, Inc	Contact Name: Chuck Forte		
Work Email: chuck.forte@pbk.com	Work Phone: (619) 200-1149		
Firm Address: 11455 El Camino Real, Suite 480	City: San Diego	State: CA	Zip Code: 92130

4. REASON FOR SUBMITTAL: (Check applicable boxes)

☑ For revision or addendum prior to construction. ☐ For a project currently under construction.

☐ For a project that has a form *DSA 301-N: Notification of Requirement for Certification*, *DSA 301-P: Posted Notification of Requirement for Certification* or a 90-Day Letter issued.

☐ To obtain DSA approval of an existing uncertified building or buildings.

☐ For Category B CCD this is: ☐ a voluntary submittal, ☐ a DSA required submittal (attach DSA notice requiring submission).

5. DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE:

Name of the Design Professional In General Responsible Charge: Mark Eacrett

Professional License Number: C28195 Discipline: Architect

Design Professional in General Responsible Charge Statement: The attached post-approval documents have been examined by me for design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications. They are acceptable for incorporation into the construction of the project.

Signature: _____

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE

6. CONFIRMATION, DESCRIPTION AND LISTING OF DOCUMENTS:

For addenda, revisions, or CCDs: CHECK THIS BOX ☑ to confirm that *all* post-approval documents have been stamped and signed by the Responsible Design Professional listed on form *DSA 1: Application for Approval of Plans and Specifications* for this project. (For *Deferred Submittals*, refer to *IR A-18: Use of Construction Documents Prepared by Other Professionals,* and *IR A-19: Design Professional's Signature and Seal (Stamp) on Construction Documents*, when applicable, for signature and seal requirements.)

Provide a brief description of construction scope for this post-approval document (attach additional sheets if needed):

See attached for descriptions of revisions made to each sheet

List of DSA-approved drawings affected by this post-approval document:

See the attach for the list of revised sheets

DSA USE ONLY

SSS_____ Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

FLS_____ Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

ACS_____ Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

Returned	DSA STAMP
Date:	
By:	

Addendum Number 01

March 31, 2021

To Drawings and Specifications dated 12/08/2020

IVC B600 Modernization
Imperial Community College District

Prepared By: PBK Architects, Inc.
11455 El Camino Real, Suite 480
San Diego, CA. 92130

PBK Project No.: 20190
DSA A#: A# 04-119487
DSA File No.: 13-C1

Notice to Proposers:

A. Receipt of this Addendum shall be acknowledged on the Proposal Form.

B. This Addendum forms part of the Contract documents for the above referenced project and shall be incorporated integrally therewith.

C. Each proposer shall make necessary adjustments and submit his proposal with full knowledge of all modifications, clarifications, and supplemental data included therein. Where provisions of the following supplemental data differ from those of the original Contract Documents, this Addendum shall govern.

GENERAL ITEMS

No Items

CONSTRUCTION DRAWINGS

ARCHITECTURAL

- G0.01
  - Added sheet C0.01 - FIRE LINE SITE PLAN to construction drawings.
  - Added sheet A10.02 – REFLECTED CEILING PLAN – EXISTING BUILDING to construction drawings.
- G0.02
  - Added regions to show limits of work.
- D1.01
  - Revised graphic to show areas of concrete to be removed.
  - Added note to relocate electric pull box per electrical drawings.
- D2.01
  - Added fill and legend item to identify existing CMU walls.
  - Added keynote identifying saw cuts in existing CMU walls.
  - Added keynote identifying existing transformer.
  - Added graphic element and keynote identifying existing gas meter.

    - Added area of existing concrete slab to be removed.
    - Added keynote to core drill solid grouted CMU wall as required to install gas lines.
- D4.01
    - Added dimensions and notes to clarify walls to be removed.
    - Added door tags.
    - Added keynote identifying existing paper towel dispensers.
    - Added demolition note to remove existing hardware and signage on restroom doors.
- D10.01
    - Added keynote identifying existing light fixtures to remain.
    - Added areas of ceiling to be removed to install fire sprinkler lines and heads.
    - Added existing light fixtures and identified light fixtures to be removed and reinstalled as necessary to install fire sprinkler lines and heads.
- A1.01
    - Added dimensions to exterior concrete paving.
    - Added note that contractor shall protect all landscape areas within limits of work.
    - Removed unused legend item.
- A1.02
    - Detail 1: Revised reinforcing to #4.
    - Detail 7: Revised concrete pad depth to 5”.
    - Detail 7: Revised concrete paving minimum strength to 4,500 PSI U.N.O.
    - Detail 21: Revised note to remove existing concrete paving and truncated domes and replace with new concrete paving.
- A2.01
    - Added grid line D and dimension from grid line C.
    - Added keynote identifying relocated electrical pull box.
    - Added keynote identifying folding partitions and associated swing door.
    - Added callouts for folding partition head and threshold details.
    - Added keynote identifying HSS columns on grid line D.
    - Added fire extinguisher cabinet markers and legend item.
    - Added note to apply sealer to CMU veneer.
    - Added graphic element and keynote identifying existing gas meter.
    - Added graphic element and keynote identifying concrete slab patch.
- A3.01
    - Added keynote legend.
    - Added note identifying roof assembly rating as Class A.
    - Added note to provide minimum R-30 roof insulation.
    - Added callout for duct penetration detail.
    - Added gas line.
- A3.02
    - Revised detail 7 per Mechanical.
    - Revised detail 8 per Plumbing.
    - Added detail 15.
- A4.01
    - Added note to include new hardware on restroom doors per schedule on sheet A9.02.
    - Added note to include signage per sheet G0.03.
- A6.01
    - Added exterior finish schedule.
    - Added graphic and keynote identifying rooftop unit.
    - Added keynote identifying concrete sill below storefront windows.
    - Revised keynote identifying chain link fence.
    - Revised legend graphics to identifying existing and new CMU elements.

- A6.02
    - Added callout for folding partition.
    - Added callout for acoustic ceiling tile under gypsum wallboard soffit.

- Added callout for pendant lights.

- A6.03
  - Added graphic, callouts, and detail reference for gutter supports.
  - Revised concrete footing graphic.
  - Revised down spout bottom.
- A6.05
  - Added fill identifying new gypsum wallboard.
  - Added keynotes identifying 4” rubber base.
  - Added keynotes identifying signage.
  - Added keynotes identifying folding partitions and associated swing door.
  - Added graphics and keynotes identifying locations of roller shades.
  - Added graphics and keynotes identifying locations of fly fans.
- A7.01
  - Detail 4: Added grid line.
  - Detail 14: Added callout for vapor barrier.
- A9.03
  - Detail 2: Revised aluminum brake metal.
  - Detail 4: Added 4” rubber base.
  - Detail 6: Added fly fan and mounting.
  - Detail 6: Added wood blocking.
  - Detail 6: Revised overall head/sill width and associated aluminum break metal members to add space for conduit.
  - Detail 21: Added note that the roller shade mount will be a similar condition at exterior hollow metal doors.
- A10.01
  - Added graphic and keynotes identifying existing mechanical registers.
  - Added keynote identifying existing light fixtures.
  - Added graphic and keynotes identifying structural elements associated with the shade structure to the south.
  - Added legend items identifying existing ceiling types.
  - Added legend item and detail callouts for fly fans.
  - Added detail callouts for roller shades.
  - Added graphic and legend item identifying areas of existing ceiling to be patched after installing new fire sprinkler lines and heads.
- A10.02
  - New sheet shows areas of the existing ceilings that will need to be patched and light fixtures that will be reinstalled after installing fire sprinkler lines and heads.
- A10.03
  - Added detail 23.

CIVIL

- C0.01
  - New sheet shows the continuation of the site fire line from the existing fire line to Building 600.
  - Revised thrust block calculations.
  - Detail 1: added gate valve.

MECHANICAL

- MD2.01
  - Deleted BID ALT 2 scope box with keynote 5 from Mechanical Demolition Floor Plan 1.
  - Added BID ALT 2 scope box with keynote 5 to Mechanical Demolition Floor Plan 2 (BID ALT 2).
- M2.01
  - Deleted BID ALT 2 scope box with keynote 8 from Mechanical Floor Plan 1.
  - Added BID ALT 2 scope box with keynote 8 to Mechanical Floor Plan 3 (BID ALT 2).
  - Revised and reselected fly fans FF-1 and FF-2 – Mechanical Floor Plan #1.
  - Revised and reselected fly fans FF-3 – Mechanical Floor Plan #1.

- Revised and reselected fly fans FF-1 and FF-2 – Mechanical Floor Plan (BID ALT 1) #2.
- Revised and reselected fly fans FF-3 – Mechanical Floor Plan (BID ALT 1) #2.

- M5.01
  - Revised fly fans FF-1, FF-2, FF-3 model numbers.
  - Revised fly fans FF-1, FF-2, FF-3 CFM, Max. Core Velocity, HP, FLA, and Oper. Wt.
  - Added notes in the REMARKS column.
- M6.02
  - Revised reference detail number in Ductwork Through Roof Curb Detail #4 from 7/A3.02 to 15/A3.02.
  - Revised fly fan mounting detail #2 (side view).

ELECTRICAL

- ED2.01
  - Delete “Dining Hall” room tag.
  - Denote existing electrical manhole and transformer to remain - located directly southwest of building addition.
  - Revise Keynote 2 drawing sheet reference to electrical site plan sheet E1.01.
- E2.01
  - Delete visual artifact at south building entrance.
  - Add general note “See architectural for conduit run at storefront windows.”
  - Revised General note #3 to add reference to the architectural detail.
  - Added 120V/20Amp circuit for Flowswitch and electric Bell.
- E5.01
  - Revised panel ‘CE’ schedule to add Flowswitch/Bell circuit.
- E6.01
  - Revise Detail #4 to show lighting fixture mounting for wood framing. Refer to architectural drawing sheet detail 15/A10.03 for additional information.

FIRE ALARM

- FA2.01
  - Revised the location of monitor modules, tamper switch, flow switch devices and relocated the tamper switch and monitor module device location to monitor the post indicator valve.
  - Updated keynote #11 and added keynote #12 to state that tamper switch and monitor module devices provided to monitor the post indicator valve.

FIRE PROTECTION

- FP0.01
  - Revised hydraulic calculations
- FP0.03
  - Extension to existing fire hydrant shown.
  - Added keynotes 4, 5, & 6 added for tamper switch/monitor module.
- FP2.01
  - Added pipe penetrations through existing walls.
- FP6.01
  - Updated detail 1, Fire Sprinkler Riser.

TECHNOLOGY

- T2.01
  - Updated door columns and card reader location in accordance with review comments.
  - Called out the location of the existing pull box for technology and added the new location for it, along with keyed notes 11 and 12 for instruction.

END OF ADDENDUM NO. 01

DRAWING CONVENTIONS

PROPERTY LINE

AREA DRAIN

EXISTING ELEVATION

FINISH GRADE ELEVATION

NORTH SYMBOL

COLUMN LINE

FLOOR LINE

MATCH LINE

SECTION CALLOUT SYMBOL

EXTERIOR ELEVATION SYMBOL

INTERIOR ELEVATION SYMBOL

DOOR DESIGNATION

WINDOW DESIGNATION

PARTITION TYPE

EXISTING PARTITION

NEW PARTITION

REVISION NUMBER

DETAIL ENLARGED

PLAN OR DETAIL ENLARGED

DETAIL SECTIONS AND VERTICAL SECTIONS

DIMENSIONS

NOTE: all dimensions to face of wall unless otherwise noted

SPOT ELEVATION

SPOT COORDINATE

SHEET NUMBER ON WHICH CONTINUATION IS FOUND

FENCING (WITH POSTS)

BREAK LINE

KEY NOTE

ROOM NAME AND NUMBER

FIRE HOSE CABINET (RECESSED AND SURFACE MOUNTED)

FIRE EXTINGUISHER CABINET (RECESSED AND SURFACE MOUNTED)

EQUIPMENT DESIGNATION

TOILET ACCESSORY SYMBOL

SHOWER HEAD

FLOOR SINK

FLOOR DRAIN

OVERFLOW DRAIN AND ROOF DRAIN

ROOF TOP UNIT
REFER TO MECHANICAL FOR TYPE

GRAPHIC SCALE
SCALE: 1" = 4'-0"

ABBREVIATIONS

A		EIFS	exterior insulation & finish system	JT	joint	RM	room
ABV	above	ELEC	electric(al)				
ACOUS	acoustical	ELEV	elevation	L		S	
ACT	acoustical ceiling tile	EMER	emergency	LAM	laminate	RO	rough opening
AD	area drain	ENCL	enclosure	LAV	lavatory	RTU	roof top unit (mech)
ADJ	adjustable	EOS	edge of slab	LB(S)	pounds	S	south
AFF	above finished floor	EQ	equal	LDG	landing	SAFB	sound attenuation fiber batt
ALT	alternate	EQUIP	equipment	LT	light	SC	scupper
ALUM	aluminum	ETR	existing to remain			SCHED	schedule
APPROX	approximate	EW	each way	M		SEAL	sealant
ARCH	architect	EXP. JT.	expansion joint	MAX	maximun	SECT	section
		EXST	existing	MECH	mechanical	SF	square foot
B				MEMB	membrane	SHT	sheet
B.O.	bottom of	F		MFR	manufacturer	SIM	similar
BALC	balcony	F.O.	face of	MIN	minimum	SPEC	specification
BD	board	FA	fire alarm	MISC	miscellaneous	SQ	square
BET	between	FAP	fire annunciator panel	MO	masonry opening	SS	stainless steel
BLDG	building	FD	floor drain	MTD	mounted	STD	standard
BLKG	blocking	FE	fire extinguisher	MTL	metal	STL	steel
BLW	below	FEC	fire extinguisher cabinet			STOR	storage
BM	beam	FG	finish group	N		STRUCT	structural
BOT	bottom	FH	fire hydrant	N	north	SUSP	suspended
BRKT	bracket	FHC	fire hose cabinet	NIC	not in contract	SYM	symmetrical
BULKHD	bulkhead	FIN	finish	NO	number		
BUR	built up roof	FLR	floor	NOM	nominal	T	
		FLUOR	fluorescent	NTS	not to scale	T	tread
C		FT	foot or feet			T&G	tongue & groove
C.G.	corner guard	FUR	furring	O		TEL	telephone
CAB	cabinet			O.P.	overflow pipe	TER	terrazzo
CALK	caulking	G		OA	overall	THK	thick
CEM	cement	GAL	gallon	OC	on center	THR	threshold
CER	ceramic	GALV	galvanized	OD	outside diameter	TO	top of
CJ	control joint	GB	grab bar	OFF	office	TYP	typical
CLG	ceiling	GC	general contractor	OH	opposite hand		
CLOS	closet	GL	glass	OPG	opening	U	
CLR	clear	GND	ground	OPP	opposite	UC	undercut
CO	cased opening	GWB	gypsum board			UNFIN	unfinished
COL	column	GYP	gypsum	P		UNO	unless noted otherwise
CONC	concrete			PART	partition	UON	unless otherwise noted
CONT	continous	H		PERM	perimeter	UTIL	utility
CPT	carpet	H.W.H.	hot water heater	PG	paint grade		
CT	ceramic tile	HC	handicapped	PLAM	plastic laminate	V	
CTR	center	HDWD	hardwood	PLAS	plaster	VCT	vinyl compostion tile
		HDWR	hardware	PLYWD	plywood	VERT	vertical
D		HM	hollow metal	PR	pair	VIF	verify in field
DBL	double	HORIZ	horizontal	PT	paint	VTR	vent termination pipe
DET	detail	HR	hour	PTD	painted	VWC	vinyl wall covering
DIA	diameter	HT	height				
DIM	dimension			R		W	
DN	down	I		R	riser	W	west
DR	door	ID	inner diameter	RAD	radius	W/	with
DS	down spout	INCAN	incandescent	RCP	reflected ceiling plan	W/O	without
DW	dishwasher	INSUL	insulation	RD	roof drain	WC	watercloset
DWG	drawing	INT	interior	RE	refer	WIN	window
				REF	refrigerator	WP	waterproof
E		J		REINF	reinforced	WS	wetstack
E	east	JAN	janitor	REQD	required	WSCT	wainscot
EA	each	JST	joist	RESIL	resilient	WT	weight

STATEMENT OF GENERAL CONFORMANCE

FOR ARCHITECTS/ENGINEERS WHO UTILIZE PLANS, INCLUDING BUT NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LICENSED DESIGN PROFESSIONALS AND/OR CONSULTANTS
(Application No. 04-119487 File No. 13-C1)

[X] The drawings or sheets listed on the cover or index sheet (see asterisk *)
[X] This drawing, page of specifications/calculations

have been prepared by other design professionals or consultants who are licensed and/or authorized to prepare such drawings in this state. It has been examined by me for:

1) design intent and appears to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications prepared by me, and
2) coordination with my plans and specifications and is acceptable for incorporation into the construction of this project.

The Statement of General Conformance "shall not be construed as relieving me of my rights, duties, and responsibilities under Sections 17302 and 81138 of the Education Code and Sections 4-336, 4-341 and 4-344" of Title 24, Part 1. *(Title 24, Part 1, Section 4-317 (b))*

I certify that: [X] The drawings or sheets listed on the cover or index sheet
[ ] This drawing or page

[X] is/are in general conformance and	[ ] is/are in general conformance and
[X] have been coordinated	[ ] have been coordinated
Signature: Date: SEPTEMBER 17, 2020	Signature: Date:
Architect or Engineer designated to be in general responsible charge	Architect or Engineer deligated responsibility for this portion of the work
Print Name: MARK EACRETT	Print Name:
License Number: C-28195 Expiration Date: 5-31-2021	License Number: Expiration Date:

CODES & STANDARDS

PARTIAL LIST OF APPLICABLE CODES

PARTIAL LIST OF APPLICABLE CODES

2019 California Administrative Code (CAC) ..... (Part 1, Title 24, CCR)
2019 California Building Code (CBC) ..... (Part 2, Title 24, CCR)
(2018 International Building Code, Vol 1&2, and 2019 California Amendments)
2019 California Electrical Code (CEC) ..... (Part 3, Title 24, CCR)
(2017 National Electrical Code and 2019 California Amendments)
2019 California Mechanical Code (CMC) ..... (Part 4, Title 24, CCR)
(2018 IAPMO Uniform Mechanical Code and 2019 California Amendments)
2019 California Plumbing Code (CPC) ..... (Part 5, Title 24, CCR)
(2018 IAPMO Uniform Plumbing Code and 2019 California Amendments)
2019 California Energy Code (CEC) ..... (Part 6, Title 24, CCR)
2019 California Fire Code (CFC) ..... (Part 9, Title 24, CCR)
(2018 International Building Code and 2019 California Amendments)
2019 California Exiting Building Code ..... (Part 10, Title 24, CCR)
(2018 International Existing Building Code and 2019 California Amendments)
2019 California Green Building Standards Code (CAL Green)..... (Part 11, Title 24, CCR)
2019 California Referenced Standards Code ..... (Part 12, Title 24, CCR)
Title 19 CCR, Public Safety, State Fire Marshall Regulations
2016 ASME A17.1/CSA B44-13 Safety Code For Elevators and Escalators..... (Per 2019 CBC Part 2, Ch 35)
Note: Cal/OSHA Elevator Unit enforces CCR Title 8 and uses the 2004 ASME A17.1 by adoption

PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 13 Standard for the Installation of Sprinkler Systems (CA amended) ..... 2016 Edition
NFPA 14 Standard for the Installation of Standpipe and Hose Systems (CA amended) ..... 2016 Edition
NFPA 17 Standard for Dry Chemical Extinguishing Systems ..... 2017 Edition
NFPA 17A Standard for Wet Chemical Extinguishing Systems ..... 2017 Edition
NFPA 20 Standard for the Installation of Stationary Pumps for Fire Protection ..... 2013 Edition
NFPA 22 Standard for Water Tanks for Private Fire Protection ..... 2013 Edition
NFPA 24 Standard for the Installation of Private Fire Service Mains and
Their Appurtenances (CA amended) ..... 2016 Edition
NFPA 72 National Fire Alarm & Signaling Code ..... 2016 Edition
NFPA 80 Standard for Fire Doors and Other Opening Protectives ..... 2016 Edition)**NFPA**
2001 Standard on Clean Agend Fire Extinguishing Systems (CA amended) ..... 2015 Edition
UL 300 Standard for Fire Testing of Fire Extinguishing Systems (CA Ammended)
Protection of Commercial Cooking Equipment..... 2005 (R2010)
UL 464 Audible Signaling Devises for Fire Alarm and Signaling Systems,
Including Accessories..... 2003 Edition
UL 521 Standard for Heat Detectors for Fire Protective Signaling Systems..... 1999 Edition
UL 1971 Standard for Signaling Devices for the Hearing Impaired..... 2002 (R2010)

SCOPE OF WORK

THE PROJECT CONSISTS OF A 3030 SF ADDITION TO THE SOUTH SIDE OF THE EXISTING B600 CAMPUS CENTER BUILDING. THE NEW ADDITION WILL BE LISE AS A DINING HALL. MINOR UPGRADES TO THE WOMENS AND MENS RESTROOMS.

SITE WORK INCLUDED NEW SIDEWALKS, REPAIRED LANDSCAPING AND AN EXTENSION OF THE WATER LINE, RELOCATION OF THE EXISTING GAS LINE AND NEW ELECTRICAL TRANSFORMER.

DEDUCTIVE ALTERNATIVES

DA-1 DELETE DROPPED CEILING IN DINING HALL 140
REMOVE DROPPED ACOUSTIC TILE CEILING, FRAMING AND ASSOCIATED SEISMIC JOINT FROM DINING HALL 140
REFERENCE SHEETS: DA10.01, A6.02, A6.04, A10.01, M, E AND ASSOCIATED DETAILS

DA-2 DELETE EXPANSION OF (E) OPENINGS BETWEEN DINING HALL 140 AND STUDENT DINING 106
THE EXISTING OPENINGS IN THE MASONRY WALL WILL NOT BE ENLARGED. THE FOLDING PANEL PARTITION WALL WILL BE REDUCED IN SIZE TO ACCOMADATE THE (E) OPENINGS
REFERENCE SHEETS: D2.01, A2.01, A6.02, A10.01, S, M, E AND ASSOCIATED DETAILS

CALIFORNIA GREEN NOTES

5.106.10 STORM WATER DRAINAGE
SEE SHEET C1.02 EROSION CONTROL PLAN

5.106.4.2 BICYCLE PARKING
NO ANTICIPATED VISITOR TRAFFIC

5.410.1 RECYCLING
AT TRASH ROOM 100

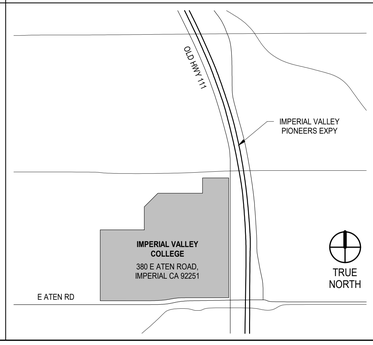
5.407.2.2.1 PRIMARY ENTRANCE PROTECTION
5' FOOT OVERHANG AT ENTRY DOOR

5.505.1 INDOOR MOISTURE PROTECT
INT FLOORING: LVT
EXT PAVING: CONCRETE
WALLS: SEALED CMU VENEER

5.507.4 ACOUSTICAL CONTROL
EXPOSED METAL ROOF: ACOUSTICAL ROOF DECK
CEILING: ACOUSTIC CEILING TILE

5.506.1 VENTILATION
SEE MECHANICAL PLANS

VICINITY MAP



DSA PLAN NOTES

1. CHANGES TO THE DIVISION OF THE STATE ARCHITECT-APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY ADDENDA OR CONSTRUCTION CHANGE DOCUMENTS FOR CHANGES TO THE STRUCTURAL, ACCESSIBILITY OR FIRE -SAFETY PORTIONS OF THE PROJECT. CHANGES SHALL BE SUBMITTED TO AND APPROVED BY DSA PRIOR TO THE COMMENCEMENT OF THE WORK SHOWN THEREON (CAC 4-338 (c))

2. THE CONTRACTOR SHALL COMPLY WITH CFC Ch 33 - FIRE SAFETY DURING DEMOLITION AND CONSTRUCTION OF THE PROJECT

3. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE DSA APPROVED DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CONSTRUCTION CHANGE DOCUMENT OR A SEPARATE SET OF PLANS AND SPECIFICATIONS DETAILING AND SPECIFING THE REQUIRED REPAIR WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE REPAIR WORK (CAC 4-317 (C))

4. MAINTAIN THE INTEGRITY OF ALL EXISTING RATED ASSEMBLIES U.O.N.

SHEET NUMBERING

SHEET NUMBER: A2.01

- SEQUENCE (.01 - .99.....etc.)
- SHEET DISCIPLINE TYPE
- DISCIPLINE
  - G - GENERAL (Cover, A0 Sheets)
  - C - CIVIL
  - D - DEMO
  - A - ARCHITECTURAL
  - S - STRUCTURAL
  - I - INTERIORS
  - M - MECHANICAL
  - P - PLUMBING
  - E - ELECTRICAL
  - T - TECHNOLOGY
  - FA - FIRE ALARM
  - FP - FIRE PROTECTION
  - SE - SECURITY

0 - SITE PLANS & DETAILS
1 - COMPOSITE FLOOR PLANS
2 - FLOOR PLANS
3 - ROOF
4 - ADA & ENLARGED PLANS
5 - PLAN DETAILS
6 - BUILDING SECTIONS, EXTERIOR/INTERIOR ELEVATIONS
7 - PARTITION TYPES & WALL SECTIONS
8 - CASEWORK ELEVATIONS AND DETAILS
9 - WINDOWS, DOORS, FRAME ELEVATIONS & DETAILS
10 - REFLECTED CEILING PLANS & DETAILS
11 - EQUIPMENT AND FURNITURE PLANS

DRAWING INDEX

SHEET NUMBER	SHEET NAME
ARCHITECTURAL GENERAL	
G0.00	COVER SHEET
G0.01	SHEET INDEX, DRAWING CONVENTIONS, AND VICINITY MAP
G0.02	FIRE AND ACCESSIBILITY SITE PLAN
G0.03	CODE AND SIGNAGE PLAN
G0.04	ACCESSIBILITY DETAILS
CIVIL	
C0.01	FIRE LINE SITE PLAN
C01.00	TOPOGRAPHIC SURVEY
C01.02	EROSION CONTROL PLAN
ARCHITECTURAL DEMOLITION	
D1.01	DEMOLITION PLOT PLAN
D2.01	DEMOLITION FLOOR PLAN
D4.01	DEMOLITION RESTROOM PLANS AND ELEVATIONS
D10.01	DEMOLITION CEILING PLAN
ARCHITECTURAL	
A1.01	PLOT PLAN
A1.02	SITE DETAILS
A2.01	FLOOR PLAN
A3.01	ROOF PLAN
A3.02	ROOF DETAILS
A4.01	ENLARGED RESTROOM PLANS AND ELEVATIONS
A6.01	EXTERIOR ELEVATIONS
A6.02	BUILDING SECTIONS
A6.03	WALL SECTIONS
A6.04	WALL SECTIONS
A6.05	INTERIOR ELEVATIONS
A7.01	WALL TYPES AND DETAILS
A9.01	STOREFRONT WINDOW SCHEDULE
A9.02	DOOR SCHEDULE
A9.03	DOOR AND WINDOW DETAILS
A10.01	REFLECTED CEILING PLAN - BUILDING ADDITION
A10.02	REFLECTED CEILING PLAN - EXISTING BUILDING
A10.03	CEILING DETAILS
STRUCTURAL	
S1.01	GENERAL NOTES
S1.02	GENERAL NOTES
S1.03	GENERAL NOTES
S1.04	GENERAL NOTES
S2.01	TYPICAL DETAILS
S2.02	TYPICAL DETAILS
S3.01	FOUNDATION PLAN
S3.02	ROOF FRAMING PLAN
S4.01	FOUNDATION DETAILS
S5.01	ROOF FRAMING DETAILS
MECHANICAL	
M0.01	MECHANICAL INDEX, LEGEND AND NOTES
M0.02	TITLE 24
M0.03	TITLE 24
M0.04	TITLE 24
M02.01	MECHANICAL DEMOLITION FLOOR PLAN
M2.01	MECHANICAL FLOOR PLAN
M3.01	MECHANICAL ROOF PLAN
M5.01	MECHANICAL SCHEDULES
M6.01	MECHANICAL DETAILS
M6.02	MECHANICAL DETAILS
M6.03	MECHANICAL DETAILS
PLUMBING	
P0.01	PLUMBING INDEX, LEGEND AND NOTES
P02.01	PLUMBING DEMOLITION FLOOR PLAN
P2.01	PLUMBING FLOOR PLAN
P2.02	PLUMBING ENLARGED FLOOR PLANS
P3.01	PLUMBING ROOF PLAN
P6.01	PLUMBING DETAILS
ELECTRICAL	
E0.01	ELECTRICAL INDEX, LEGEND AND NOTES
E0.02	TITLE 24 (1 OF 4)
E0.03	TITLE 24 (2 OF 4)
E0.04	TITLE 24 (3 OF 4)
E0.05	TITLE 24 (4 OF 4)
ED2.01	ELECTRICAL DEMOLITION POWER PLAN
E1.01	ELECTRICAL SITE PLAN
E2.01	ELECTRICAL POWER PLAN
E2.02	ELECTRICAL LIGHTING PLAN
E3.01	ELECTRICAL ROOF PLAN
E5.01	ELECTRICAL ONE-LINE, RISER DIAGRAM & SCHEDULE
E6.01	ELECTRICAL DETAILS
E6.02	LIGHTING CONTROL SCHEMATICS
FIRE ALARM	
FA0.01	FIRE ALARM SYMBOLS AND ABBREVIATIONS
FA2.01	FIRE ALARM FLOOR PLAN
FA5.01	FIRE ALARM RISER DIAGRAM AND CALCULATIONS
FA6.01	FIRE ALARM DETAILS
FIRE PROTECTION	
FP0.01	FIRE SPRINKLER COVER SHEET AND LEGENDS
FP0.02	FIRE SPRINKLER NOTES
FP0.03	FIRE SPRINKLER REFERENCE SITE PLAN
FP2.01	FIRE SPRINKLER PIPING PLAN
FP6.01	FIRE SPRINKLER DETAILS
FP10.01	FIRE SPRINKLER REFLECTED CEILING PLAN
TECHNOLOGY	
T0.01	TECHNOLOGY INDEX, LEGEND AND NOTES
T2.01	TECHNOLOGY FLOOR PLAN
T6.01	TECHNOLOGY DETAILS

Grand total: 83

DSA FILE NO. 13-C1 A# 04-119487

PBK

ARCHITECTURE

IVC - B600 COLLEGE CENTER EXPANSION PROJECT
380 E Aten Rd.
Imperial, CA 92251
ADDENDUM 1

CONSULTANT

ENGINEER

ARCHITECT

LICENSED ARCHITECT
Mark A. Eacrett
No. C-28195
REN. 5-31-2021
STATE OF CALIFORNIA

CLIENT
IMPERIAL VALLEY COLLEGE

PROJECT NUMBER 20190
DATE: 2021/03/31
DRAWN BY: Author
CHECKED BY: Checker

REVISIONS

No.	Description	Date
1	ADDENDUM 1	2021-03-31

ADDENDUM 1

SHEET INDEX, DRAWING CONVENTIONS, AND VICINITY MAP

G0.01

C:_Revit\Local\B600 dining hall expansion NEW 11302020_elizabeth.seaver.rvt
4/22/2021 3:42:14 PM

6 ACCESSIBILITY SITE PLAN
1" = 80'-0"

DSA 810

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or DSA Publications webpages.

To facilitate the Division of the State Architect's (DSA) fire and life safety plan review of project site conditions, DSA requires the design professional to provide the following information at time of project submittal for projects consisting of construction of a new campus, construction of new building(s), additions to existing buildings, and for site alternate design means for fire department emergency vehicle access, and fire suppression water supply.

Information associated with compliance items 1 through 3 below is to be provided for all project types indicated above. Information associated with items 4 through 7 is to be completed when an alternate means is utilized. Acknowledgement by the school district and signature from the Local Fire Authority (LFA) is only required when an alternate design means is being requested.

The Project Information and Fire & Life Safety Information sections are to be completed for all projects and imaged onto the fire access site plan. When an alternate design/means is proposed, all sections on pages 1 and 2 are to be completed and imaged on the fire access site plan.

For additional information refer to the instructions at the end of this form and DSA Policy *PL 09-01: Fire Flow for Buildings.*

PROJECT INFORMATION	
School District/Owner:	Imperial Community College District
Project Name/School:	Imperial Valley College B600 Campus Center Expansion
Project Address:	380 E. Aten Road, Imperial, CA 92251

FIRE & LIFE SAFETY INFORMATION				
1.	Has a fire hydrant flow test been performed within the past 12 months? *(If yes, provide a copy of the test data.)*	Yes ☑		No ☐
2.	Was the fire hydrant water flow test performed as part of this LFA review?	Yes ☑		No ☐
3.	Is the project located within a designated fire hazard severity zone (FHSZ) as established by Cal-Fire? *(If yes, indicate FHSZ classification below.)*	Yes ☐		No ☑
	Refer to the following website for FHSZ locations: http://egis.fire.ca.gov/FHSZ/	Moderate ☐	High ☐	Very High ☐
	Wildland Interface Area (WIFA) *(If any designations are checked, project design must meet the requirements of CBC Chapter 7A.)*			WIFA ☐

CONDITION MEANS AND METHODS RESOLUTION		ALTERNATE ACCEPTED			
		Yes	No	N/A	N/R
4.	Emergency vehicle access roadways do not meet CFC requirements.			✓	
4a.	**Acceptable Alternate:** Emergency vehicle and personnel access as proposed by the project architect is acceptable for providing fire suppression and protection of life and property.	✓			
5.	**Fire Hydrants:** Number and spacing does not meet CFC requirements.			✓	
5a.	**Acceptable Alternate:** Number of fire hydrants and spacing as proposed by the project architect is acceptable for fire suppression and protection of life and property.				
6.	**Fire Hydrants:** Water flow and pressure are less than CFC minimum.			✓	
6a.	**Acceptable Alternate:** The available flow and pressure is acceptable for providing fire suppression and protection of life and property.				
7.	Location of fire department connection(s) serving fire sprinkler systems or standpipe systems does not meet CFC requirements.			✓	
7a.	**Acceptable Alternate:** The location of fire department connection serving the fire sprinkler system and/or standpipe system is acceptable for providing fire suppression and protection of life and property.				

School District Acceptance of Acceptable Design Alternates

By signing this form, the school district acknowledges and accepts the proposed design as an alternative to California Building Code (CBC) and California Fire Code (CFC) minimum requirements, as indicated by one or more of the conditions indicated at items 4a, 5a, 6a or 7a, for providing fire and life safety protection of life and property.

Accepted by: Josanna "Deedee" Garcia Title: V.P. for Administrative Services

Signature: [signature] Date: 12/14/20

LOCAL FIRE AUTHORITY (LFA) INFORMATION			
LFA Agency Name:	Imperial County Fire Department		
LFA Review Official:	Robert Malek		
Title:	Deputy Fire Marshall	Work Phone:	(442) 265-6000
Work Email:	robertmalek@co.imperial.ca.us		

LFA Reviewer's Signature: [signature] Date: 12/14/20

ACCESSIBILITY LEGEND

- ACCESSIBLE PATH OF TRAVEL IN SCOPE
- (E) P.O.T. — (E) ACCESSIBLE PATH OF TRAVEL PER DSA APPLICATION NUMBER 04-110557
- PROPERTY LINE
- LIMITS OF WORK
- ADDITION TO (E) BUILDING B600
- (E) BUILDING B600 TO BE MODERNIZED
- (E) FIRE LANE
- (E) FH — (E) FIRE HYDRANT
- T-A — TOW AWAY SIGN, SEE DETAIL 15 / A1.02
- SD — SAFE DISPERSAL AREA SIGN, SEE DETAIL 6 / A1.02
- BE — ACCESSIBLE BUILDING ENTRY

PATH OF TRAVEL

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT: THE POT INDENTIFIED IN THESE CONSTRUCTION DOCUMENTS IS COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR **PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRCUTURAL REPAIRS.** AS PART OF THE DESIGN OF THIS PROJECT, THE POT WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WERE DETERMINED TO BE NONCOMPLIANT 1) HAVE BEEN IDENTIFIED AND 2) THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NONCOMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE SO INDICATED IN THESE CONSTRUCTION DOCUMENTS. DURING CONSTRUCTION, IF POT ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND RESONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

SITE PARKING NOTES

1. THERE ARE NO ADDED OR REVISED PARKING SPACES ON THIS SITE FOR THIS PROJECT.
2. ACCESSIBLE PARKING SPACES HAVE BEEN APPROVED UNDER DSA APPLICATION NUMBER 04-110557 AND DROP OFF ZONES HAVE BEEN APPROVED UNDER DSA APPLICATION NUMBER 04-111893.
3. THE SITE IS NOT LOCATED IN THE WILDLAND URBAN INTERFACE AREA

SAFE DISPERSAL NOTES

TOTAL OCCUPANCY B600	784 OCCUPANTS
DISPERSAL AREA FACTOR	5 SF PER OCCUPANT
SAFE DISPERSAL AREA	3,920 SF

CODE ANALYSIS SUMMARY

BUILDING TYPE:	TYPE V-B
OCCUPANCY TYPE:	A-2
AUTOMATIC FIRE SPRINKLER SYSTEM	YES - ENTIRE BUILDING
BUILDING HEIGHT:	16'-0"
ALLOWABLE BUILDING HEIGHT:	60'-0"
STORIES	1
ALLOWABLE STORIES:	2
BUILDING AREA (TOTAL (N) AND (E)::	19,831 SF
ALLOWABLE BUILDING AREA:	24,000 SF

APPLICATION NUMBERS

BUILDING	APPLICATION NUMBER(S)
100 ADMINISTRATION	21614
200 CLASSROOM	118720, 112585, 21614
300 CLASSROOM	118720, 112585, 21614
400 CLASSROOM	112585, 111262, 21614
600 CAMPUS CENTER	38800, 21614
700 GYMNASIUM	104120, 100778, 119344, 118942, 118941, 21614
800 CLASSROOM	118720,
900 TECHNOLOGY	112788, 52343
1000 STUDENT AFFAIRS	119487
1100 INDUSTRIAL TECH	21616
1500 LIBRARY	100260
2100 NURSING	47276
2700 SCIENCE	108533
3100 CAREER TECH	112064
3200 CAREER TECH	112064

RELOCATABLE	APPLICATION NUMBER(S)
1	115279, 02-106166
1	101514, 03-101928
1	107093, 04-101749
T800	116872
OFFICE	119394
RELO 60x120	103704
CHILDCARE 36x40	100748

SITE	APPLICATION NUMBER(S)
BUS TERMINALS AND SITE (ACCESSIBLE DROP OFF)	111893
SITE LIGHTING AND FIELDS	118942
ACCESSIBLE PARKING (LOT D)	110557

PROJECT NORTH — TRUE NORTH

DSA FILE NO. 13-C1 A# 04-119487

PBK

ARCHITECTURE

IVC - B600 COLLEGE CENTER EXPANSION PROJECT
380 E Aten Rd.
Imperial, CA 92251
ADDENDUM 1

CONSULTANT

ENGINEER

ARCHITECT
LICENSED ARCHITECT Mark A. Eagan No. C-28195 REN. 5-31-2021 STATE OF CALIFORNIA

CLIENT
IMPERIAL VALLEY COLLEGE

PROJECT NUMBER 20190
DATE: 2021/03/31
DRAWN BY: Author
CHECKED BY: Checker

REVISIONS

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ADDENDUM 1

FIRE AND ACCESSIBILITY SITE PLAN

G0.02

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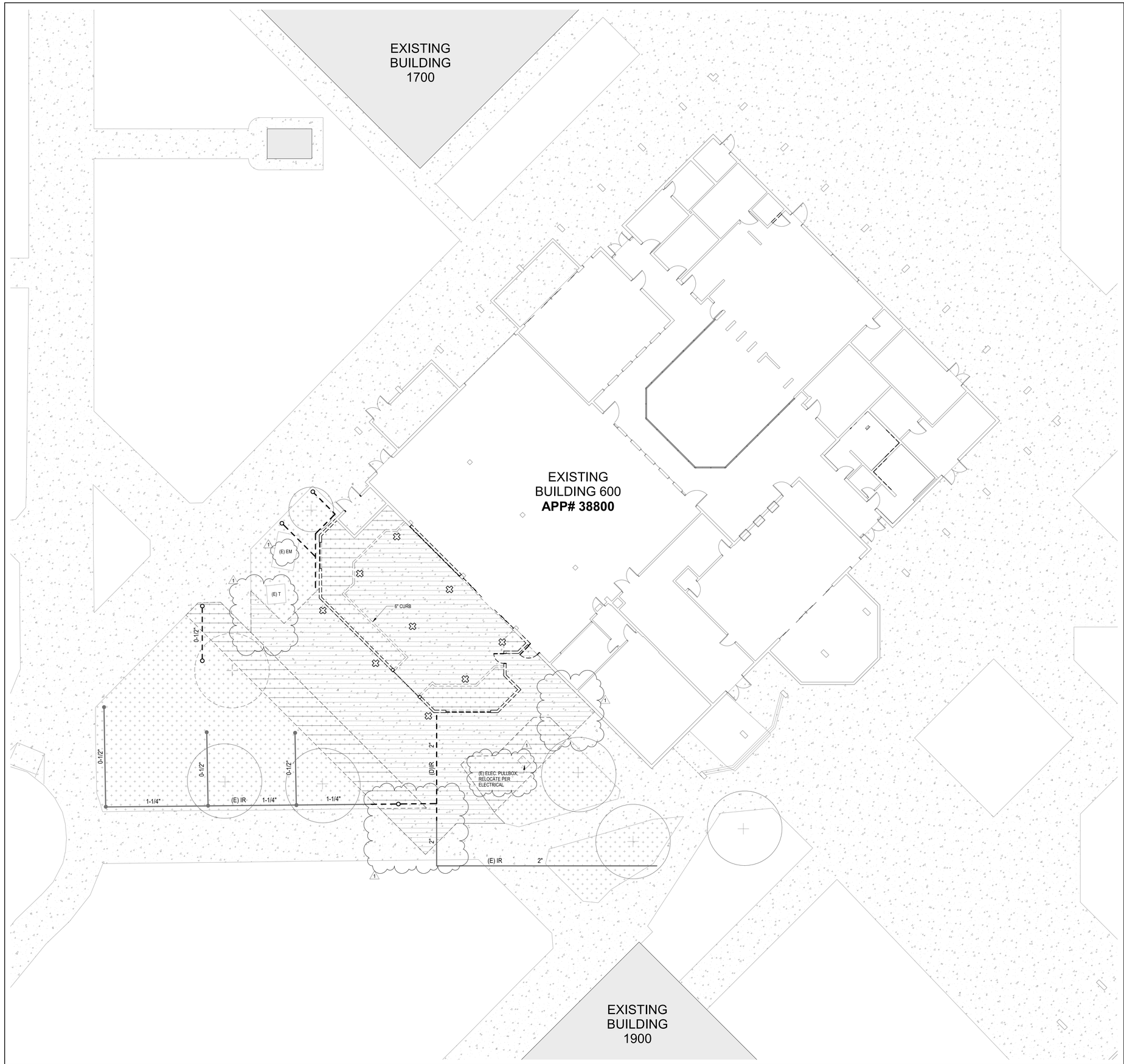

6 DEMOLITION PLOT PLAN
1" = 10'-0"

DEMOLITION NOTES

1. PRIOR TO DEMOLITION, AS-BUILT IRRIGATION SPRINKLERS IN LANDSCAPE AREAS TO BE REMOVED. REMOVE SPRINKLER HEADS AND IRRIGATION LINES TO THE OUTSIDE OF DEMOLITION AREA. SEE PLOT PLAN FOR NEW IRRIGATION LINES AND HEADS.
2. NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING DEMOLITION WORK HAS BEEN APPROVED BY DSA
3. RUN IRRIGATION SYSTEM AND LOCATE HEADS AND LINES PRIOR TO DEMOLITION

DEMOLITION LEGEND

- (E) CONTEXT BUILDINGS
- (E) CONCRETE PAVING - PROTECT
- SAWCUT AND REMOVE (E) 5" THICK CONCRETE PAVING WITH REINFORCEMENT AT 16" O.C. E.W.
- (E) LANDSCAPE TO REMAIN - PROTECT
- (E) LANDSCAPE AND IRRIGATION TO BE REMOVED
- (E) TREE TO REMAIN - PROTECT
- (E) TREE TO BE REMOVED
- (E) T — (E) TRANSFORMER - PROTECT
- (E) EM — (E) ELECTRICAL MANHOLE - PROTECT
- (E) IRRIGATION HEAD
- (E) IRRIGATION HEAD TO BE REMOVED
- (E) IR — (E) IRRIGATION LINE
- (D) IR — (E) IRRIGATION LINE TO BE REMOVED

PROJECT NORTH

TRUE NORTH

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DEMOLITION PLOT PLAN

D1.01

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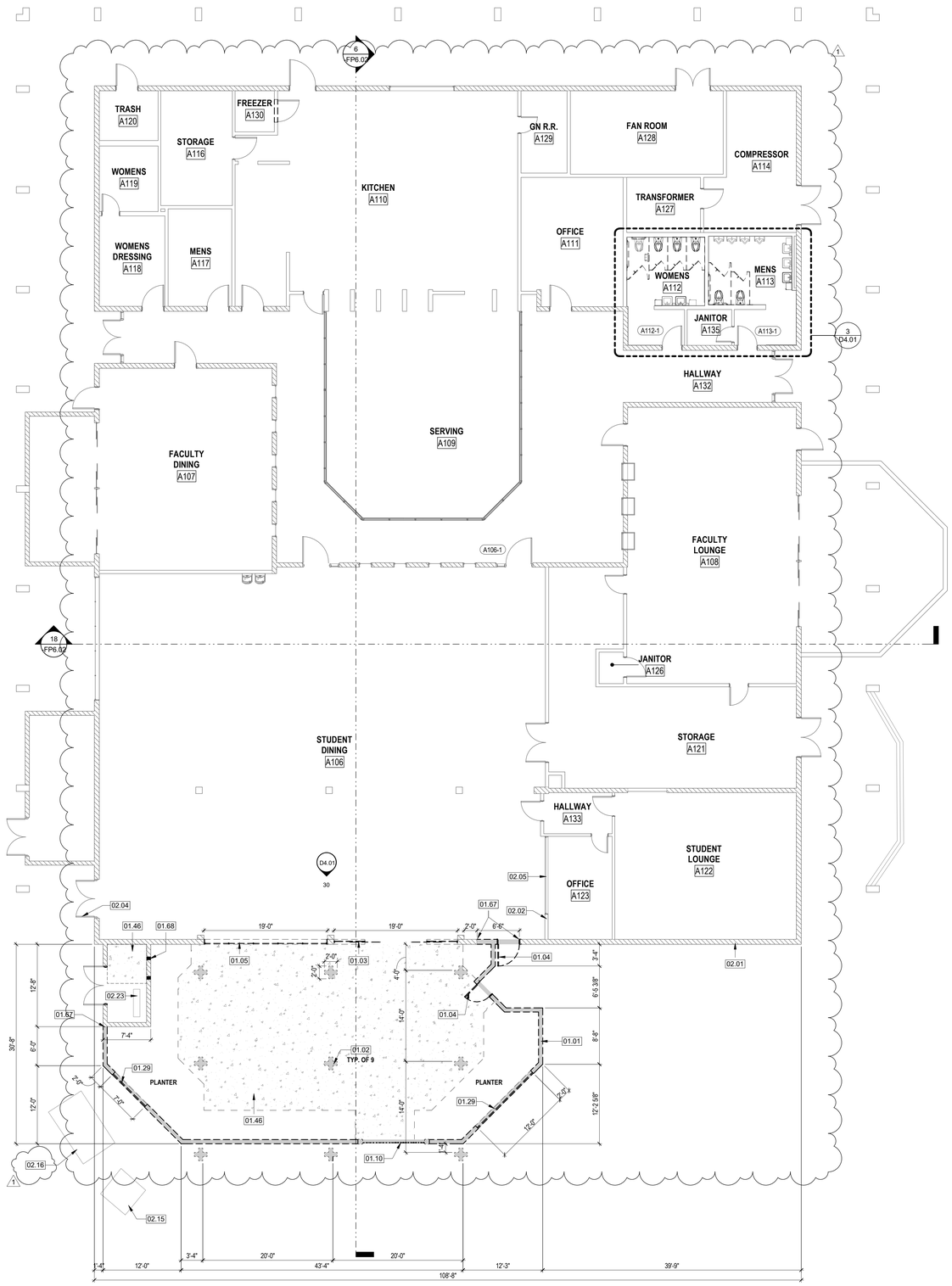

KEYNOTE LEGEND

NUMBER	DESCRIPTION
01.01	REMOVE (E) CMU WALL
01.02	REMOVE (E) CMU PILASTER
01.03	REMOVE (E) ALUMINUM STOREFRONT SLIDING DOORS AND WINDOW
01.04	REMOVE (E) H.M. DOOR AND FRAME
01.05	REMOVE (E) ALUMINUM STOREFRONT WINDOW
01.10	REMOVE (E) GATE AND FRAME
01.29	REMOVE (E) WOOD SLAT INFILL OPENING
01.46	REMOVE (E) CONCRETE PAVING
01.67	SAWCUT (E) SOLID GROUTED CMU WALL
01.68	CORE DRILL (E) SOLID GROUTED CMU WALL AS REQUIRED TO INSTALL (2) NEW GAS LINES, SEE P2.01
02.01	(E) SMU WALL
02.02	(E) INT METAL FRAMED WALL W/ 5/8" GYP WALLBOARD EACH SIDE
02.04	(E) H.M. DOOR AND FRAME
02.05	(E) H.M. WINDOW
02.15	(E) TRANSFORMER TO REMAIN, SEE ELECTRICAL
02.16	(E) ELECTRICAL MANHOLE TO REMAIN, SEE ELECTRICAL
02.23	(E) GAS METER

DEMOLITION FLOOR PLAN NOTES

1. NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING DEMOLITION WORK HAS BEEN APPROVED BY DSA.
2. CORE DRILL THROUGH CMU WALLS AS REQUIRED TO INSTALL NEW FIRE SPRINKLER AND ELECTRICAL/DATA/FIRE ALARM CONDUITS, SEE ELECTRICAL/DATA/FIRE ALARM/FIRE PROTECTION DRAWINGS FOR LOCATIONS.

DEMOLITION LEGEND

(E) SOLID GROUTED CMU WALLS

REMOVE (E) SOLID GROUTED CMU WALLS, PILASTERS AND ASSOCIATED FOUNDATIONS

SAWCUT AND REMOVE (E) 5" THICK CONCRETE PAVING WITH REINFORCEMENT AT 16" O.C. E.W.

DA-1 DEDUCTIVE ALTERNATE. SEE G0.01 FOR DESCRIPTION.

PROJECT NORTH

TRUE NORTH

6 EXISTING FLOOR PLAN
1/8" = 1'-0"

DSA FILE NO. 13-C1 A# 04-119487

PBK

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DEMOLITION FLOOR PLAN

D2.01

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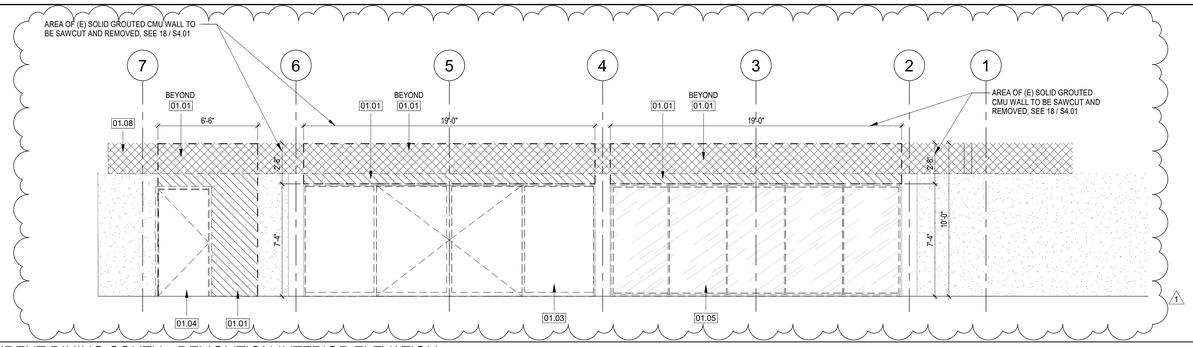
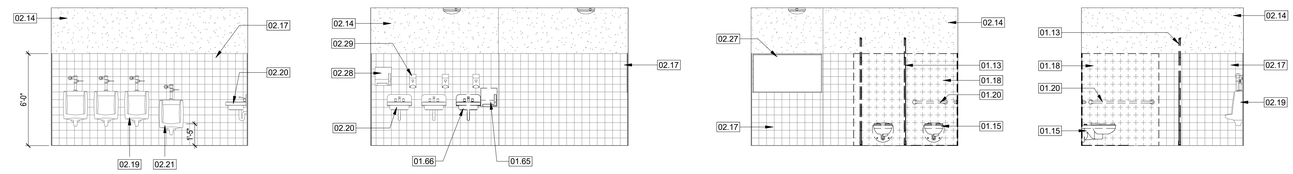
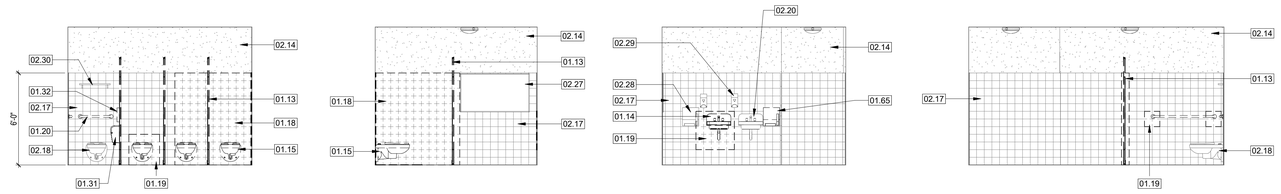


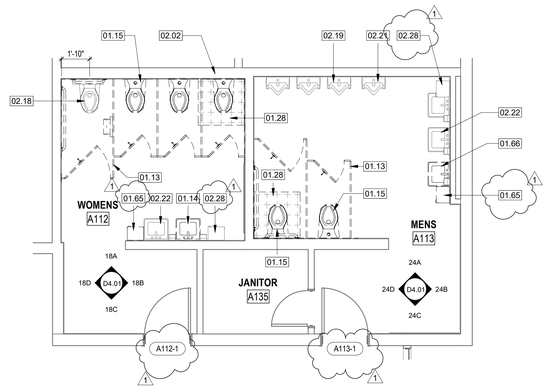
30 A106 STUDENT DINING SOUTH - DEMOLITION INTERIOR ELEVATION
1/4" = 1'-0"



24 A113 MEN'S TLT - DEMOLITION INTERIOR ELEVATIONS
1/4" = 1'-0"



18 A112 WOMEN'S TLT - DEMOLITION INTERIOR ELEVATIONS
1/4" = 1'-0"



3 DEMOLITION RESTROOM PLANS
1/4" = 1'-0"

KEYNOTE LEGEND

NUMBER	DESCRIPTION
01.01	REMOVE (E) CMU WALL
01.03	REMOVE (E) ALUMINUM STOREFRONT SLIDING DOORS AND WINDOW
01.04	REMOVE (E) H.M. DOOR AND FRAME
01.05	REMOVE (E) ALUMINUM STOREFRONT WINDOW
01.08	REMOVE (E) WOOD FRAMED GYPSUM WALLBOARD SOFFIT
01.13	REMOVE (E) TOILET PARTION
01.14	REMOVE (E) SINK AND FAUCET
01.15	REMOVE (E) WATER CLOSET
01.18	REMOVE (E) TILE WAINSCOT AND GYPSUM WALLBOARD
01.19	REMOVE AND REINSTALL (E) 6x6 PORCELAIN TILE
01.20	REMOVE (E) GRAB BARS
01.28	REMOVE (E) 8x8 CERAMIC TILE FLOOR AND CONCRETE SLAB BELOW AS REQUIRED TO INSTALL (N) BELOW GRADE SEWER LINES, REINSTALL TILES
01.31	REMOVE AND REINSTALL (E) T.P. DISPENSER, SEE A4.01 FOR LOCATION
01.32	REMOVE AND REINSTALL (E) SEAT COVER DISPENSER, SEE A4.01 FOR LOCATION
01.65	REMOVE (E) PAPER TOWEL DISPENSER
01.66	REMOVE (E) SINK AND AND REINSTALL AT LOCATION NOTED ON 3/A4.01
02.02	(E) INT METAL FRAMED WALL W/ 5/8" GYP WALLBOARD EACH SIDE
02.14	(E) GYPSUM WALLBOARD
02.17	(E) TILE WAINSCOT
02.18	(E) WATER CLOSET
02.19	(E) URINAL
02.20	(E) SINK AND FAUCET
02.21	(E) ACCESSIBLE URINAL
02.22	(E) ACCESSIBLE SINK WITH PUSH BUTTON FAUCET
02.27	(E) 30x54 MIRROR
02.28	(E) PAPER TOWEL DISPENSER TA-9
02.29	(E) SOAP DISPENSER
02.30	(E) LIGHT FIXTURE

DEMOLITION NOTES

1. PRESERVE (E) TILE WAINSCOT, PATCH WHERE NECCESSARY TO REMOVE AND REPLACE FIXTURES
2. REMOVE (E) TOILET ACCESSORIES FASTENED TO TOILET PARTITIONS TO BE REMOVED.
3. REMOVE HARDWARE AND SIGNAGE ON AND ADJACENT TO DOORS A112-1 AND A113-1
4. NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING DEMOLITION WORK HAS BEEN APPROVED BY DSA

DEMOLITION LEGEND

- (E) 6x6 CERAMIC TILE WAINSCOT
- 6x6 CERAMIC TILE WAINSCOT
- REMOVE (E) 8x8 CERAMIC FLOOR TILE OVER CONCRETE FILL
- (E) GYPSUM WALLBOARD OVER CMU WALL TO REMAIN
- REMOVE (E) GYPSUM WALLBOARD OVER CMU WALL
- REMOVE (E) WOOD FRAMED GYPSUM WALLBOARD SOFFIT

DSA FILE NO. 13-C1 A# 04-119487

PBK

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DEMOLITION RESTROOM PLANS AND ELEVATIONS

D4.01

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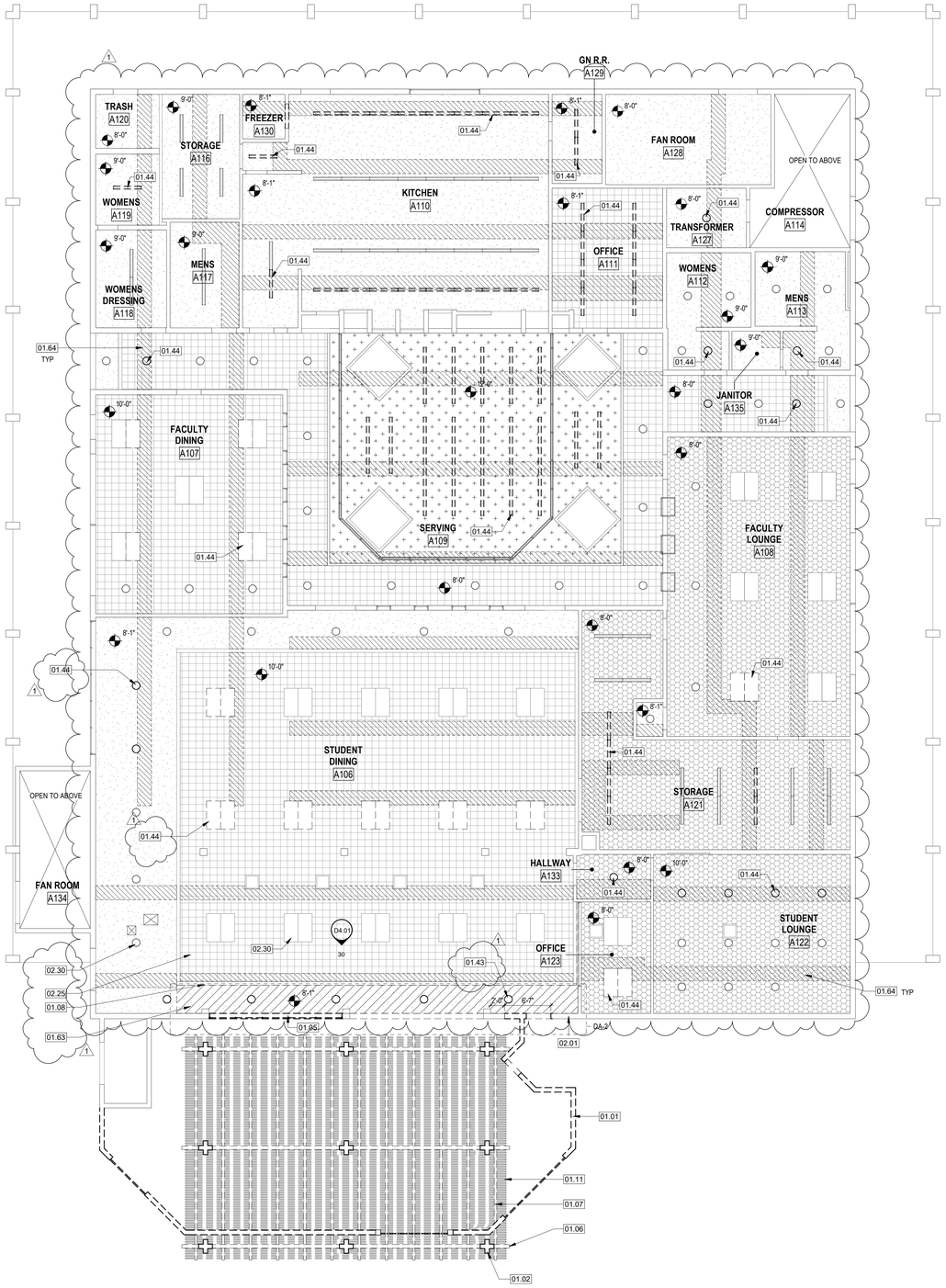

KEYNOTE LEGEND

NUMBER	DESCRIPTION
01.01	REMOVE (E) CMU WALL
01.02	REMOVE (E) CMU PILASTER
01.05	REMOVE (E) ALUMINUM STOREFRONT WINDOW
01.06	REMOVE (E) 6x12 WOOD BEAM
01.07	REMOVE (E) 4x10 WOOD BEAM
01.08	REMOVE (E) WOOD FRAMED GYPSUM WALLBOARD SOFFIT
01.11	REMOVE (E) WOOD TRELLIS
01.43	REMOVE (E) LIGHT FIXTURE
01.44	REMOVE AND REINSTALL (E) LIGHT FIXTURE
01.62	REMOVE (E) ACOUSTIC CEILING TILE AND GYPSUM WALLBOARD AS REQUIRED TO INSTALL (N) MECHANICAL DUCTS. SEE A7.01 AND MECHANICAL DRAWINGS FOR LOCATIONS AND SIZE
01.64	REMOVE (E) CEILING AS REQUIRED TO INSTALL (N) SPRINKLER HEADS AND LINES
02.01	(E) CMU WALL
02.25	(E) 12x12 SURFACE MOUNTED ACOUSTICAL CEILING PANEL SYSTEM
02.30	(E) LIGHT FIXTURE

DEMOLITION NOTES

1. NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING DEMOLITION WORK HAS BEEN APPROVED BY DSA

DEMOLITION LEGEND

- (E) 12 x 12 SURFACE MOUNTED ACOUSTICAL PANEL CEILING SYSTEM TO REMAIN
- (E) GYPSUM WALLBOARD CEILING TO REMAIN
- REMOVE (E) WOOD FRAMED GYPSUM WALLBOARD SOFFIT AND CEILING AND ALL ASSOCIATED LIGHT FIXTURES
- (E) 12 x 12 GLUE-ON ACOUSTICAL TILE CEILING AND GYPSUM WALL BOARD
- REMOVE (E) 12 x 12 GLUE-ON ACOUSTICAL TILE CEILING AND GYPSUM WALL BOARD AS REQUIRED TO INSTALL FIRE SPRINKLER HANGARS.
- (E) SPRAY ON ACOUSTICAL CEILING TEXTURE OVER GYPSUM WALL BOARD
- (E) 12 x 12 GLUE-ON CORK TILE CEILING AND GYPSUM WALL BOARD

DA-1 DEDUCTIVE ALTERNATE. SEE G0.01 FOR DESCRIPTION.

CEILING TO BE REMOVED AS REQUIRED TO INSTALL NEW FIRE SPRINKLER LINES AND HEADS, SEE FIRE PROTECTION FOR LOCATIONS

PROJECT NORTH

6 DEMOLITION REFLECTED CEILING PLAN
1/8" = 1'-0"

DSA FILE NO. 13-C1 A# 04-119487

PBK

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DEMOLITION CEILING PLAN

D10.01

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EXISTING BUILDING 1700

EXISTING BUILDING 600
APP# 38800
F.F. -62.14'

NEW ADDITION
F.F. -62.14'

EXISTING BUILDING 1900

(E) F.E.

(E) CONCRETE PAVING

CHAIN LINK GATE, SEE DETAIL 6/A1.02

(E) EM

(E) T

BELOW GRADE ELECTRICAL CONDUIT

(E) -61.74'

ALIGN

3/A1.02

1.9% SLOPE MAX.

-62.16'

(E)

5'-0"

7.9% SLOPE MAX.

7/A1.02

-62.32'

(N) IR

0-1/2"

-62.14'

-62.15'

2/A1.02

LINE OF TRELLIS ABOVE

(E) TREE PROTECT

CONCRETE PAVING

-62.49'

-62.85'

1-1/4"

(E) IR

(N) IR 1-1/4"

(E) -62.65'

(E) -62.75'

(E) -62.90'

2"

3/A1.02

TYP WHERE (N) CONCRETE IS PLACED NEXT TO (E)

6/A2.01

3/A4.01

-62.16'

(E) -62.20'

EJ

-62.57'

-62.61'

-62.64'

ELECTRICAL PULL BOX (20" x 30" x 24" D), RELOCATE PER ELECTRICAL

6 PLOT PLAN
1" = 10'-0"

PLOT PLAN GENERAL NOTES

1. SEE SHEET C01.00 FOR EXISTING CONCRETE PAVING AND GRADE ELEVATIONS
2. CONTRACTOR SHALL PROTECT ALL LANDSCAPE AREAS WITHIN LIMITS OF WORK

PLOT PLAN LEGEND

- (E) CONTEXT BUILDINGS
- (E) CONCRETE PAVING - PROTECT
- (N) CONCRETE PAVING
- (E) LANDSCAPE TO REMAIN - PROTECT
- (E) TREE TO REMAIN - PROTECT
- (E) T — (E) TRANSFORMER - PROTECT
- T — NEW TRANSFORMER
- (E) EM — (E) ELECTRICAL MANHOLE - PROTECT
- EJ — EXPANSION JOINT, SEE DETAILS 2/A1.02 AND 3/A1.02
- (E) IRRIGATION HEAD
- IRRIGATION HEAD
- (E) IR — (E) IRRIGATION LINE
- (N) IR — IRRIGATION LINE
- -62.14' — NEW TOP OF CONCRETE PAVING ELEVATION
- -(E) 62.14' — EXISTING TOP OF CONCRETE PAVING ELEVATION
- ALIGN — ALIGN FLUSH (N) AND (E) CONCRETE PAVING SURFACES
- 60x60 — AREA SIZE IN INCHES
  SURFACE OF AREA SHALL NOT EXCEED 1.9% SLOPE ON ALL DIRECTIONS

PROJECT NORTH

TRUE NORTH

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PLOT PLAN

A1.01

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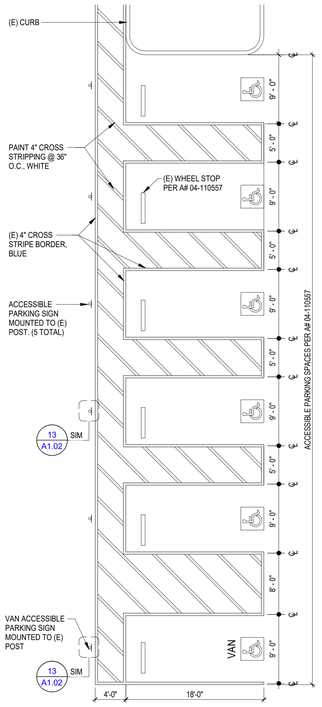
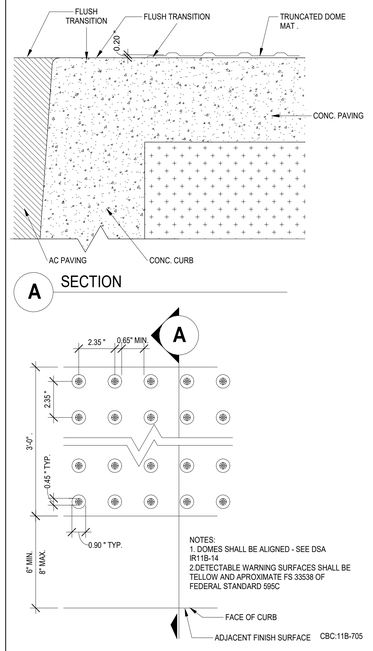
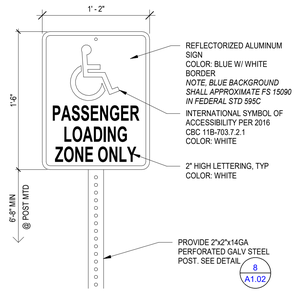


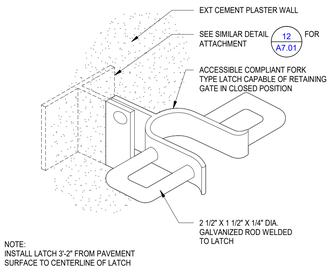
12 (E) ACCESSIBLE PARKING EAST
1/8" = 1'-0"



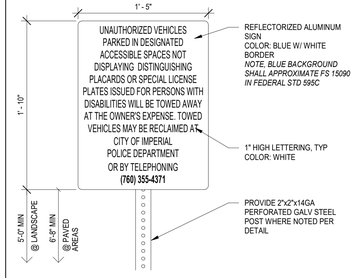
17 DETECTABLE WARNING SURFACE
3" = 1'-0"



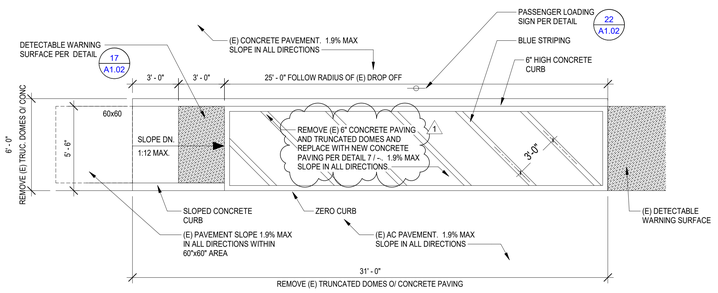
22 PASSENGER LOADING SIGN
1 1/2" = 1'-0"



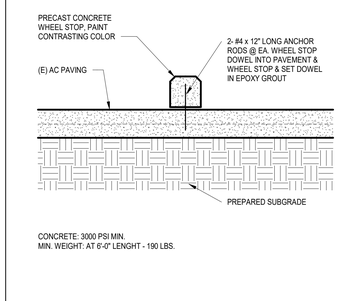
16 C.L. LATCH ASSEMBLY
1/2" = 1'-0"



15 TOW AWAY SIGN
1 1/2" = 1'-0"

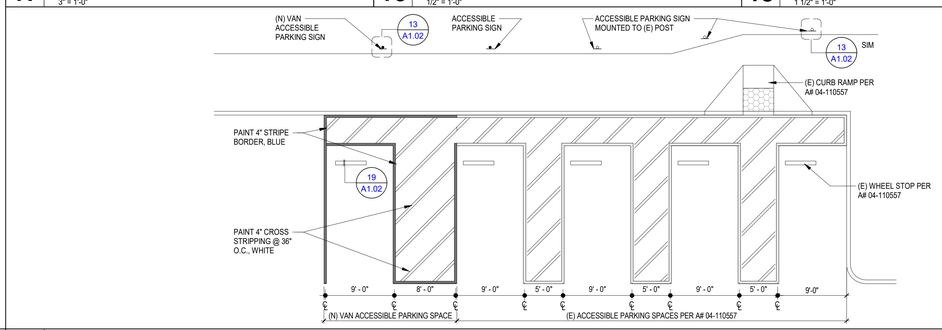


21 ACCESS DROP OFF ZONE
1/4" = 1'-0"

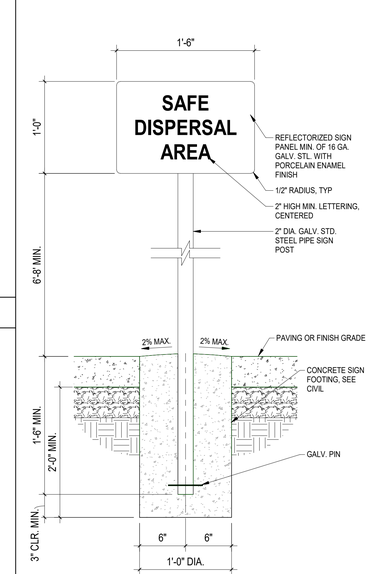


19 WHEEL STOP
1" = 1'-0"

12 (E) ACCESSIBLE PARKING EAST
1/8" = 1'-0"

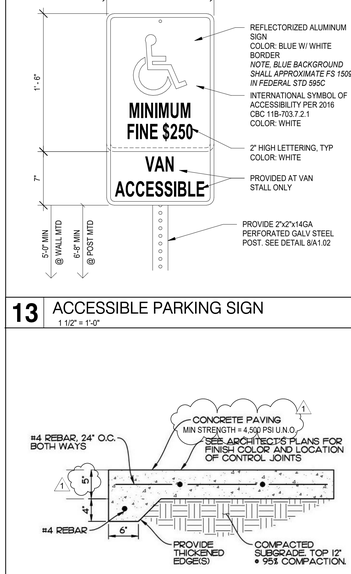


11 (E) ACCESSIBLE PARKING NORTH
1/8" = 1'-0"

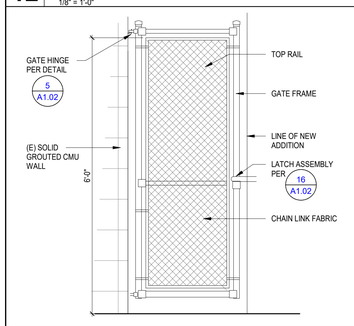


101400.16 Rev 10/17

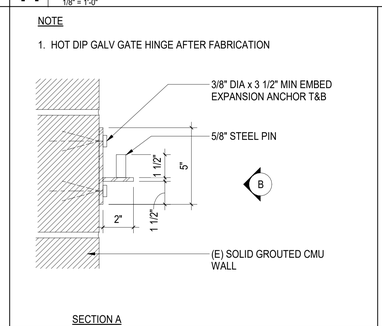
8 SAFE DISPERSAL AREA SIGN
1 1/2" = 1'-0"



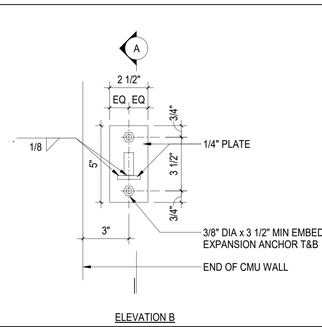
13 ACCESSIBLE PARKING SIGN
1 1/2" = 1'-0"

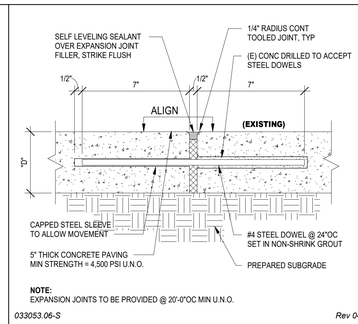


6 CHAINLINK GATE
3/4" = 1'-0"



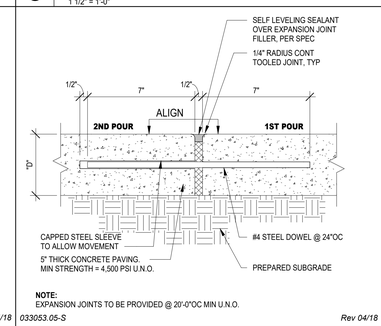
5 C.L. GATE HINGE
3" = 1'-0"





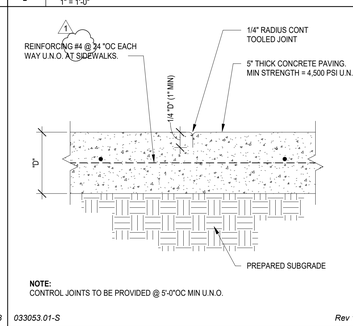
033053.06-S Rev 04/18

3 CONC EXP JOINT @ (E)
3" = 1'-0"



033053.05-S Rev 04/18

2 CONC EXP JOINT - TYP
3" = 1'-0"



033053.01-S Rev 10/17

1 CONC CONTROL JOINT - TOOLED
3" = 1'-0"

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PBK
ARCHITECTURE

IVC - B600 COLLEGE CENTER EXPANSION PROJECT

380 E Aten Rd.
Imperial, CA 92251

ADDENDUM 1

CONSULTANT

ENGINEER

ARCHITECT

LICENSED ARCHITECT Mark A. Eacrett No. C-28195 REN. 5-31-2021 STATE OF CALIFORNIA

CLIENT
IMPERIAL VALLEY COLLEGE

PROJECT NUMBER
20190

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CHECKED BY:	Checker

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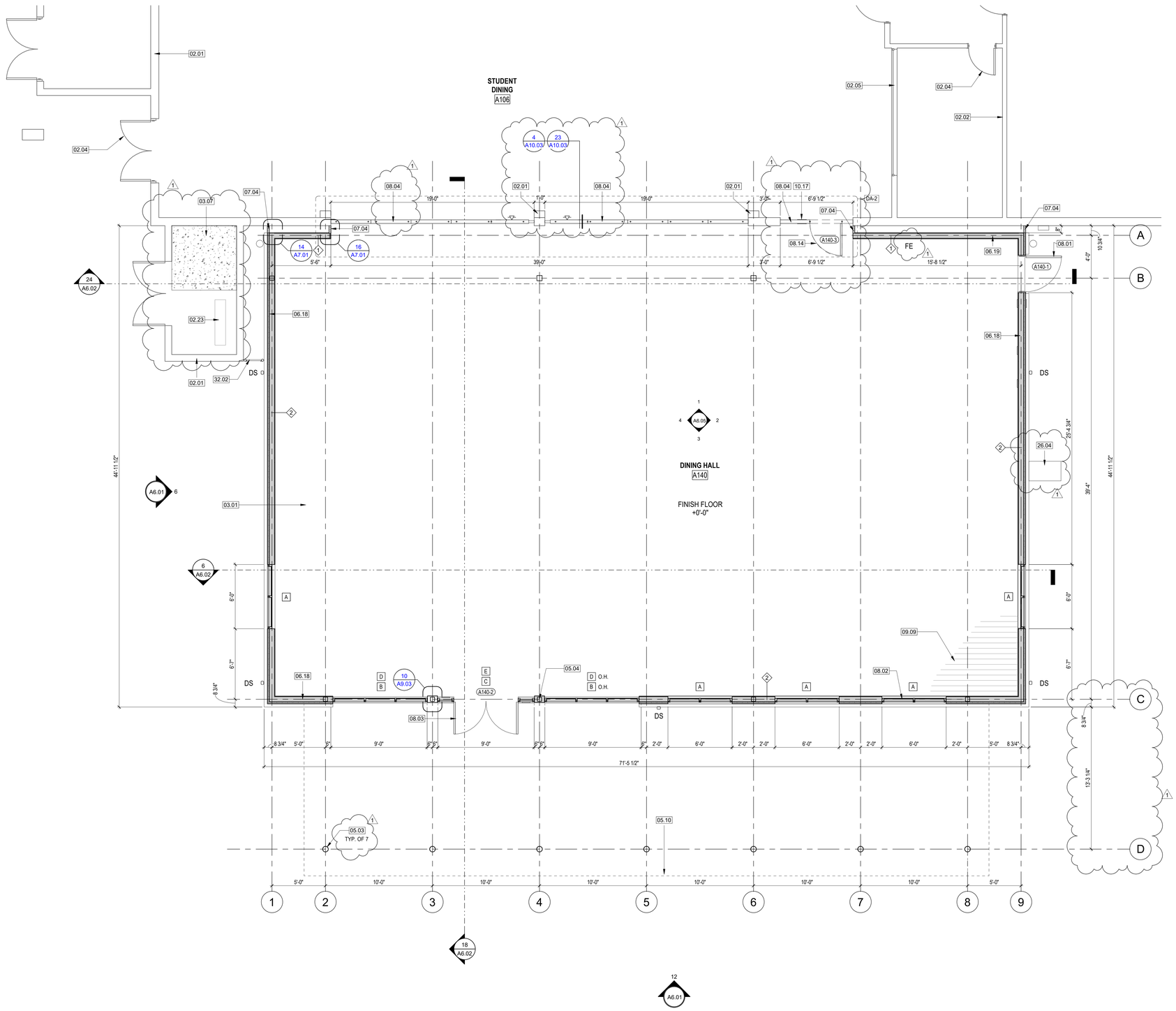
ADDENDUM 1

SITE DETAILS

A1.02



6 LEVEL 1 - FLOOR PLAN
1/4" = 1'-0"

PROJECT NORTH

TRUE NORTH

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KEYNOTE LEGEND

NUMBER	DESCRIPTION
02.01	(E) CMU WALL
02.02	(E) INT METAL FRAMED WALL W/ 5/8" GYP WALLBOARD EACH SIDE
02.04	(E) H.M. DOOR AND FRAME
02.05	(E) H.M. WINDOW
02.23	(E) GAS METER
03.01	CONCRETE FLOOR SLAB PER STRUCTURAL
03.07	CONCRETE SLAB PER 7/A1.02
05.03	HSS COLUMN PER STRUCTURAL
05.04	HSS 6x6 COLUMN CLAD IN WOOD
05.10	LINE OF TRELLIS ABOVE
06.18	EXTERIOR WOOD STUD WALL W/ 4" CMU VENEER O/ CEMENT PLASTER O/ PLYWOOD EXT, 5/8" GYP BOARD INT
06.19	INTERIOR WOOD STUD WALL W/ 5/8" GYPSUM WALL BOARD INT
07.04	VERTICAL SEISMIC JOINT COVER
08.01	H.M. DOOR AND FRAME
08.02	ALUMINUM STOREFRONT WINDOW W/ ANODIZED FINISH
08.03	ALUMINUM STOREFRONT DOOR W/ ANODIZED FINISH
08.04	FOLDING PARTITION
08.14	FOLDING PARTITION SWING DOOR
09.09	FLOOR FINISH PER SCHEDULE
10.17	SIGN, SEE SHEET G0.03
26.04	ELECTRICAL PULL BOX
32.02	CHAIN LINK GATE. SEE DETAIL 6/A1.02

CMU NOTES

1 ALL CMU VENEER SHALL BE PRECISION FACED, INTERGRAL COLOR BLOCK - SOLID GROUTED, APPLY SEALER 1

INTERIOR FINISH SCHEDULE

SURFACE	MATERIAL	FINISH
FLOORS	LVT	FACTORY
WALL	CMU	PAINT SEMI-GLOSS
WALL	GYPSUM WALLBOARD	PAINT SEMI-GLOSS
CEILING	ACOUSTIC DECK	FACTORY FINISH
CEILING	ACOUSTIC TILE	FACTORY

NOTES:

1. ALL SCHEDULED DIRECTIONS (NORTH, EAST, SOUTH, WEST) ARE PER PLAN DIRECTIONS, NOT TRUE COMPASS DIRECTIONS.
2. ALL FINISH MATERIALS SHALL MEET FLAME SPREAD RATINGS PER THE BUILDING CODE.
3. PROTECT ALL FINISHED FLOORING SURFACES FROM DAMAGE DURING ALL CONSTRUCTION PHASES.
4. PAINT ALL NON-FACTORY FINISHED EXPOSED METAL.
5. PAINT ALL H.M. DOORS U.N.O.
6. PAINT ALL EXPOSED CEILING-RELATED ITEMS, INCLUDING BUT NOT LIMITED TO, STRUCT. MEMBERS, , DUCTWORK, DIFFUSERS, PIPING, CONDUIT, EQUIP. HOUSINGS, CABLE SUPPORTS, CABLE TRAYS, EQUIP. SUPPORTS AND HANGERS. PAINT ALL EXPOSED CEILING-RELATED ITEMS WHITE
7. DO NOT PAINT ACOUSTICAL STRUCT. DECK
8. DINING HALL A106: PAINT (E) WALLS AND SOFFIT

WALL SCHEDULE

WALL TYPE	DESCRIPTION
1	2x6 WOOD FRAME, ONE SIDE 5/8" GYPSUM WALLBOARD INTERIOR, ONE SIDE PLYWOOD SHEATHING. SEE DETAIL 2/A7.01
2	4" CMU VENEER, EXTERIOR PLASTER, 1" RIGID INSULATION, PLYWOOD SHEATHING 2x6 WOOD FRAME, 5/8" GYPSUM WALL BOARD INTERIOR. SE DETAIL 4/A7.01

CONSTRUCTION LEGEND

- EXISTING WALL / CONDITION
- NEW WALL
- 1 — WALL TYPE TAG. SEE SHEET A7.01
- 101A — DOOR NUMBER TAG
- A — WINDOW TYPE TAG. SEE SHEET A9.01
- DS — DOWNSPOUT SEE DETAIL 12/A7.01 FOR TOP, MIDPOINT AND BOTTOM ATTACHMENT
- DA-1 — DEDUCTIVE ALTERNATE. SEE G0.01 FOR DESCRIPTION
- FE — FIRE EXTINGUISHER CABINET, SEE DETAIL 13/G0.04

GENERAL ARCH PLAN NOTES

1. SEE PLAN 3/A4.01 FOR (E) ENLARGED RESTROOM PLANS AND INTERIOR ELEVATIONS.
2. DO NOT SCALE DRAWINGS, WRITTEN DIMENSIONS TAKE PRECEDENCE, CONTACT ARCH IF CLARIFICATION IS NECESSARY IN ORDER TO DETERMINE THE INTENT OF THE CONTRACT DOCUMENTS
3. DRAWINGS NOTED AS "N.T.S" OR "NTS" ARE NOT TO SCALE
4. ALL DIMENSIONS ARE TO STRUCTURAL COLUMN LINES OR THE SURFACE OF PARTITION ASSEMBLY U.N.O.
5. FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE COMMENCING WORK. NOTIFY ARCH. OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH AFFECTED WORK
6. NOTES OR DIMENSIONS NOTED AS "TYPICAL" OR "TYP." OR "TYP" SHALL APPLY TO CONDITIONS THAT ARE THE SAME OR SIMILAR
7. DIMENSIONS NOTED AS "FIELD VERIFY" OR "V.I.F." OR "VIF" SHALL BE MEASURED AND CONFIRMED AT THE PROJECT SITE BY THE CONTRACTOR AND REVIEWED WITH THE ARCH. BEFORE INCORPORATING INTO THE WORK
8. DIMENSIONS NOTED AS "CLEAR" OR "CLEAR INSIDE" REQUIRE SPECIFIC COORDINATION AMONG DISCIPLINES AND OR MANUFACTURERS
9. REFER TO PARTITION TYPES ON SHEET A7.01
10. ALIGN FINISHED FACE OF WALLS WHERE WALL PARTITIONS OF DIFFERING THICKNESS ABUT AND OR ADJOIN IN THE SAME PLANE
11. PROVIDE AND INSTALL CONT. REVEAL TRIM AT JOINT WHERE GYPSUM BOARD WALL PARTITIONS ABUT AND OR ADJOIN MASONRY WALL PARTITIONS IN THE SAME PLANE
12. ALL INTERIOR CMU OUTSIDE CORNERS SHALL HAVE BULLNOSE U.N.O.
13. ALL DOORS SHALL BE SET 6 INCHES OFF THE ADJACENT PERPENDICULAR WALL ON THE HINGE SIDE OF THE DOOR U.N.O., NOTIFY ARCH. OF ANY DOOR-RELATED CONFLICTS, INCLUDING BUT NOT LIMITED TO CONFLICTS CONCERNING ACCESSIBILITY STANDARDS
14. ALL DOOR THRESHOLDS AT ALL EXTERIOR DOORS SHALL BE SET IN FULL BED OF SEALANT
15. COORD. ALL ROOF DRAIN LEADER LOCATIONS WITH FLOOR PLAN PRIOR TO FLOOR SLAB CONSTRUCTION
16. ALL FLOOR SLOPES TO FLOOR DRAINS SHALL NOT EXCEED 1:48
17. PROVIDE AND INSTALL SELF-LEVELING UNDERLAYMENT WHERE UNEVEN FLOOR SLAB EXISTS PRIOR TO INSTALLATION OF FLOOR FINISHES
18. COORD. HOUSEKEEPING PAD LOCATIONS AND DIMENSIONS WITH EQUIPMENT TO BE INSTALLED
19. ALL FLOOR FINISH CHANGES SHALL OCCUR AT THE CENTERLINE OF DOORS U.N.O.
20. ALL FLOOR FINISH MATERIAL CHANGES SHALL HAVE REDUCER STRIPS
21. ALL REQUIRED ACCESSIBLE CLEARANCES FOR ALL ITEMS, INCLUDING BUT NOT LIMITED TO ALL COUNTER TOPS, ALL PLUMBING FIXTURES; ALL DRINKING FOUNTAINS, ALL ELECTRIC WATER COOLERS, ALL LAVATORIES, ALL URINALS, ALL TOILETS SHALL BE STRICTLY ENFORCED
22. APPLY BITUMINOUS COATING TO ALL CONCEALED STRUCTURAL STEEL MEMBERS AT ALL EXTERIOR CANOPY LOCATIONS
23. REFER TO OTHER DISCIPLINE DOCUMENTS FOR ADDITIONAL SCOPE OF WORK

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PBK

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ENGINEER

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LICENSED ARCHITECT
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No. C-28195
REN. 5-31-2021
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CLIENT
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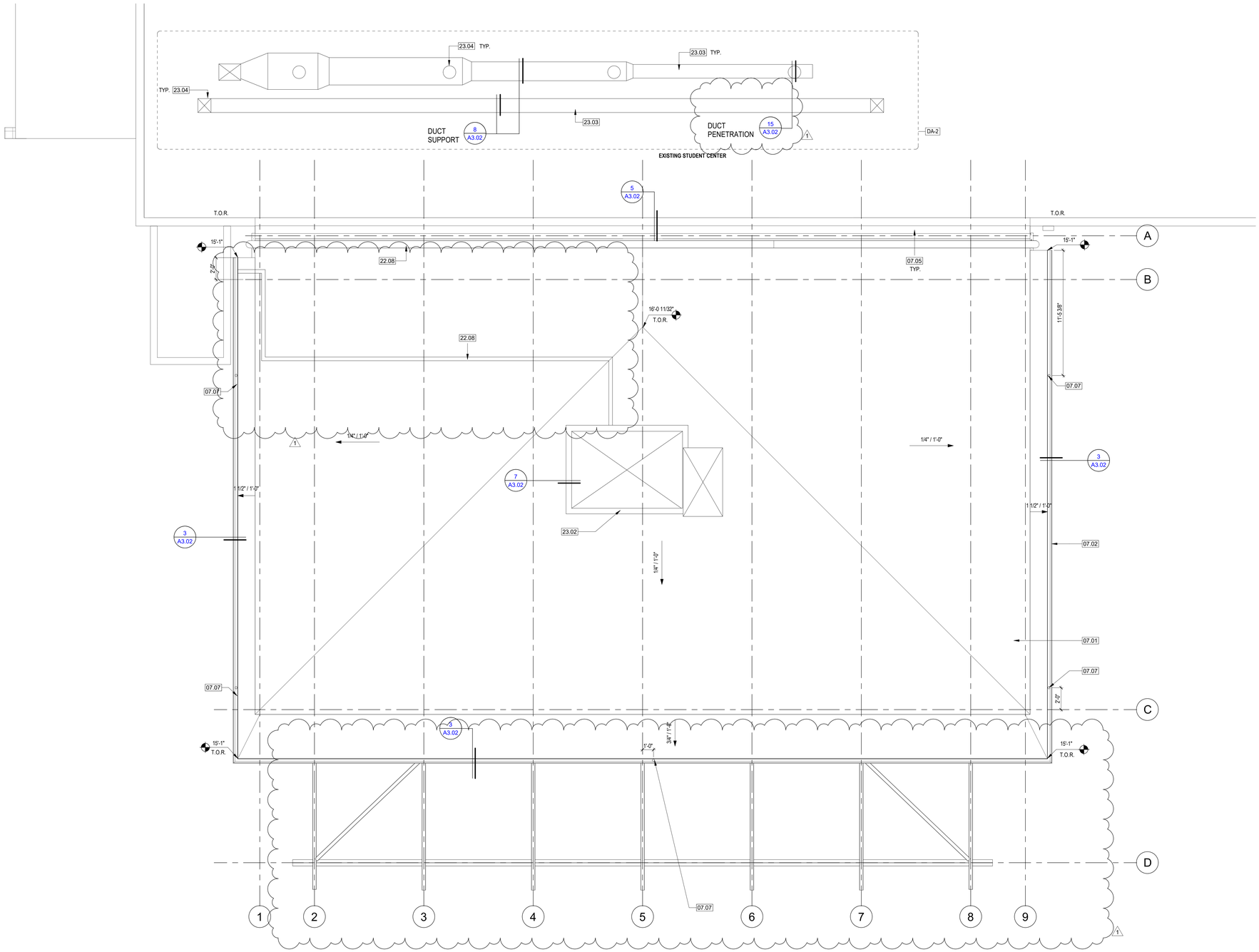
ADDENDUM 1

FLOOR PLAN

A2.01



6 ROOF PLAN
1/4" = 1'-0"

KEYNOTE LEGEND	
NUMBER	DESCRIPTION
07.01	PVC ROOF OVER COVER BOARD OVER SLOPED INSULATION
07.02	SHEET METAL GUTTER
07.05	SEISMIC JOINT ROOF COVER
07.07	DOWNSPOUT
22.08	EXTERIOR GAS LINE
23.02	ROOFTOP UNIT. SEE MECHANICAL
23.03	ROOFTOP DUCTS. SEE MECHANICAL
23.04	DUCT PENNETRATIONS THROUGH ROOF. SEE MECHANICAL

ROOF PLAN NOTES

1. NEW AND EXISTING ROOFS ARE CLASS A ROOF ASSEMBLIES. SEE DETAIL 1 A3.02
2. PIPE/CONDUIT PENNETRATIONS THROUGH (E) AND (N) PVC ROOF. SEE DETAIL 10 A3.02
3. ROOF ASSEMBLY IS RATED AS A CLASS A ROOF
4. PROVIDE MINIMUM R-30 ROOF INSULATION

ROOF LEGEND

T.O.R. TOP OF ROOF MEMBRAME

DA-1 DEDUCTIVE ALTERNATE. SEE G0.01 FOR DESCRIPTION.

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ROOF PLAN

A3.01

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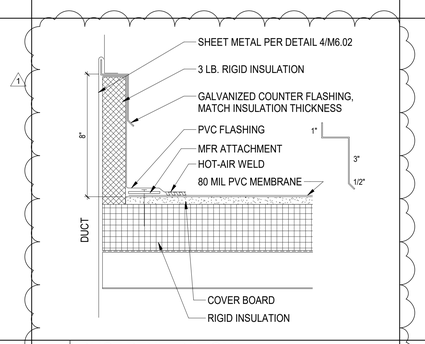
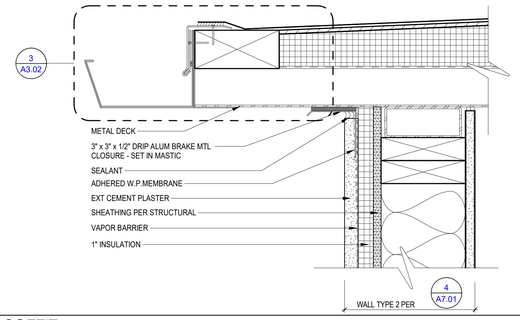
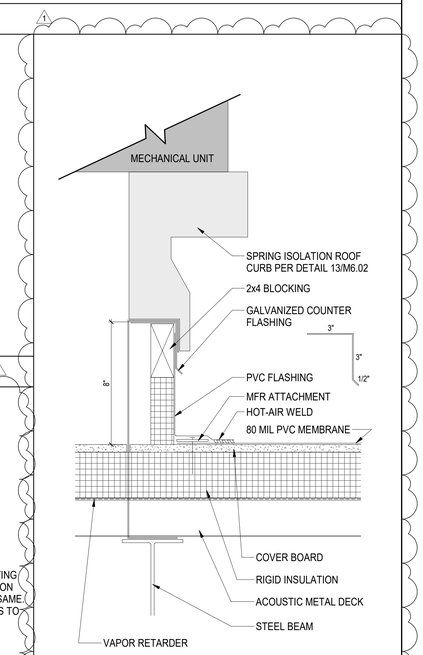


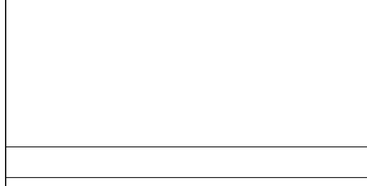
15 DUCT PENETRATION
3" = 1'-0"



14 ROOF SOFFIT
3" = 1'-0"

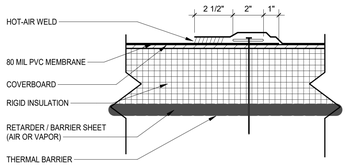


7 MECH CURB FLASHING
3" = 1'-0"



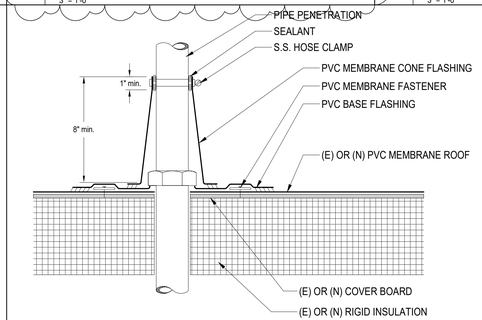
PLAN VIEW

NOTE: VAPOR BARRIER SHALL BE SEALED AT OVERLAPS AND PENETRATIONS.



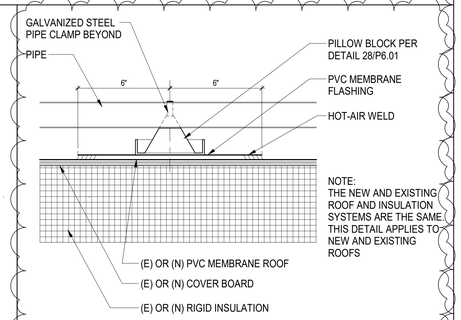
SECTION VIEW

6 ROOF FASTENING
3" = 1'-0"

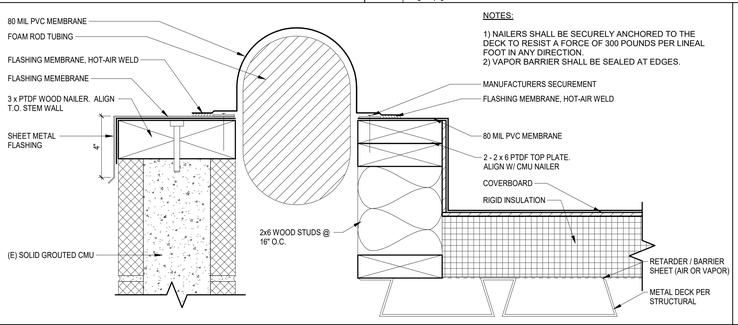


10 CONE FLASHING AT PENETRATION
3" = 1'-0"

NOTE:
THE NEW AND EXISTING ROOF AND INSULATION SYSTEMS ARE THE SAME. THIS DETAIL APPLIES TO NEW AND EXISTING ROOFS



8 FLASHING AT PIPE SUPPORT
3" = 1'-0"



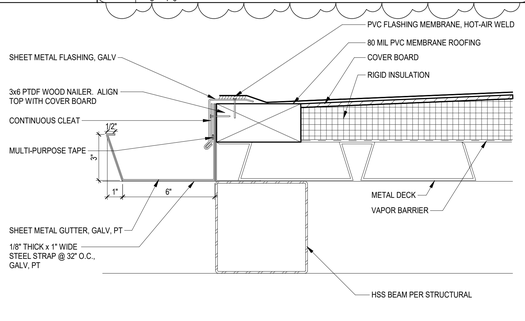
NOTES:

1) NAILERS SHALL BE SECURELY ANCHORED TO THE DECK TO RESIST A MINIMUM FORCE OF 300 POUNDS PER LINEAL FOOT IN ANY DIRECTION.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.

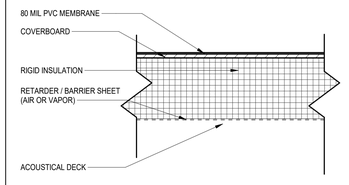
5 ROOF EXPANSION JOINT AT PARAPET
3" = 1'-0"

NOTES:

1) NAILERS SHALL BE SECURELY ANCHORED TO THE DECK TO RESIST A MINIMUM FORCE OF 300 POUNDS PER LINEAR FOOT. FOLLOW FACTORY MUTUAL LOSS PREVENTION DATA SHEET 1-49 RECOMMENDATIONS.
2) THE THICKNESS OF THE NAILER SHALL MATCH THE HEIGHT OF THE INSULATION OR SURFACE TO WHICH THE MEMBRANE IS TO BE APPLIED.
3) VAPOR BARRIER SHALL BE SEALED AT EDGES.
4) CONTINUOUS CLEAT IS REQUIRED IF FACE DIMENSION OF FASCIA EXCEEDS 3 INCHES.
5) FACE DIMENSION OF FASCIA SHALL BE A MINIMUM OF 3 INCHES OR AS OTHERWISE REQUIRED TO EXTEND A MINIMUM OF 1-1/2 INCHES BELOW BOTTOM OF WOOD NAILER.
6) THE HORIZONTAL FLANGE OF FASCIA SHALL BE A MINIMUM OF 4 INCHES WIDE.
8) NAILS USED TO ATTACH EITHER THE CONTINUOUS CLEAT OR FASCIA SHALL PENETRATE THE NAILER A MINIMUM OF 1-1/2 INCHES. SCREWS SHALL PENETRATE A MINIMUM OF 1 INCH.



3 ROOF EDGE
3" = 1'-0"



1 ROOF ASSEMBLY
3" = 1'-0"

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ROOF DETAILS

A3.02

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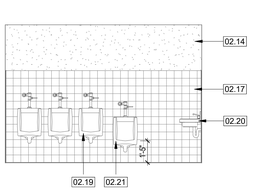
KEYNOTE LEGEND	
NUMBER	DESCRIPTION
02.14	(E) GYPSUM WALLBOARD
02.17	(E) TILE WAINSCOT
02.18	(E) WATER CLOSET
02.19	(E) URINAL
02.20	(E) SINK AND FAUCET
02.21	(E) ACCESSIBLE URINAL
02.22	(E) ACCESSIBLE SINK WITH PUSH BUTTON FAUCET
02.27	(E) 30x54 MIRROR
02.28	(E) PAPER TOWEL DISPENSER TA-9
02.29	(E) SOAP DISPENSER
02.30	(E) LIGHT FIXTURE
02.50	NEW LOCATION OF (E) SINK
09.07	6x6 CERAMIC TILE WAINSCOT
09.08	8x8 CERAMIC TILE FLOOR
10.01	SOLID PHENOLIC OVERHEAD BRACED TOILET PARTION
10.02	RECESSED T.P. AND SEAT COVER DISPENSER AND S.N DISPOSAL TA-1 SEE DETAL 27/G0.04 FOR MOUNTING.
10.03	NEW LOCATION OF (E) PARTITION MOUNTED T.P. DISPENSER TA-2
10.04	NEW LOCATION OF (E) PARTITION MOUNTED SEAT COVER DISPENSER TA-3
10.05	GRAB BARS TA-4
10.07	PAPER TOWEL DISPENSER TA-8
10.19	SURFACE MOUNTED WASTE RECEPTACLE TA-10
22.01	SINK AND FAUCET
22.02	WATER CLOSET

CONSTRUCTION NOTES

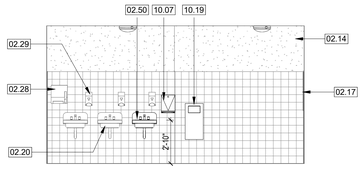
1. REFER TO DETAIL 18 / A7.01 FOR WALL TILE INSTALLATION
2. REFER TO DETAIL 17 / A7.01 FOR FLOOR TILE INSTALLATION
3. REFER TO DETAILS 1 & 4/G0.04 FOR ACCESSORY HEIGHTS AND CLEARANCES
4. INCLUDE NEW HARDWARE ON DOORS A112-1 AND A113-1, SEE SHEET A9.02 FOR DOOR SCHEDULE
5. INCLUDE SIGNAGE PER SHEET G0.03

CONSTRUCTION LEGEND

- (E) 6x6 CERAMIC TILE WAINSCOT
- 6x6 CERAMIC TILE WAINSCOT
- 8x8 CERAMIC FLOOR TILE OVER CONCRETE FILL
- (E) GYPSUM WALLBOARD
- A — RESTROOM DOOR AND WALL SIGNS (6 / G0.04)



24A NORTH



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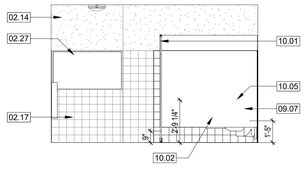
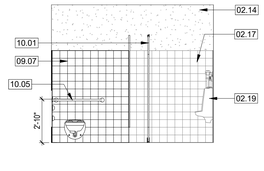
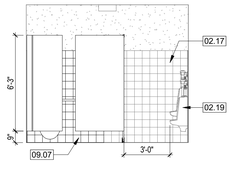


24C SOUTH

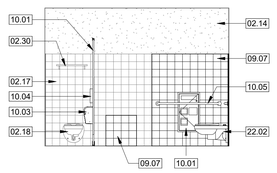


24D WEST

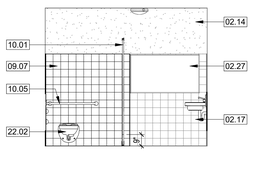


24E WEST PARTITION

24 A113 MEN'S TLT - INTERIOR ELEVATIONS
1/4" = 1'-0"



18A NORTH



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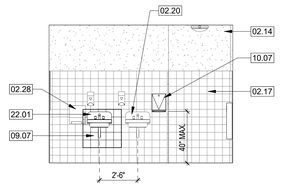
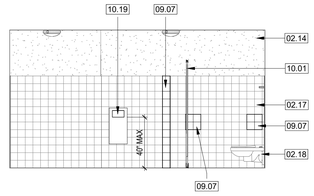
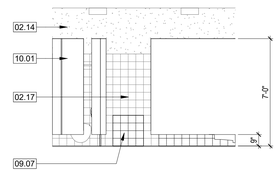


18C SOUTH

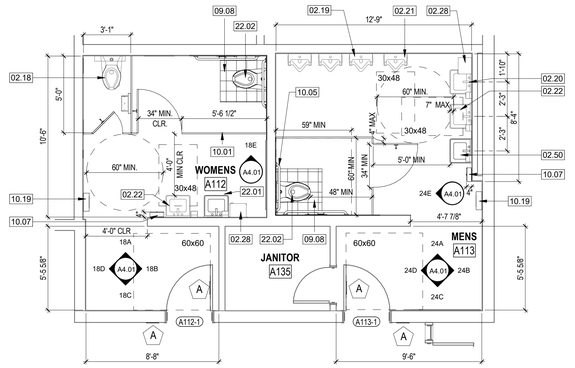


18D WEST



18E NORTH PARTITION

18 A112 WOMEN'S TLT - INTERIOR ELEVATIONS
1/4" = 1'-0"



3 ENLARGED RESTROOM PLANS
1/4" = 1'-0"

DSA FILE NO. 13-C1 A# 04-119487

PBK

ARCHITECTURE

IVC - B600 COLLEGE CENTER EXPANSION PROJECT

380 E Aten Rd.
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ADDENDUM 1

CONSULTANT

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CLIENT
IMPERIAL VALLEY COLLEGE

PROJECT NUMBER 20190
DATE: 2021/03/31
DRAWN BY: Author
CHECKED BY: Checker

REVISIONS

No.	Description	Date
1	ADDENDUM 1	2021-03-31

ADDENDUM 1

ENLARGED RESTROOM PLANS AND ELEVATIONS

A4.01

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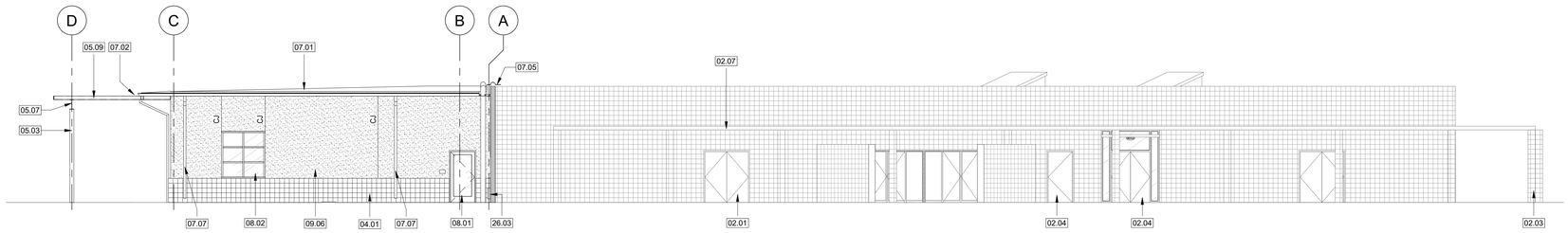
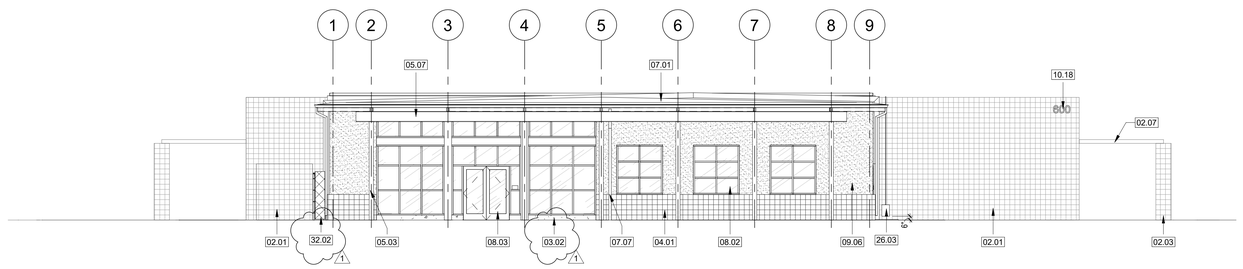
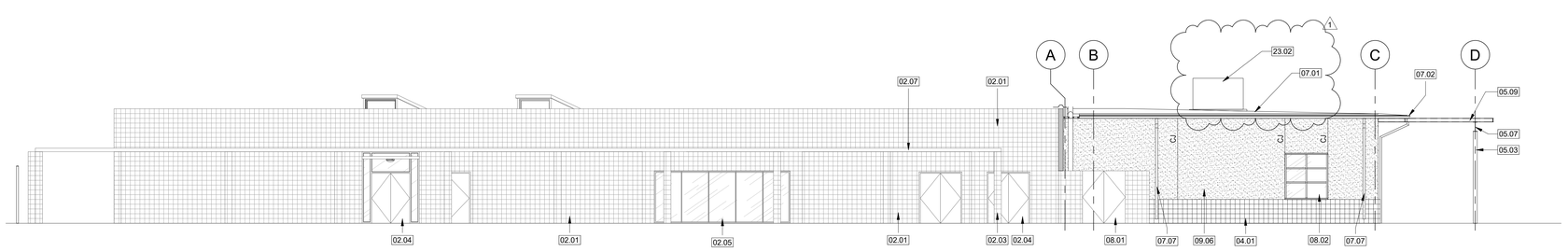


18 EAST ELEVATION
1/8" = 1'-0"



12 SOUTH ELEVATION
1/8" = 1'-0"



6 WEST ELEVATION
1/8" = 1'-0"

KEYNOTE LEGEND	
NUMBER	DESCRIPTION
02.01	(E) CMU WALL
02.03	(E) CMU PILASTER
02.04	(E) H.M. DOOR AND FRAME
02.05	(E) H.M. WINDOW
02.07	(E) PVC ROOF
03.02	CONCRETE SILL
04.01	4" CMU VENEER
05.03	HSS COLUMN PER STRUCTURAL
05.07	WIDE FLANGE BEAM PER STRUCTURAL
05.09	HSS BEAM PER STRUCTURAL
07.01	PVC ROOF OVER COVER BOARD OVER SLOPED INSULATION
07.02	SHEET METAL GUTTER
07.05	SEISMIC JOINT ROOF COVER
07.07	DOWNSPOUT
08.01	H.M. DOOR AND FRAME
08.02	ALUMINUM STOREFRONT WINDOW W/ ANODIZED FINISH
08.03	ALUMINUM STOREFRONT DOOR W/ ANODIZED FINISH
09.06	EXTERIOR CEMENT PLASTER
10.18	12" HIGH ALUMINUM BUILDING NUMBERS, SEE SHEET G0.03
23.02	ROOFTOP UNIT - SEE MECHANICAL
26.03	SURFACE MOUNTED ELECTRICAL BOX
32.02	CHAIN LINK GATE. SEE DETAIL 6/A1.02

EXTERIOR MATERIALS LEGEND

EXTERIOR CEMENT PLASTER SYSTEM, PROVIDE INTEGRAL COLOR FINISH

(E) CMU

CMU VENEER, APPLY SEALER

CJ EXT CEMENT PLASTER CONTROL JOINT

EXTERIOR FINISH SCHEDULE

SURFACE	MATERIAL	FINISH
FLOORS	CONCRETE	FACTORY FINISH
CURB	CONCRETE	FACTORY FINISH
WALL	CEMENT PLASTER	INTEGRAL COLOR
WALL	CMU	PAINT SEMI-GLOSS, SEALER
STOREFRONT DOORS / WINDOWS	ALUMINUM	PAINT SEMI-GLOSS
HOLLOW METAL DOORS / WINDOWS	STEEL	PAINT SEMI-GLOSS
STOREFRONT TRIM	WOOD	SEALER
ROOF	PVC	FACTORY FINISH
HSS STRUCTURAL MEMBERS	STEEL	GALVANIZED, PAINT SEMI-GLOSS

NOTE:

1. ALL SCHEDULED DIRECTIONS (NORTH, EAST, SOUTH, WEST) ARE PER PLAN DIRECTIONS, NOT TRUE COMPASS DIRECTIONS.

DSA FILE NO. 13-C1 A# 04-119487

PBK

ARCHITECTURE

IVC - B600 COLLEGE CENTER EXPANSION PROJECT

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ADDENDUM 1

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CLIENT
IMPERIAL VALLEY COLLEGE

PROJECT NUMBER
20190

DATE: 2021/03/31
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ADDENDUM 1

EXTERIOR ELEVATIONS

A6.01

C:_Revit\Local\B600 dining hall expansion NEW 11302020_elizabeth.seaver.rvt
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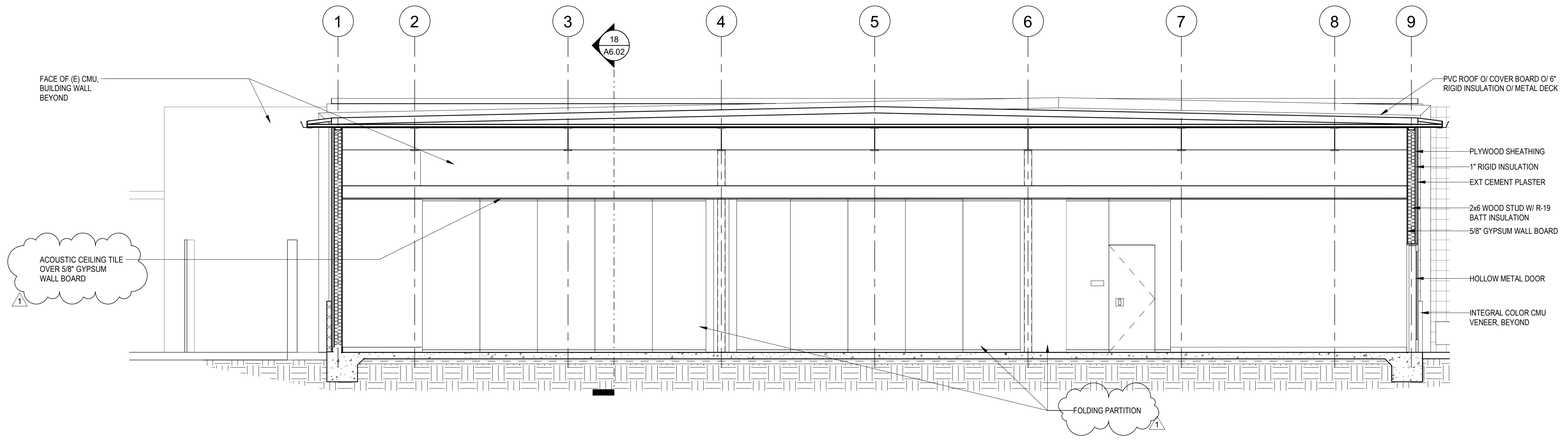
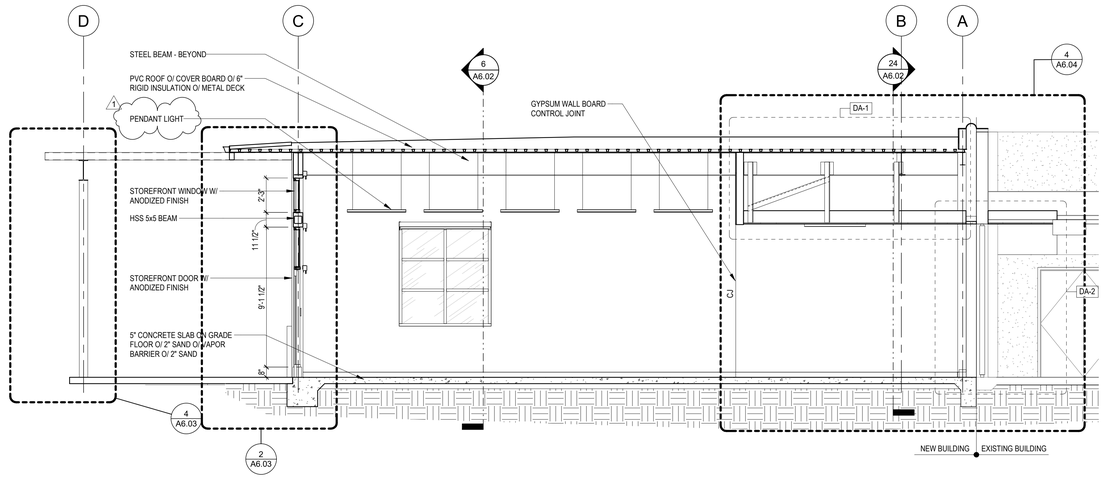
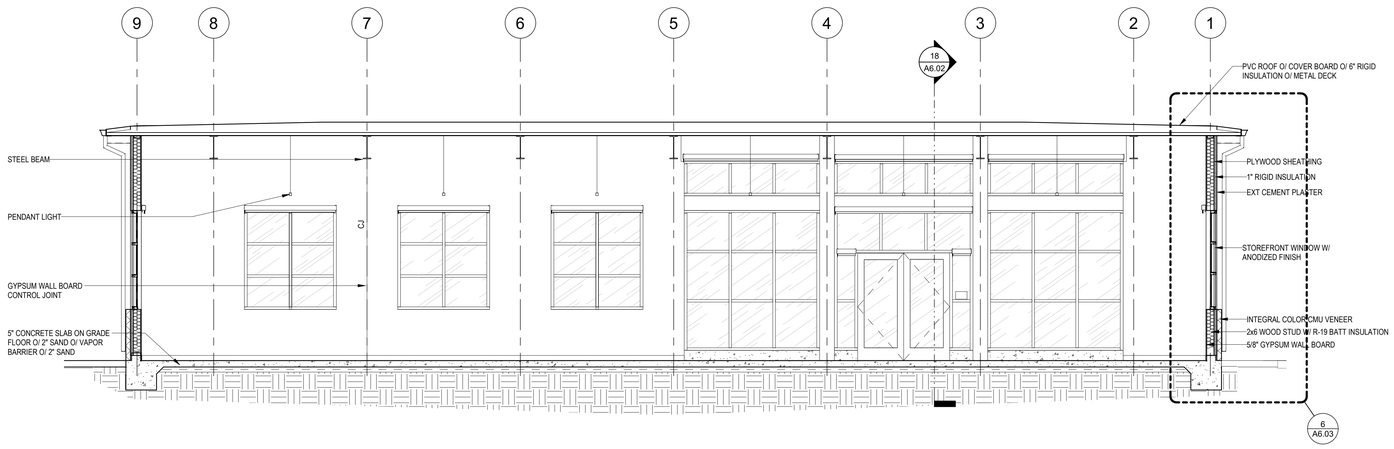


24 BUILDING SECTION 3
1/4" = 1'-0"



18 BUILDING SECTION 2
1/4" = 1'-0"



6 BUILDING SECTION 1
1/4" = 1'-0"

BUILDING SECTION LEGEND

DA-1 DEDUCTIVE ALTERNATE. SEE G0.01 FOR DESCRIPTION

DSA FILE NO. 13-C1 A# 04-119487

PBK

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ADDENDUM 1

BUILDING SECTIONS

A6.02

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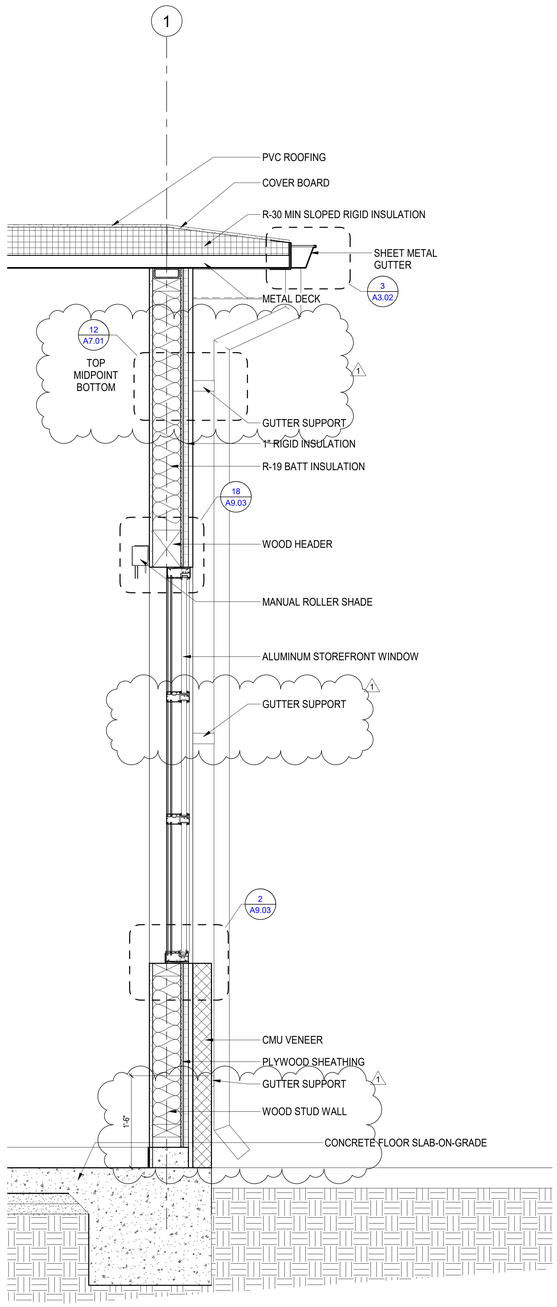
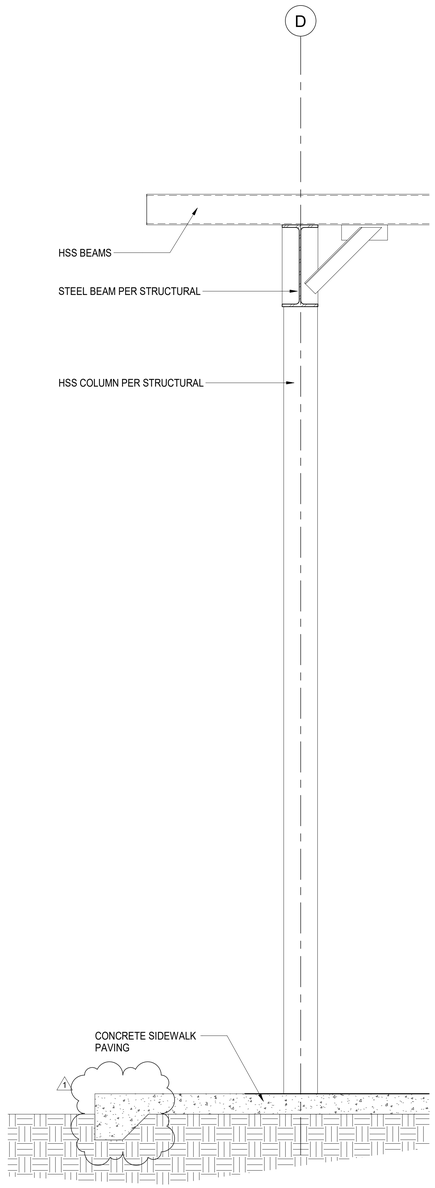
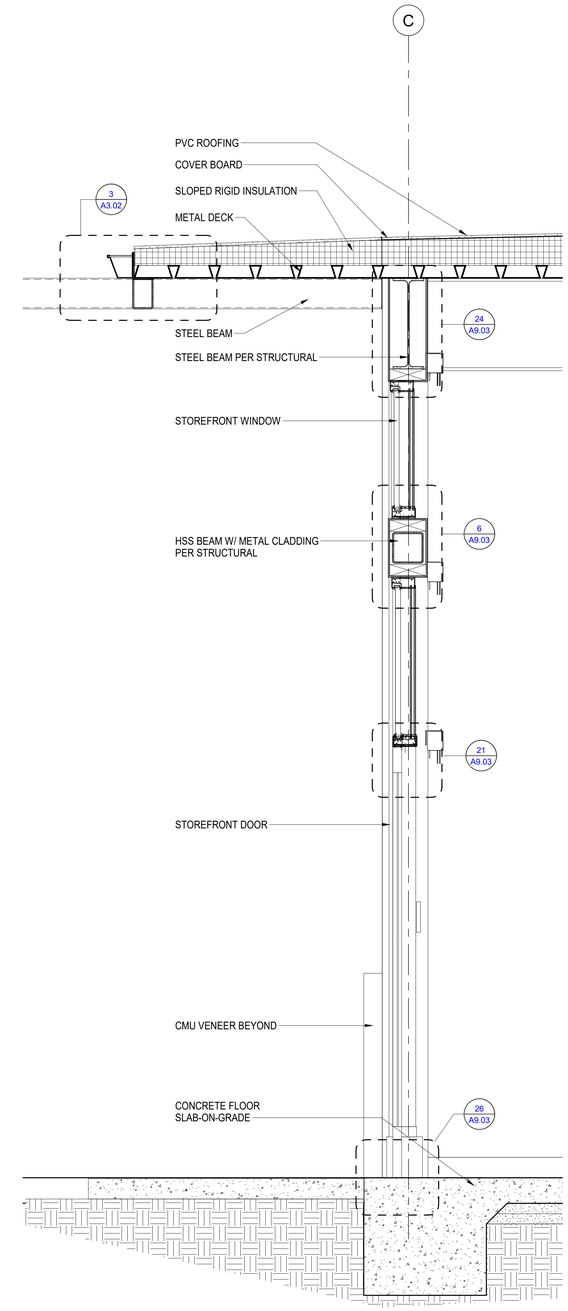


6 WALL SECTION 3
1" = 1'-0"



4 WALL SECTION 2
1" = 1'-0"



2 WALL SECTION 1
1" = 1'-0"

C:_Revit\Local\B600 dining hall expansion NEW 11302020_elizabeth.seaver.rvt
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ARCHITECTURE

IVC - B600 COLLEGE CENTER EXPANSION PROJECT
380 E Aten Rd.
Imperial, CA 92251
ADDENDUM 1

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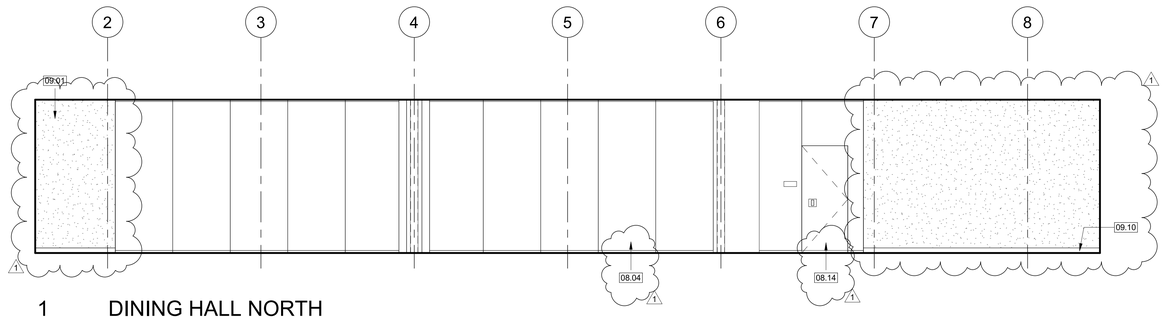
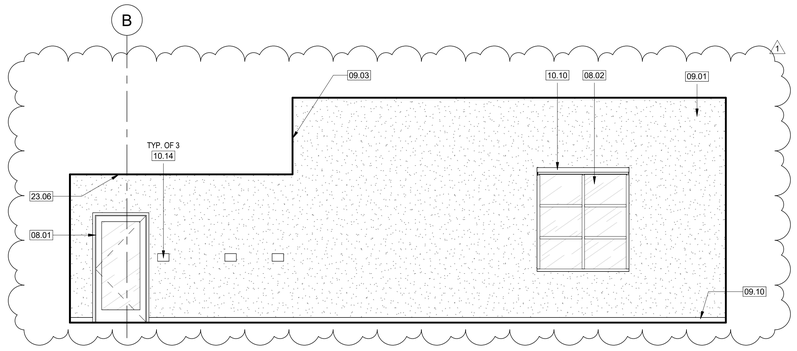
ADDENDUM 1

WALL SECTIONS

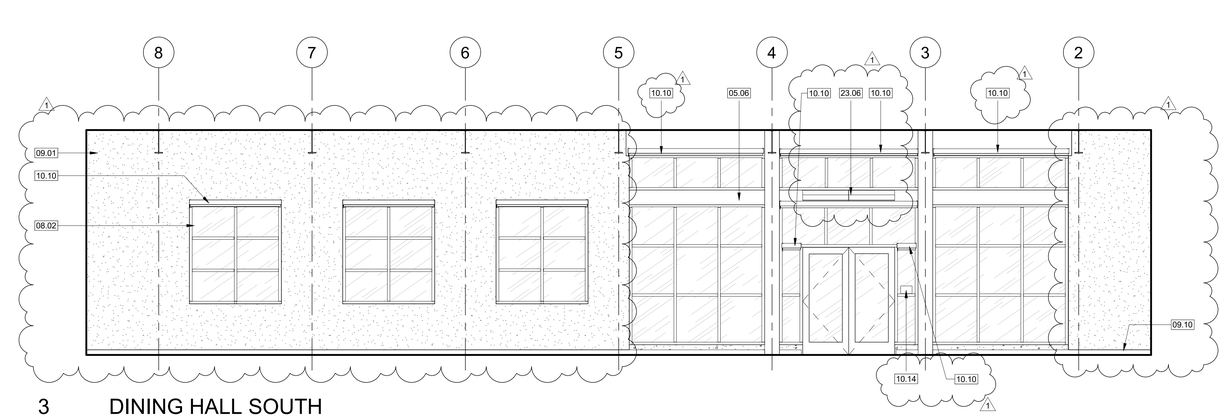
A6.03



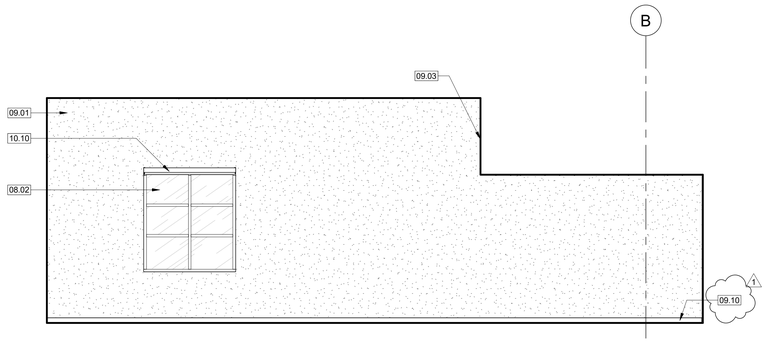
1 DINING HALL NORTH



2 DINING HALL EAST



3 DINING HALL SOUTH



4 DINING HALL WEST

KEYNOTE LEGEND

NUMBER	DESCRIPTION
05.06	HSS BEAM PER STRUCTURAL W/ ALUM COVER
08.01	H.M. DOOR AND FRAME
08.02	ALUMINUM STOREFRONT WINDOW W/ ANODIZED FINISH
08.04	FOLDING PARTITIONY
08.14	FOLDING PARTITION SWING DOOR
09.01	GYPSUM WALLBOARD
09.03	SOFFIT - GYPSUM WALLBOARD OVER WOOD STUD FRAMING
09.10	4" RUBBER BASE
10.10	MECHANICAL ROLLER SHADE
10.14	ROOM & BUILDING SIGNAGE, REFER TO SHEET G0.03
23.06	FLY FAN, SEE MECHANICAL

INTERIOR MATERIALS LEGEND

GYPSUM WALLBOARD

DSA FILE NO. 13-C1 A# 04-119487

PBK

ARCHITECTURE

IVC - B600 COLLEGE CENTER EXPANSION PROJECT

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Imperial, CA 92251

ADDENDUM 1

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CLIENT
IMPERIAL VALLEY COLLEGE

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DATE:	2021/03/31
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ADDENDUM 1

INTERIOR ELEVATIONS

A6.05

C:_Revit\.local\B600 dining hall expansion NEW 11302020_elizabeth.seaver.rvt
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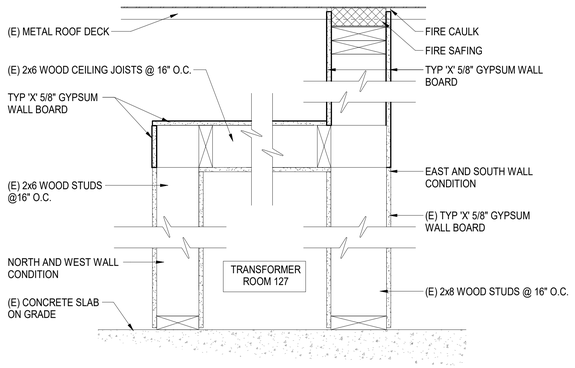
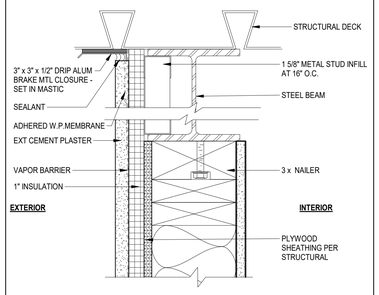
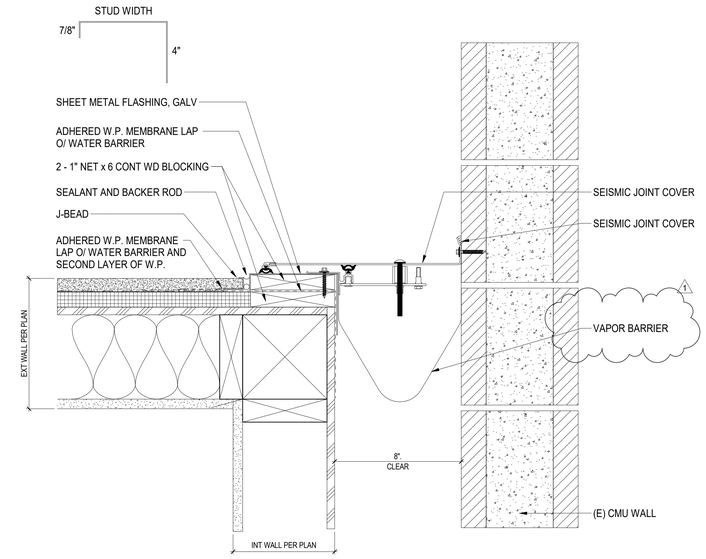
NOTE:
1. ONE HOUR FIRE RATING UL U305



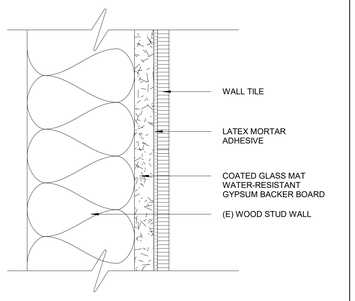
24 ONE HOUR RATED ENCLOSURE
1 1/2" = 1'-0"



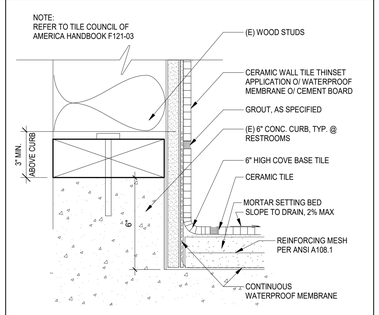
21 TOP OF WALL AT STEEL BEAM
3" = 1'-0"



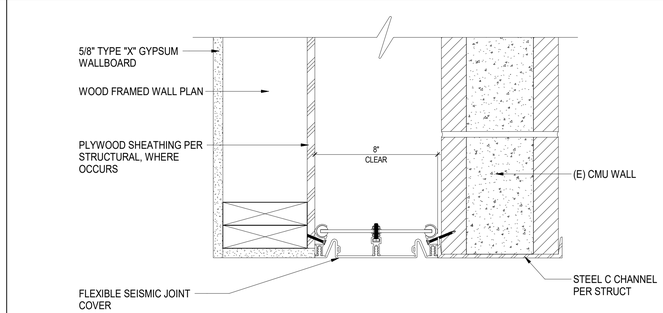
14 EXT WALL SEISMIC JOINT COVER
3" = 1'-0"



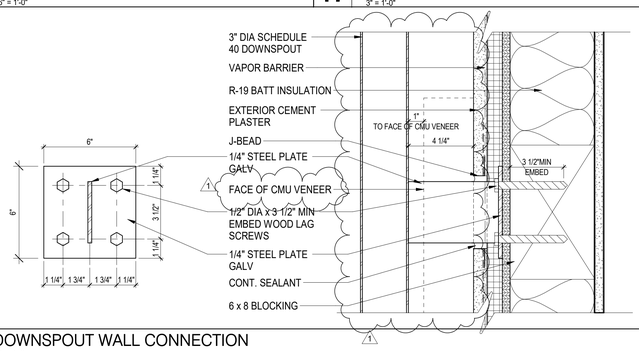
18 THIN-SET WALL TILE
6" = 1'-0"



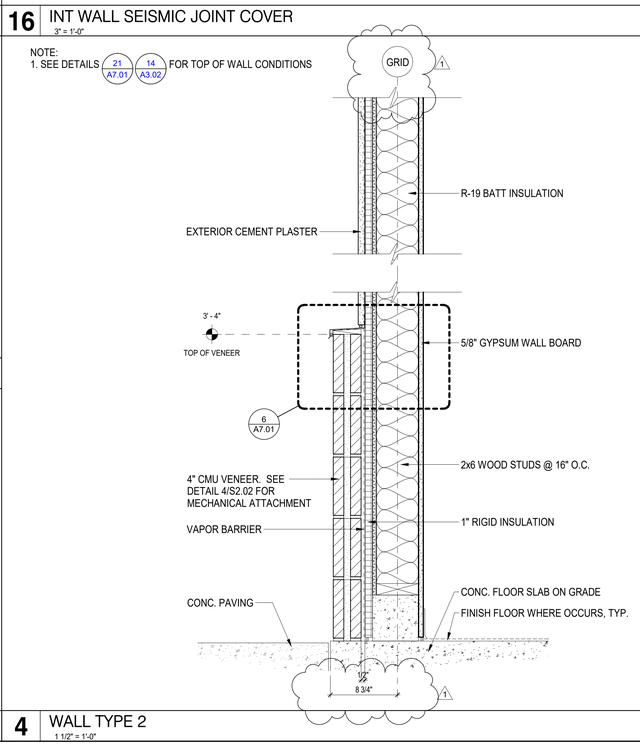
17 RESTROOM TILE OVER MORTAR BED
3" = 1'-0"



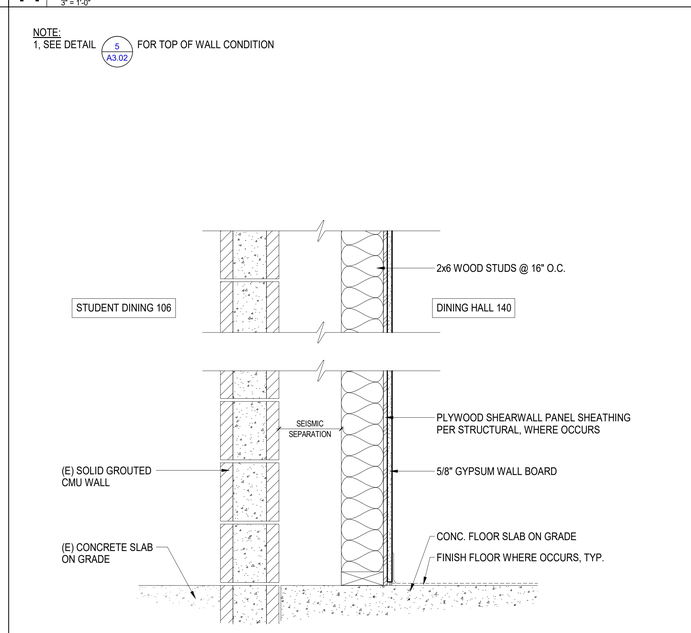
16 INT WALL SEISMIC JOINT COVER
3" = 1'-0"



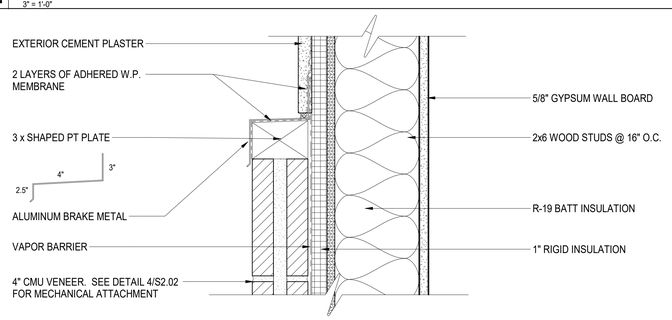
12 DOWNSPOUT WALL CONNECTION
3" = 1'-0"



4 WALL TYPE 2
1 1/2" = 1'-0"



2 WALL TYPE 1
1 1/2" = 1'-0"



6 TOP OF CMU VENEER
3" = 1'-0"

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PBK
ARCHITECTURE

IVC - B600 COLLEGE CENTER EXPANSION PROJECT

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CLIENT
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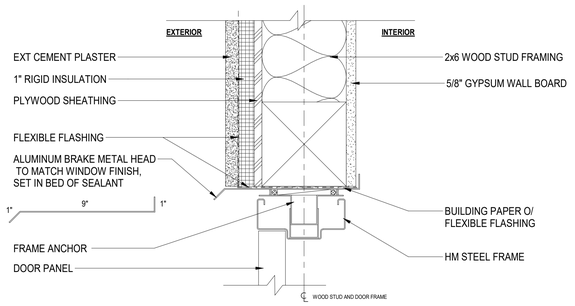
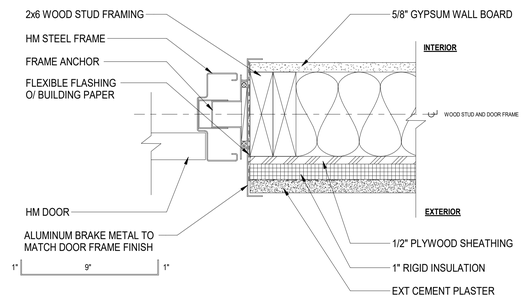
ADDENDUM 1

WALL TYPES AND DETAILS

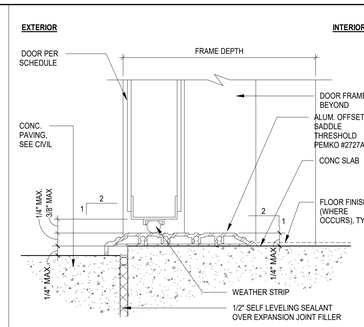
A7.01



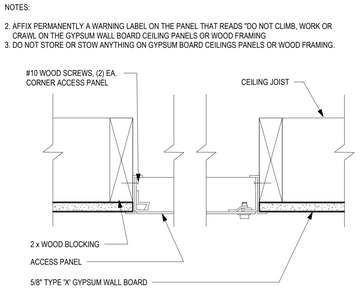
30 EXTERIOR HM DOOR HEAD
3" = 1'-0"



28 EXTERIOR HM DOOR JAMB
3" = 1'-0"

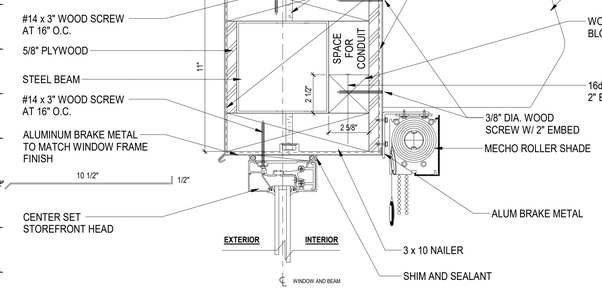


26 EXTERIOR DOOR THRESHOLD
6" = 1'-0"

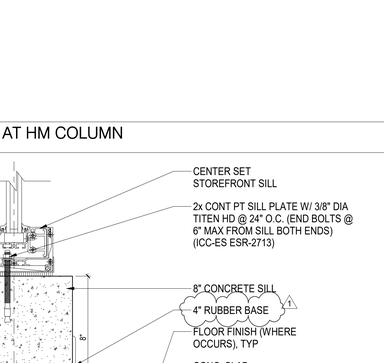


AT CEILING JOISTS

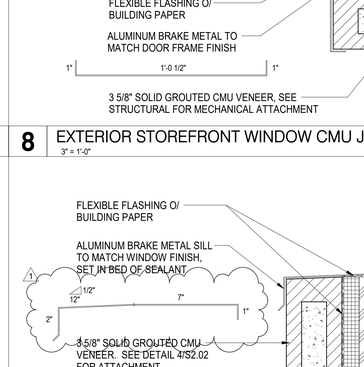
25 ACCESS PANEL @ GYP. BD. CEILING
3" = 1'-0"



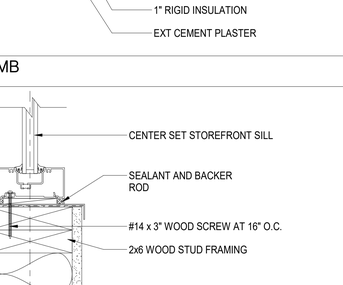
24 EXTERIOR STOREFRONT WINDOW HEAD AT STEEL BEAM
3" = 1'-0"



21 EXT STOREFRONT DOOR HEAD
3" = 1'-0"



20 EXT STOREFRONT DOOR THRESHOLD
3" = 1'-0"



19 EXT STOREFRONT WDW INTERMEDIATE
3" = 1'-0"

18 EXTERIOR STOREFRONT WINDOW HEAD
3" = 1'-0"

10 EXTERIOR STOREFRONT WINDOW JAMB AT HM COLUMN
3" = 1'-0"

14 EXTERIOR STOREFRONT WINDOW JAMB
3" = 1'-0"

8 EXTERIOR STOREFRONT WINDOW CMU JAMB
3" = 1'-0"

6 EXTERIOR STOREFRONT WINDOW HEAD AND SILL CONDITION AT STEEL BEAM
3" = 1'-0"

4 EXTERIOR STOREFRONT WINDOW CONCRETE SILL
3" = 1'-0"

2 EXTERIOR STOREFRONT WINDOW CMU SILL
3" = 1'-0"

C:_Revit\Local\B600 dining hall expansion NEW 11302020_elizabeth.seaver.rvt
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DSA FILE NO. 13-C1 A# 04-119487

PBK
ARCHITECTURE

IVC - B600 COLLEGE CENTER EXPANSION PROJECT
380 E Aten Rd.
Imperial, CA 92251
ADDENDUM 1

CONSULTANT

ENGINEER

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LICENSED ARCHITECT
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REN. 5-31-2021
STATE OF CALIFORNIA

CLIENT
IMPERIAL VALLEY COLLEGE

PROJECT NUMBER	20190
DATE:	2021/03/31
DRAWN BY:	Author
CHECKED BY:	Checker

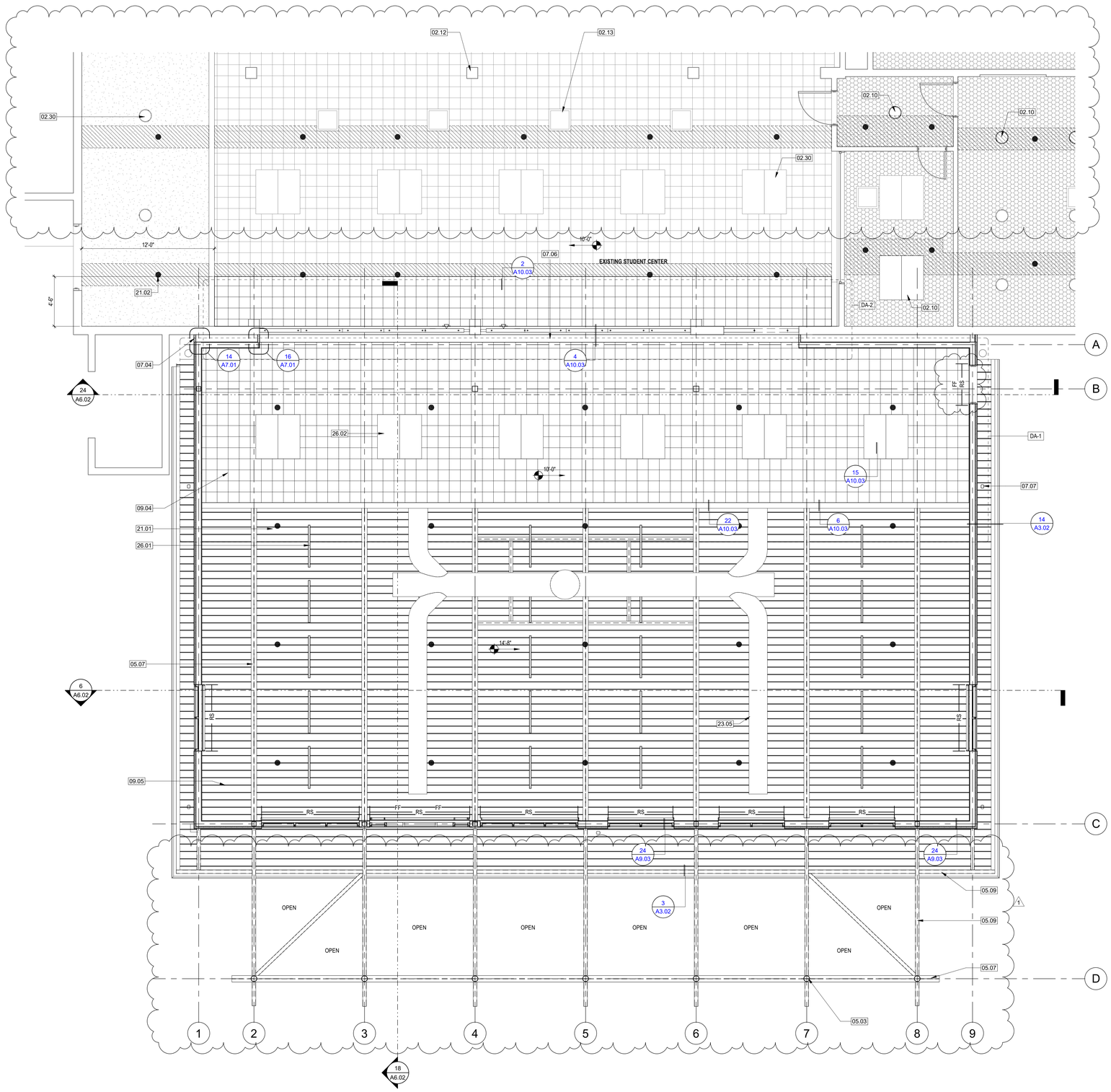
REVISIONS

No.	Description	Date
1	ADDENDUM 1	2021-03-31

ADDENDUM 1

DOOR AND WINDOW DETAILS

A9.03



PROJECT NORTH

KEYNOTE LEGEND

NUMBER	DESCRIPTION
02.10	REINSTALL (E) LIGHT FIXTURE
02.12	(E) HSS COLUMN WITH GYPSUM CLADDING
02.13	(E) MECHANICAL REGISTER, SEE MECHANICAL
02.30	(E) LIGHT FIXTURE
05.03	HSS COLUMN PER STRUCTURAL
05.07	WIDE FLANGE BEAM PER STRUCTURAL
05.09	HSS BEAM PER STRUCTURAL
07.04	VERTICAL SEISMIC JOINT COVER
07.06	CEILING SEISMIC JOINT COVER
07.07	DOWNSPOUT
09.04	12x12 GLUE ON ACOUSTICAL TILE OVER 5/8" GYP BOARD
09.05	ACOUSTIC DECK
21.01	FIRE SPRINKLER HEAD
21.02	FIRE SPRINKLER HEAD. PATCH CEILING TO MATCH EXISTING.
23.05	MECHANICAL DUCT, SEE MECHANICAL
26.01	PENDANT LED LIGHT FIXTURE
26.02	SURFACE MOUNTED LED LIGHT FIXTURE

CEILING PLAN LEGEND

- (E) GYPSUM WALLBOARD CEILING TO REMAIN
- (E) SPRAY ON ACOUSTICAL CEILING TEXTURE OVER GYPSUM WALL BOARD
- (E) 12 x 12 GLUE ON ACOUSTICAL TILE CEILING
- 12 x 12 GLUE ON ACOUSTICAL TILE CEILING
- ACOUSTICAL DECK
- RS — ROLLER SHADE PER 6 A9.03 · 18 A9.03 · 20 A9.03 & 21 A9.03
- FF — FLY FAN, SEE MECHANICAL
- DA-1 — DEDUCTIVE ALTERNATE. SEE G0.01 FOR DESCRIPTION.
- CEILING TO BE PATCHED AS REQUIRED
- FIRE SPRINKLER HEAD, SEE FIRE PROTECTION FOR EXACT LOCATIONS

RCP PLAN NOTES

1. REFER TO AND COORD. WITH ROOM FINISH SCHEDULES FOR SPECIFIC CEILING TYPES.
2. ALL SCHEDULED CEILING HEIGHTS ARE FROM THE MAIN FLOOR LEVEL WITHIN THE ROOM AND OR SPACE, AND ARE NOT FROM AN ELEVATED FLOOR LEVEL, AND ARE NOT FROM A RECESSED FLOOR LEVEL.
3. NO FIRE SPRINKLER HEADS ARE SHOWN ON ARCH. CEILING PLANS. ALL SPRINKLER HEADS SHALL BE CENTERED WITHIN CEILING TILES U.N.O.
4. ONLY CEILING MOUNTED FIXTURES AND EQUIP. IS SHOWN ON ARCH. CEILING PLANS. REFER TO INTERIOR ELEVATIONS FOR WALL MOUNTED FIXTURES. REFER TO MEPT DOCUMENTS FOR ADDITIONAL INFORMATION CONCERNING CEILING MOUNTED FIXTURES AND OR WALL MOUNTED FIXTURES.
5. CEILING MOUNTED LIGHT FIXTURES ARE SHOWN FOR LOCATION PURPOSES ONLY. COORD. WITH ELEC. DOCUMENTS FOR LIGHT FIXTURE DESIGNATIONS.
6. VERIFY LOCATIONS OF ALL CEILING ACCESS PANELS WITH MEPT DOCUMENTS. COORD. LOCATIONS OF CEILING ACCESS PANELS WITH ARCH. PRIOR TO INSTALLATION.
7. REFER TO WALL SECTIONS FOR WALL-CEILING INTERFACE
8. SEE DETAIL 14 A10.03 FOR TRAPEZE PIPE SUPPORT
9. THE ENTIRE CEILING IN THE AFFECTED SPACE SHALL BE UPGRADED TO MEET THE CURRENT REQUIREMENTS OF THE CBC AND DSA IR 25-2.13 IF ANY PORTION OF THE GRID SYSTEM IS CUT OR ALTERED. EXCEPTION: IF THE CEILING HAS LATERAL BRACING ASSEMBLIES SPACED NO MORE THAN 12 FEET ON-CENTER, A CEILING UPGRADE WILL ONLY BE REQUIRED IF THE AREA CUT OR ALTERED EXCEEDS 10 PERCENT OF THE ENTIRE CEILING AREA.

6 REFLECTED CEILING PLAN
1/4" = 1'-0"

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PBK

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IVC - B600 COLLEGE CENTER EXPANSION PROJECT

380 E Aten Rd.
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STATE OF CALIFORNIA

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IMPERIAL VALLEY COLLEGE

PROJECT NUMBER 20190
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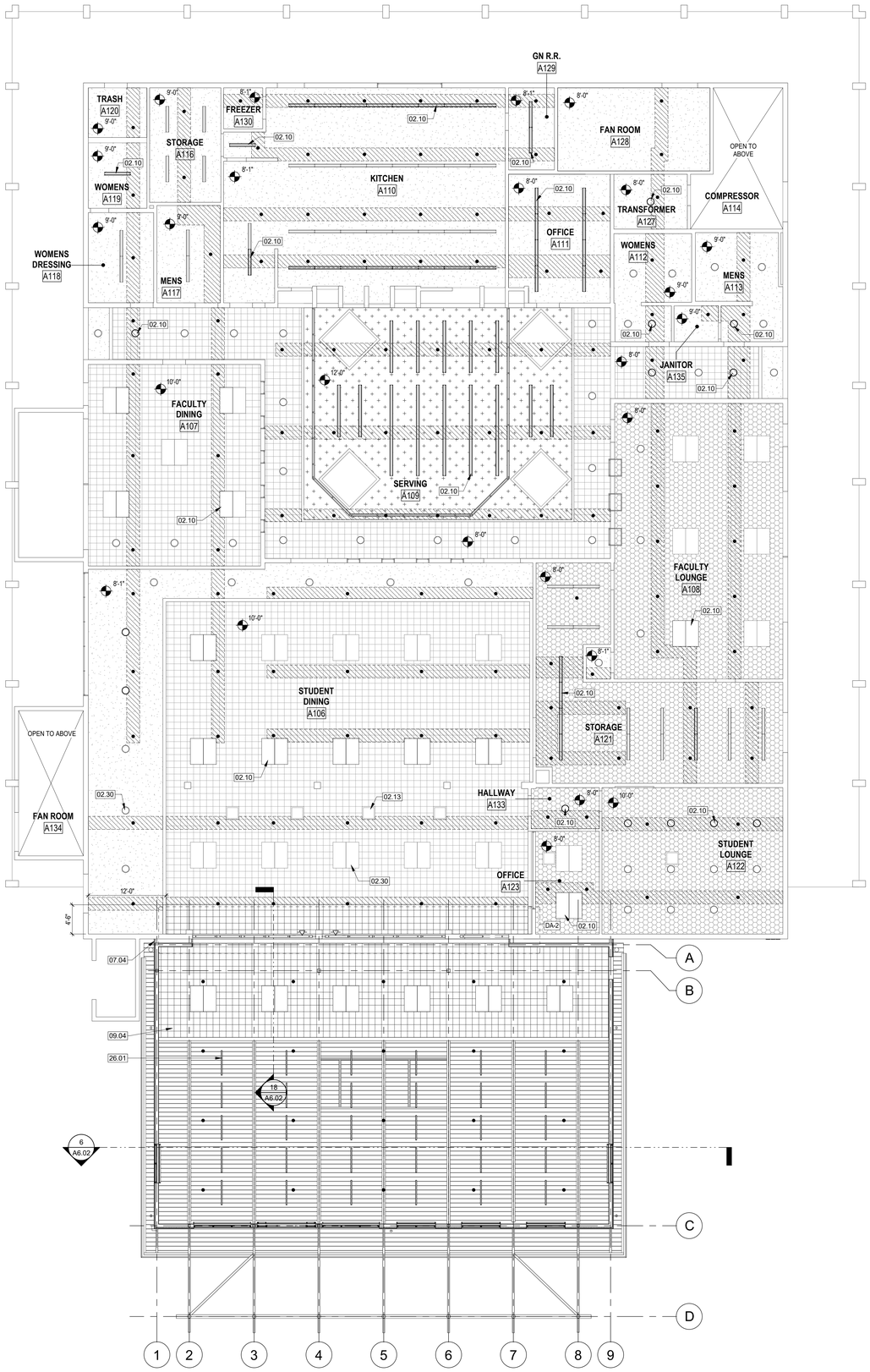
ADDENDUM 1

REFLECTED CEILING PLAN - BUILDING ADDITION

A10.01



6 REFLECTED CEILING PLAN
1/8" = 1'-0"

KEYNOTE LEGEND

NUMBER	DESCRIPTION
02.10	REINSTALL (E) LIGHT FIXTURE
02.13	(E) MECHANICAL REGISTER, SEE MECHANICAL
02.30	(E) LIGHT FIXTURE
07.04	VERTICAL SEISMIC JOINT COVER
09.04	12x12 GLUE ON ACOUSTICAL TILE OVER 5/8" GYP BOARD
26.01	PENDANT LED LIGHT FIXTURE

CEILING PLAN LEGEND

- (E) GYPSUM WALLBOARD CEILING TO REMAIN
- (E) SPRAY ON ACOUSTICAL CEILING TEXTURE OVER GYPSUM WALL BOARD
- (E) 12 x 12 GLUE ON ACOUSTICAL TILE CEILING
- 12 x 12 GLUE ON ACOUSTICAL TILE CEILING
- ACOUSTICAL DECK
- DA-1 — DEDUCTIVE ALTERNATE. SEE G0.01 FOR DESCRIPTION.
- CEILING TO BE PATCHED TO MATCH EXISTING CEILING AS REQUIRED
- FIRE SPRINKLER HEAD, SEE FIRE PROTECTION FOR EXACT LOCATIONS

RCP PLAN NOTES

1. REFER TO AND COORD. WITH ROOM FINISH SCHEDULES FOR SPECIFIC CEILING TYPES.
2. ALL SCHEDULED CEILING HEIGHTS ARE FROM THE MAIN FLOOR LEVEL WITHIN THE ROOM AND OR SPACE, AND ARE NOT FROM AN ELEVATED FLOOR LEVEL, AND ARE NOT FROM A RECESSED FLOOR LEVEL.
3. NO FIRE SPRINKLER HEADS ARE SHOWN ON ARCH. CEILING PLANS. ALL SPRINKLER HEADS SHALL BE CENTERED WITHIN CEILING TILES U.N.O.
4. ONLY CEILING MOUNTED FIXTURES AND EQUIP. IS SHOWN ON ARCH. CEILING PLANS. REFER TO INTERIOR ELEVATIONS FOR WALL MOUNTED FIXTURES. REFER TO MEPT DOCUMENTS FOR ADDITIONAL INFORMATION CONCERNING CEILING MOUNTED FIXTURES AND OR WALL MOUNTED FIXTURES.
5. CEILING MOUNTED LIGHT FIXTURES ARE SHOWN FOR LOCATION PURPOSES ONLY. COORD. WITH ELEC. DOCUMENTS FOR LIGHT FIXTURE DESIGNATIONS.
6. VERIFY LOCATIONS OF ALL CEILING ACCESS PANELS WITH MEPT DOCUMENTS. COORD. LOCATIONS OF CEILING ACCESS PANELS WITH ARCH. PRIOR TO INSTALLATION.
7. REFER TO WALL SECTIONS FOR WALL-CEILING INTERFACE
8. SEE DETAIL 14/A10.03 FOR TRAPEZE PIPE SUPPORT
9. THE ENTIRE CEILING IN THE AFFECTED SPACE SHALL BE UPGRADED TO MEET THE CURRENT REQUIREMENTS OF THE CBC AND DSA IR 25-2.13 IF ANY PORTION OF THE GRID SYSTEM IS CUT OR ALTERED. EXCEPTION: IF THE CEILING HAS LATERAL BRACING ASSEMBLIES SPACED NO MORE THAN 12 FEET ON-CENTER, A CEILING UPGRADE WILL ONLY BE REQUIRED IF THE AREA CUT OR ALTERED EXCEEDS 10 PERCENT OF THE ENTIRE CEILING AREA.

PROJECT NORTH

DSA FILE NO. 13-C1 A# 04-119487

PBK

ARCHITECTURE

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380 E Aten Rd.
Imperial, CA 92251
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ADDENDUM 1

REFLECTED CEILING PLAN - EXISTING BUILDING

A10.02

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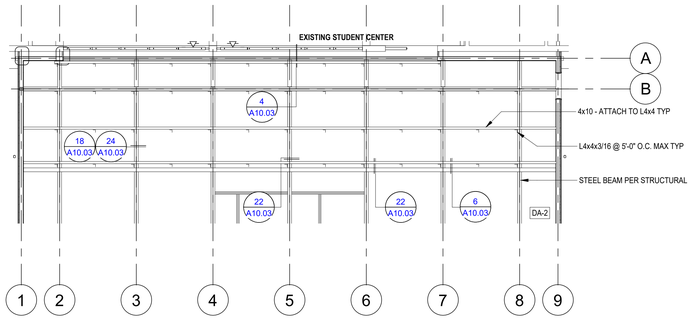
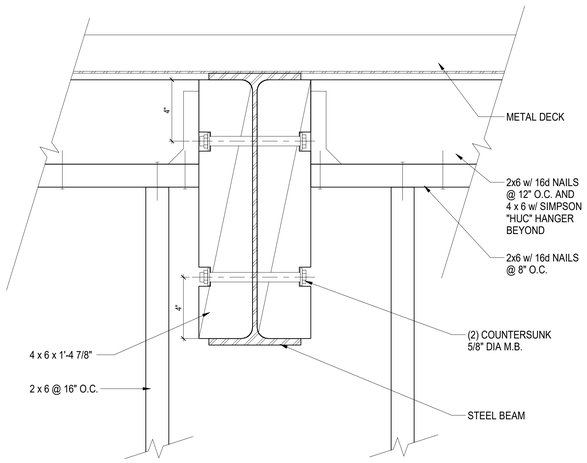
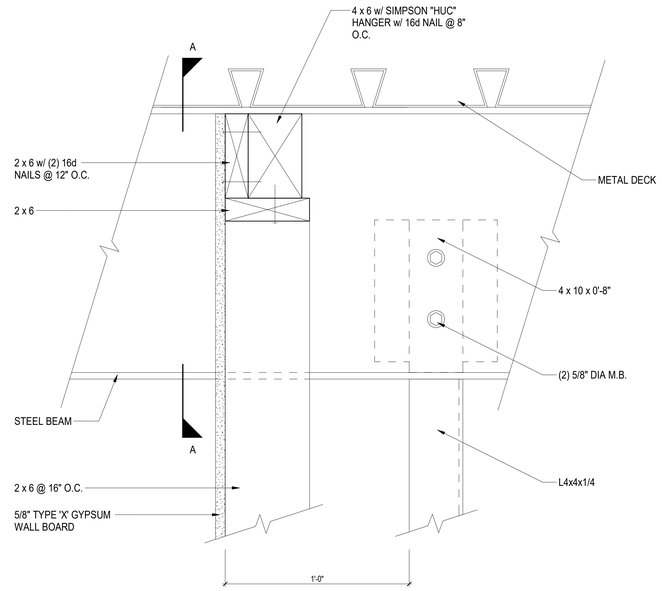
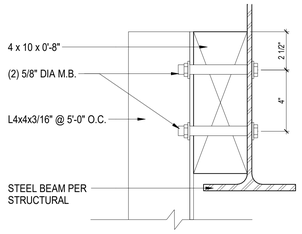


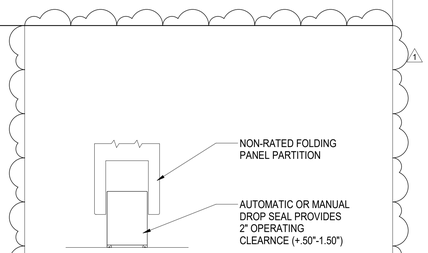
30 DROPPED CEILING FRAMING PLAN
1/8" = 1'-0"



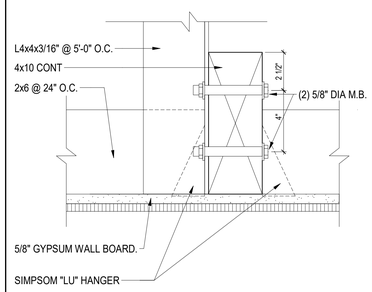
SECTION A-A



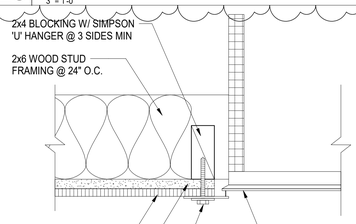




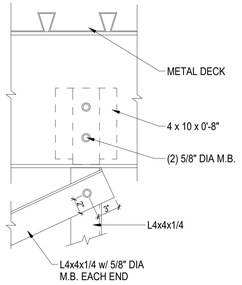
24 FRAMING @ BEAM
3" = 1'-0"

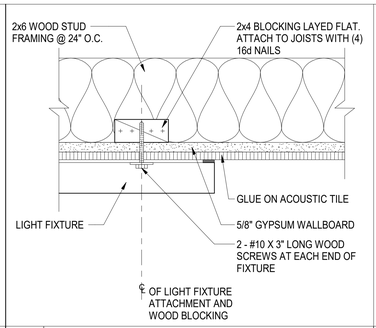


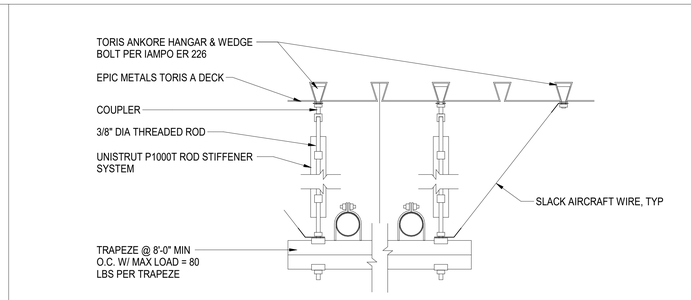
23 FOLDING PANEL PARTITION THRESHOLD
3" = 1'-0"



22 WALL FRAMING @ BEAM
3" = 1'-0"







18 FRAMING @ CEILING
3" = 1'-0"

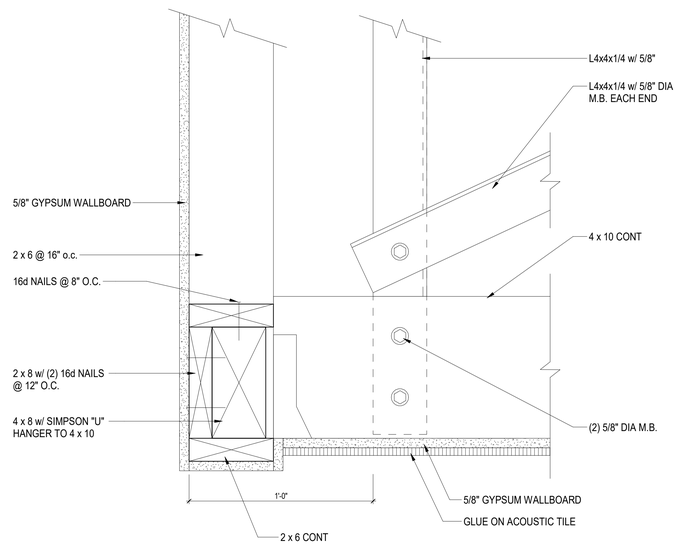
17 SOFFIT FRAMING @ DUCT
3" = 1'-0"

16 BRACE SUPPORT
1 1/2" = 1'-0"

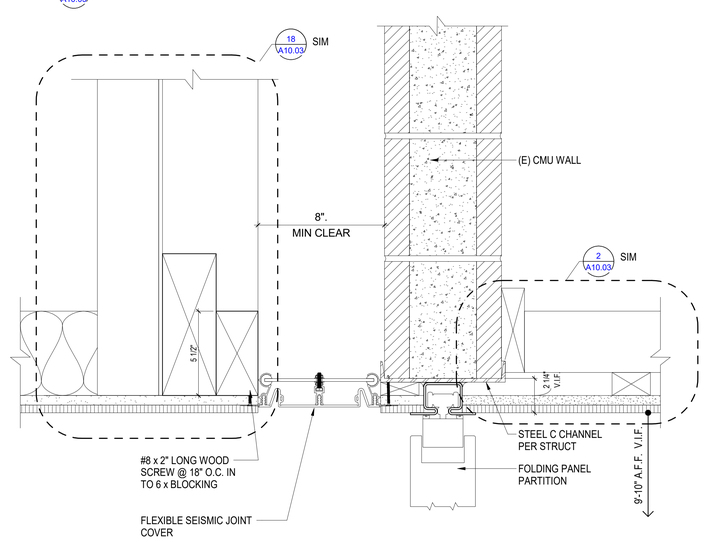
15 SOFFIT FRAMING @ LIGHT FIXTURE
3" = 1'-0"

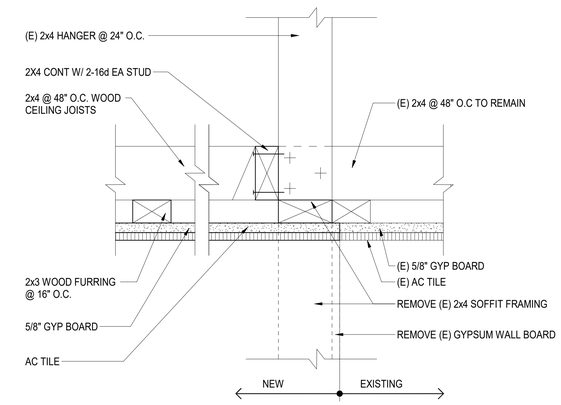
14 PIPE SUPPORT
1 1/2" = 1'-0"

NOTE:
SEE DETAIL 16 A10.03 22 A10.03 FOR TOP CONNECTION



NOTE:
SEE DETAIL 24 A10.03 FOR TOP CONNECTION





6 INTERIOR SOFFIT FRAMING
3" = 1'-0"

4 INT CEILING SEISMIC JOINT COVER
3" = 1'-0"

2 INT CEILING AT EXISTING
3" = 1'-0"

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DSA FILE NO. 37-C2 A# 04-119030

PBK
ARCHITECTURE

IVC - B600 COLLEGE CENTER EXPANSION PROJECT
380 E Aten Rd.
Imperial, CA 92251
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CLIENT
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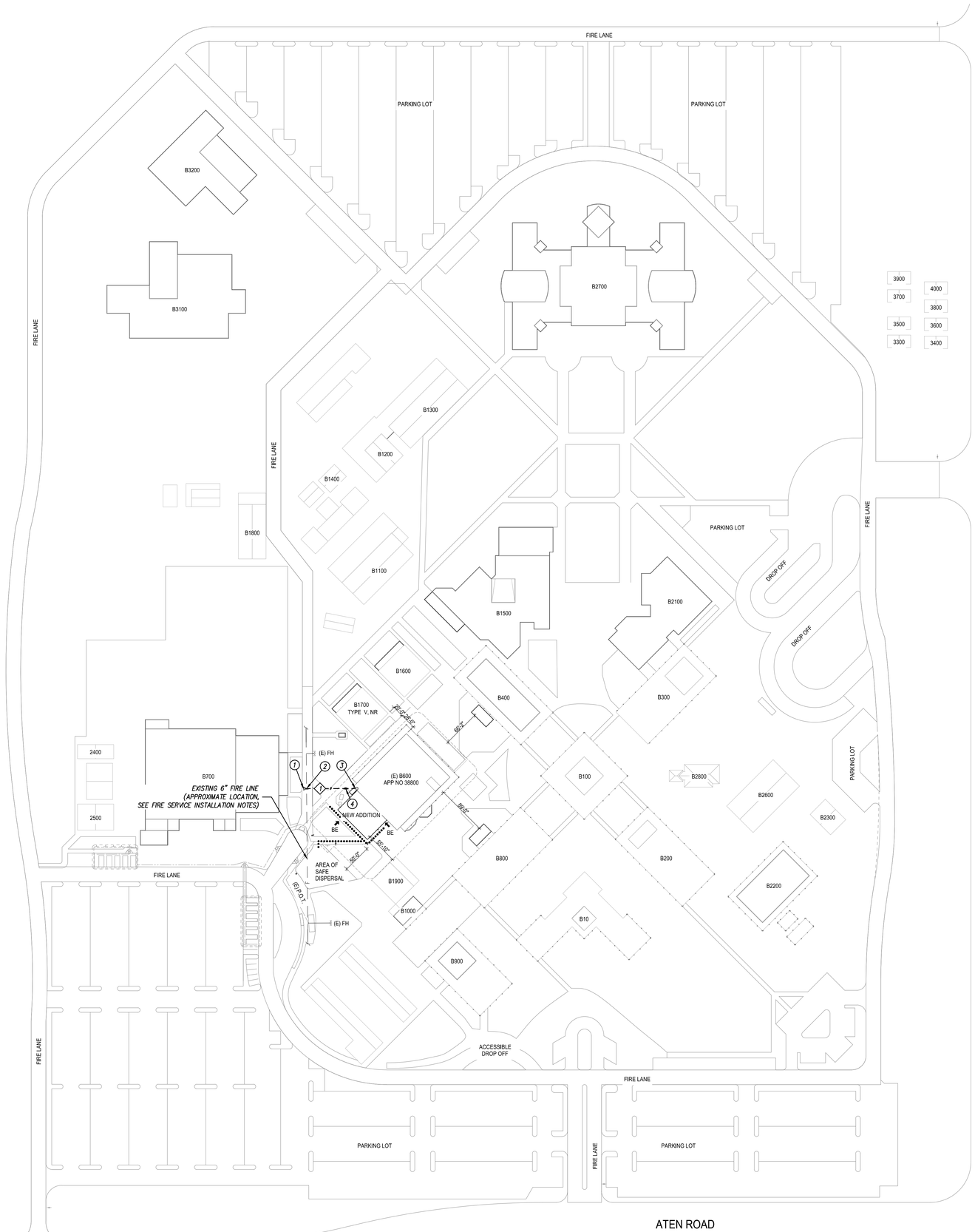
ADDENDUM 1

CEILING DETAILS

A10.03



1 FIRE LINE SITE PLAN
1" = 80'-0"

WATER DATA TABLE			
NO	BEARING	LENGTH	NOTE
1	N 90°00'00" E	84.28'	6" CL 150 PVC

CONSTRUCTION NOTES

1. THRUST BLOCK PER COUNTY OF IMPERIAL STANDARD DWG GATEWAY-100 & 105
2. 6" FIRE SERVICE INSTALLATION PER COUNTY OF IMPERIAL STANDARD DWG GATEWAY-150
3. FIRE CONNECTION PER FIRE SPRINKLER DETAILS | SHEET FP6.01
4. FIRE DEPARTMENT CONNECTION (FDC) & POST-INDICATOR VALVE (PIV) PER DETAIL 1

THRUST BLOCK CALCULATIONS PER NFPA

Step 1. Calculate Thrust Force Acting on Bend (either Horizontal or Veritcal for pressure pipe)

P =	120	psi							
d =	6.63	in	*outside diameter*						
ɵ =	90	degree							
Sb =	2000	psf	*assuming Soft Clay (or replace per Geotech Report)*						
A	**34.47**	**in^2 (based on outside diameter)**							
T =	2PAsin(ɵ/2)								
T =	**5850.03**	**lbf**							
Components of T are =			**Tx =**	**4136.59**	**lbf**				
			Ty =	**4136.59**	**lbf**				

Step 2. Determination of Block Area at Bend

Then, for a horizontal bend, the following formula is used:

$$b = \frac{2(S_f)(P)(A)\sin\frac{\theta}{2}}{(h)(S_b)}$$

Equation A.10.6.1b
2016 NFPA 24

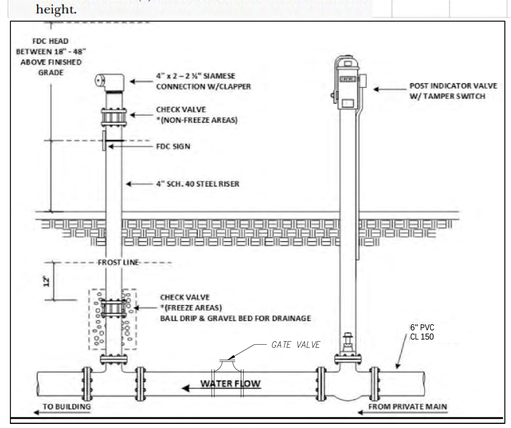
where:
b = calculated block width (ft)
S_f = safety factor (usually 1.5 for thrust block design)
P = water pressure (lb/in.^{2})
A = cross-sectional area of the pipe based on outside diameter
h = block height (ft)
S_b = horizontal bearing strength of the soil (lb/ft^2) (in.^{2})

	Sf =	1.5			
	P =	250	**psi**		
	d =	6.63	**in**	*outside diameter*	
	ɵ =	90	**degree**		
	Sb =	2000	**psf**	*assuming Soft Clay (or replace per Geotech Repor*	
vary this value ----->	h =	2.17	ft	*Pick a reasonable Value (see criteria below)*	
	b =	4.2123	**ft**	*Dimension Check*	
	b_{actual} =	4.25	**ft**	*check if (4) below is satisfied...*	OK
	H_{total} =	4.3610417	**ft**	*check if (3) below is satisfied*	
				based on 3 ft cover to top of pipe...	OK

Find Dimensions of Thrust Block
x (plan view offset from CL of water pipe)
y (depth of thrust block projecting below and above CL of water pipe)

x =	1.085	**ft**	***Area of Thrust Block***	
y =	1.085	**ft**	**Area = b*h**	**Actual area**
			9.140667607 **sf**	9.22 **sf**

(3) Block height (h) should be equal to or less than one-half the total depth to the bottom of the block (H_t) but not less than the pipe diameter (D).
(4) Block height (h) should be chosen such that the calculated block width (b) varies between one and two times the height.



DETAIL 1
NTS

FIRE SERVICE INSTALLATION NOTES

1. CONTRACTOR SHALL POTHOLE ALONG PROPOSED FIRE LINE TO VERIFY LOCATION OF EXISTING UTILITIES BEFORE FIRE SERVICE INSTALLATION.
2. DEPTH OF COVER FOR ALL UNDERGROUND PIPING SHALL BE, IN ACCORDANCE WITH NFPA 24 SECTION 10.4, 3 FEET MIN.
3. UNDERGROUND FITTING SHALL BE CL 305 (DR-14) IN ACCORDANCE WITH NFPA 24, SECTION 10.2

0 40 80 160 240
(IN FEET)
1 inch = 80 ft.

PROJECT NORTH TRUE NORTH

DSA FILE NO. 13-C1 A# 04-119487

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ADDENDUM 1

FIRE LINE SITE PLAN

C0.01

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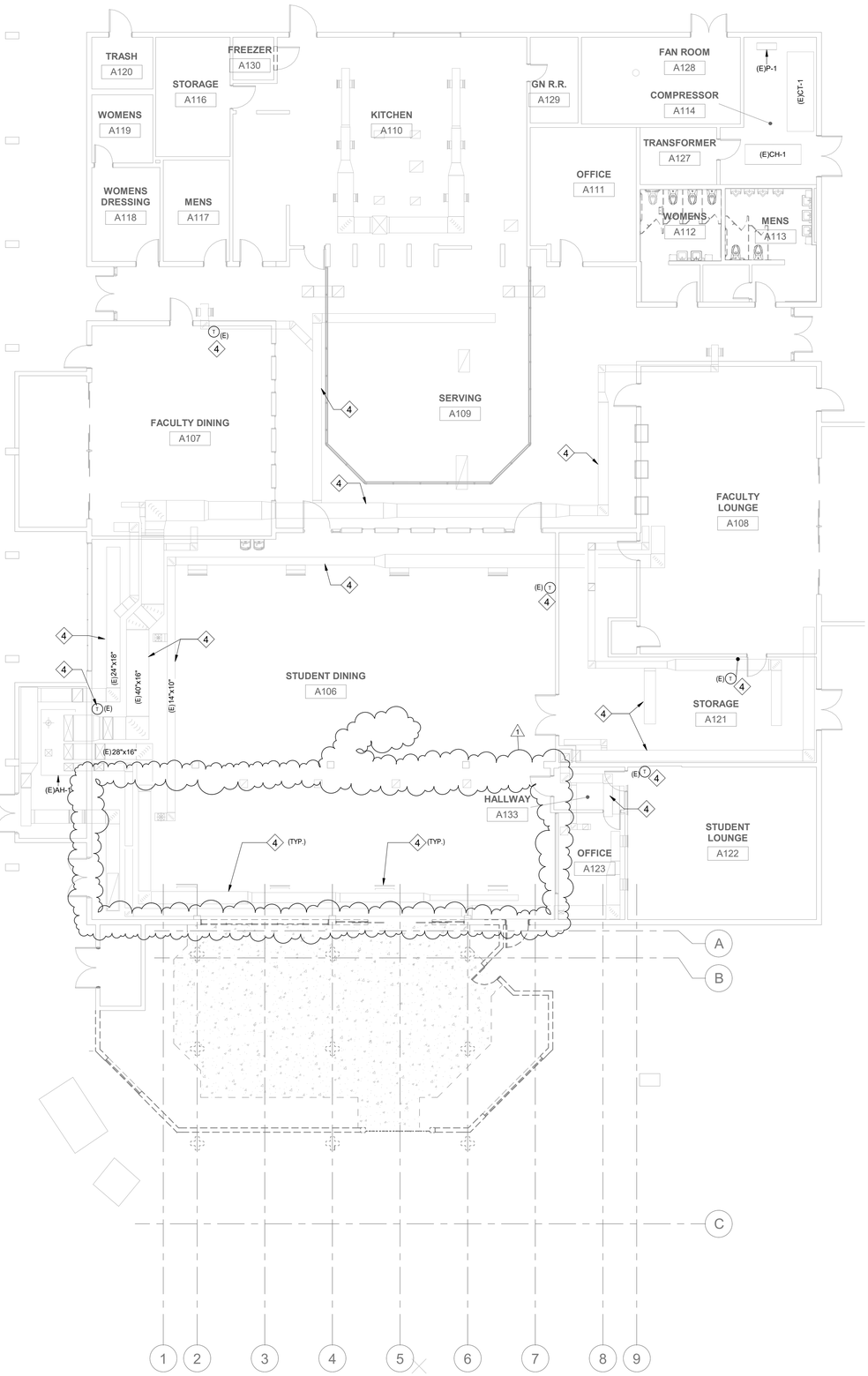
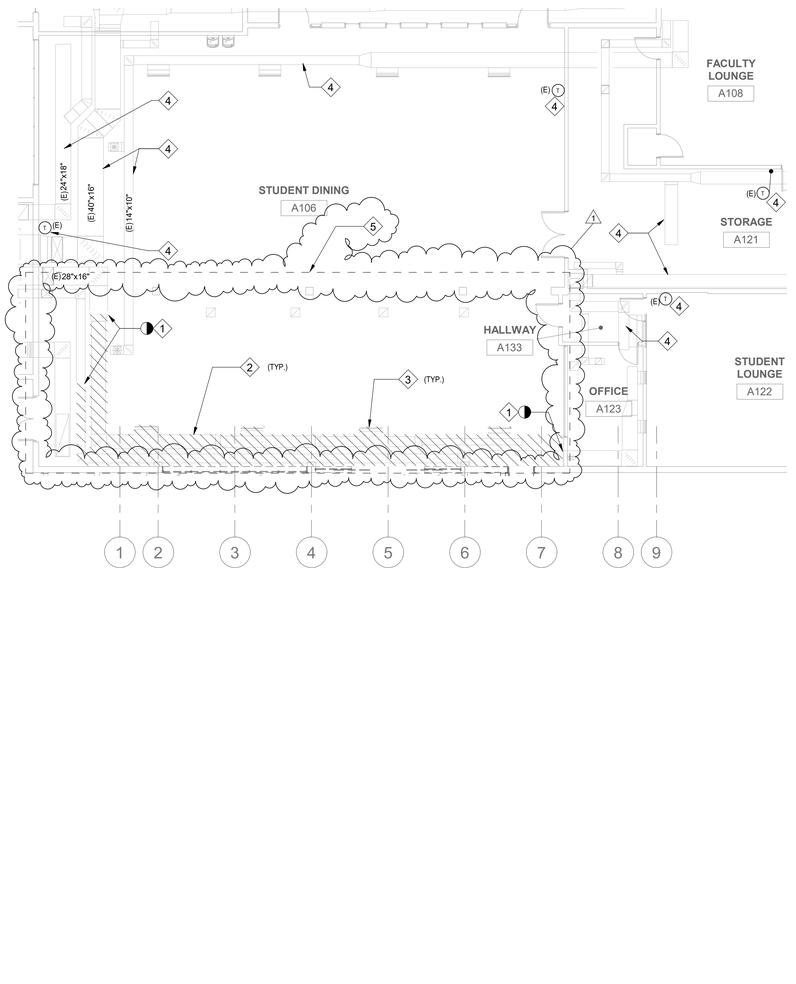
3/29/2021 9:26:32 AM



1 MECHANICAL DEMOLITION FLOOR PLAN
1/8" = 1'-0"



2 MECHANICAL DEMOLITION FLOOR PLAN (BID ALT 2)
1/8" = 1'-0"

PROJECT NORTH

DEMOLITION KEY NOTES:

1. DISCONNECT EXISTING DUCT AT POINT OF DISCONNECTION, AS SHOWN.
2. EXISTING SUPPLY AIR DUCT TO BE REMOVED WTH ALL DAMPERS, ACCESSORIES, ETC.
3. EXISTING SUPPLY AIR SIDEWALL GRILLE TO BE REMOVED WITH ALL DAMPERS, ACCESSORIES, ETC.
4. EXISTING DUCTWORK T'STAT, ETC. TO REMAIN.
5. CONTRACTOR SHALL PROVIDE BID ALT 2 TO INCLUDE REMOVING (DEMOLISHING) EXISTING DUCTWORK, GRILLES, ACCESSORIES, ETC. AS SHOWN. REFER TO MECHANICAL DEMOLITION FLOOR PLAN (BID ALT 2) #2 THIS SHEET.

BID ALT 1:
DELETE DROPPED CEILING IN NEW DINING HALL.

BID ALT 2:
DELETE ENLARGEMENT OF EXISING OPENINGS.
* INCLUDES DEMO OF EXISTING CEILING, MECHANICAL DUCTS AND SAWCUT OF (E) CMU WALL.
* INCLUDES CEILING PATCH, NEW DUCTS ON ROOF AND STRUCTURE SUPPORT.

DSA FILE NO. 37-C2 A# 04-119030

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IMPERIAL VALLEY COLLEGE

PROJECT NUMBER
20190

DATE:	12/08/2020
DRAWN BY:	MD
CHECKED BY:	RW

REVISIONS

No.	Description	Date
1	ADDENDUM 1	03/31/2021

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MECHANICAL DEMOLITION FLOOR PLANS

MD2.01

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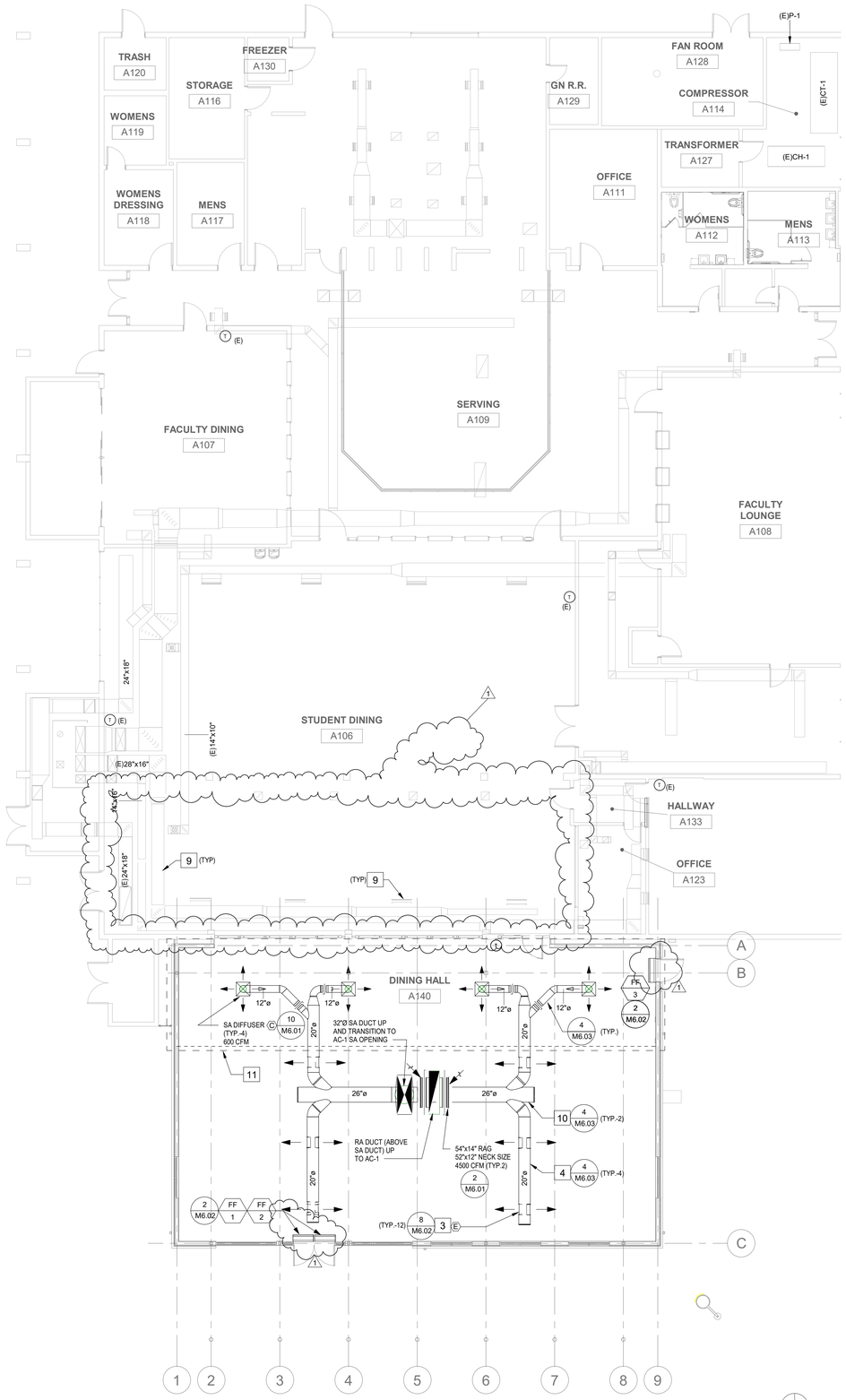
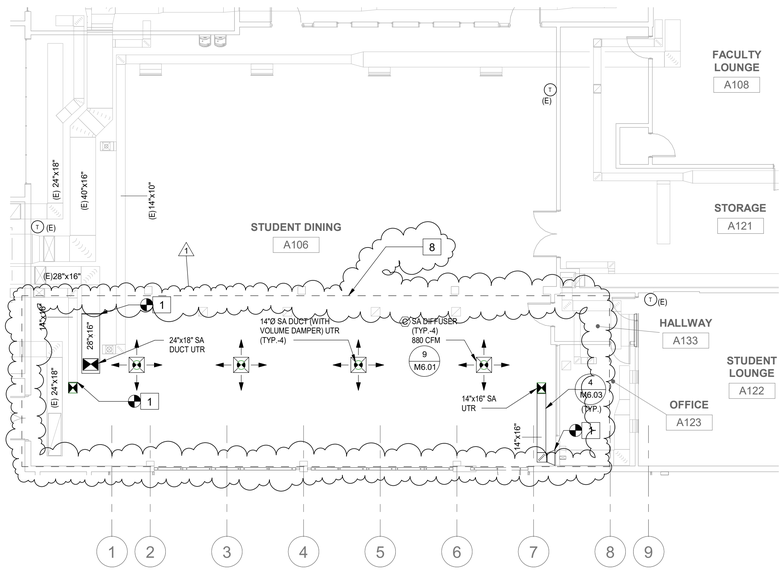
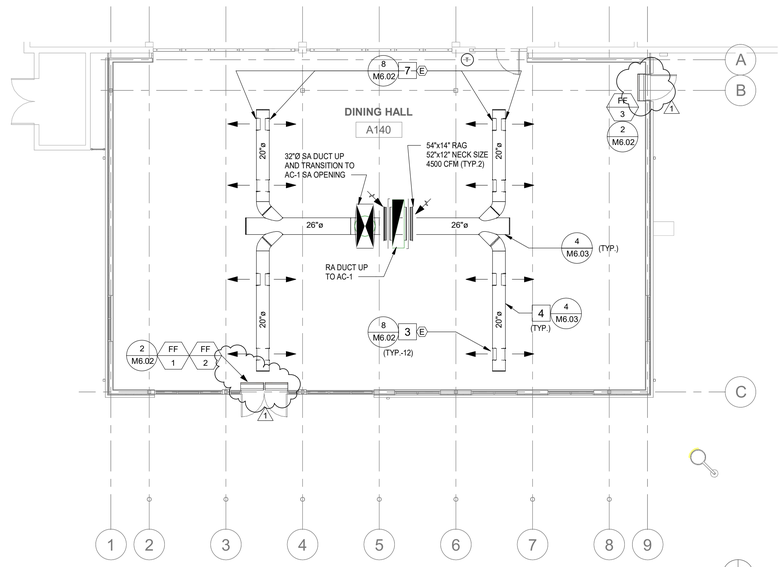


1 MECHANICAL FLOOR PLAN
1/8" = 1'-0"



3 MECHANICAL FLOOR PLAN (BID ALT 2)
1/8" = 1'-0"



2 MECHANICAL FLOOR PLAN (BID ALT 1)
1/8" = 1'-0"

KEY NOTES:

1. CONNECT EXISTING DUCT TO NEW DUCT AT POINT OF CONNECTION, AS SHOWN.
2. 28"x20" RA SIDEWALL GRILLE, 3300 CFM. BOTTOM OF GRILLE = 13'-3".
3. 18"x10" SA SPIRAL DUCT MOUNTED GRILLE WITH AIR SCOOP DAMPER (ASD), 550 CFM.
4. EXPOSED SA DUCT, BOTTOM OF DUCT = 11'-0".
5. 30"x30" SA DUCT UTR, SEE ROOF PLAN M3.01 FOR CONTINUATION.
6. 14"Ø RA DUCT UTR (WITH VOLUME DAMPER).
7. 18"x12" SA SPIRAL DUCT MOUNTED GRILLE WITH AIR SCOOP DAMPER (ASD), 600 CFM.
8. CONTRACTOR SHALL PROVIDE BID ALT 2 TO INCLUDE ADDING NEW DUCTWORK, DIFFUSERS, ACCESSORIES, ETC. AS SHOWN. REFER TO MECHANICAL FLOOR PLAN (BID ALT 2) #3 THIS SHEET.
9. (E) DUCTWORK, AIR DISTRIBUTION, ACCESSORIES, ETC. TO REMAIN.
10. EXPOSED SA DUCT, BOTTOM OF DUCT = 10'-9".
11. CONTRACTOR SHALL PROVIDE BID ALT 1 TO INCLUDE REMOVING DROP CEILING WITH ALL ASSOCIATED DIFFUSERS, DUCTWORK, ACCESSORIES, ETC. AND ADDING NEW DUCTWORK, GRILLES, ACCESSORIES, ETC. AS SHOWN. REFER TO MECHANICAL FLOOR PLAN (BID ALT 1) #2 THIS SHEET.

BID ALT 1:
DELETE DROPPED CEILING IN NEW DINING HALL.

BID ALT 2:
DELETE ENLARGEMENT OF EXISING OPENINGS.
* INCLUDES DEMO OF EXISTING CEILING, MECHANICAL DUCTS AND SAWCUT OF (E) CMU WALL.
* INCLUDES CEILING PATCH, NEW DUCTS ON ROOF AND STRUCTURE SUPPORT.

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MECHANICAL FLOOR PLANS

M2.01

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PACKAGED AIR CONDITIONING UNIT SCHEDULE

UNIT	MANUFACTURER & MODEL NO.	CFM	TONNAGE	ESP (IN. WG)	COOLING CAP (MBH)		EVAP. ENT. AIR TEMP. (°F)		EVAP. LEAV. AIR TEMP. (°F)		ENT. COND. TEMP. (°F)			EER IEER/SEER	HEATING CAPACITIES			AFUE (%)	INDOOR FAN				COMPRESSOR		POWER EXHAUST								ELECTRICAL										FILTERS (IN.) 30% EFF.	OPER. WT. (LBS)	OSA CFM	REMARKS
					TOTAL	SENS.	DB	WB	DB	WB	SUMMER DB	SUMMER WB	WINTER DB		STAGES	INPUT (MBH)	OUTPUT (MBH)		NO.	RPM	HP/ BHP	DRIVE	NO.	RLA	PART #	CFM	HP	FLA	MCA	MOCP	V	PHASE	HZ	OPER. WT. (LBS)	OFM NO.	OFM (FLA)	IFM (FLA)	COMBUSTION, BLOWER MOTOR (FLA)	V	PHASE	HZ	UNIT MCA	UNIT MCOP				
AC 1	TRANE YHD300	9,000	25	0.75	259.38	206.62	80.0	67.0	58.74	57.75	111.0	73.0	35.0	10.6 15.0	2	250.0/ 175.0	200.0/ 140.0	80.0	1	773	7.5/ 5.65	BELT	3	19.6 19.6 36.63	6114	9,000	5.0	13.4	16.75	30.5	208	3	60	736	2	4.8 EACH	24.2	0.8	208	3	60	119.0	150.0	(8) 20"x20"x2" (4) 20"x16"x2"	3,005	1,500	

NOTES:

1. SCHEDULED LOADS INCLUDE FAN AND MOTOR HEAT.
2. PROVIDE ANTI-RECYCLE TIMER, CRANKCASE HEATER, LOW AMBIENT KIT AND HIGH CAPACITY FILTER RACK.
3. PROVIDE FACTORY "MICROMETL" MODULATING ECONOMIZER WITH POWER EXHAUST. AC UNIT SHALL HAVE C02 CONTROL. PROVIDE WITH LOCKING MESH COVER. POWER EXHAUST SHALL BE PROVIDED WITH A SEAPARTE DISCONNECT SWITCH, FIELD WIRED BY ELECTRICAL.
4. PROVIDE 14" HIGH FACTORY PITCHED ISOLATOR CURBS.
5. BYPASS UNIT ANTI-RECYCLE TIMER WHEN ANTI-RECYCLE FUNCTION IS INCLUDED IN THE THERMOSTAT.
6. OVERALL SMOKE DETECTION SYSTEM PROVIDED BY ELECTRICAL FOR ALL UNITS TO SHUT-OFF UPON DETECTION OF SMOKE AND SIGNAL THE FIRE ALARM SYSTEM, INSTALL IN STRICT ACCORDANCE WITH THE 2019 CALIFORNIA MECHANICAL CODE, SECTION 608. REFER TO ELECTRICAL PLANS AND MECHANICAL TO CONNECT TO ELECTRICAL RELAY. PRIOR TO MECHANICAL PERMIT FINAL, A SMOKE DETECTOR SYSTEM SHUT-OFF TEST WILL BE REQUIRED.
7. PROVIDE WITH FACTORY MOUNTED NON-FUSED DISCONNECT SWITCH.
8. PROVIDE FACTORY CONDENSER COIL GUARDS.
9. PROVIDE T-24 COMPLAINT WiFi PROGRAMMABLE THERMOSTAT, PELICAN MODEL TS200 OR TS250 WITH C02 CONTROL.
10. HORIZONTAL DISCHARGE DUCT CONNECTIONS TO UNIT SHALL BE PROVIDED WITH DUCT FLEX CONNECTIONS.
11. DOWN DISCHARGE UNITS SHALL HAVE DUCT FLEX CONNECTIONS INSTALLED WITHIN ROOF CURB.
12. ALL AC UNITS SHALL HAVE R-410A REFRIGERANT.
13. PROVIDE FLUE EXTENSION UP TO TOP OF UNIT.
14. PROVIDE WITH FACTORY MOUNTED NON-POWERED CONVENIENT OUTLET.
15. OPERATING WEIGHT SHOWN DOES NOT INCLUDE WEIGHT OF VIBRATION ISOLATION ROOF CURB.

FLY FAN SCHEDULE

UNIT	MANUFACTURER & MODEL NO.	SERVICE	CFM	MAX. CORE VELOCITY (FPM)	MOTOR HP	MOTOR FLA	MOTOR VOLT	MOTOR PH	MOTOR HZ	OPER WT. (LBS)	REMARKS
FF 1	MARS STD236	DINING HALL A105	1,379	5960	1/2	5.1	115	1	60	60	MOUNT ON BEAM ABOVE WINDOW PANELS, MAX. 10'-0" ABOVE FINISHED FLOOR.
FF 2	MARS STD236	DINING HALL A105	1,379	5960	1/2	5.1	115	1	60	60	MOUNT ON BEAM ABOVE WINDOW PANELS, MAX. 10'-0" ABOVE FINISHED FLOOR.
FF 3	MARS STD242	DINING HALL A105	1,418	4865	1/2	5.1	115	1	60	65	MOUNT ABOVE DOOR AT , MAX. 10'-0" ABOVE FINISHED FLOOR.

NOTES:
1. PROVIDE WITH DOOR MICROSWITCH.
2. PROVIDE FACTORY MOUNTING BRACKET ASSEMBLY.

AIR DISTRIBUTION SCHEDULE

SYMBOL	TYPE	MAKE & MODEL	DESCRIPTION
Ⓐ	CEILING SUPPLY	TITUS MODEL MCD-3	MODULAR CORE DIFFUSER WITH FRAME FOR LAY-IN T-BAR CEILING, FLUSH FACE MOUNTING.
Ⓑ	CEILING RETURN	TITUS MODEL PAR-3	PERFORATED FACE DIFFUSER WITH FRAME FOR LAY-IN T-BAR CEILING, FLUSH FACE MOUNTING.
Ⓒ	CEILING SUPPLY	TITUS MODEL MCD-1	MODULAR CORE DIFFUSER WITH RAPID-MOUNT FRAME MODEL TRM FOR SURFACE MOUNTING.
Ⓓ	CEILING RETURN/EXHAUST	TITUS MODEL 50F	EGG CRATE GRILLE DIFFUSER WITH RAPID-MOUNT FRAME MODEL TRM FOR SURFACE MOUNTING.
Ⓔ	SPIRAL DUCT MOUNTED SUPPLY	TITUS MODEL S300FS	DOUBLE DEFLECTION SUPPLY GRILLE MOUNTED AT 30° ANGLE WITH RADIUS END CAP, 3/4" SPACING WITH FRONT BLADES PARALLEL TO SHORT DIMENSION, AND AIR SCOOP DAMPER.
Ⓕ	SIDEWALL RETURN	TITUS MODEL 1700	DOUBLE DEFLECTION HORIZONTAL 5° DOWN FRONT GRILLE WITH 1/2" BLADE SPACING, FRAME FOR WALL MOUNTING.

NOTES:
1. EQUIVALENT MODELS OF KRUEGER, ANEMOSTAT, PRICE OR J&J ARE ACCEPTABLE.
2. REFER TO THE FLOOR PLANS FOR NECK SIZE, CFM, AIR DIFFUSION PATTERN AND FIRE/DAMPER, IF REQUIRED.
3. PROVIDE AIR CONTROL GRID FOR ALL CEILING SUPPLY DIFFUSERS SET AT 90°.
4. INTERIOR OF ALL GRILLES SHALL BE PAINTED FLAT BLACK.

DUCT CONSTRUCTION STANDARDS

DIMENSION OF LONGEST SIDE, INCHES	SHEET METAL GAGE (ALL FOUR SIDES)	MINIMUM REINFORCING ANGLE SIZE AND MAXIMUM LONGITUDINAL SPACING BETWEEN TRANSVERSE JOINTS &/OR INTERMEDIATE REINFORCING	TRANSVERSE REINFORCING (1) AT JOINTS: MIN. HT. IN.	DRIVE SLIP / PLAIN S SLIP RECOM-MENDED GAGE	HEMMED S SLIP RECOM-MENDED GAGE	ALTER'NT BAR SLIP RECOM-MENDED GAGE	REINFORCED BAR SLIP RECOM-MENDED GAGE
UP THRU 12	26	NONE REQUIRED	1	26	26	24	24
13 - 18	24	NONE REQUIRED	1	24	24	24	24
19 - 30	24	1" X 1" X 1/8" @ 60 IN.	1		24	24	24
31 - 42	22	1" X 1" X 1/8" @ 60 IN.	1			22	22
43 - 60	20	1" X 1" X 1/8" @ 60 IN.	1				20
61 & ABOVE	18	1" X 1" X 1/8" @ 60 IN.	1				18

(1) TRANSVERSE REINFORCING SIZE IS DETERMINED BY DIMENSION OF SIDE TO WHICH ANGLE IS APPLIED.

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MECHANICAL SCHEDULES

M5.01

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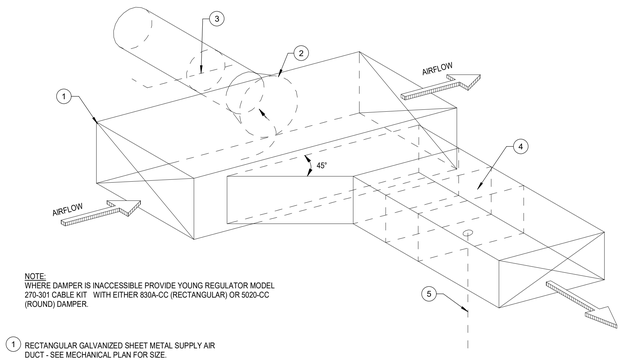
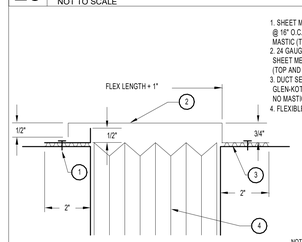


NOTE:
WHERE DAMPER IS INACCESSIBLE PROVIDE YOUNG REGULATOR MODEL 270-301 CABLE KIT WITH EITHER 830A-CC (RECTANGULAR) OR 5020-CC (ROUND) DAMPER.

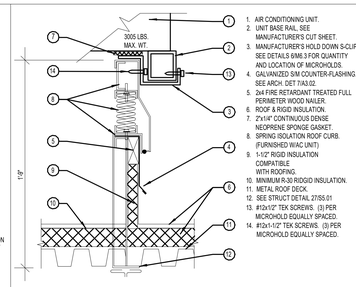
1. RECTANGULAR GALVANIZED SHEET METAL SUPPLY AIR DUCT - SEE MECHANICAL PLAN FOR SIZE.
2. CUT OPENING ACCURATELY FOR SPIN IN (FLARED) FITTING - WHERE POSSIBLE.
3. BUTTERFLY DAMPER W/ LOCKING QUAD. (TYP)
4. VOLUME CONTROL DAMPER WITH LOCKING QUADRANT.
5. DAMPER REGULATOR

20 BRANCH DUCT TAKE-OFF & DMP. DETAIL
NOT TO SCALE



1. SHEET METAL SCREWS @ 16" O.C. SET IN MASTIC (TYPICAL).
2. 24 GAUGE GALVANIZED SHEET METAL COVER (TOP AND SIDES).
3. DUCT SEAL: DURO-DYNE, GLEN-KOTE OR EQUIVALENT. NO MASTIC TO METAL SEAM.
4. FLEXIBLE DUCT CONNECTION.

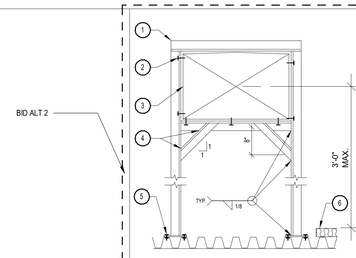
NOTE: TO BE INSTALLED ON ALL FLEXIBLE DUCT CONNECTIONS.



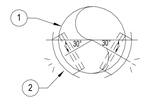
1. AIR CONDITIONING UNIT.
2. UNIT BASE RAIL, SEE MANUFACTURER'S CUT SHEET.
3. MANUFACTURER'S HOLD DOWN S-CLIP SEE DETAILS 6/M6.3 FOR QUANTITY AND LOCATION OF MICROHOLDS.
4. GALVANIZED S/M COUNTER-FLASHING. SEE ARCH. DET 7/A3.02
5. 2x4 FIRE RETARDANT TREATED FULL PERIMETER WOOD NAILER.
6. ROOF & RIGID INSULATION.
7. 2"x14" CONTINUOUS DENSE NEOPRENE SPONGE GASKET.
8. SPRING ISOLATION ROOF CURB. (FURNISHED W/AC UNIT)
9. 1-1/2" RIGID INSULATION COMPATIBLE WITH ROOFING.
10. MINIMUM R-30 RIDGID INSULATION.
11. METAL ROOF DECK.
12. SEE STRUCT DETAIL 27/S5.01
13. #12x1/2" TEK SCREWS. (3) PER MICROHOLD EQUALLY SPACED.
14. #12x1-1/2" TEK SCREWS. (3) PER MICROHOLD EQUALLY SPACED.

14 FLEX CONNECTOR
NOT TO SCALE

13 ROOF CURB DETAIL
NOT TO SCALE



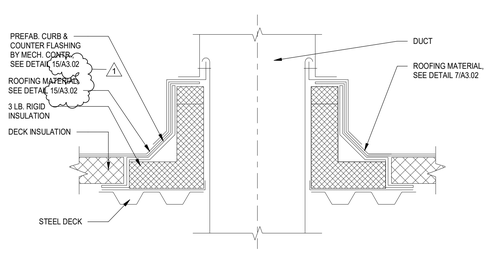
1. 2"X2"X16 GUAGE WELDED ANGLE IRON FRAME (3 SIDES), PAINT FLAT BLACK. (1) WITHIN 12" OF DUCT UNIT CONNECTION & EQUAL SPACING 5'-0" O.C.
2. #14 SM SCREWS @ EACH CORNER WITH EQUAL SPACING @ 8" O.C. SET IN SILICONE.
3. ACOUSTIC LINED GALV. S.M. DUCT, SEE MECH. PLAN FOR SIZE.
4. 2.5"x2.5"-16 GUAGE WELDED ANGLE IRON, PAINT FLAT BLACK.
5. 6"x6"x1/8" PLATE WELDED TO FRAME AND SCREWED TO DECK WITH (4) #10 S.M.S., SILICONE SEAL.
6. ROOFING, SEE ARCH. DETAIL 8/A3.02.



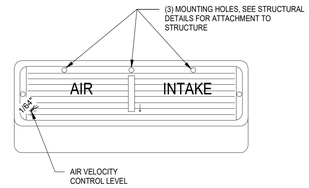
1. EXPOSED SPIRAL DUCT, SEE MECH. PLAN FOR SIZE.
2. SPIRAL DUCT MOUNTED GRILLE WITH AIR SCOOP DAMPER, SIZED PER PLANS

9 RECT. ROOF DUCT SUPPORT DETAIL
NOT TO SCALE

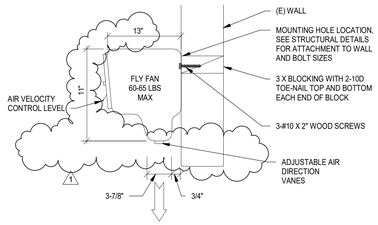
8 EXPOSED SPIRAL SIDEWALL GRILLE
NOT TO SCALE



4 DUCTWORK THROUGH ROOF CURB DETAIL
NOT TO SCALE



FRONT VIEW



SIDE VIEW

2 FLY FAN MOUNTING DETAIL
NOT TO SCALE

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DSA SUBMITTAL

MECHANICAL DETAILS

M6.02

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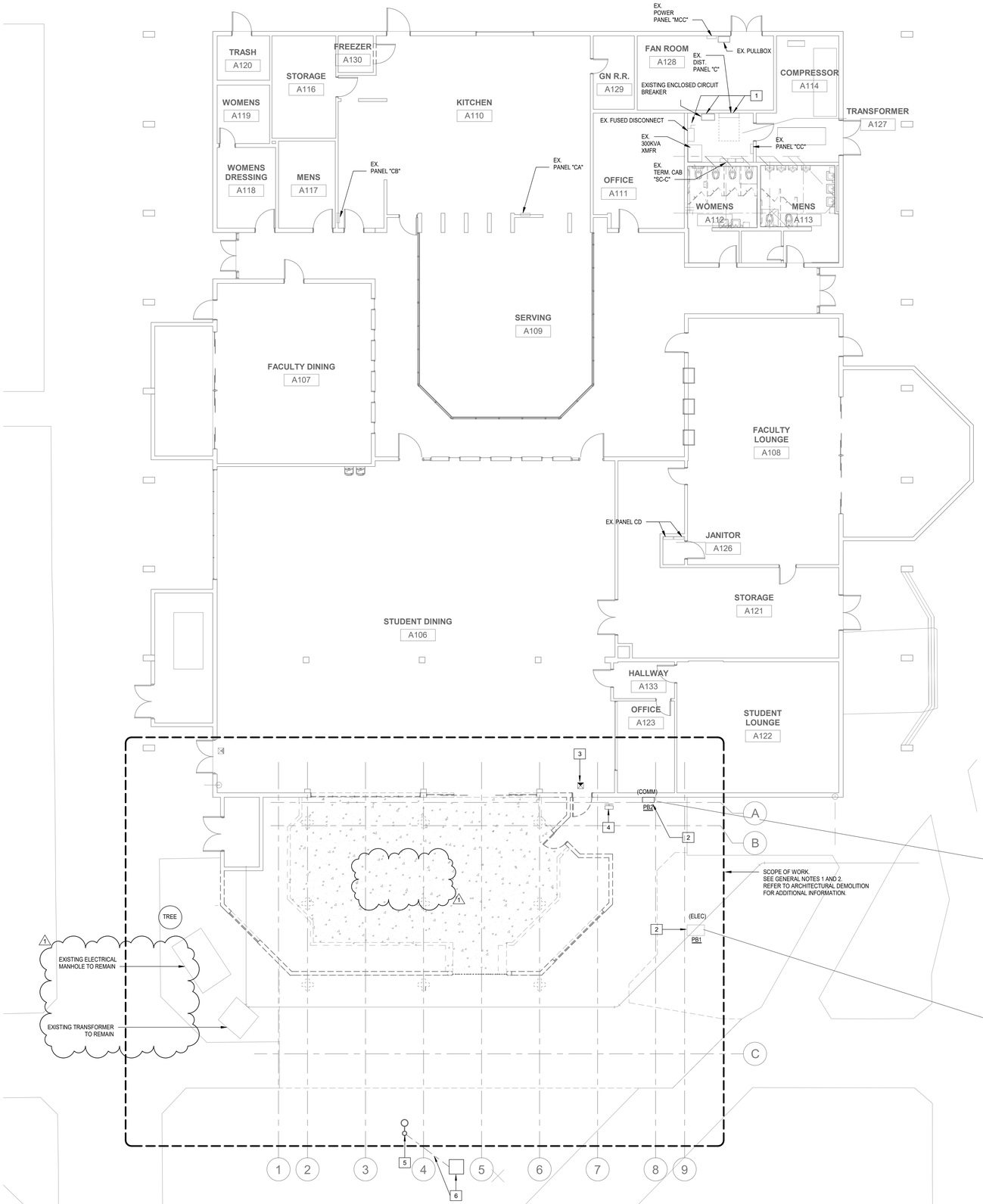

GENERAL NOTES:

1. ALL DEVICES AND ELECTRICAL EQUIPMENT IN EXISTING SPACES ARE EXISTING TO REMAIN UNLESS NOTED OTHERWISE.
2. FOR ALL WALLS THAT ARE SCHEDULED TO BE DEMOLISHED, DISCONNECT AND REMOVE DEVICES AND SWITCHES. CONTRACTOR SHALL TAKE WHATEVER STEPS NECESSARY TO MAINTAIN CIRCUIT CONTINUITY TO DOWNSTREAM DEVICES. COORDINATE WITH ARCHITECTURAL DEMOLITION FOR ACTUAL SCOPE OF WORK PRIOR TO ROUGH-IN.

KEY NOTES:

1. EXISTING ENCLOSED CIRCUIT BREAKER/FUSES AND DISTRIBUTION PANEL "C" TO BE REMOVED AND REPLACED WITH NEW. REFER TO ELECTRICAL PARTIAL RISER DIAGRAM ON SHEET E6.01 FOR ADDITIONAL REQUIREMENTS.
2. EXISTING ELECTRICAL AND COMMUNICATION PULLBOX AND CONDUIT SHALL BE RELOCATED. REFER TO ELECTRICAL SITE PLAN SHEET E1.01 FOR NEW LOCATION. REMOVE CONDUIT/WIRE/CABLING TO OUTSIDE EXTENTS OF BUILDING PAD FOR RECONNECTION. CONTRACTOR TO DOCUMENT EXISTING CONDITION PRIOR TO DEMOLITION, AND MATCH AS REQUIRED.
3. EXISTING EXIT SIGN TO BE DISCONNECTED AND REMOVED. CONTRACTOR TO MAINTAIN CIRCUIT CONTINUITY.
4. EXISTING WALLPACK FIXTURE TO BE DISCONNECTED. CONTRACTOR MAINTAIN CIRCUIT CONTINUITY.
5. EXISTING LIGHTING POLE AND LIGHT POLE BASE SHALL BE REMOVED.
6. PROVIDE NEW INGROUND PULLBOX TO INTERCEPT EXISTING LIGHTING CIRCUIT. CONTRACTOR SHALL SPLICE INCOMING FEEDER TO LIGHT POLE THROUGH PULLBOX IN ORDER TO MAINTAIN DOWNSTREAM CIRCUIT CONTINUITY. PROVIDE #10 WIRE IN 1" CONDUIT.

1 ELECTRICAL DEMOLITION POWER PLAN
1/8" = 1'-0"

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CHECKED BY: RDC

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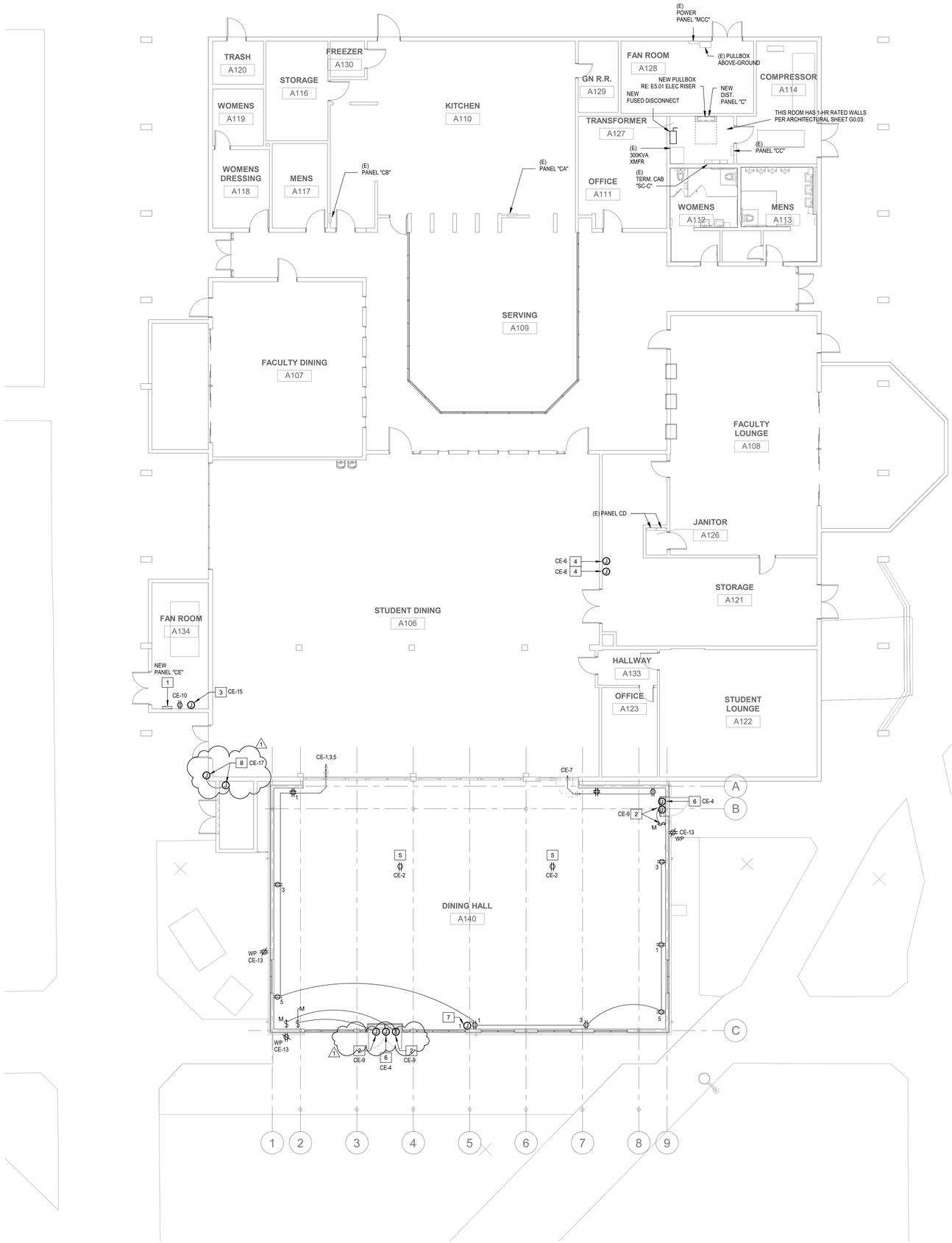
DSA SUBMITTAL

ELECTRICAL DEMOLITION POWER PLAN

ED2.01



PROJECT NORTH

GENERAL NOTES:

1. ALL DEVICES AND ELECTRICAL EQUIPMENT IN EXISTING SPACES ARE EXISTING TO REMAIN UNLESS NOTED OTHERWISE.
2. FOR ALL WALLS THAT ARE SCHEDULED TO BE DEMOLISHED, DISCONNECT AND REMOVE DEVICES AND SWITCHES. CONTRACTOR SHALL TAKE WHATEVER STEPS NECESSARY TO MAINTAIN CIRCUIT CONTINUITY TO DOWNSTREAM DEVICES. COORDINATE WITH ARCHITECTURAL DEMOLITION FOR ACTUAL SCOPE OF WORK PRIOR TO ROUGH-IN.
3. PROVIDE AND INSTALL ADDITIONAL CONDUITS AND BACKBOXES REQUIRED BY LOW VOLTAGE SYSTEMS. COORDINATE WITH "I" DRAWINGS, DETAILS, ETC FOR EXACT QUANTITIES, LOCATIONS AND REQUIREMENTS PRIOR TO ROUGH-IN. COORDINATE LOCATION OF POWER OUTLETS WITH DATA OUTLETS PRIOR TO INSTALLATION.
4. SEE ARCHITECTURAL FOR CONDUIT RUN AT STOREFRONT WINDOWS. REFERENCE DETAILS 6 AND 10 ON SHEET A9.03

KEY NOTES:

1. PROVIDE NEW PANEL 'CE' AND FEED FROM NEW MAIN DISTRIBUTION BOARD "C" LOCATED IN "TRANSFORMER" ROOM. SEE SHEET E5.01 FOR FEEDER SIZE.
2. POWER FOR FLY-FAN ABOVE DOOR. PROVIDE (1) LOCAL MOTOR RATED SWITCH ON WALL FOR EACH FAN TO SERVE AS LOCAL DISCONNECT. MOUNT SWITCH +96" ABOVE FINISHED FLOOR. PROVIDE LABEL "FLY-FAN" ABOVE SWITCH.
3. PROVIDE POWER TO BUILDING AUTOMATION SYSTEM CONTROL PANEL. VERIFY EXACT LOCATION WITH CONTROLS CONTRACTOR PRIOR TO INSTALLATION.
4. PROVIDE POWER FOR FIRE ALARM CONTROL PANEL/ POWER SUPPLY. PROVIDE BREAKER WITH LOCK-ON COVER LABELED "FIRE-ALARM". VERIFY EXACT LOCATION OF CONTROL PANEL/POWER SUPPLY WITH FIRE ALARM CONTRACTOR PRIOR TO INSTALLATION.
5. PROVIDE POWER FOR CEILING MOUNTED PROJECTOR. VERIFY EXACT LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.
6. PROVIDE POWER ABOVE DOOR FOR ACCESS CONTROL HARDWARE. REFER TO TECHNOLOGY FOR ADDITIONAL REQUIREMENTS. COORDINATE EXACT LOCATION WITH SECURITY CONTRACTOR PRIOR TO ROUGH-IN.
7. PROVIDE POWER TO WALL MOUNTED CLOCK VIA HARD WIRED CONNECTION THRU RECESSED MOUNTED JUNCTION BOX. MOUNT AT HEIGHT SHOWN ON 'TECHNOLOGY FLOOR PLAN' SHEET T2.01. CONNECT TO LOCAL RECEPTACLE CIRCUIT AS SHOWN.
8. PROVIDE 120V/20AMP POWER FOR FLOW SWITCH AND ELECTRIC BELL. CIRCUIT BREAKER SHALL HAVE LOCK-ON COVER WITH RED MARKING. REFER TO FIRE PROTECTION SHEETS FP0.03 AND 1/FP6.01 FOR EXACT LOCATIONS.

1 ELECTRICAL POWER PLAN
1/8" = 1'-0"

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IMPERIAL VALLEY COLLEGE - B600 EXPANSION

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REGISTERED PROFESSIONAL ENGINEER MATTHEW R. SIKORSKI E 20162 ELECTRICAL STATE OF CALIFORNIA
12/31/2022

ARCHITECT

CLIENT
IMPERIAL VALLEY COLLEGE

PROJECT NUMBER 20190
DATE: 12/08/2020
DRAWN BY: JJ
CHECKED BY: RDC
REVISIONS

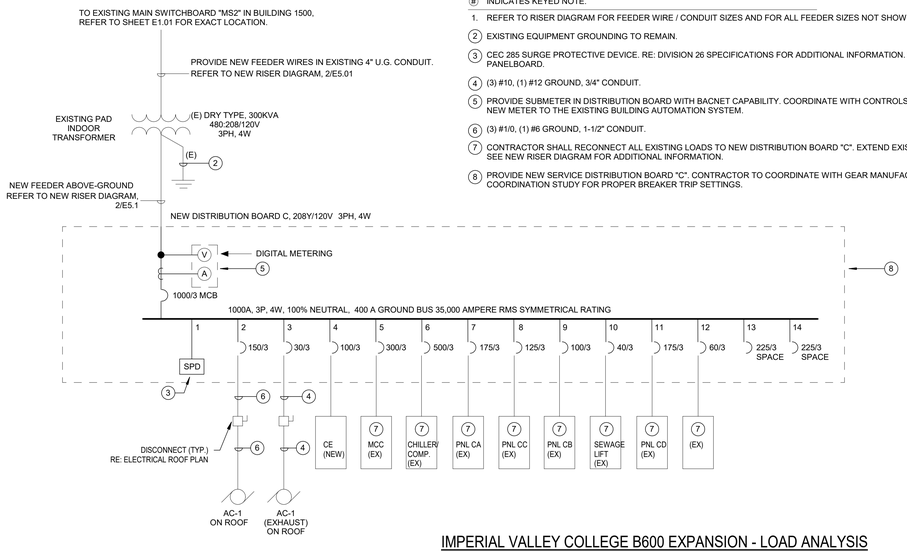
No.	Description	Date
1	ADDENDUM 1	2021-03-31

DSA SUBMITTAL

ELECTRICAL POWER PLAN

E2.01

ONE-LINE DIAGRAM (NEW)



ELECTRICAL ONE-LINE DIAGRAM NOTES:

#. INDICATES GENERAL NOTE.
(#) INDICATES KEYED NOTE.

1. REFER TO RISER DIAGRAM FOR FEEDER WIRE / CONDUIT SIZES AND FOR ALL FEEDER SIZES NOT SHOWN ON THIS ONE-LINE DIAGRAM.
2. EXISTING EQUIPMENT GROUNDING TO REMAIN.
3. CEC 285 SURGE PROTECTIVE DEVICE. RE: DIVISION 26 SPECIFICATIONS FOR ADDITIONAL INFORMATION. SPD TO BE INTEGRAL TO PANELBOARD.
4. (3) #10, (1) #12 GROUND, 3/4" CONDUIT.
5. PROVIDE SUBMETER IN DISTRIBUTION BOARD WITH BACNET CAPABILITY. COORDINATE WITH CONTROLS CONTRACTOR TO CONNECT NEW METER TO THE EXISTING BUILDING AUTOMATION SYSTEM.
6. (3) #1/0, (1) #6 GROUND, 1-1/2" CONDUIT.
7. CONTRACTOR SHALL RECONNECT ALL EXISTING LOADS TO NEW DISTRIBUTION BOARD "C". EXTEND EXISTING CONDUIT AND WIRE. SEE NEW RISER DIAGRAM FOR ADDITIONAL INFORMATION.
8. PROVIDE NEW SERVICE DISTRIBUTION BOARD "C". CONTRACTOR TO COORDINATE WITH GEAR MANUFACTURER TO PERFORM COORDINATION STUDY FOR PROPER BREAKER TRIP SETTINGS.

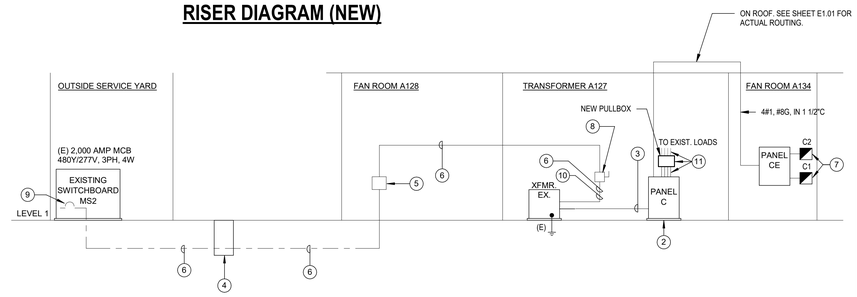
IMPERIAL VALLEY COLLEGE B600 EXPANSION - LOAD ANALYSIS

EXISTING SERVICE LOAD ON DISTRIBUTION BOARD "C":	785A @ 208V 3-PHASE (PER 1976 AS-BUILTS)
DEMOLISHED LOAD:	0A (NO LOAD DEMOLISHED)
NEW LOAD:	
HVAC	
AC-1	119A
AC-1 (EXHAUST)	16.75A
HVAC SUBTOTAL:	137.75A
NEW PANELBOARD "CE": (REFER TO SCHEDULE FOR NEC LOAD ANALYSIS)	34.9A
TOTAL NEW LOAD (HVAC + PANELBOARD "CE")	172.65A @208V 3-PHASE
TOTAL SERVICE LOAD (EXISTING LOAD + NEW LOAD):	957.65A
NEW DISTRIBUTION BOARD AMPACITY:	1000A
SPARE AMPACITY:	42.35A

NEW DISTRIBUTION IS SUFFICIENTLY SIZED FOR LOAD ADDED TO SERVICE.

3 ELECTRICAL ONE-LINE DIAGRAM & LOAD ANALYSIS
NOT TO SCALE

RISER DIAGRAM (NEW)



ELECTRICAL PARTIAL RISER DIAGRAM (NEW)

ELECTRICAL ONE-LINE DIAGRAM NOTES:

#. INDICATES GENERAL NOTE.
(#) INDICATES KEYED NOTE.

1. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION PRIOR TO ROUGH-IN. REFER TO DEMOLITION
2. CONTRACTOR SHALL PROVIDE NEW SERVICE DISTRIBUTION BOARD "C". SEE ONE-LINE DIAGRAM, 3/E5.01 FOR ADDITIONAL INFORMATION.
3. PROVIDE (3) SETS OF (4) #400, 1#2/0G, 3"C FROM EXISTING TRANSFORMER SECONDARY TO NEW DISTRIBUTION BOARD "C".
4. EXISTING UNDERGROUND PULLBOX TO REMAIN.
5. EXISTING ABOVE GROUND WALL MOUNTED PULLBOX TO REMAIN. CONTRACTOR SHALL RE-WORK PULLBOX TERMINALS AS NECESSARY TO ACCEPT THE (2) PARALLEL SETS OF NEW FEEDER WIRES.
6. PROVIDE (2) PARALLEL SET OF (3) #300, (1) #2 GROUND WIRE. CONTRACTOR SHALL ROUTE WIRE THROUGH EXISTING 4" CONDUIT AND EXISTING PULLBOXES. FIELD VERIFY ACTUAL CONDUIT ROUTING.
7. PROVIDE 4-POLE, NORMALLY OPEN CONTACTS, 20A, 120V COIL LIGHTING CONTACTOR FOR CONTROL OF NEW EXTERIOR LIGHTING. PROVIDE ASCO ACCESSORY 47 SOLID STATE TWO-WIRE CONTROL INTERFACE MODULE. PROVIDE PHOTOCELL ON ROOF. SEQUENCE MUST BE PHOTOCELL ON/ BAS OFF. SEE CONTACTOR CONTROL DIAGRAM ON SHEET E6.02. COORDINATE WITH CONTROLS CONTRACTOR FOR LOW VOLTAGE CONNECTION TO BUILDING ENERGY MANAGEMENT SYSTEM.
8. REPLACE THE EXISTING 400AF DISCONNECT WITH NEW 600A FRAME, AND WITH 450AMP CLASS RK5 FUSES. INCOMING TERMINALS SHALL BE CAPABLE TO ACCEPT (2) SETS OF #300KCMIL WIRES. SALVAGE AND RETURN FUSED DISCONNECT TOTHE OWNER.
9. REPLACE EXISTING 400A/3P BREAKER WITH NEW 100% RATED 450A/3P BREAKER POWERPACT L-FRAME WITH LI TRIP FUNCTION ELECTRONIC TRIP UNIT, CATALOG #LJA36600U31X IN EXISTING SWITCHBOARD. BREAKER SHALL MATCH EXISTING SCCR RATING OF SWITCHBOARD, 65kAIC AT 480V. CONTRACTOR TO DO TIME-DELAY SETTING COORDINATION.
10. PROVIDE NEW 4" CONDUIT FROM NEW FUSED DISCONNECT TO THE EXISTING TRANSFORMER. ROUTE WIRE NOTED ON KEYNOTE 6 THROUGH CONDUIT.
11. PROVIDE NEW PULLBOX, SIZED PER CEC. INSTALL ABOVE DISTRIBUTION BOARD TO INTERCEPT EXISTING BRANCH FEEDERS. DOCUMENT FEEDER SIZES PRIOR TO DEMOLITION. MATCH EXISTING CONDUIT/WIRE AND EXTEND FEEDERS FROM PULLBOX TO THE NEW BREAKERS IN DISTRIBUTION BOARD "C", AS SHOWN IN ELECTRICAL ONE-LINE DIAGRAM 3/E5.01.

2 PARTIAL ELECTRICAL RISER DIAGRAM - NEW
NOT TO SCALE

Job: Imperial Valley College - B600 Expansion — Job No: 20190

Mounting: **SURFACE** — Voltage: **208Y/120V-3PH 4W** — AIC Rating: **14000**
Main Type: **MLO** — Main Size: **100 AMPS** — Ground: **Equipment Ground**
Neutral: **100%** — Lugs: **SINGLE**

PANEL: **CE** — **ALL LOADS IN VA**

Ltg.	Recept	Motor	Heat	Cool	Other	Kitchen	S/S	Description	Amp/P	Wire	Ckt. No.	Ph	Ckt No.	Wire	Amp/P	Description	Ltg.	Recept	Motor	Heat	Cool	Other	Kitchen	S/S
	720						0.00	9 RECS - DINING HALL	20/3	12	1	A	2	12	20/1	2 PROJECTORS						600		0.00
	540						0.00				3	B	4	12	20/1	CARD READER						150		0.00
	360						0.00				5	C	6	12	20/1	7FA VOICE EVAC PNL						300		0.00
	540						0.00	3 RECS - DINING HALL	20/1	12	7	A	8	12	20/1	1FA POWER SUPPLY						300		0.00
		864					0.00	FLY FAN - FF1/FF2/FF3	20/1	12	9	B	10	12	20/1	1 REC - FAN ROOM		180						0.00
							1.00	SPARE	20/1		11	C	12	12	20/1	LTG - DINING HALL	712							0.00
	540						0.00	3 RECS - EXTERIOR	20/1	12	13	A	14	12	20/1	2 RECS - ROOFTOP		360						0.00
					1	360	0.00	1 FLY NETWORK	20/1	12	15	B	16	12	20/1	LTG - DINING HALL	1845							0.00
					1	1250	0.00	1FLOWSWITCH BELL	20/1	12	17	C	18	12	20/1	WALLPACK LTG	33							0.00
							1.00	SPARE	20/1		19	A	20	12	20/1	EXIT SIGNS	15							0.00
							1.00	SPARE	20/1		21	B	22	12	20/1	WALLPACK LTG	44							0.00
							1.00	SPARE	20/1		23	C	24			SPACE								0.00
							1.00	SPARE	20/1		25	A	26			SPACE								0.00
							1.00	SPARE	20/1		27	B	28			SPACE								0.00
							1.00	SPARE	20/1		29	C	30			SPACE								0.00
0	2700	864	0	0	1550	0	7.00	**TOTALS**								**TOTALS**	2649	540	0	0	0	1350	0	0.00

LOAD SUMMARY

Ltg.	Recept	Motor	Heat	Cool	Other	Kitchen	S/S	Description
2.6	3.2	0.9	0.0	0.0	2.9	0.0	7.0	Connected KVA
1.25	**	1.00	1.00	1.00	1.00	0.65	0.50	*Design Factors
3.3	3.2	0.9	0.0	0.0	2.9	0.0	3.5	Design KVA

*Input div. factor per descriptions as required for calculations.
**100% of 1st 10 KVA, 50% of remaining.

Phase Load	
Ph	KVA
A	3.1
B	3.9
C	2.7

Panel Remarks:
FED FROM PANEL C *PROVIDE BREAKER WITH LOCK-ON COVER / RED MARKING LABELED "FIRE-ALARM". PROVIDE LABEL AT FIRE ALARM CONTROL UNIT WITH LOCATION OF BREAKER (RM TAG,PNL NAME,CKT #).

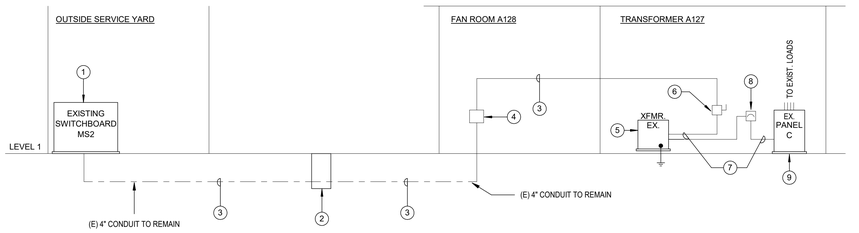
	Con. KVA	Con. Amps		Des. KVA	Des. Amps
TOTAL	16.7	46.2		13.8	38.3

PANEL: **CE**

Date: 4/20/2021 — By: RDC/JJ

4 SXL - CE
NOT TO SCALE

RISER DIAGRAM (DEMO PLAN)



ELECTRICAL DEMOLITION PARTIAL RISER DIAGRAM

ELECTRICAL ONE-LINE DIAGRAM KEY NOTES:

1. EXISTING MAIN SWITCHBOARD IN BUILDING 1500, TO REMAIN. EXISTING 400A/3P BREAKER FEEDING BUILDING 600 TO BE REPLACED. SEE NEW RISER DIAGRAM, 2/E5.01.
2. EXISTING UNDERGROUND PULLBOX TO REMAIN.
3. EXISTING FEEDER FROM MAIN SWITCHBOARD TO 300 KVA TRANSFORMER IN "TRANSFORMER" ROOM. REMOVE EXISTING WIRES ONLY. EXISTING SITE UNDERGROUND AND OVERHEAD CONDUIT TO THE TRANSFORMER ROOM SHALL REMAIN.
4. EXISTING PULLBOX LOCATED ABOVE GROUND SHALL REMAIN. EXISTING INCOMING AND OUTGOING 4"CONDUIT SHALL REMAIN.
5. EXISTING 300 KVA FLOOR MOUNTED DRY TYPE TRANSFORMER TO REMAIN.
6. EXISTING 400AMP FUSED DISCONNECT TO REPLACED. NEW FUSED DISCONNECT TO BE INSTALLED AT EXISTING LOCATION.
7. EXISTING WIREWAY IN THE TRANSFORMER ROOM TO BE REMOVED IN ITS ENTIRETY.
8. EXISTING ENCLOSED CIRCUIT BREAKER TO BE REMOVED IN ITS ENTIRETY.
9. EXISTING DISTRIBUTION BOARD "C" SHALL BE REPLACED WITH NEW. EXISTING DOWNSTREAM FEEDERS SHALL REMAIN AND TO BE INTERCEPTED. REFER TO THE NEW ELECTRICAL RISER DIAGRAM ON DETAIL 2/E5.01 FOR ADDITIONAL INFORMATION.

1 PARTIAL ELECTRICAL RISER DIAGRAM - DEMO
NOT TO SCALE

LIGHTING FIXTURE NOTES

1. FINISH OF FIXTURES SHALL BE AS SELECTED BY THE ARCHITECT.
2. FIXTURES SHALL BE U.L. LISTED FOR THE INTENDED LOCATION.
3. LAMP COLOR FOR LED FIXTURES SHALL BE 4000K U.N.O.
4. LENSES OF ALL LED LIGHTING FIXTURES SHALL NOT BE LESS THAN 0.125" THICK AND EQUAL TO KSH-K12 REQUIREMENTS.
5. CONTRACTOR SHALL VERIFY LIGHTING FIXTURE & DIMMING DRIVER ARE COMPATIBLE WITH BRANCH CIRCUIT RATING PRIOR TO ORDERING.
6. CONTRACTOR SHALL VERIFY LIGHTING FIXTURE MOUNTING REQUIREMENTS ARE COMPATIBLE WITH THE CEILING TYPES PRIOR TO SUBMITTING SHOP DRAWINGS.
7. ALL LED LIGHTING FIXTURES SHALL BE TESTED TO LM-79 AND LM-80 IES STANDARDS.

ACCEPTANCE TESTING

MANDATORY ACCEPTANCE TESTING PER TITLE-24, PART-6, SECTION-130:

CONTRACTOR SHALL ACT AS THE ACCEPTANCE AGENT AND PERFORM WORK REQUIRED IN THE FOLLOWING ACCEPTANCE TESTS AS DESCRIBED IN CHAPTERS 5 & 6 OF THE 2019 NON RESIDENTIAL COMPLIANCE MANUAL. ALL FORMS SHALL BE COMPLETED IN ENTIRETY.

1. LTI-02-E AND LTO-02-E: LIGHTING CONTROLS CREDIT WORKSHEET.
2. LTI-03-E AND LTO-03-E: LIGHTING POWER ALLOWANCE.
3. LTI-04-E: TAILORED METHOD WORKSHEET.
4. LTI-05-E: LINE VOLTAGE TRACK LIGHTING WORKSHEET.

Imperial Valley College B600 Expansion
Lighting Fixture Schedule

Fixture Type	Manufacturer	Catalog Number	LED Type	Mounting	Description	Voltage
A	LITHONIA	EPANL-2x4-30L-80CRI-35K-MIN10-ZT-MVOLT-E10WCP	28.51W 3500K 3140 LUMENS	SURFACE	SURFACE 2'X4' LED PANEL - 15.1 LBS. PROVIDE WITH SURFACE MOUNT KIT #SMKSH	UNV (120-277V)
B	LUMINII	T-SQ-4-5-F-10-B-835-D010	18.5W/FT 3500K 500 LM/FT DOWN / 1000 LM/FT UP	PENDANT	PENDANT 4' LED LINEAR - DOWN/UPLIGHTING - 16 LBS.	UNV (120-277V)
C	BEGHELLI	CT-ECO-SA-LU-1	2.6W INTEGRAL LED	SURFACE	CYCLONE ECO SERIES, WHITE FINISH HOUSING - 2 LBS.	120V
D	LITHONIA	WPX1-LED-P1-35K-MVOLT-E4WH-DBLBXD	11W 3500K 1550 LUMENS	SURFACE	WPX LED - ARCH WALL SCONCE - 6.1 LBS.	UNV (120-277V)

1. REFER TO ARCHITECT'S REFLECTED CEILING PLAN AND RELATED DETAILS TO DETERMINE PROPER CEILING TYPE COMPATIBILITY FOR EACH LUMINAIRE. PROVIDE ANY EXTRA FITTINGS OR OPTIONS AS REQUIRED TO ENSURE CORRECT MOUNTING IN THE GIVEN CEILING.
2. PROVIDE FIRE RATED CANOPY OR ENCLOSURE FOR ALL FIXTURES RECESSED IN A FIRE RATED CEILING. THE FIRE RATED CANOPY OR ENCLOSURE SHALL BE REQUIRED BY THE UL DESIGN NUMBER LISTED IN THE UL FIRE RESISTANCE DIRECTORY. REFER TO ARCHITECTURAL DRAWING FOR THE UL DESIGN NUMBER. COORDINATE WITH CEILING INSTALLER AND MANUFACTURER.
3. FOR WHEN THERE IS A DISCREPANCY OF LIGHTING FIXTURE QUANTITY SHOWN ON LIGHTING PLANS AND ARCHITECTURAL REFLECTED CEILING PLANS, CONTRACTOR SHALL PROVIDE THE GREATER QUANTITY.
4. PROVIDE WITH 90 MINUTE EMERGENCY BATTERY PACK WHERE SHOWN TO BE ON EMERGENCY POWER. SEE LIGHTING PLANS ON SHEET E2.02 FOR LOCATIONS AND QUANTITY.

5 LIGHTING FIXTURE NOTES & ACCEPTANCE TESTING
NOT TO SCALE

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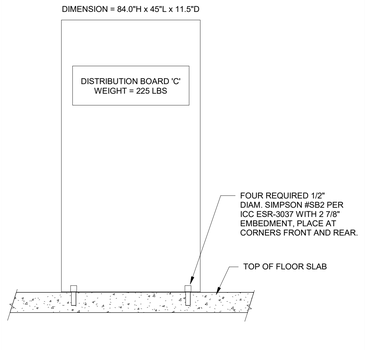
REVISIONS

No.	Description	Date
1	ADDENDUM 1	2021-03-31

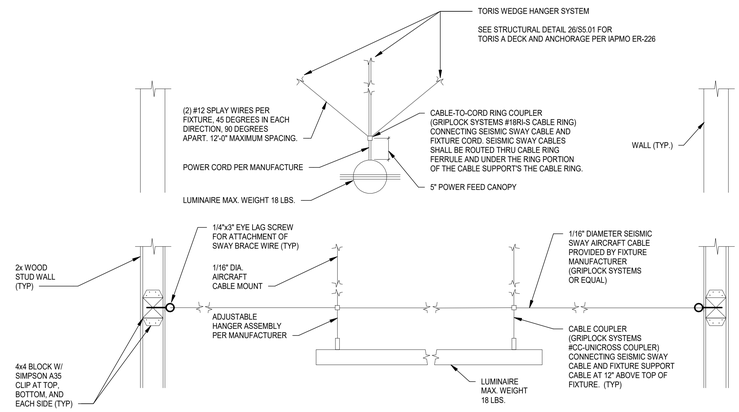
DSA SUBMITTAL

ELECTRICAL ONE-LINE, RISER DIAGRAM & SCHEDULES

E5.01



16 SWITCHBOARD ANCHORAGE DETAIL
NOT TO SCALE



15 PENDANT MOUNTED FIXTURE AND SEISMIC BRACING DETAIL
NOT TO SCALE

NOTES:

1. SUSPENSION SYSTEMS FOR LIGHT FIXTURES WHICH HAVE PASSED SHAKING TABLE TESTS PPROVED BY D.S.A., OR WHICH, AS INSTALLED, ARE FREE TO SWING A MINIMUM OF 45 DEGREES FROM THE VERTICAL IN ALL DIRECTIONS WITHOUT CONTACTING OBSTRUCTIONS SHALL BE ASSUMED TO COMPLY WITH THE LATERAL--FORCE REQUIREMENTS OF 2019 C.B.C. SECTION 1617A.1.18 & CHAPTER 13, ASCE 7-16. IF FIXTURES CANNOT SWING A MINIMUM OF 45 DEGREES FROM THE VERTICAL IN ALL DIRECTIONS WITHOUT CONTACTING OBSTRUCTIONS. PROVIDE ALL COMPONENTS NECESSARY AND APPROVED FOR A COMPLETE CODE--COMPLIANT AIRCRAFT CABLE--BASED FIXTURE SEISMIC BRACING SYSTEM TO LIMIT MOVEMENT OF CABLE/CORD HUNG FIXTURES. CABLE BRACING SYSTEM SHALL NOT BE DRAWN TAUT TO AVOID DAMAGING THE BRACING SYSTEM DURING WALL MOVEMENT CAUSED BY EARTHQUAKES. ADJUST TENSION PER BRACING SYSTEM MANUFACTURER RECOMMENDATIONS.

2. CONTRACTOR TO VERIFY AIRCRAFT CABLE LENGTHS AND FIXTURE MOUNTING HEIGHTS ABOVE FINISH FLOOR. INCLUDE ALL COSTS IN BASE TO PROVIDE FIXTURE SEISMIC SWAY BRACING SYSTEM DESCRIBED IN NOTE 1 ABOVE AS REQUIRED.

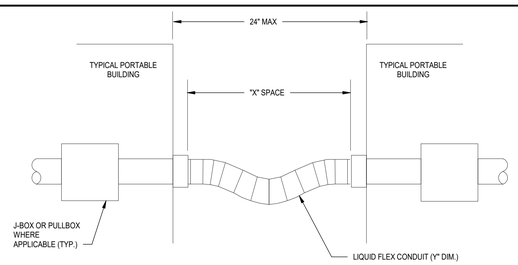
3. SUPPORT TYPICAL FOR FEED A NON FEED POINT (WITHOUT J--BOX AND FLEX) SHOULD A CONFLICT OCCUR BETWEEN FIXTURE SUPPORT DETAIL AND HVAC DUCT ROUTING OR OTHER SUCH BSTRUCTIONS.
ELECTRICAL CONTRACOTR WILL INCLUDE ALL COSTS IN BASE BID TO PROVIDE A UNISTRUT "TRAPEZE" WITH 3/8" DIA THREADED ROD HANGERS AROUND THE HVAC DUCT OR OTHER OBSTRUCTION. TRAPEZE SHALL BE SUBMITTED TO PROJECT STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION OR ORDERING TRAPEZE MATERIAL.

4. MOUNT FIXTURE CANOPY AS HIGH AS POSSIBLE OR TO UNISTRUT IF NECESSARY. UNISTRUT SHOWN PARALLEL TO FIXTURE FOR EASE OF DEPICTION. PROVIDE UNISTRUT LENGTH AND ORIENTATION AS REQUIRED FOR COMPLETE--APPROVED FIXTURE INSTALLATION.

5. MOUNTING OF PENDANT MOUNTED LIGHTING FIXTURES SHALL BE IN COMPLIANCE WITH DSA IR 16--9.

6. PROVIDE ALL COMPONENTS NECESSARY AND APPROVED FOR A COMPLETE CODE--COMPLIANT AIRCRAFT CABLE SEISMIC BRACING SYSTEM TO LIMIT MOVEMENT OF CABLE HUNG FIXTURES. CABLE BRACING SYSTEM SHALL NOT BE DRAWN TAUT TO AVOID DAMAGING THE BRACING SYSTEM DURING WALL MOVEMENT WHICH COULD OCCUR DURING A SEISMIC EVENT. ADJUST TENSION PER BRACING SYSTEM MFGR RECOMMENDATIONS.

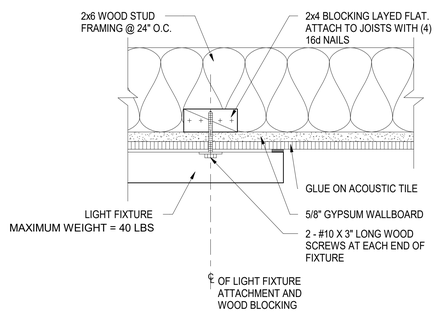
7. UNISTRUT SHOWN PARALLEL TO FIXTURE FOR EASE OF DEPICTION. PROVIDE UNISTRUT LENGTH AND ORIENTATION AS REQUIRED FOR COMPLETE--APPROVED FIXTURE INSTALLATION.



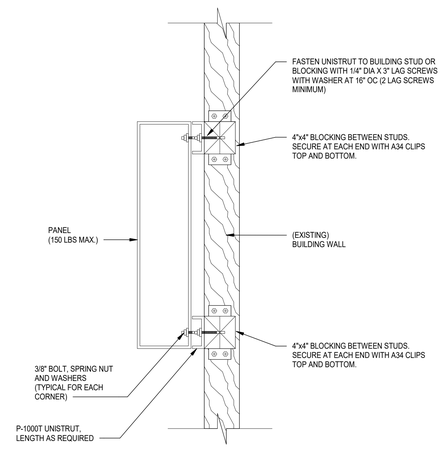
CONDUIT SIZE	"X" SPACE	"Y" FLEX LENGTH
3/4" - 2"	18"	+30"

6 CONDUIT RUN THRU SEISMIC SEPARATION DETAIL
NOT TO SCALE

LIGHTING FIXTURE MOUNTING DETAIL SHOWN FOR REFERENCE ONLY. REFER TO ARCHITECTURAL DRAWING SHEET DETAIL 15/A10.03 FOR ADDITIONAL INFORMATION.



4 SOFFIT FRAMING @ LIGHT FIXTURE (FOR REFERENCE ONLY)
NOT TO SCALE



2 SURFACE MOUNTED PANEL/CABINET AT WOOD FRAMING DETAIL
NOT TO SCALE

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DSA FILE NO. 37-C2 A# 04-119030

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IMPERIAL VALLEY COLLEGE - B600 EXPANSION

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ENGINEER
REGISTERED PROFESSIONAL ENGINEER MATTHEW R. SICKLES III E 20162 CIVIL STATE OF CALIFORNIA
12/31/2020

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IMPERIAL VALLEY COLLEGE

PROJECT NUMBER 20190
DATE: 12/08/2020
DRAWN BY: JJ
CHECKED BY: RDC

REVISIONS

No.	Description	Date
1	ADDENDUM 1	2021-03-31

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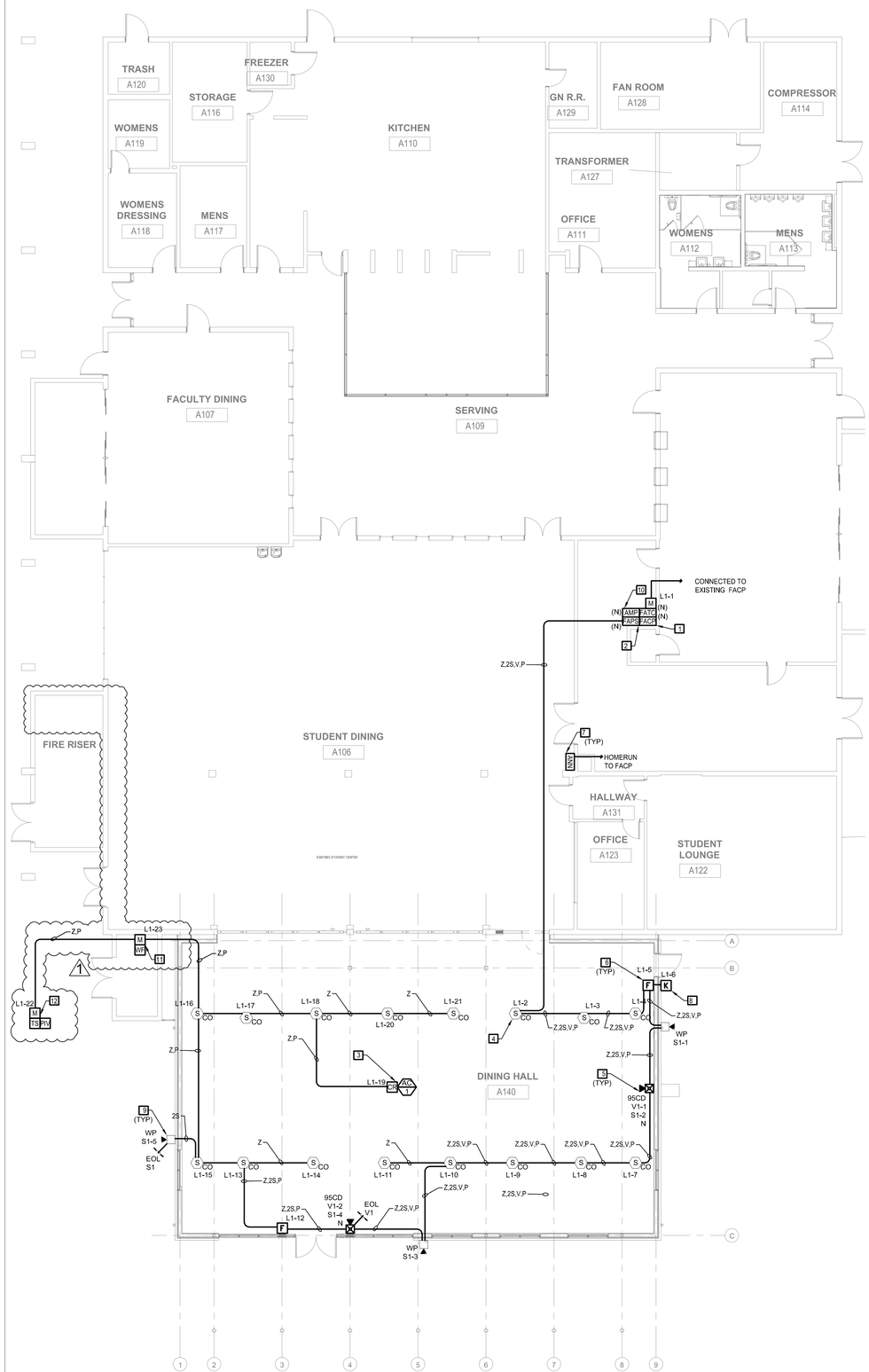
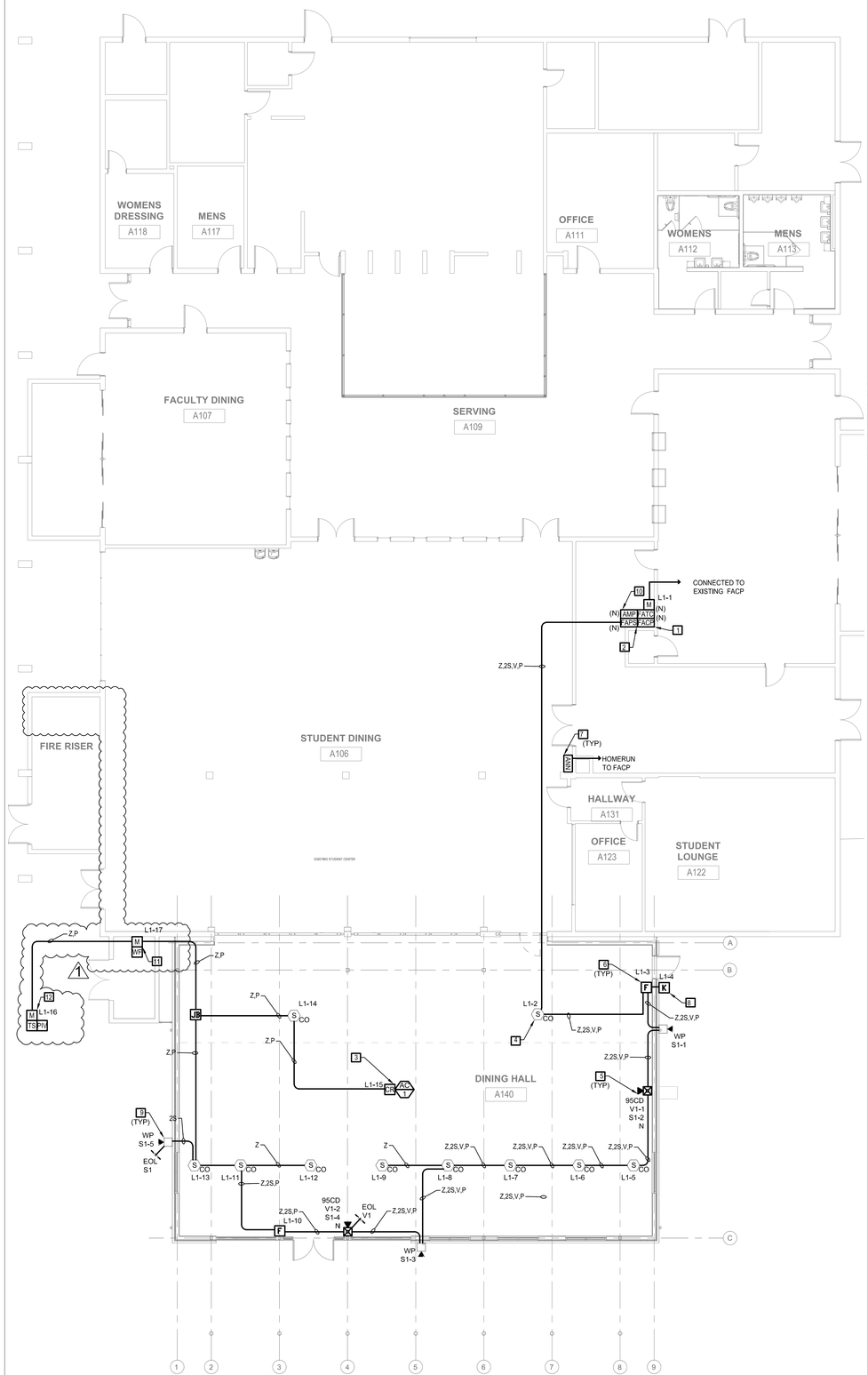
ELECTRICAL DETAILS

E6.01



1 FIRE ALARM FLOOR PLAN (BID ALT 1)
1/8" = 1'-0"



2 FIRE ALARM FLOOR PLAN
1/8" = 1'-0"

GENERAL NOTES:

1. ALL SPEAKER TAP SETTING SHALL BE SET AT 1/2 WATT FOR INTERIOR SPEAKER AND 2 WATT FOR EXTERIOR SPEAKERS UNLESS NOTED OTHERWISE (U.N.O.)
2. MOUNT CO/SMOKE DETECTORS AT LEAST 3 FEET AWAY FROM SUPPLY AIR DIFFUSERS.
3. PROVIDE 24 VDC POWER FROM FACP TO ALL CO DETECTOR BASES.
4. RUN FIRE ALARM CABLES IN CONDUIT CONCEALED IN WALLS AND CEILING WHEN POSSIBLE. EXPOSED CONDUITS ARE NOT ACCEPTABLE.
5. PROVIDE RELAY TO SHUT DOWN THE NEW MECHANICAL UNIT AC-1 AS SHOWN.

KEY NOTES:

1. PROVIDE NEW FIRE ALARM CONTROL PANEL (FACP) WITH VOICE EVAC.
2. PROVIDE FIRE ALARM POWER SUPPLY (FAPS) AS SHOWN.
3. PROVIDE FIRE ALARM ADDRESSABLE CONTROL RELAY MODULE FOR SHUTTING DOWN MECHANICAL UNIT.
4. PROVIDE FIRE ALARM ADDRESSABLE CO/SMOKE DETECTOR AS SHOWN (TYPICAL).
5. PROVIDE WALL MOUNTED SPEAKER STROBE AS SHOWN (TYPICAL).
6. PROVIDE FIRE ALARM ADDRESSABLE MANUAL PULL STATION AS INDICATED (TYPICAL).
7. PROVIDE FIRE ALARM REMOTE ANNUNCIATOR AS SHOWN.
8. PROVIDE FIRE ALARM KNOX BOX AS INDICATED.FIELD VERIFY LOCATION.
9. PROVIDE FIRE ALARM WEATHERPROOF SPEAKER DEVICES AS SHOWN (TYPICAL).
10. PROVIDE INTELLIGENT 50W FIRE ALARM AMPLIFIER AS SHOWN.
11. PROVIDE ADDRESSABLE MONITOR MODULES TO MONITOR WATER FLOW SWITCH LOCATED AT THE FIRE RISER AND TO MONITOR THE CONNECTION BETWEEN EXISTING SIMPLEX FACP AND NEW SILENT KNIGHT FACP PANEL AS SHOWN. FIELD VERIFY LOCATION.
12. PROVIDE TAMPER SWITCH AND MONITOR MODULE TO MONITOR THE POST INDICATOR VALVE (PIV) LOCATED OUTSIDE OF THE BUILDING AND PROVIDE 1" CONDUIT CONNECTION FROM PIV TO NEW FACP (FIRE ALARM CONTROL PANEL). FIELD VERIFY LOCATION. REFERENCE PIV LOCATION FROM FIRE LINE SITE PLAN SHEET C0.01.

1

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ELECTRICAL
STATE OF CALIFORNIA

12/31/2022

ARCHITECT

CLIENT
IMPERIAL VALLEY COLLEGE

PROJECT NUMBER
20190

DATE: 12/08/2020
DRAWN BY: CP
CHECKED BY: RW

REVISIONS

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1	ADDENDUM 1	2021-03-31

DSA SUBMITTAL

FIRE ALARM FLOOR PLAN

FA2.01

From: Robert Malek <RobertMalek@co.imperial.ca.us>
Sent: Thursday, September 10, 2020 10:50 AM
To: Forte, Chuck <Chuck.Forte@pbk.com>
Cc: Andrew Loper <AndrewLoper@co.imperial.ca.us>; Rudy Mesa <RudyMesa@co.imperial.ca.us>; rick.webster@imperial.edu
Subject: Flow Test

Hydrant Flow Test for Imperial Valley College
College Center Building

Static Pressure- 120 from Fire Pump
Residual Pressure- 100 from Fire Pump
Total Test Flow-rate (GPM)- 1300
GPM at 20 PSI: 3100

Robert Malek
Deputy Chief Fire Marshal
Imperial County Fire Department

FIRE SPRINKLER MATERIAL SCHEDULE

SPECIFICATION SECTION	DESCRIPTION	MODEL NO.	CSFM LISTING	MANUFACTURER
210500				
2.2	BURIED PIPE			
	IN-BUILDING RISER	SERIES IBR	N/A	AMES
2.3	ABOVE GROUND PIPING			
	PIPE:			
	$2\frac{1}{2}$"-6" SCHED. 10	N/A	N/A	ALLIED
	1" - 2" SCHED. 40	N/A	N/A	ALLIED
	FITTINGS:			
	CAST IRON THREADED	N/A	N/A	ANVIL
	GROOVED	VGS	N/A	GRUVLOK
2.4	PIPE HANGERS AND SUPPORTS			
	----	----	----	ANVIL
2.6	GLOBE OR ANGLE VALVES			
	GLOBE VALVE	125SUL	N/A	UNITED BRASS
	ANGLE VALVE	126SUL	N/A	UNITED BRASS
2.8	BUTTERFLY VALVES			
	CHECK VALVES			
2.9	4" GROOVED CHECK VALVE	M-2	N/A	VIKING
211300				
1.5	STRUCTURAL DESIGN AND SEISMIC REQUIREMENTS			
		----	----	ANVIL
2.2	SPRINKLERS			
	MICROFAST QR SSU	VK300	N/A	VIKING
	MICROFAST QR SSP	VK302	N/A	VIKING
2.3	PIPING SPECIALTIES			
	10" ELECTRIC BELL	PBA-AC	7135-0328:0119	POTTER
	FLOWSWITCH	VSR-F	7770-0328:0001	POTTER

U.S. SEISMIC DESIGN

LATITUDE, LONGITUDE: 32.8290418, -115.5054213

Ss: 2.232

HYDRAULIC CALCULATION DESIGN INFORMATION

CALCULATION AREA#	1
SPRINKLER HEAD TYPE	SSP
K-FACTOR	5.6
SYSTEM TYPE (WET/DRY)	WET
HAZARD CLASSIFICATION	ORD. GRP. 1
DENSITY (GPM/S.F.)	.15
AREA PER HEAD	130 MAX
AREA OF OPERATION (S.F.)	1563
AREA OF OPERATION ADJUSTMENTS:	
DRY PIPE INCREASE (30%)	N/A
SLOPE > 2:12 INCREASE (30%)	N/A
CEILING HEIGHT	N/A
PERCENT REDUCTION	N/A
CEILING REDUCTION (S.F.)	N/A
ADJUSTED AREA OF OPERATION	N/A
WATER SUPPLY	
STATIC (PSI)	120
RESIDUAL (PSI)	20
FLOW (GPM)	3100
FIRE PUMP (GPM @ PSI)	N/A
SYSTEM DEMAND @ SOURCE	
PRESSURE REQUIRED (PSI)	95.56
FLOW REQUIRED (GPM)	791.26
PRESSURE AVAILABLE (PSI)	112.04
SAFETY MARGIN (PSI)	16.48
HOSE STREAM ALLOWANCE (GPM)	
INSIDE ---- OUTSIDE 250	
SYSTEM DEMAND AT BASE OF RISER	
PRESSURE REQUIRED (PSI)	89.718
FLOW REQUIRED (GPM)	541.26

⚠

PROTECTION AREAS AND MAXIMUM SPACING OF STANDARD PENDENT AND UPRIGHT SPRAY SPRINKLERS

CONSTRUCTION TYPE	OCCUPANCY TYPE	MAXIMUM SPRINKLER SPACING (ft^2)
COMBUSTIBLE OBSTRUCTED CONSTRUCTION	LIGHT HAZARD	130
	ORDINARY HAZARD	130
COMBUSTIBLE UNOBSTRUCTED HYDRAULICALLY CALCULATED	LIGHT HAZARD	225
	ORDINARY HAZARD	130

ANY SUBSTITUTION OF "FLEXIBLE" TYPE PIPING IN LIEU OF "RIGID" PIPE OR ANY CHANGES TO SIZE, MANUFACTURER OR LENGTHS OF "FLEXIBLE" TYPE PIPING REQUIRE RESUBMITTAL OF PIPING PLANS, PRODUCT DATA SHEETS AND HYDRAULIC CALCULATIONS TO DSA FOR REVIEW AND APPROVAL. CONTRACTOR SHALL REIMBURSE SCHOOL DISTRICT FOR COST IF ADDITIONAL PLAN CHECK IS REQUIRED.

ANY CHANGES TO THE FIRE SPRINKLER SUPPORT, INCLUDING THE ADDITION OF SWAY BRACING, TO THE APPROVED DSA CONSTRUCTION SET WILL RESULT IN A CHANGE TO THE CONSTRUCTION DOCUMENTS (CCD) AND WILL NEED TO FOLLOW DSA PROCEDURES FOR CCD. CONTRACTOR SHALL REIMBURSE SCHOOL DISTRICT FOR COST IF ADDITIONAL PLAN CHECK IS REQUIRED.

FIRE SPRINKLER LEGEND

SYMBOL	DESCRIPTION
FP1	DETAIL DESIGNATION DETAIL NUMBER SHEET NO. WHERE SHOWN
	HYDRAULIC CALCULATION REFERENCE NODE
	EARTHQUAKE BRACE
	FIRE SPRINKLER RISER
	GROOVED COUPLING
	HANGER DESIGNATION
	CHANGE IN ELEVATION
	CAP
	PLUG
	VALVE
	FIRE SPRINKLER PIPE
	END OF LINE RESTRAINT

SPRINKLER SYSTEM - GENERAL INFORMATION

FOR	IMPERIAL VALLEY COLLEGE				
DATE	9/17/2020				
FLOW TEST DATA:					
STATIC:	100	PSI	RESID:	20	PSI
FLOW:	3100	GPM	PITOT:	N/A	PSI
	9/10/2020	LOCATION	ON SITE HYDRANT		
LOCATION OF AUX/LOW POINT DRAINS:					
ORIGINAL MAIN DRAIN TEST RESULTS:					
STATIC	X	PSI	RESID:	X	PSI
HIGH PILED:	-	YES	X	NO	
RACK STORAGE:	-	YES	X	NO	
COMMODITY CLASS					
MAXIMUM STORAGE	XX	FT			
AISLE WIDTH (MIN.)	XX	FT			
ENCAPSULATION:	-	YES	X	NO	
SOLID SHELVING:	-	YES	X	NO	
FLAMMABLE / COMBUSTIBLE LIQUIDS	-	YES	X	NO	
OTHER STORAGE:	-	YES	X	NO	
HAZARDOUS MATERIAL	-	YES	X	NO	
IDLE PALLETS	-	YES	X	NO	
ANTIFREEZE SYSTEMS	-	YES	X	NO	
DRY OR AUX SYS	-	YES	X	NO	
LOCATION					
NAME OF CONTRACTOR OR DESIGNER:			LEAF ENGINEERS		
ADDRESS & PHONE:	895 W. ASHLAN AVE., SUITE 101 CLOVIS, CA 93612 PH 559-348-2130				

BUILDING DATA

PROJECT DESCRIPTION: INSTALL NEW WET PIPE FIRE SPRINKLER SYSTEM IN EXISTING COLLEGE CENTER BUILDING AND NEW EXPANSION

OWNER: IMPERIAL VALLEY COLLEGE
380 E. ATEN ROAD
IMPERIAL, CA 92251

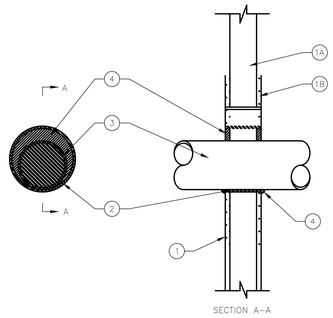
BUILDING DATA/ CODE ANALYSIS

DESCRIPTION	MULTI-PURPOSE
OCCUPANCY GROUP	A2
CONSTRUCTION TYPE	V-B
STORIES	1
HEIGHT	+16'-3"(+50'-0" MAX.)
FIRE SPRINKLER SYSTEM	YES
FIRE ALARM	YES
TOTAL ALLOWABLE AREA (sq.ft.)	24,000
(E) BLDG. 600 (sq.ft.) (E) BLDG. 600 OVERHANGS (E) ADJACENT TRELLIS BLDG. 600 ADDITION	13,900S.F. 2,138 S.F. 768 S.F. 3,027 S.F.
TOTAL BLDG. 600 SQ. FTG.	19,831 S.F.

FIRE SPRINKLER SHEET INDEX

1. WALL ASSEMBLY THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. OC. WHEN STEEL STUDS ARE USED AND THE DIAM OF OPENING EXCEEDS THE WIDTH OF STUD CAVITY, THE OPENING SHALL BE FRAMED ON ALL SIDES USING LENGTHS OF STEEL STUD INSTALLED BETWEEN THE VERTICAL STUDS AND SCREW-ATTACHED TO THE STEEL STUDS AT EACH END. THE FRAMED OPENING IN THE WALL SHALL BE 4 TO 6 IN. WIDER AND 4 TO 6 IN. HIGHER THAN THE DIAM OF THE PENETRATING ITEM SUCH THAT, WHEN THE PENETRATING ITEM IS INSTALLED IN THE OPENING, A 2 TO 3 IN. CLEARANCE IS PRESENT BETWEEN THE PENETRATING ITEM AND THE FRAMING ON ALL FOUR SIDES.
   B. GYPSUM BOARD* THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IN STEEL STUD WALLS IS 32IN., MAX DIAM OF OPENINGS IN WOOD STUD WALLS IS 14-1/2 IN. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
2. STEEL SLEEVE - NOM 32 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE SLEEVE FRICTION FIT IN NOM 32 IN. DIAM CIRCULAR OPENING CUT THROUGH GYPSUM WALLBOARD LAYERS. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL.
3. THROUGH-PENETRANT - ONE METALLIC PIPE, CONDUIT OR TUBING INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND THE STEEL SLEEVE SHALL BE MIN OF 0 IN. (POINT CONTACT) TO MAX 1-7/8 IN. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
   A. STEEL PIPE - NOM 30 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
   B. IRON PIPE - NOM 30 IN. DIAM (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE OR CLASS 50 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE.
   C. CONDUIT - NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING.
   D. COPPER TUBING - NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
   E. COPPER PIPE - NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
4. FILL, VOID OR CAVITY MATERIAL*-SEALANT - MIN 5/8 IN. AND 1-14 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL ASSEMBLY FOR 1 OR 2 HR RATED WALLS, RESPECTIVELY. MIN 1/2 IN. DIAM BEAD OF CAULK APPLIED TO THE PENETRANT/WALLBOARD INTERFACE AT THE POINT CONTACT LOCATION ON BOTH SIDES OF WALL.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC - FS-ONE SEALANT

*BEARING THE UL CLASSIFICATION MARKING



SECTION A-A

FILENAME

FIRE STOP DETAIL RATED WALL

NTS

DSA FILE NO. 37-C2 A# 04-119030

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PROJECT NUMBER 20190
DATE: 2021/03/21
DRAWN BY: SA
CHECKED BY: GL

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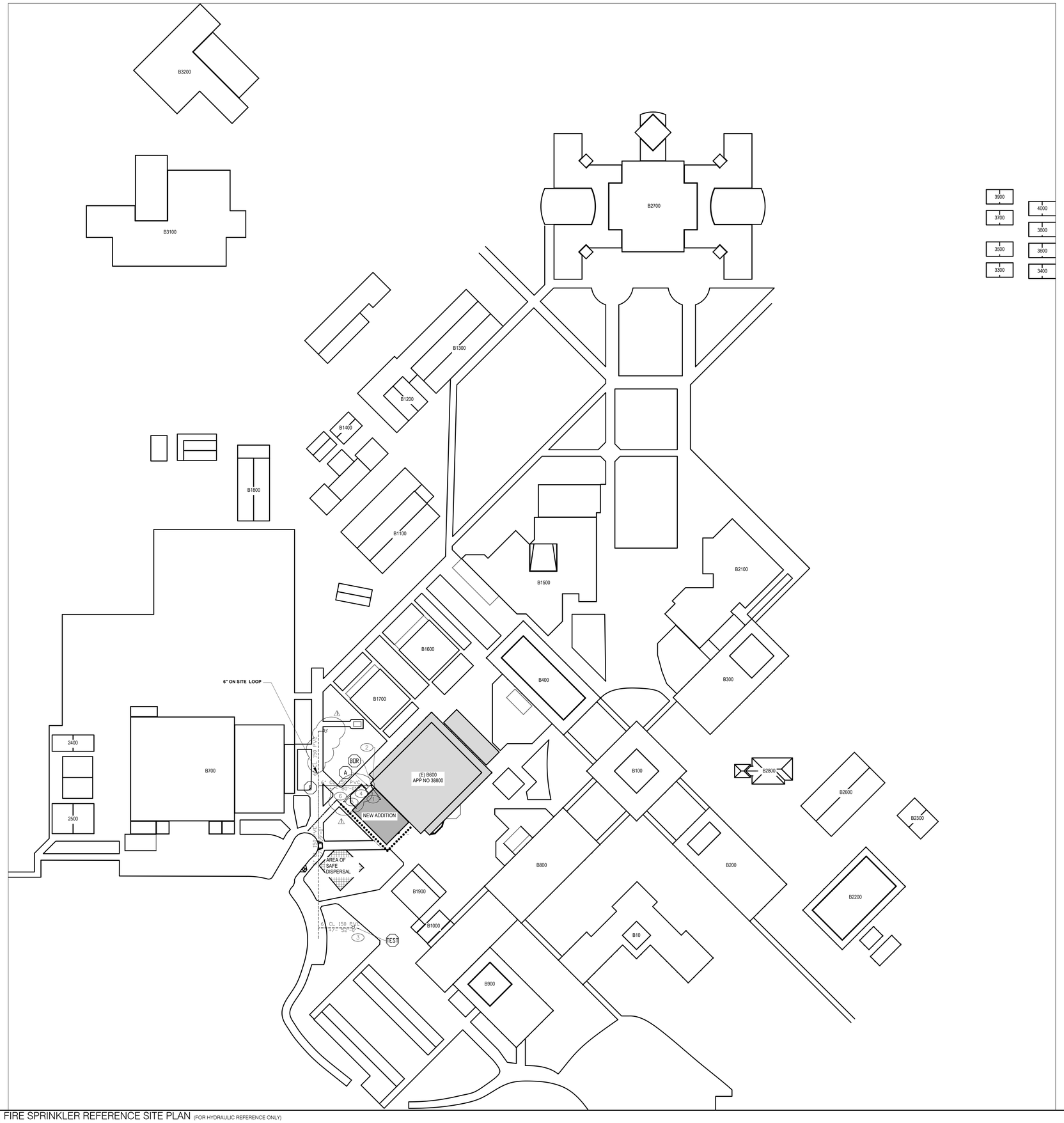
FIRE SPRINKLER COVER SHEET AND LEGENDS

FP0.01



1 FIRE SPRINKLER REFERENCE SITE PLAN (FOR HYDRAULIC REFERENCE ONLY)
1" = 60'-0"

KEYNOTES

1. FIRE SPRINKLER RISER
2. 10" ELECTRIC BELL
3. FLOW TEST EFFECTIVE HYDRANT – +2.5"
4. POST INDICATOR VALVE WITH TAMPER SWITCH
5. CHECK VALVE
6. FIRE DEPARTMENT CONNECTION

THRUST BLOCK CALCULATION

$$7.9\ ft^2 \frac{\frac{120}{100}}{\frac{2000}{1000}} = 4.74\ ft^2$$

REQUIRED HORIZONTAL BEARING BLOCK AREA PER NFPA 13 A.6.6.1(b)

6" = 7.9 ft^2

N PROJECT NORTH

N TRUE NORTH

DSA FILE NO. 13-C1 A# 04-119487

PBK

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DRAWN BY:	Author
CHECKED BY:	Checker

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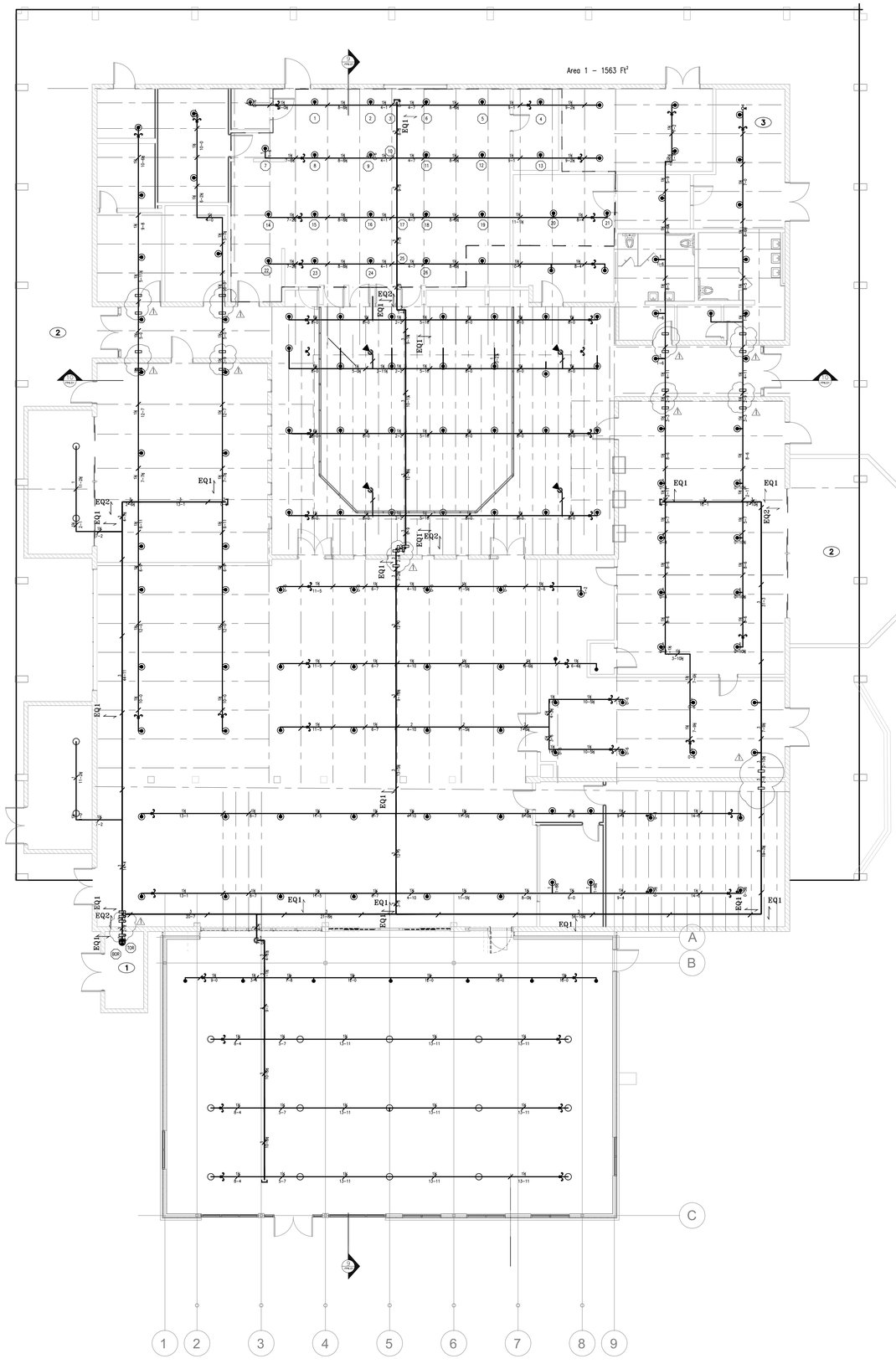
FIRE SPRINKLER REFERENCE SITE PLAN

FP0.03



FIRE SPRINKLER PIPING PLAN

SCALE: 1/8" = 1'-0"

KEY NOTES

1. FIRE SPRINKLER RISER
2. NONCOMBUSTIBLE CANOPY – NO AS REQUIRED PER NFPA 13, 8.15.7.3
3. 1" VALVE FOR AIR VENT

GENERAL NOTES

1. CONTRACTOR IS TO COORDINATE WITH ALL OTHER DISCIPLINES. REFER TO ARCHITECTURAL, MECHANICAL AND PLUMBING SHEETS, FIRE PROTECTION SPECIFICATIONS, AS WELL AS OTHER PORTIONS OF THE CONTRACT DOCUMENTS FOR ADDITIONAL COORDINATION REQUIREMENTS.
2. THE LAYOUT REQUIREMENTS DESCRIBED IN THESE PLANS SHALL BE ADHERED TO AS CLOSELY AS POSSIBLE BUT SHALL NOT SUPERSEDED CODE CONSTRAINTS AND/OR REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION (AHJ'S). WHERE CODE OR AHJ REQUIREMENTS SUPERSEDE ITEMS SHOWN ON THIS PLAN, CONTRACTOR SHALL INCLUDE ALL ASSOCIATED PROVISIONS IN THE BID, AND SHALL MAKE THEM AT NO ADDITIONAL COST TO OWNER. PROPOSED DEVIATIONS FROM THIS PLAN SHALL BE SUBJECT TO ENGINEER OF RECORD REVIEW AND APPROVAL PRIOR TO IMPLEMENTATION.
3. ALL AREAS OF THE BUILDING NOT COVERED BY NOTES HEREIN SHALL BE FULLY SPRINKLERED IN ACCORDANCE WITH SPECIFICATIONS, NFPA 13, 2016 ED., CITY OF FRESNO FIRE DEPARTMENT REQUIREMENTS, DSA FIRE PROTECTION DESIGN STANDARDS AND CODE REQUIREMENTS.
4. WHERE PLAN INDICATES EXPOSED FIRE SPRINKLER PIPING DIRECTION OF LAYOUT, ASSOCIATED CONNECTED FIRE SPRINKLER PIPING RUNNING IN PERPENDICULAR DIRECTIONS SHALL BE INSTALLED ONLY IN CONCEALED LOCATIONS UNLESS INDICATED OTHERWISE.
5. INSTALLING CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND IS RESPONSIBLE FOR PREPARING A DESIGN TO ACCOMMODATE ALL BUILDING CONDITIONS.
6. EXPOSED FIRE SPRINKLER SYSTEM PIPING SHALL BE RUN STRAIGHT AND TIGHT TO UNDERSIDE OF STRUCTURAL MEMBERS.
7. FOR HANGER DETAILS, SEE SHEET FS2.1.
8. UNO, ALL HANGERS ARE LESS THAN 6" FROM TOP OF PIPE TO POINT OF CONNECTION TO STRUCTURE. NO LATERAL BRACING OR BRANCH LINE RESTRAINT IS REQUIRED.
9. FOR FIRE SPRINKLER LEGENDS AND SYMBOLS SEE SHEET FP0.1.

SYMBOLS AND DESCRIPTIONS

SYM	QTY	TYPE	FINISH	TEMP	K	NPT	SIN#	MFG	MODEL#	ESCUTCHEON
●	140	QR PEND	WHITE	155°	5.6	1/2"	VK302	VIKING	MICROFAST	SEMI RECESS
○	160	QR SSU	BRASS	200°	5.6	1/2"	VK300	VIKING	MICROFAST	N/A
▲	1	DRY SSP	CHROME	200°	5.6	1/2"	VK150	VIKING	DRY PEND	2 PIECE
◀	4	HSW	BRASS	200°	5.6	1/2"	VK305	VIKING	MICROFAST	SEMI-REC
◉		QR SSP/QR SSU	WHITE/ BRASS	155°/ 200°	5.6	1/2"	VK302 /VK 300	VIKING	MICROFAST	SEMI RECESS/NA
TOTAL THIS SHEET	305									

FIRE SPRINKLER INFORMATION IS FOR DSA REVIEW ONLY. INSTALLING CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACCURATE SPRINKLER LAYOUT AND QUANTITIES, NO PRICING ADJUSTMENT WILL BE ALLOWED SPRINKLER HEADS ADDED BY CONTRACTOR.

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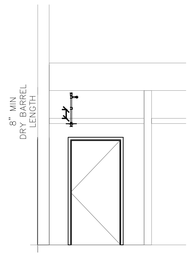
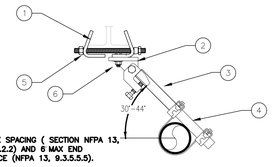
FIRE SPRINKLER PIPING PLAN

FP2.01



DRY PENDENT SPRINKLER THROUGH CEILING OR TOP OF FREEZER | NTS | 8

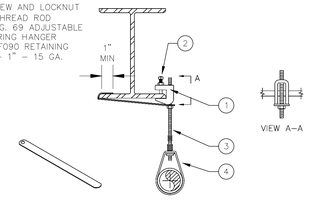
1. ANVIL FIG. AF086 BRACE ADAPTOR
2. ANVIL FIG. 076 SWAY BRACE SWIVEL ATTACHMENT
3. BRACE PIPE – 1" SCHED. 40
4. L/R 200'-7"-0" MAX. LENGTH
5. ANVIL FIG. AF035 BRACE CLAMP
6. 7" – 13 STUD OR BOLT X 2
7. 1/2"-13 X 1 1/2 HEX BOLT WITH 1/2" HEX NUT



40 MAX SPACING (SECTION NFPA 13, 9.3.5.5.2.2) AND 6 MAX END DISTANCE (NFPA 13, 9.3.5.5.5).

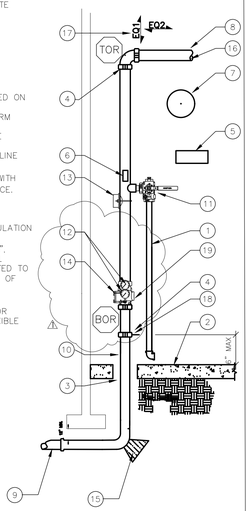
LATERAL SWAY BRACE AT STEEL BEAM | NTS EQ1 | 6

1. ANVIL FIG. 93 TOP BEAM C-CLAMP
2. SET SCREW AND LOCKNUT
3. 3/8"ALL THREAD ROD
4. ANVIL FIG. 69 ADJUSTABLE SWIVEL RING HANGER
5. ANVIL AF090 RETAINING STRAP – 1" – 15 GA.



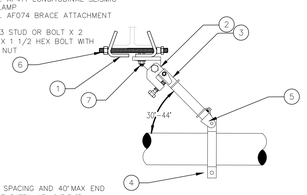
C-CLAMP HANGER
HANGER TO WIDE FLANGE BEAM | NTS | 4

1. 2"MAIN DRAIN–TO TERMINATE OUTSIDE BUILDING FACE
2. FINISHED FLOOR
3. 2" ANNULAR CLEARANCE
4. FLEXIBLE COUPLING
5. SPARE HEAD BOX. 6–SSU 6–SSP
6. HYDRAULIC CALC PLATE
7. 10" ELECTRIC BELL MOUNTED ON EXTERIOR WALL WIRED TO FLOWSWITCH AND FIRE ALARM SYSTEM
8. SUPPLY TO OVERHEAD FIRE SPRINKLER SYSTEM
9. FROM UNDERGROUND FIRE LINE
10. 6" AMES IBR
11. AGF TEST N DRAIN 1011A WITH RELIEF VALVE AND 3/4" ORIFICE.
12. 300# GAUGE
13. FLOWSWITCH
14. RISER CHECK VALVE
15. THRUST BLOCK (SEE CALCULATION ON FP0.3.)
16. 4" RISER TOR ELEV. +11'-3".
17. LATERAL AND LONGITUDINAL EARTHQUAKE BRACE MOUNTED TO ROOF STRUCTURE WITHIN 2' OF TOP OF RISER(EQ 1 & 2) 6,7/FP0.4
18. FIRE SPRINKLER CONTRACTOR IS TO BEGIN WORK AT FLEXIBLE COUPLING ON AMES IBR.
19. NRS GATE VALVE WITH INDICATOR POST



FIRE SPRINKLER RISER | NTS | 1

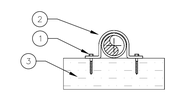
1. ANVIL FIG. AF086 SWAY BRACE ADAPTOR
2. ANVIL FIG. AF076 SWAY BRACE SWIVEL ATTACHMENT
3. BRACE PIPE – 1" SCHED. 40 L/R 200'-7"-0" MAX. LENGTH
4. ANVIL FIG. AF411 LONGITUDINAL SEISMIC BRACE CLAMP
5. ANVIL FIG. AF074 BRACE ATTACHMENT FITTING
6. 1/2" – 13 STUD OR BOLT X 2
7. 1/2"-13 X 1 1/2 HEX BOLT WITH 1/2" HEX NUT



80' MAX SPACING AND 40' MAX END DISTANCE (NFPA 13, 9.3.5.6)

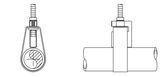
LONGITUDINAL SWAY BRACE AT STEEL BEAM | NTS EQ2 | 7

1. SHEET METAL TEK SCREW
2. FLUSH–MOUNT PIPE STRAP
3. METAL JOIST



FILENAME
FLUSH MOUNT PIPE STRAP | NTS | 5

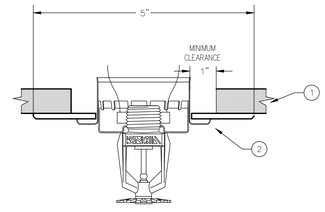
ANVIL AF310 SURGE RESTRAINER



TO RESTRAIN THE UPWARD MOVEMENT OF PIPE AS IT OCCURS DURING SPRINKLER HEAD ACTIVATION OR SEISMIC ACTIVITY

END OF LINE RESTRAINT | NTS | 2

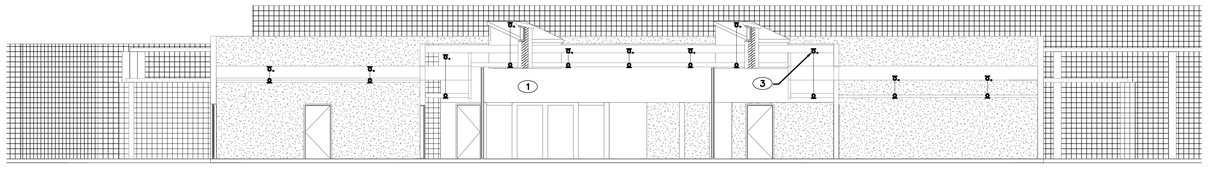
1. T–BAR CEILING
2. EXPANSION PLATE



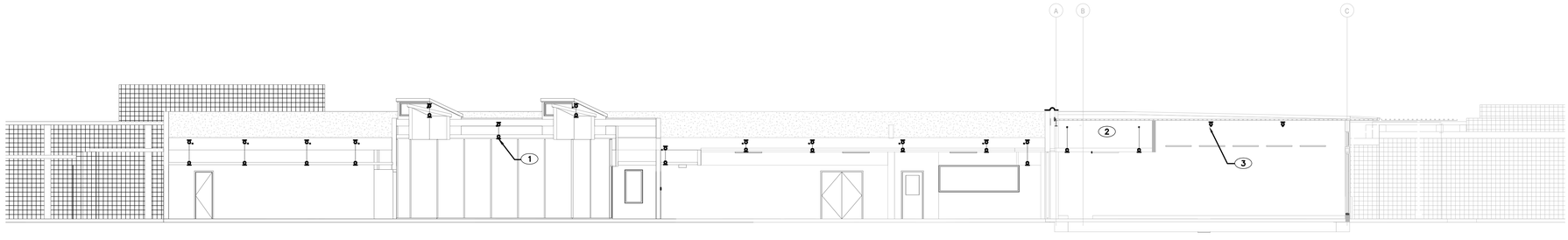
PENDENT SPRINKLER THROUGH CEILING | NTS | 3

KEYNOTES

1. CHROME, 5.6K, 155°, SSP, SEMI–REC CHROME ESHUTCHEON
2. ATTIC SPACE – NONCOMBUSTIBLE CONSTRUCTION
3. BRASS, 5.6K, 200°, SSU



9 FIRE SPRINKLER BUILDING CROSS SECTION
SCALE: 1/8" = 1'–0"



10 FIRE SPRINKLER BUILDING CROSS SECTION
SCALE: 1/8" = 1'–0"

DSA FILE NO: 37-C2 A# 04-119030

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CLIENT

PROJECT NUMBER 20190
DATE: 2021/03/21
DRAWN BY: SA
CHECKED BY: GS

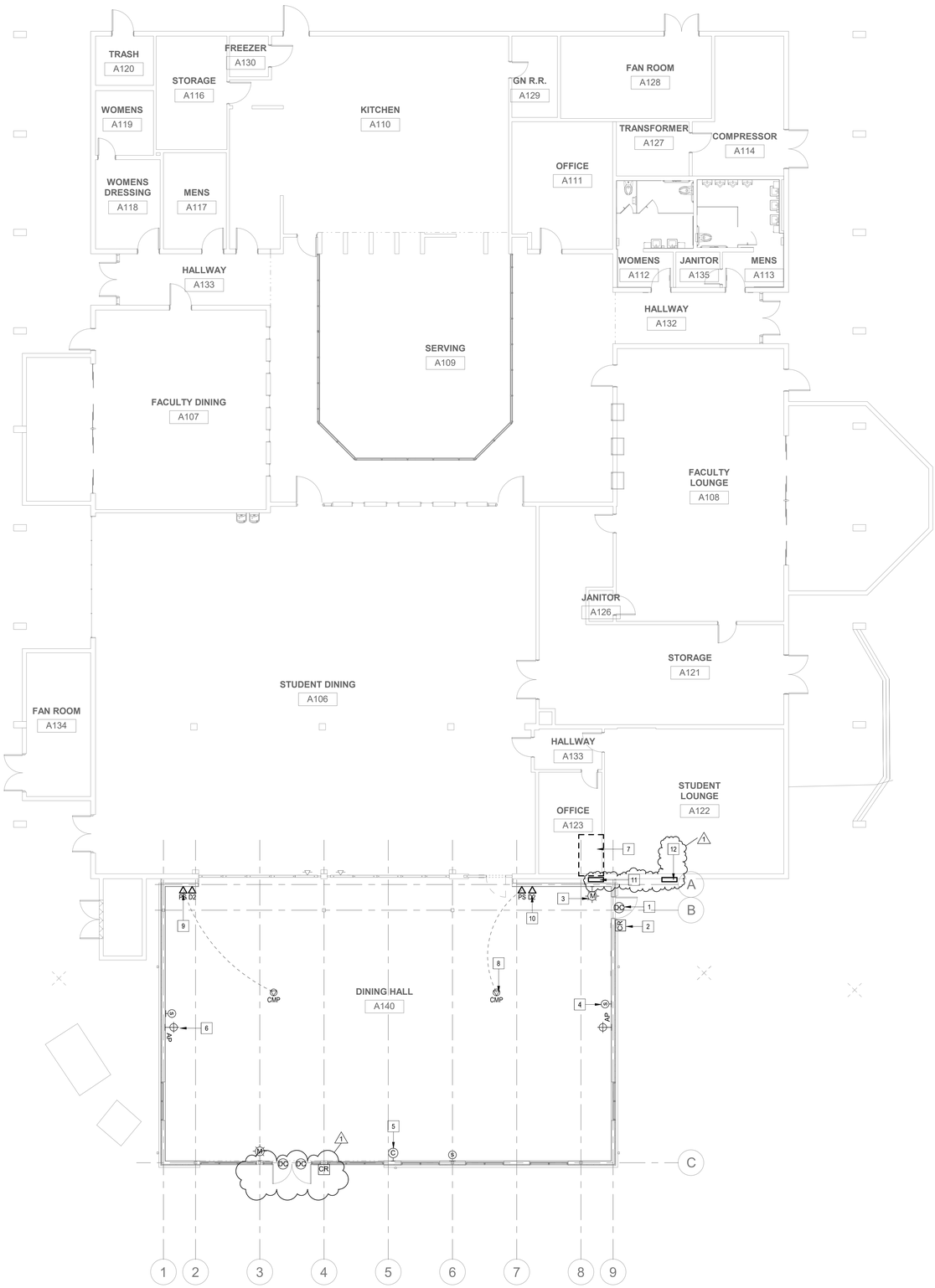
REVISIONS

No.	Description	Date
1	ADDENDUM 1	2021-03-31

DSA SUBMITTAL

FIRE SPRINKLER DETAILS

FP6.01



PROJECT NORTH

GENERAL NOTES:

1. DEVICES AND CABLING FOR ALL EQUIPMENT CALLED OUT IN THIS DRAWING WILL BE TIED INTO THE EXISTING SYSTEMS RESPECTIVELY.
2. CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL EXISTING SYSTEMS.
3. CONTRACTOR SHALL INCLUDE THE INSTALLATION OF THE ASSISTIVE LISTENING SYSTEM NOT SHOWN IN THE DRAWINGS. REFER TO SPECIFICATION SECTION 27 51 26 ASSISTIVE LISTENING SYSTEMS FOR DETAILS.

KEYED NOTES:

1. INDICATES THE LOCATION OF A DOOR CONTACT.
2. INDICATES THE LOCATION OF AN ACCESS CONTROL CARD READER INSTALLED AT 48-INCHES TO CENTER A.F.F.
3. INDICATES THE LOCATION OF A WALL MOUNTED MOTION DETECTOR INSTALLED AT 48-INCHES TO CENTER A.F.F.
4. INDICATES THE LOCATION OF A WALL MOUNTED PUBLIC ANNOUNCEMENT SPEAKER MOUNTED AT 9-FEET A.F.F.
5. INDICATES THE LOCATION OF A WALL MOUNTED CLOCK INSTALLED AT 9-FEET A.F.F.
6. INDICATES THE LOCATION OF A DATA OUTLET INTENDED TO SERVICE A WALL MOUNTED WIRELESS ACCESS POINT DEVICE MOUNTED AT 9-FEET A.F.F.
7. INDICATES THE APPROXIMATE LOCATION OF THE EXISTING MDF/IDF. ALL SYSTEM CABLING SHALL BE RUN BACK TO THIS POINT AND BE TERMINATED IN COORDINATION WITH THE OWNER'S IT DEPARTMENT.
8. INDICATES THE LOCATION OF AN ABOVE CEILING DATA OUTLET INTENDED TO SERVICE A CEILING MOUNTED PROJECTOR.
9. INDICATES THE LOCATION OF A PRESENTATION STATION USED FOR CONNECTING TO THE AUDIO VISUAL SYSTEM IN THE ROOM. ROUGHED IN AT 18-INCHES TO CENTER A.F.F.
10. INDICATES THE LOCATION FOR A TYPICAL DATA OUTLET.
11. INDICATES THE APPROXIMATE LOCATION FOR AN EXISTING PULL BOX MOUNTED ON THE OUTER WALL AND FEEDING THE EXISTING MDF. THIS BOX MUST BE RELOCATED TO THE NEW LOCATION APPROXIMATELY 10-FEET PLAN EAST OF THIS LOCATION AND CALLED OUT BY KEYED NOTE 12. THE CABLES WILL BE RE-REOUTED TO ACCOMMODATE FOR THE EXPANSION. CONTRACTOR SHALL COORDINATE WITH THE OWNER'S IT DEPARTMENT FOR FURTHER INSTRUCTION AND COORDINATION.
12. INDICATES THE APPROXIMATE NEW LOCATION FOR THE EXISTING PULL BOX CALLED OUT BY KEYED NOTE 11. THE CABLES WILL BE RE-REOUTED TO ACCOMMODATE FOR THE EXPANSION. PLEASE REFER TO THE ELECTRICAL SITE PLAN FOR COORDINATION.

1 TECHNOLOGY FLOOR PLAN
1/8" = 1'-0"

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3/30/2021 3:06:16 PM

DSA FILE NO. 37-C2 A# 04-119030

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IMPERIAL VALLEY COLLEGE

PROJECT NUMBER
20190

DATE: 09/17/2020
DRAWN BY: TC
CHECKED BY: GG

REVISIONS

No.	Description	Date
1	ADDENDUM 1	03/31/2021

DSA SUBMITTAL

TECHNOLOGY FLOOR PLAN

T2.01

SECTION 01 45 24 IMPORT MATERIALS TESTING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies the requirements for the sampling, testing, transportation, and certification of imported fill materials to school sites.

B. This Specification defines:
1. Contractor requirements for use of imported materials on Project sites.
2. Contractor requirements for stockpiling materials for use on Project sites.
3. Testing requirements for all materials imported, stockpiled, or generated for use on a Project site.
4. Contractor testing and reporting requirements.
5. Contractor submittal requirements.

C. Objectives:
1. Ensure that fill materials imported to Project sites are safe for students, staff, and visitors.
2. Ensure that representative data be collected so that analytical determinations can be made in regard to the first objective.
3. Require Contractor to contract with and pay for the services of a licensed environmental professional (licensed State of California Professional Engineer [PE Civil], Professional Geologist [PG] or Registered Environmental Assessor II [REA II]) familiar with environmental site assessment and waste classification.
4. Require Contractor to contract with and pay for an independent, approved California Department of Health Services certified testing laboratory to perform sampling and testing of imported and site generated fill materials.
5. Require Contractor to pay all fees required by authorities having jurisdiction over area.
6. Require Contractor to post bonds required by authorities having jurisdiction over area.

1.3 SUBMITTALS

A. Contractor shall submit to Owner's Authorized Representative (OAR):
1. A qualifications statement for Contractor's independent California certified testing laboratory and required licensed environmental professional (California Professional Engineer [PE civil], Professional Geologist [PG], or Registered Environmental Assessor II [REA II]) prior to the start of Work. Contractor's licensed environmental professional must possess recent demonstrated environmental experience in soil sampling and waste classification:
   a. Testing laboratory must be pre-approved by the Division of State Architect.
2. A draft import Sampling Strategy Plan (SSP) prepared by Contractor's licensed environmental professional for review and concurrence by the OAR. The objective of the SSP is to obtain representative sample data. The draft SSP must be submitted at least 72 hours prior to all proposed import sampling activities:
   a. At a minimum, the draft SSP shall include a site map which shows the location of the proposed import and the location and number of the proposed stockpile samples. The draft SSP shall also contain information pertaining to the total volume of the stockpile proposed for sampling and the rationale in support of the proposed sampling approach. Existing environmental documentation specific to the import site shall be utilized by Contractor's environmental professional to support the proposed sampling approach and analytical method suite. For new Project sites, this information would include a DTSC approved site

investigation report, e.g., Preliminary Environmental Assessment (PEA). It is the responsibility of Contractor to request this information in advance from the OAR if they do not already have access to a copy at the jobsite.

b. Lacking this information or rationale, samples shall be analyzed for all analytical methods described in this Section. Guidance for the minimum number of samples per stockpile volume is provided in Table 1 (supplemental samples may be required by the OAR if pothole stockpile sampling is utilized). In addition, the draft SSP shall contain all necessary contact information for the import site and a proposed schedule for the sampling activities.
c. To expedite the review process, the draft SSP shall be submitted electronically to the OAR in MS Word format.
d. Upon revision of the draft SSP by Contractor's licensed environmental professional and acceptance by the OAR, four (4) revised copies of the final SSP will be provided to the OAR for distribution to OEHS and the Project file.

3. A draft certification/sample data report prepared by Contractor's licensed environmental professional for review and concurrence. At a minimum, the draft certification/sample data report shall contain:
   a. A site map showing the location of the stockpile and stockpile sample locations.
   b. A detailed discussion and evaluation of the laboratory results.
   c. A summary of findings and recommendations that provide a determination on the waste classification of the subject materials, based on the representative sample results.
   d. Recommendations for additional steps, if any.
   e. Chain-of-custody forms and all laboratory data with respective QA/QC sheets.
   f. To expedite the review process, the draft SSP shall be submitted electronically to the OAR in MS Word format.
   g. Upon revision of the draft certification report by Contractor's licensed environmental professional and acceptance by the OAR, three (3) copies of the final report will be submitted to the OAR.
4. The environmental compliance manager shall confirm that the proposed waste classification for the proposed import material is appropriate.
5. Written documentation, in the form of a memo or e-mail from Contractor to OAR, prior to import, verifying that the hauling contract specifies "clean" trucks and that the actual haul trucks utilized for import activities will be clean of visible contamination or deleterious materials.
6. Written documentation that the trucks went directly from the source location to the recipient location with no detours or stops at other locations and that short loads were not augmented by other materials that were not tested as part of the final import SSP. It is Contractor's responsibility to document that no other trips or short-load augmentation occurred and submit to the documentation within five (5) business days of the completion of the import activities. All import transportation activities shall be conducted in accordance with all applicable (local, State, and Federal) rules and regulations.
7. The independent approved testing laboratory shall perform the required tests and report results of all tests noting if the tested material passed or failed such tests and shall furnish copies to the IOR, Architect, OAR, DSA, Contractor, and others as required. Report shall state tests were conducted under the responsible charge of a licensed State of California professional engineer and the material was tested in accordance with applicable provisions of the Contract Documents, Title 24, CCR, and DSA. Upon completion of the Work of this Section, the independent testing laboratory and geotechnical engineer shall submit a verified report to DSA as required by Title 24, CCR.
8. Certification, in the form of haul tickets or completed waste manifests, documenting the volume and recipient of all import materials and activities. This documentation shall be coordinated through the OAR environmental compliance manager:
   a. For approved import to new Project sites, unregulated facilities (landfill) or non-Project sites, haul tickets may be utilized, but shall contain the following minimum information:
      1) Date of haul activity.
      2) Address of source.
      3) Address of recipient.
      4) Load volume.
      5) Time of departure from source.

6) Time of arrival at recipient site.
7) Signature of recipient or recipient's agent.

1.4 QUALITY ASSURANCE

A. No import of earth or geotechnical grading or fill materials can occur at the Projectsite without prior approval by the OAR.

PART 2 PRODUCTS

2.1 MATERIALS

A. Imported:
1. Soils: Soils proposed for import shall be tested pursuant to the requirements of this Section.
2. Gravels: Clean gravel, consisting of native rock from a commercial source, shall be tested pursuant to the requirements of this Section.
3. Sands: Clean sand from a commercial source shall be tested pursuant to the requirements of this Section. Contractor shall provide written documentation, which identifies the source, volume, and proposed transport date(s) of the material for review.
4. Miscellaneous material: No miscellaneous material containing crushed concrete, asphalt, construction debris, or other potential deleterious materials may be utilized or imported to the Project site for use as fill or grading material.

B. Pre-Tested Sites:

Vulcan Materials Company
1709 Sherbon Street
Corona, CA 92879
Materials Tested: Sand, CAB, and 3/4 " Rock

LB Crushing Company
3100 Horseless Carriage Road
Norco, CA
Materials Tested: Sand

El Toro Materials
Rocky Road & Portola Parkway
Lake Forest, CA
Materials Tested: Sand

Hanson Aggregates North America-Inland Plant
12000 Banyan Street
Rancho Cucamonga CA 91730
Materials Tested: Sand

Hanson Aggregates North America-Irwindale
13550 Live Oak Avenue
Irwindale, CA 91706 Materials
Tested: Sand

Inland Empire Regional Composting Authority (IERCA)
12645 Sixth Street
Rancho Cucamonga, CA 91739 Materials
Tested: Top Soil and Mulch

C. Import of Fill Materials:
1. Fees: Contractor shall pay as required by authorities having jurisdiction over area.
2. Bonds: Contractor shall post as required by authorities having jurisdiction over area.

PART 3 EXECUTION

3.1 GRADING/EXCAVATION

A. If Contractor encounters an area(s) with discolored, stained, and/or odorous soils or any other evidence of contamination during excavation/grading work, Contractor must immediately notify District Representative, cease work in the aforementioned area(s), and secure the area(s) with fencing, tape, stakes, or other suitable means to prevent entry by personnel or equipment. In turn, the District Representative will initiate a construction response to address the contamination, in accordance with pertinent regulatory requirements.

3.2 SAMPLING AND TESTING

A. Contractor shall contract with, and pay for, the services of a licensed environmental professional (licensed State of California Professional Engineer [PE Civil], Professional Geologist [PG], or Registered Environmental Assessor II [REA II]).

B. Contractor shall contract with, and pay for, an independent, approved California Department of Health Services certified testing laboratory to perform sampling and testing of imported, exported, and site generated fill materials:
   1. Note: Utilization of portable, onsite crushing equipment on the Project site also requires prior notification and approval by the OAR.

C. All imported fill/grading material, unless otherwise specified in writing by the OAR, must be tested at the site of origin. Import testing and certification process shall include the following steps:
   1. Stockpile all materials for sampling (standard stockpile or backhoe pothole stockpile). Crushed fill materials generated by Contractor at a Project site must be segregated by material (e.g., separate stockpiles for concrete, asphalt, etc.).
   2. Submit draft SSP for review and concurrence by OAR.
   3. Collect and analyze samples (see Table 1 for number of samples per volume) per SSP. Once fill materials for export have been stockpiled and tested, they may not be used onsite for any purpose without prior approval by OAR.
   4. Submit draft import sample data report for review and concurrence by OAR.
   5. Submit final import sample data report (certification report) to OAR's environmental compliance manager for concurrence of proposed waste classification.
   6. Submit required pre-import documentation/record to the OAR (e-mail).
   7. Submit post import certifications to the OAR.
   8. In addition to the preceding, requirements, certifications, and submittals as indicated in previous subsections above.

D. Owner retains the right to refuse any fill material proposed for use at a Project site.

E. Import fill materials shall be stockpiled by Contractor and are deemed acceptable for import or reuse only when it is demonstrated to the satisfaction of the OAR's environmental compliance manager that the subject materials meet the requirements of this Section.

F. As described in this Section, lacking site-specific data or sample rationale to support a more focused analytical approach, Contractor shall analyze all samples for the following substances according to the methods indicated below. Table 3 is a waste classification flowchart for use by Contractor's environmental professional. In all cases, detection levels and quality assurance/quality control methods shall be in accordance with standard Method reporting limits and best laboratory practices and the following USEPA (EPA) methods:
   1. Total Petroleum Hydrocarbons, utilizing EPA Method 8015M, for gasoline and diesel.
   2. Volatile Organic Compounds, utilizing EPA Method 8260B/5035.
   3. Polychlorinated biphenyls, utilizing EPA Method 8082.
   4. Semi-Volatile Compounds, utilizing EPA Method 8270C.
   5. Organochlorine Pesticides, utilizing EPA Method 8081A.

6. Organophosphorous Pesticides, utilizing EPA Method 8141A.
7. Chlorinated Herbicides, utilizing EPA Method 8151A.
8. California Code of Regulations Title 22 (CAM 17) Metals, utilizing EPA Method 6010B/7470A.
9. Hexavalent Chromium, utilizing EPA Method 7199.
10. Arsenic/Thallium, utilizing EPA Method 6020.

G. Import fill material may be deemed defective for use by the OAR at the Project site if any of the following results are obtained:
1. Total petroleum hydrocarbons are present at concentrations exceeding 100 milligrams per kilogram (mg/kg) for gasoline and 1,000 mg/kg for oil/diesel and long chain hydrocarbons.
2. Solvents and other volatile organic compounds are present at concentrations exceeding the laboratory reporting limit.
3. Polychlorinated biphenyls are present at concentrations exceeding the laboratory reporting limit.
4. Semi-volatile compounds are present at concentrations exceeding the laboratory reporting limit.
5. Organochlorine pesticides are present at concentrations exceeding the laboratory reporting limit.
6. Organophosphorous pesticides are present at concentrations exceeding the laboratory reporting limit.
7. Chlorinated herbicides are present at concentrations exceeding the laboratory reporting limit.
8. California Code of Regulations Title 22 (CAM 17) Metals at concentrations exceeding site-specific background.
9. Hexavalent chromium is present at concentrations exceeding 15 mg/kg.

H. In addition to screening for hazardous materials, the imported soil must be tested and certified to be free of:
1. Organics and debris.
2. Infestation by vermin or insects, in particular fire ants.
3. Boron.

I. Imported materials must be suitable for engineered fill, even if used at landscaping, free from large rocks.

J. Imported materials shall not have a high clay content and must meet the permeability requirements of the Project's hardscape if there is such requirement.

K. Evaluate concentrations of metals in import fill by conducting the analysis set forth below:
1. Compare the maximum detected metal concentrations in import fill samples to the Threshold Criteria listed in Table 4. If any metal concentration exceeds its listed background value, the fill material fails and shall be deemed defective and unacceptable for use at the Project site unless supported by a site-specific health risk assessment.
2. In addition to otherwise specified in this Section, import fill shall be deemed environmentally defective and unacceptable for use if any of the following results are obtained:
   a. Arsenic concentrations exceed 12.0 mg/kg.
   b. Lead concentration exceeds 255 mg/kg or fails TTLC/STLC.
   c. Import materials at new Project sites with total chromium concentrations greater than or equal to 100 mg/kg shall be tested for hexavalent chromium.

L. All import fill material shall be characterized, handled, and documented in accordance with applicable US EPA and State of California hazardous waste and hazardous materials regulations (see Table 2). For the purpose of this Specification, "contaminated" shall mean any soil or geotechnical material at a concentration that would require disposal at a regulated facility (i.e., California hazardous or RCRA hazardous). OAR must be notified at least 72 hours prior to the disposal of any hazardous waste or hazardous material. No material disposal or reuse can take place without prior written approval of the OAR.

M. Specification test results and OAR approvals shall be valid for a period of 120 days from the date of the subject testing unless a variance is requested by Contractor and approved by OAR. Previously approved materials shall not be utilized or disposed off-site after the 120-day limit without prior review

and approval by the OAR.

N. Requests for variances to this Specification shall be submitted in writing to the OAR a minimum of two (2) weeks in advance of need for review and approval. The request for variance must provide all available testing data, a rationale to support the request and have an active funding line (provided by OAR) to facilitate review by the OAR. OAR will review the request for variance and will provide its preliminary determination within two weeks. Certain requests may require final approval by the Department of Toxic Substances Control (DTSC).

O. Soils with concentrations above screening levels may, upon prior approval by the OAR, be reused at other Project sites if supported by a site-specific human health risk assessment.

P. Details of the samples and testing must be submitted to and approved by the OAR's environmental compliance manager before transportation.

Q. Haul Routes and Regulations/Restrictions: Contractor must comply with requirements of Project EIR (CEQA) and authorities having jurisdiction over the Project area and the proposed activities (e.g. Regional Water Quality Control Board, Department of Toxic Substances Control, etc.).

3.3 TRANSPORTATION

A. Contractor shall pay all fees required by authorities having jurisdiction over area.

B. Contractor shall pay all fees for disposal and/or processing of contaminated and/or hazardous fill materials at a regulated facility.

C. Contractor shall post and pay for all bonds required by authorities having jurisdiction over area.

SECTION CONTINUES ON NEXT PAGE

TABLE 1: MINIMUM SAMPLING FREQUENCY	
Volume (Cubic Yards)	Sampling Frequency
0 – 1,000	1 per 250 CY
1,001 - 5,000	4 samples per first 1,000 CY and 1 sample per each additional 500 CY
Greater then 5,000	12 samples for first 5000 CY and 1 sample per each additional 1,000 CY

Chemicals of Potential Concern	TABLE 2 WASTE CHARACTERIZATION Hazardous Waste if Exceed Criteria - TTLC Level* (mg/kg)	Additional WET Leaching Tests if Exceed Hazardous Waste Criteria - 10 times STLC Level** (mg/kg)	California-Regulated Hazardous Waste - Soluble Threshold Limit Concentration -STLC Level (mg/l)	Additional TCLP Leaching Tests if Exceed Hazardous Waste Criteria - 20 times TCLP Level** (mg/kg)	Federally-Regulated (RCRA) Hazardous Waste - Toxicity Characteristic Leaching Procedure - TCLP Level (mg/l)
CAM 17 Metals					
Antimony	500	150	15	NA	NA
Arsenic	500	50	5	100	5
Barium	10,000	1,000	100	2,000	100
Beryllium	75	7.5	0.75	NA	NA
Cadmium	100	10	1	20	1
Chromium	2,500	50	5	100	5
Cobalt	8,000	800	80	NA	NA
Copper	2,500	250	25	NA	NA
Lead	1,000	50	5	100	5
Mercury	20	2	0.2	4	0.2
Molybdenum	3,500	3,500	350	NA	NA
Nickel	2,000	200	20	NA	NA
Selenium	100	10	1	20	1
Silver	500	50	5	100	5
Thallium	700	70	7	NA	NA
Vanadium	2,400	240	24	NA	NA
Zinc	5,000	2,500	250	NA	NA
Chromium (VI)	500	50	5	NA	NA

TABLE 3 – WASTE CLASSIFICATION FLOWCHART

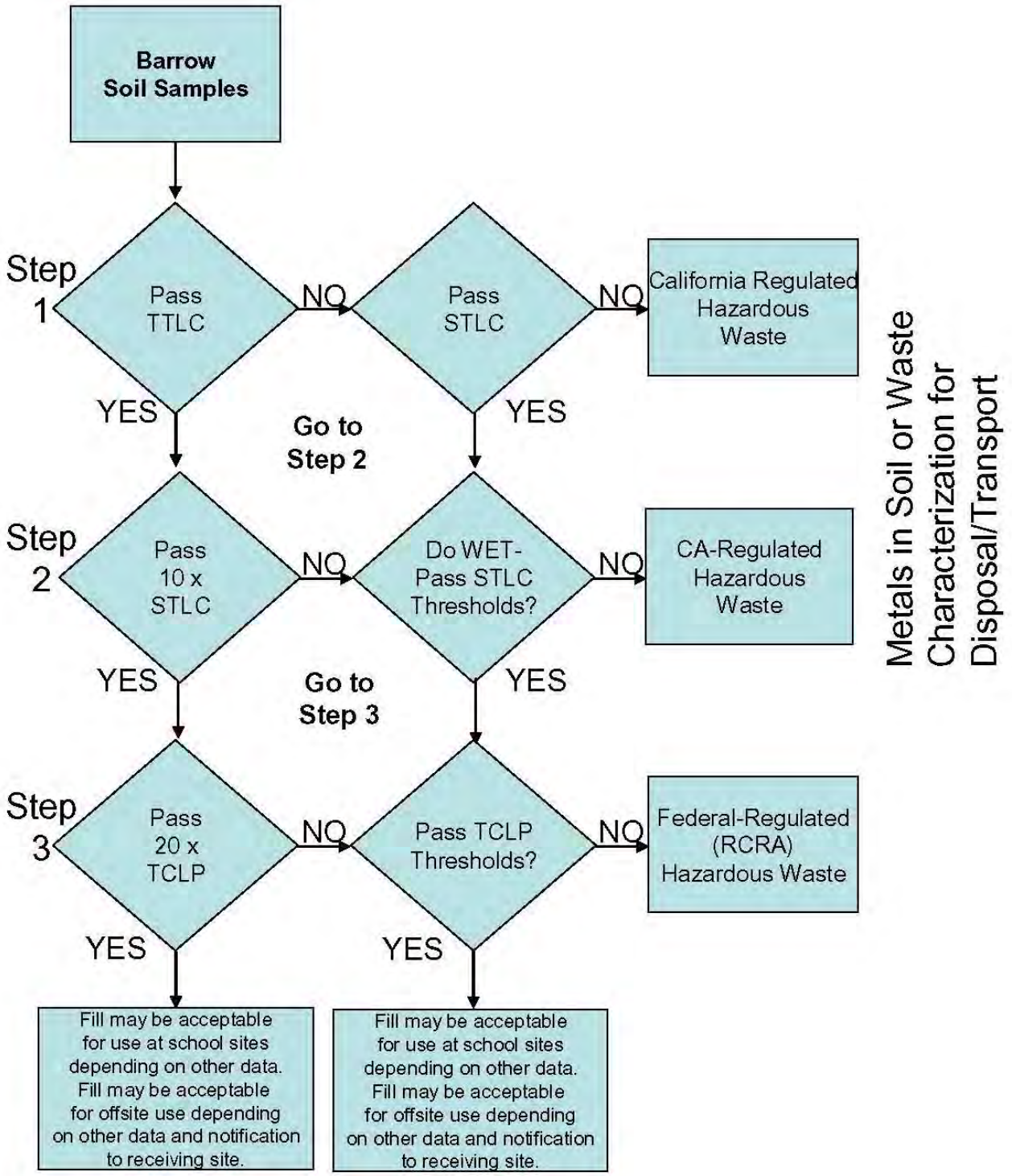

TABLE 4: THRESHOLD CRITERIA FOR METALS IN SOIL - LOOK UP VALUES

CAM 17 Metals	Soil Threshold Criteria (mg/kg)	Basis
Antimony	28	NC
Arsenic	11.3	BK
Barium	2330	NC
Beryllium	16	C
Cadmium	1.4	C
Chromium	106656	NC
Cobalt	4266	NC
Copper	2631	NC
Lead	255	PbB
Mercury	21	NC
Molybdenum	356	NC
Nickel	148	C
Selenium	356	NC
Silver	356	NC
Thallium	4.7	NC
Vanadium	498	NC
Zinc	21331	NC

NC = Non-Cancer Health Effects

BK = Background

C = Cancer Risk

PbB = Blood Lead Levels

END OF SECTION 01 45 24

SECTION 08 41 13 ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements including but not limited to:
   1. Exterior and interior storefront framing.
   2. Exterior and interior manual swing entrance doors.
   3. Accessories necessary for a complete installation.

1.3 PERFORMANCE REQUIREMENTS

A. Aluminum framed systems shall withstand the effects of specified performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction:
   1. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.
   2. Dimensional tolerances of building frame and other adjacent construction.
   3. Failure includes the following:
      a. Deflection exceeding specified limits.
      b. Thermal stresses transferring to building structure.
      c. Framing members transferring stresses, including those caused by thermal and structural movements to glazing.
      d. Noise or vibration created by wind and by thermal and structural movements.
      e. Loosening or weakening of fasteners, attachments, and other components.
      f. Sealant failure.
      g. Failure of operating units.

B. Structural Loads:
   1. Wind Loads: Ultimate Wind Speed Gust; 115 mph. Exposure; D.

C. Deflection of Framing Members:
   1. Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane shall not exceed L/175 of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to 3/4 inch19 mm, whichever is less.
   2. Deflection Parallel to Glazing Plane: Limited to L/360 of clear span or 1/8 inch3.2 mm, whichever is smaller.

D. Structural Test Performance - Provide aluminum framed systems tested according to ASTM E330 as follows:
   1. When tested at positive and negative wind load design pressures, systems do not evidence deflection exceeding specified limits.
   2. When tested at 150 percent of positive and negative wind load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
   3. Test Durations: As required by design wind velocity, but not fewer than 10 seconds.

E. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of 0.06 cfm/sq. ft.0.03 L/s per sq. m of fixed wall area when tested according to ASTM E283 at a minimum static-air-pressure difference of 6.24 lbf/sq. ft. (300 Pa.)

F. Water Penetration under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa.

G. Windborne Debris Impact Resistance:
1. Pass missile impact and cyclic pressure tests when tested according to ASTM E1886 and testing information in ASTM E1996 for Wind Zone 4:
   a. Large Missile Test: For glazed openings located within 30 feet (9.1 m) of grade.

H. Thermal Movements:
1. Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss:
   a. Temperature Change (Range): 120 degrees F (67 degrees C, ambient; 180 degrees F100 degrees C, material surfaces.
   b. Interior Ambient-Air Temperature: 75 degrees F (24 degrees C.

I. Condensation Resistance: Provide aluminum framed systems with fixed glazing and framing areas having condensation-resistance factor (CRF) of not less than 45 when tested according to AAMA 1503.

J. Thermal Conductance: Provide aluminum framed systems with fixed glazing and framing areas having an average U-factor of not more than 0.57 Btu/sq. ft. x h x degrees F3.23 W/sq. m x K when tested according to AAMA 1503.

1.4 SUBMITTALS

A. Product Data: Technical data for each type of product indicated including construction details, material descriptions, dimensions of individual components and profiles, and finishes for aluminum framed systems.

B. Shop Drawings:
1. Submit aluminum storefront framing and entrances shop drawings including plans, elevations, sections, full size details, and attachments to other Work:
   c. Include details of provisions for system expansion and contraction and for drainage of moisture in the system to the exterior.
   d. For entrance doors, include hardware schedule and indicate operating hardware types, functions, quantities, and locations.

C. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related Work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

D. Engineer’s calculations of performance requirements.

E. Maintenance Data: For aluminum framed systems to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Accessibility Requirements:
      a. California Building Code: CBC Section 11B-404.3 accessible route.
      b. U.S. Architectural and Transportation Barriers Compliance Board Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG).
      c. ICC A117.1 Accessible and Useable Building and Facilities.
      d. CBC Section 11B-309.4 operable parts interior usage.

B. Installer Qualifications: Installer having minimum 10 years documented experience who is an authorized representative of the manufacturer and is trained and approved for installation of units required.

C. Engineering Responsibility: Prepare data for aluminum framed systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated.

D. Product Options:
   1. Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in service performance:
      a. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.

E. Source Limitations: Obtain aluminum framed entrances from single source from single manufacturer.

F. Preinstallation Conference: Conduct conference at site.

1.6 WARRANTY

A. Written warranty signed by Manufacturer, Contractor, and Installer in which manufacturer agrees to repair or replace components of aluminum framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Structural failures including, but not limited to, excessive deflection.
      b. Noise or vibration caused by thermal movements.
      c. Water leakage through fixed glazing and framing areas.
      d. Failure of operating components.
   2. Warranty Period: Two years from date of Substantial Completion.

B. Written warranty signed by manufacturer in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering:
   1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MATERIALS

A. Basis of Design:
   1. Kawneer Trifab 451/451T (Product Evaluation CWSF-34), impact resistant system, maximum design pressure +/- 45 psf. Subject to compliance with requirements, provide comparable storefront system by one of the following:
      a. Tubelite, Inc.
      b. US Aluminum Corporation.
      c. Vistawall.
      d. YKK America AP, Inc.

B. Aluminum:
   1. Alloy and temper recommended by manufacturer for type of use and finish indicated:
      a. Sheet and Plate: ASTM B209ASTM B209M.
      b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B221ASTM B221M.
      c. Extruded Structural Pipe and Tubes: ASTM B429.

C. Framing Members:
   1. Extruded aluminum framing members of thickness required and reinforced necessary to support imposed loads:
      a. Construction: Nonthermal/Thermal.
      b. Glazing System: Retained mechanically with gaskets on four sides.
      c. Glazing Plane: Center.

D. Accessories:
   1. Brackets and Reinforcements: High strength aluminum with nonstaining, nonferrous shims for aligning system components.
   2. Fasteners and Accessories:
      a. Corrosion resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials:
         1) Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
         2) Reinforce members as required to receive fastener threads.
   3. Concrete and Masonry Inserts: Hot dip galvanized cast iron, malleable iron, or steel inserts, complying with ASTM A123/A123M or ASTM A153/A153M.
   4. Concealed Flashing: Corrosion resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.
   5. Framing System Gaskets and Sealants: Recommended by manufacturer for joint type.

E. Glazing:
   1. Refer to Section 08 80 00: Glazing:
      a. Glazing Gaskets: Compression types; replaceable, molded or extruded, of profile and hardness required to maintain watertight seal.
      b. Spacers and Setting Blocks: Elastomeric type.

F. Entrance Doors:
   1. Glazed entrance doors for manual swing operation:
      a. Door Construction: 1-3/4 inch 44.5 mm overall thickness, with minimum 0.125 inch 3.2 mm thick, extruded aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
      b. Door Design:
         1) Wide stile; 5-1/2 inch (88.9 mm) nominal width:
            a) Accessible Doors: Smooth surfaced for width of door in area within 10 inches 255 mm above floor or ground plane.
      c. Glazing Stops and Gaskets: Square, snap on, extruded aluminum stops and preformed gaskets.

G. Entrance Door Hardware:
1. Refer to Section 08 71 00 for aluminum entrance hardware sets:
a. Provide entrance door hardware and entrance door hardware sets indicated in door and frame schedule for each entrance door to comply with requirements in this Section:
1) Opening-Force Requirements: CBC Section 11B-404.2.9:
a) Exterior/Interior hinged doors, sliding doors or folding doors: 5 lbs. sf, Maximum.
b) Required Fire Doors: The minimum opening force allowable by DSA not to exceed 15 lbs. sf. (These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position).
c) Accessible Interior Doors: Maximum 5 lb. ft. to fully open door.
2) Weather Stripping: Standard replaceable components to match existing.
3) Weather Sweeps: Standard exterior door bottom sweep with exposed fasteners on mounting strip to match existing.

H. Accessories:
1. Joint Sealants: For installation at perimeter of aluminum framed systems, refer to Section 07 92 00.
2. Bituminous Paint: Cold applied, asphalt mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 30 mil 0.762 mm thickness per coat.

2.2 FABRICATION

A. Form or extrude aluminum shapes before finishing.

B. Framing Members:
1. Fabricate components that, when assembled, have specified characteristics:
a. Profiles that are sharp, straight, and free of defects or deformations.
b. Accurately fitted joints with ends coped or mitered.
c. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
d. Physical and thermal isolation of glazing from framing members.
e. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
f. Provisions for field replacement of glazing from interior for vision glass and exterior for spandrel glazing or metal panels.
g. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
h. Provide sill receptors with end dams at all sill conditions.

C. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.

D. Storefront Framing: Fabricate components for assembly using screw spline system.

E. Entrance Door Frames:
1. Reinforce as required to support loads imposed by door operation and for installing entrance door hardware:
a. At exterior doors, provide weather stripping at fixed stops.
b. At interior doors, provide weather stripping at stops to prevent metal to metal contact.

F. Entrance Doors:

1. Reinforce doors as required for installing entrance door hardware:
   a. At pairs of exterior doors, provide compression type weather stripping retained in adjustable strip and mortised into door edge.
   b. At exterior doors, provide weather sweeps applied to door bottoms.

G. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.3 ALUMINUM FINISHES

A. Finish all exposed areas of aluminum and components as indicated.

1. Class Fluorocarbon Coating: AAMA 2605.2.
   c. Resin: 70% PVDF Kynar 500/Hylar 5000.
   d. Substrate: cleaned and pretreated with chromium phosphate.
   e. Primer: Manufacturer's standard resin base compatible coating. Dry film thickness.
   f. Extrusion: Minimum 0.20 mil.
   g. Color Coat: 70% PVDF, dry film thickness.
      1) Extrusion: 1.0 mil.
   h. Color: As selected by Architect.
   i. Acceptable Coatings Manufacturers:
      2) PPG Industries, Inc.
      3) Valspar Corporation
      4) BASF

PART 3 EXECUTION

3.1 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of structural supports for aluminum framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

3.2 EXAMINATION

A. Examine areas and conditions for compliance with requirements for installation tolerances and conditions affecting performance of the Work. Proceed with installation after correcting unsatisfactory conditions.

3.3 INSTALLATION

A. Comply with aluminum framed storefront manufacturer recommended installation instructions. Coordinate installation with curtain wall work:
   1. Do not install damaged components.
   2. Fit joints to produce hairline joints free of burrs and distortion.
   3. Rigidly secure nonmovement joints.
   4. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
   5. Seal joints watertight unless otherwise indicated.
   6. Min anchorage #8 with 2 inch min embedment. Min 2 inches from edges. Refer to shop drawings.

B. Metal Protection:
   1. Where aluminum will contact dissimilar metals, protect against galvanic action by

painting contact surfaces with primer or applying sealant or tape, or by installing nonconductive spacers as recommended by manufacturer for this purpose.

2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.

D. Set continuous sill members and flashing in full sealant bed as specified in Section 07 92 00: Joint Sealants to produce weathertight installation.

E. Install components plumb and true in alignment with established lines and grades, and without warp or rack.

F. Install glazing specified in Section 08 80 00.

G. Entrance Doors and Hardware:
   1. Install doors to produce smooth operation and tight fit at contact points:
      a. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
      b. Field Installed Entrance Door Hardware: Install surface mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

H. Install perimeter joint sealants as specified in Section 07 92 00 to produce weathertight installation.

3.4 ERECTION TOLERANCES

A. Install aluminum framed systems to comply with the following maximum erection tolerances:
   1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.
   2. Alignment:
      a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch1.5 mm.
      b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch0.8 mm.

B. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch3 mm.

3.5 ADJUSTING

A. Adjust operating entrance door hardware to function smoothly as recommended by manufacturer:
   1. For entrance doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches 75 mm from the latch, measured to the leading door edge.

3.6 MAINTENANCE SERVICE

A. Entrance Door Hardware:
   1. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of entrance door hardware.
   2. Initial Maintenance Service: Beginning at Substantial Completion, provide six months

full maintenance by skilled employees of entrance door hardware Installer. Include quarterly preventive maintenance, repair, or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper entrance door hardware operation at rated speed and capacity. Provide parts and supplies the same as those used in the manufacture and installation of original equipment.

END OF SECTION 08 41 13