DRAFT

Initial Study and Mitigated Negative Declaration

CAL FIRE Prado Helitack Base Replacement Project

Lead Agency:

California Department of Forestry and Fire Protection
1416 9th Street
Sacramento, CA 95814

October 2020

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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California Department of Forestry and Fire Protection
1416 9th Street
Sacramento, CA 95814

Prepared for:

State of California Department of General Services
Real Estate Services Division
707 Third Street, Fourth Floor
West Sacramento, California 95605

Prepared by:

2525 Warren Drive
Rocklin, California 95677

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DRAFT MITIGATED NEGATIVE DECLARATION
CAL FIRE PRADO HELITACK BASE REPLACEMENT

Lead Agency: State of California Department of Forestry and Fire Protection

Project Proponent: State of California Department of General Services, Real Estate Services Division

Project Location: The Project site is located at the southeast corner of the intersection of Central Avenue and Eucalyptus Avenue at 14467 Central Avenue, Chino, in San Bernardino County. The site area is approximately 16.78 acres and is currently used by CAL FIRE as a helitack base.

Project Description: The Proposed Project entails the construction of a new helitack base and associated facilities and structures, including barracks, a warehouse, a garage, a training tower, a vehicle wash rack, storage, a hangar, an electrical building, a trash enclosure, a jet fuel tank, a generator, a hose rack, and vehicle fuel tanks.

Public Review Period: **October 2, 2020 – November 2, 2020**

Mitigation Measures Incorporated into the Project to Avoid Significant Effects:

Biological Resources

BIO-1: Pre-Construction Sensitive Plant Surveys. The following shall be conducted prior to initiation of Project construction:

- Perform focused plant surveys according to USFWS, CDFW, and CNPS protocols. Surveys should be timed according to the blooming period for target species and known reference populations, if available, and/or local herbaria should be visited prior to surveys to confirm the appropriate phenological state of the target species. If special-status plant species are found during surveys within the Project site and avoidance of the species is not possible, seed collection, transplantation, and/or other conservation approaches may be developed in consultation with appropriate resource agencies to reduce impacts to special-status plant populations. If no special-status plants are found on the Project Site, no further measures pertaining to special-status plants are necessary.

BIO-2: Pre-Construction Bird Nesting Surveys. The following shall be conducted prior to initiation of Project construction:

- Conduct a pre-construction nesting raptor and bird survey of all suitable habitat on and adjacent to the Project Site as described below within 14 days of commencement of construction during the nesting season (February 1 – September 15). Surveys should be

conducted within 300 feet of the Project Site for nesting raptors, including sharp-shinned hawk (*Accipiter striatus*), and 100 feet of the Project Site for nesting birds.

- A no-disturbance buffer around the nest shall be established if active nests are found. The buffer distance shall be established by a qualified biologist and is recommended to be 300 feet for raptors and 50 feet for non-raptor songbirds. If an active sharp-shinned hawk, yellow-breasted chat (*Icteria virens*), or yellow warbler (*Setophaga petechia*) nest is found, the no-disturbance buffer shall be determined through consultation with CDFW. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. No further measures are necessary once the young are independent of the nest. Pre-construction nesting surveys are not required for construction activity outside the nesting season.

BIO-3: Pre-Construction Burrowing Owl Surveys. The following shall be conducted prior to initiation of Project construction:

- Pre-construction surveys for burrowing owl shall be conducted prior to the start of construction. The surveys shall follow the methods described in the CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012). Two surveys shall be conducted, with the first survey being conducted between 30 and 14 days before initial ground disturbance (e.g., grading, grubbing, construction), and the second survey being conducted no more than 24 hours prior to initial ground disturbance. If burrowing owls and/or suitable burrowing owl burrows with sign (e.g., whitewash, pellets, feathers, prey remains) are identified on the Project site during the survey and impacts to those features are unavoidable, consultation with the CDFW shall be conducted and the methods described in the CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012) for avoidance and/or passive relocation shall be followed.

Cultural Resources

CUL-1: Implement Measures to Protect Unanticipated Cultural Resources Discoveries. If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required.

- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify CAL FIRE. The agency shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be an Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines. Work may not resume within the no-work radius

until the Lead Agency, through consultation as appropriate, determines that the site either: 1) is not an Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines; or 2) that the treatment measures have been completed to its satisfaction.

- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the San Bernardino County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC may mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate CHRIS; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the Lead Agency, through consultation as appropriate, determines that the treatment measures have been completed to its satisfaction.

Geology and Soils

GEO-1: Discovery of Unknown Paleontological Resources.

- If any paleontological resources (i.e., fossils) are found during Project construction, construction shall be halted immediately in the subject area and the area shall be isolated using orange or yellow fencing until CAL FIRE is notified and the area is cleared for future work. A qualified paleontologist shall be retained to evaluate the find and recommend appropriate treatment of the inadvertently discovered paleontological resources. In addition, in the event of an inadvertent find, sediment samples should be collected and processed to determine the small fossil potential on the Project Site. If CAL FIRE resumes work in a location where paleontological remains have been discovered and cleared, CAL FIRE will have a paleontologist onsite to observe any continuing excavation to confirm that no additional paleontological resources are in the area. Any fossil materials uncovered during mitigation activities should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

Tribal Cultural Resources

TCR-1: Implement Measures to Protect Unanticipated Tribal Cultural Resources Discoveries. If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within 100 feet of the discovery. The construction foreman will notify RESD and

CAL FIRE, which shall notify culturally affiliated tribe(s) and a qualified professional archaeologist. The responding tribe(s) will be afforded a reasonable opportunity to visit the discovery location to determine whether or not it is a tribal cultural resource. The following actions shall apply, depending on the nature of the find:

- If the culturally affiliated tribe(s) determines that the find does not represent a tribal cultural resource, and the qualified professional archaeologist determines that the find does not represent a potential historical resource, and CAL FIRE concurs, then work may resume immediately, and no further action is required.
- If the culturally affiliated or consulting tribe(s) determines that the find does represent a tribal cultural resource, as defined in PRC Section 21074(a) though (c) of the CEQA Guidelines, RESD and CAL FIRE shall consult with the tribe on appropriate treatment measures. Work may not resume within the no-work radius until RESD and CAL FIRE, through consultation as appropriate, determines that the treatment measures have been completed to their satisfaction.
- If the find includes human remains, or remains that are potentially human, the construction supervisor shall ensure reasonable protection measures are taken to protect the discovery from disturbance (Assembly Bill [AB] 2641) and shall immediately notify RESD, CAL FIRE, and the San Bernardino County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC within 24 hours. The NAHC will designate a Native American Most Likely Descendant (MLD) for the discovery (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with San Bernardino County (AB 2641). Work may not resume within the no-work radius until RESD and/or CAL FIRE, through consultation as appropriate, determines that the treatment measures have been completed to its satisfaction.

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ACRONYMS AND ABBREVIATIONS

2016 AQMP	2016 Air Quality Management Plan
AB	Assembly Bill
AF	Acre-feet
Amsl	Above mean sea level
AQMP	Air Quality Management Plan
BMPs	Best Management Practices
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission

CEQA	California Environmental Quality Act
CH_4	Methane
CHRIS	California Historic Resources Information Center
CIM	California Institution for Men
City	City of Chino
CIWM	California Integrated Waste Management
CNDDB	California Natural Diversity Database
CNEL	Community noise equivalent level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CUPA	Certified Unified Program Agency
CVFD	Chino Valley Fire District
dBA	A-weighted decibel
DHS	Department of Health Services
DOC	Department of Conservation
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
EO	Executive Order
FHWA	Federal Highway Administration
General Plan	Chino General Plan
GHGs	Greenhouse Gases
HMMH	Harris Miller Miller & Hanson, Inc.
TPA	Transit Priority Area
kWh	Kilowatt hour
LEED	Leadership in Energy and Environmental Design
L_{eq}	Equivalent noise level
LESA	Land Evaluation and Site Assessment
LOS	Level of Service
LSTs	Localized Significance Thresholds
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendent
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zone
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAHC	Native American Heritage Commission
ND	Negative Declaration
NO_2	Nitrogen dioxide
NO_x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	Ozone
OHP	Office of Historic Preservation

OPR	California Office of Planning and Research
pCi/L	picocuries per liter
PM	Particulate Matter
PM_{10}	Coarse particulate matter
$PM_{2.5}$	Fine particulate matter
PPV	Peak particle velocity
Proposed Project	Prado Helitack Base
RCPG	Regional Comprehensive Plan and Guide
ROG	Reactive Organic Gases
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
Sf	Square feet/foot
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act
SO_2	Sulfur dioxide
SoCAB	South Coast Air Basin
SPCC	Spill Prevention, Control and Countermeasure
SR	State Route
SRA	Sensitive Receptor Area
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic air contaminant
TCR	Tribal Cultural Resources
USDA	U.S. Department of Agriculture
USEPA	U.S Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGBC	U.S. Green Building Council
VMT	Vehicle miles traveled

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SECTION 1.0 BACKGROUND

Summary

Project Title:	CAL FIRE Prado Helitack Base Replacement
Lead Agency Name and Address:	California Department of Forestry and Fire Protection 1416 9th Street Sacramento, California 95814
Contact Person and Phone Number:	Mr. Dakota Smith Senior Environmental Planner/Project Manager California Department of General Services RESD-PMDB Environmental Services, MS 509 707 3rd Street, 4th Floor West Sacramento, California 95605 (916) 376-1700 dakota.smith@dgs.ca.gov
Project Location:	14467 Central Ave Chino, California 91710 San Bernardino County
General Plan Designation:	Urban Reserve
Zoning:	Open Space/Recreational (OSR)

1.1 Introduction

The California Department of Forestry and Fire Protection (CAL FIRE) is the Lead Agency for this Initial Study (IS), which has been prepared to identify and assess potential environmental impacts of the proposed Prado Helitack Base Replacement Project. This document has been prepared to satisfy the California Environmental Quality Act (CEQA) (Public Resources Code [PRC], Section 21000 et seq.) and State CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.). CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those projects. A CEQA IS is generally used to determine which CEQA document is appropriate for a project (Negative Declaration [ND], Mitigated Negative Declaration [MND], or Environmental Impact Report [EIR]).

In accordance with CEQA, this IS/MND will be circulated for a 30-day public review and comment period. Written comments on the Draft IS/MND should be submitted to:

Mr. Dakota Smith, Senior Environmental Planner
California Department of General Services, Real Estate Service Division
707 Third Street, 4th Floor
West Sacramento, California 95605

dakota.smith@dgs.ca.gov

SECTION 2.0 PROJECT DESCRIPTION

2.1 Project Background and Objectives

CAL FIRE proposes to upgrade the existing Prado Helitack Base located at the Prado Conservation Camp in Chino, California (Proposed Project). The existing Prado Helitack Base was established in 1988 and is located in the CAL FIRE Riverside Unit. The Prado Base responds to an average of 55 fire calls per year. Prado provides coverage to Orange, Riverside, and San Bernardino counties and the Cleveland, San Bernardino, and Angeles National Forests.

The Project objective is to replace the facility with the construction of a new, modern helitack facility that would allow the base to continue to provide high-quality fire protection and emergency-response service within the State Responsibility Area (SRA) and that would accommodate the changing aviation and event-response parameters of the facility. Additionally, offsite utility improvements will be made as part of the Project to separate CAL FIRE's existing utility and sewer service from the California Institution for Men, Chino (CIM) and make connections to various city services.

2.2 Project Characteristics

2.2.1 Site Location and Setting

The Project site is located at the southeast corner of the intersection of Central Avenue and Eucalyptus Avenue at 14467 Central Avenue, Chino in San Bernardino County (see Figures 2-1. *Project Location* and 2-2. *Project Vicinity*). The site area is ±16.78 acres. The Project site is currently used by CAL FIRE as a helitack base and has two helicopter pads, several small storage structures, and a modular building used for office space and barracks. The majority of the existing site is characterized as undeveloped open land with grass and gravel as the main ground cover (see Figure 2-3. *Representative Site Photos*). The property is bounded on all sides by a chain link fence. There is a Southern California Edison (SCE) electrical substation in the northwest portion of the site adjacent to Central Avenue, separated from the Project site by a chain link fence. The site gently slopes north to south, and elevations range between 620 to 630 feet above mean sea level (amsl).

As part of the Proposed Project, the State is purchasing approximately 116,250 square feet (sf) of land from CIM, extending the southern border by 150 feet. This land was previously leased by CIM to California State Polytechnic University, Pomona and used as agricultural land.

Immediately east and south of the Project site is open space associated with the CIM facility. This area is characterized by flat terrain with minimal vegetative cover. Prison facilities are located farther to the east and south. The western side of Central Avenue opposite the site contains commercial and industrial uses. The Prado Conservation Camp and Ruben S. Ayla Park occupy the land north and northeast of the Project site.



Location: N:\2018\2018-116.008 Cal Fire Prado Helitack Base Replacement\MAPS\CEQA\CalFire_PradoHelitack_Vicinity_20200312.mxd *(KIT)-kturnquist 3/13/2020*

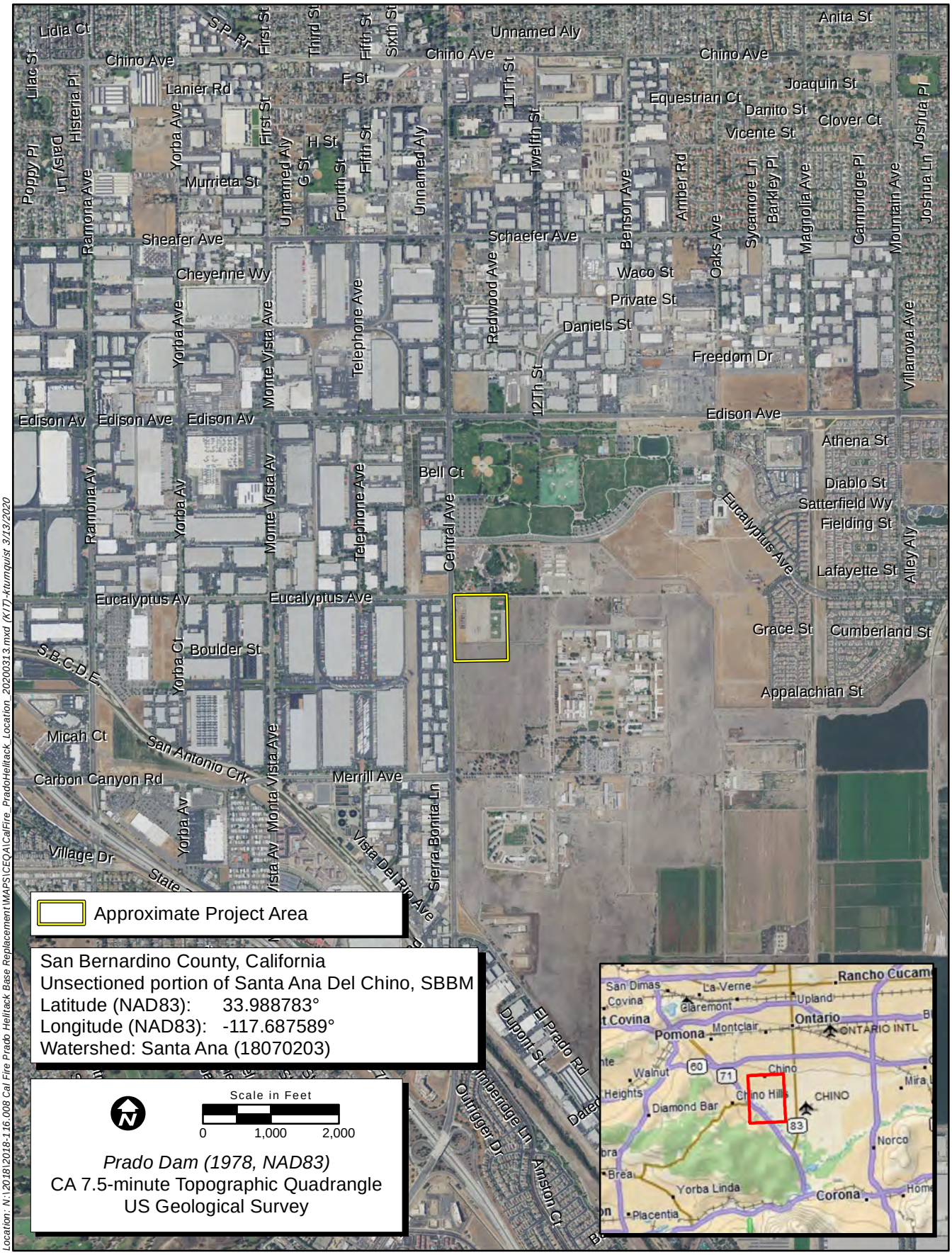
Map Date: 3/13/2020

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Figure 2-1. Project Location

2018-116.008 Cal Fire Prado Helitack Base

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Location: N:\2018\2018-116.008 Cal Fire Prado Helitack Base Replacement\MAPS\CEQA\CalFire_PradoHelitack_Location_20200313.mxd (KIT) -ktumquist 3/13/2020

Map Date: 3/13/2020

Sources:

DRAFT

Figure 2-2. Project Vicinity

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Existing helipads.



Storage facilities along east edge of Project site. CIM Chino property in background.



Existing modular office building.



Looking from center of Project site toward electrical substation along Central Avenue.

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Figure 2-3. Representative Site Photos

2018-116.008 CAL FIRE Prado Helitack Base

2.3 Project Characteristics

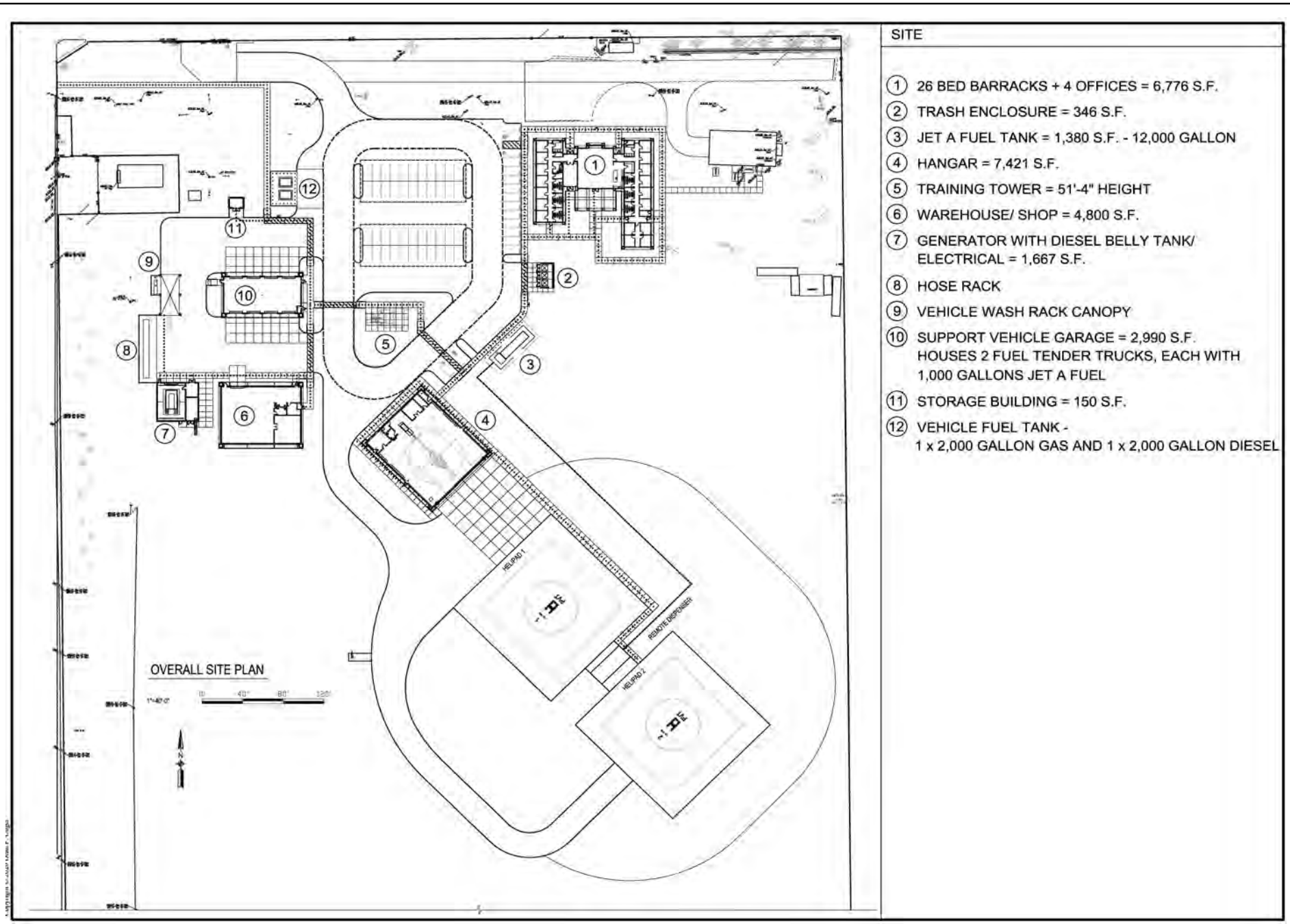
2.3.1 Project Statistics

The Proposed Project includes the construction of a new helitack base and associated facilities/structures (see Table 2.4-1 and Figure 2-4. *Site Plan*). New facilities to be constructed would include a 26-bed barracks (with four offices), mess hall, and resources management office building. Other improvements would include a warehouse, training tower, helicopter hangar, garage, electrical building, and storage building. The Proposed Project would also include on- and offsite improvements such as grading, drainage, paving, walkways, curbs, roads, utilities, electrical, telephone, irrigation, lighting, fencing, and landscaping. The Proposed Project would be constructed on property currently controlled by CAL FIRE and an expansion area that is currently part of the prison property. The existing modular building will continue to be used for daily use during construction and will be used for future barracks during major events.

Table 2.4-1. Proposed New Facilities/Structures

Proposed New Structures	Square Feet
Barracks	7,465
Warehouse	4,800
Garage	2,990
Training Tower	406 (54 feet tall)
Vehicle Wash Rack	1,093
Storage	156
Hanger	7,421
Electrical Building	1,660
Trash Enclosure	346
Jet Fuel Tank	2,380 (12,000 gallons)
Generator with desal belly tank/Electrical	1,667
Hose Rack	--
Vehicle Fuel Tanks	Two 2,000-gallon tanks

All buildings would be designed to meet the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Silver rating requirements; however, registration and certification will not be pursued. Detailed descriptions of the proposed facilities and improvements are provided below and floor plans and elevations for each building/improvement are provided in *Appendix A – Schematic Design Plans*.



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Figure 2-4. Site Plan

2.3.1.1 Barracks

The new barracks building would sleep 26 and includes 13 dorm-style rooms, 13 bathrooms, two laundry rooms, janitor storage room, dining room, living room, day room, activities room, kitchen, pantry, server room, and four offices for a total of 7,465 sf (Number 1 on Figure 2-4.) Just to the south of the new barracks and north of the jet fuel storage will be a 346-sf trash enclosure (Number 2 on Figure 2-4.)

2.3.1.2 Warehouse

The new warehouse would be approximately 4,800 sf and will include a 2,998-sf vehicle parking area, 466-sf shop, 739-sf storage area, bathroom, 135-sf secured storage area, and work bench. (Number 6 on Figure 2-4.)

2.3.1.3 Training Tower

The training tower would be 406 sf at the base and will have five stories with four landings and a platform on the fifth level and will be 54 feet in height. (Number 5 on Figure 2-4.)

2.3.1.4 Helicopter Hangar

The helicopter hanger will be 7,421 sf and will include a 302-sf shop, 244-sf storage area, a restroom, compressor room, and electrical room. The hangar will be constructed to accommodate a Sikorsky S-70i Firehawk helicopter. (Number 4 on Figure 2-4.)

2.3.1.5 Fuel Storage

To the northeast of the helicopter hanger/landing pads will be a 1,380-sf jet fuel storage building containing a 12,000-gallon fuel tank (Number 3 on Figure 2-4). Additionally, two 2,000-gallon vehicle fuel tanks (one for gas and one for diesel) will be located to the north of the garage and east of the storage building (Number 12 on Figure 2-4.)

2.3.1.6 Garage Building

The new garage will be approximately 2,990 sf and will have the ability to house two Jet A 350 Fuel Tender Trucks (1,000-gallon capacity each). (Number 10 on Figure 2-4.)

2.3.1.7 Electrical Building and Generator Yard

The electrical building and generator yard will be approximately 1,660 sf and will include two separate rooms for electrical equipment (165 and 275 sf) and a 1,048-sf yard. This area will also include a generator with diesel belly tank. (Number 7 on Figure 2-4.)

2.3.1.8 Vehicle Wash Rack

The Project includes a 1,093 sf Vehicle Wash rack and an adjacent hose rack. (Numbers 8 and 9 on Figure 2-4.)

2.3.1.9 Other Onsite Improvements

Drainage

The Project site would maintain existing grades. Generally, the site currently slopes from north to south. There is an existing storm drain located on the north side of the Project site that collects offsite runoff from the north. This drain would be protected in place. Project implementation will result in more impervious surfaces on the site; therefore, a stormwater treatment system would be provided in compliance with local stormwater quality regulations. The onsite runoff would be collected and treated on the south side of the site consistent with current site conditions.

Stormwater BMPs might include the following:

- Underground infiltration dependent on soil percolation test results
- Vegetated swales

Design options will be fully evaluated once the site plan and soil report are fully developed.

Water Distribution

The site would be served by separate domestic and fire flow water systems. Fire water service laterals would include associated backflow devices, double-check assemblies and fire department connections. Currently, there is an existing water service line from Central Avenue. This existing service would be utilized for domestic water service. A new fire water service would be established from the City of Chino line.

Sanitary Sewer

A new gravity sanitary sewer connection and system would be constructed to pick up effluent from the new proposed buildings. The new connection would be to a City of Chino sewer line in Central Avenue and the City would provide sewer services. The existing sewer system connects to the State Prison's sewer main east of the site. The existing sewer system would be demolished and removed and the connection would be disconnected and capped from the State Prison's property.

Reclaimed Water

There is an existing reclaimed water system and meter onsite. This system had served the site for irrigation purposes, but it is currently disconnected at the meter located at Central Avenue. The service account would be reactivated.

Other onsite improvements include paving, walkways, parking, curbs, interior roads, electrical, telephone, irrigation, lighting fencing and landscaping. Gas service will come from an existing gas meter just north of the site within the Prado Conservation Camp property.

2.3.1.10 Offsite Improvements

The Proposed Project will include new water and sewer connections to allow abandonment of the existing water and sewer connections from the prison and establish new connections to City of Chino facilities. A new storm drain connection will be required as well.

The following connections will be established along Central Avenue as part of the Project:

- Sanitary sewer connection
- Storm drain connection
- Fire flow connection
- Reactivation of domestic water connection
- Reactivation of reclaimed water connection

It is assumed the new onsite utilities will be owned and operated by either CAL FIRE or the State.

2.4 Helicopter Flight Information

Improvements proposed for helicopter operations include a new hanger and construction of two new helipads to replace the existing two that will be removed. The Sikorsky S70 Firehawk helicopter is used by CAL FIRE first responders at the Prado Helitack Base. The anticipated number of flights daily is largely dependent on the type of activity and season. During a peak-season fire event, the number of flights to and from the base could be five or more. A rescue event is more difficult to predict because the types of activities are more varied, but similar flight volume could be anticipated. Planned training events generally generate one to three flights daily. Off-season fire events generally generate two to three flights daily, but more can be required depending on need. Evening hour restrictions are unknown but could be from 4:10 p.m. in the later part of the year to 8:00 p.m. mid-summer and extend to typical startup time from 5:40 a.m. to 6:56 a.m. Round-trip flights can range from a few minutes (in the event of a cancellation) to seven hours. Helicopter approach and departure will be northeast-southwest of the facility at 225°/45° true north (213°/033° magnetic) (see Figure 2-5. *Helicopter Flight Plan*).

Chino Valley Fire also uses the second helipad when available to perform medical air transport. The second pad is also used when there is high fire danger, and the unit staffs an additional helicopter. The CIM would like to maintain access to the helipads for use in emergency situations.

2.5 Operations and Maintenance

Currently, the Prado Helitack Base is staffed by approximately eight fulltime staff, including four fire captains, two pilots, two fire apparatus engineers, and 12 seasonal firefighters. When the Proposed Project is complete, the helitack base will support up to 18 fulltime staff daily. When 24-hour response is required, additional staffing could be necessary during both daytime and nighttime hours. Aviation operations after the Project is complete are anticipated to involve 350 to 450 hours of total annual flight time for the helicopter operations. This time would be split between actual fire events and training flights with the majority of the overall hours dedicated to fire event response activities.

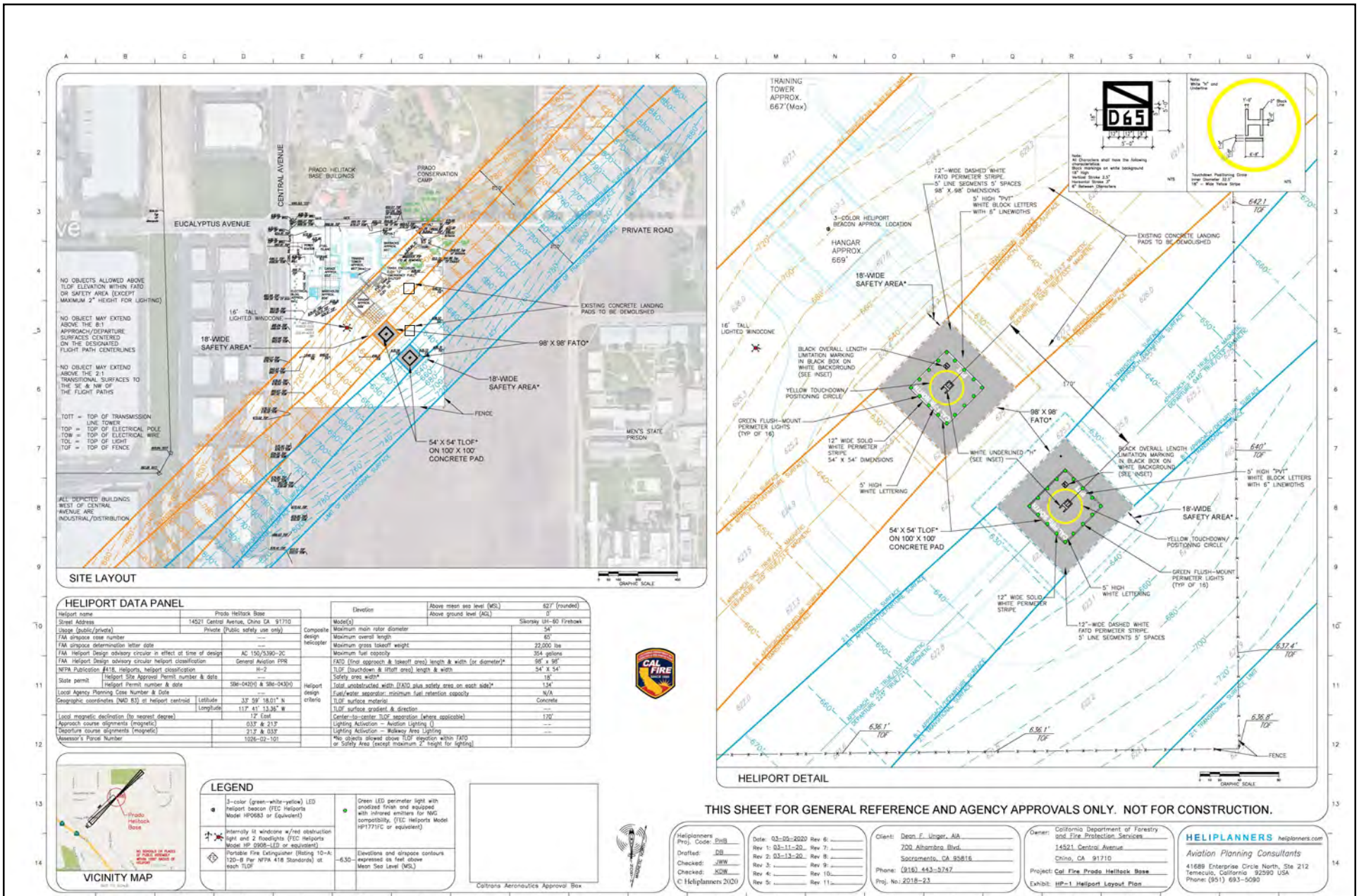


Figure 2-5. Helicopter Flight Plan

2.6 Project Timing

Project construction is anticipated to start in the off-fire season in spring 2021 and be completed within a year to a year and a half. Construction activities would start when Project funding has been fully secured and all construction contracts have been put in place. According to CAL FIRE, Project construction will be continuous and not done in phases.

2.7 Regulatory Requirements, Permits, and Approvals

This Initial Study provides the environmental information and analysis and primary CEQA documentation necessary for CAL FIRE to adequately consider the effects of the proposed construction and operation of the Project. CAL FIRE, as lead agency, has the approval authority and responsibility for considering the environmental effects of the Proposed Project.

The following approvals and regulatory permits would be required for implementation of the Proposed Project.

Organization or Issue	Approval or Permit
State Water Resources Control Board (SWRCB)	• Construction General Permit (including the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), and best management practices (BMPs)
California Department of Transportation (Caltrans) – Division of Aeronautics	• Heliport Site Approval Permit
Caltrans – Division of Aeronautics	• Heliport Permit authorizing restart of flight operations upon final post-construction inspection
San Bernardino County Certified Unified Program Agency (CUPA)	• Permits associated with storage and use of Jet A, diesel and gasoline, oils and lubricants, and specialty fire suppression liquids, and tanks. • Spill Prevention, Control and Countermeasure (SPCC) Plan must be filed and be stamped by a registered civil engineer, since there would be more than 10,000 gallons of petroleum products stored onsite. • Hazardous Materials Business Response Plan and Hazardous Waste Inventory
CAL FIRE Aviation	• Permits or approvals associated with aviation activities on the site.
San Bernardino County Air Pollution Control District	• Air permit (for the generator), Authority to Construct Permit
State Fire Marshal; State Architect	• Approval for Americans with Disabilities Act, structural review, and fire suppression and code compliance review.
Federal Aviation Administration (FAA)	• Airspace study as required by Part 157 of the Federal Aviation Regulations. Results in an "Airspace Determination Letter."

*The Proposed Project would be located on State-owned property and would remain a State-owned and operated facility. As such, the property would not be within permitting jurisdiction of City of Chino or San Bernardino County and permits for planning and building activities are not required.

2.8 Consultation with California Native American Tribe(s)

The following California Native American tribes traditionally and culturally affiliated with the Project area have been notified of the project: Pechanga Band of Luiseno Indians, Rincon Band of Luiseno Indians, San Manuel Band of Mission Indians, and the Soboba Band of Luiseño Indians.

On April 22, 2020, the Governor signed Executive Order (EO) N-54-20. Section 9 of the Executive Order States:

> *The time frames set forth in Public Resources Code sections 21080.3.1 and 21082.3, within which a California Native American tribe must request consultation and the lead agency must begin the consultation process relating to an Environmental Impact Report, Negative Declaration, or Mitigated Negative Declaration under the California Environmental Quality.*

Based on the EO, the time period for the Tribes to request consultation for this project was extended to July 22, 2020, 30 days after the expiration of the EO occurred (June 22, 2020).

As a result of the initial notification letters, the Rincon Band of Luiseno Indians responded via a letter dated May 15, 2020, stating that the Project is not within the Band's specific Area of Historic Interest, they have no additional information to provide, and recommend that CAL FIRE contact a Tribe closer to the project.

SECTION 3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Hazards/Hazardous Materials	☐ Recreation
☐ Agriculture and Forestry Resources	☐ Hydrology/Water Quality	☐ Transportation
☐ Air Quality	☐ Land Use and Planning	☒ Tribal Cultural Resources
☒ Biological Resources	☐ Mineral Resources	☐ Utilities and Service Systems
☒ Cultural Resources	☐ Noise	☐ Wildfire
☐ Energy	☒ Paleontological Resources	☐ Mandatory Findings of Significance
☒ Geology and Soils	☐ Population and Housing	
☐ Greenhouse Gas Emissions	☐ Public Services	

Determination

On the basis of this initial evaluation:

I find that the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	☐
I find that although the Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	☒
I find that the Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	☐
I find that the Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	☐
I find that although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Project, nothing further is required.	☐

MR. DAKOTA SMITH Date

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SECTION 4.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

4.1 Aesthetics

4.1.1 Environmental Setting

The City of Chino is located in southwestern San Bernardino County and is generally characterized by its open spaces, canyons, hills, and ridgelines. Chino's industrial areas are primarily located in the southern part of the City and consist of large warehouse and manufacturing buildings. These buildings feature large loading docks and are separated from the rest of the City by driveways and employee parking lots. Some small-scale industrial uses, including those just to the south of the Civic Center, are more integrated into the surrounding area, with smaller buildings, driveways, and loading areas. Agricultural uses remain throughout Chino. Most are dairy operations in the southern part of the City. These consist primarily of feeding areas and barns. Some open agricultural fields with accompanying windrows are found in the City. Although these areas are now limited in size, they provide a strong connection to Chino's agricultural past. By far the largest institution in Chino is the CIM, a large prison facility located adjacent to the Project site in the southern part of the City. Its main buildings are not visible from public roads, but the facility separates southern parts of Chino, including The Preserve and the Chino Airport, from the older, more established parts of the City. Some parts of Chino have views toward the San Gabriel Mountains to the north and Chino Hills to the south. These views orient visitors to Chino's location in the Chino Valley and contribute to the City's unique sense of place (Chino General Plan Draft EIR 2010).

4.1.1.1 Regional Setting

State Scenic Highways

The California Scenic Highway Program protects and enhances the scenic beauty of California's highways and adjacent corridors. A highway can be designated as scenic based on how much natural beauty can be seen by users of the highway, the quality of the scenic landscape, and if development impacts the enjoyment of the view. State Route (SR) 142, which merges into SR 71 about one mile from the Project site's southwest corner, is eligible to be designated a State Scenic Highway. The eastern end of SR 142 is known as Chino Hills Parkway. SR 142 has not been officially designated a State Scenic Highway by Caltrans, and other highways in the general Project vicinity are neither designated nor eligible (Caltrans 2020).

4.1.1.2 Visual Character of the Project Site

As discussed in the Project Description, the Project site is located at the southeast corner of the intersection of Central Avenue and Eucalyptus Avenue at 14467 Central Avenue, Chino, in San Bernardino County. The ±16.78-acre Project site is currently used by CAL FIRE as a helitack base and has two helicopter pads, several small storage structures, and a modular building used for office space and barracks. The majority of the existing site is characterized as undeveloped open land with grass and gravel as the main ground cover (see Figure 2-3. *Representative Site Photos*). There is an SCE electrical substation in the northwest portion of the site adjacent to Central Avenue. The site gently slopes north to south.

As part of the Proposed Project, the State is purchasing approximately 116,250 sf of land from the CIM, extending the southern border by 150 feet. This land was previously leased by CIM to California State Polytechnic University, Pomona and used as agricultural land. This area is characterized by maintained/mowed fields as opposed to the gravel and ornamental grass on the Project site.

Immediately east and south of the Project site is open space associated with the CIM facility. This area is characterized by flat terrain with minimal vegetative cover. Prison facilities are located farther to the east and south. The western side of Central Avenue opposite the site contains commercial and industrial uses. The Prado Conservation Camp and Ruben S. Ayla Park occupy the land north and northeast of the Project site.

4.1.2 Aesthetics (I) Environmental Checklist and Discussion

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒

No impact.

The completed Project will look similar to the existing condition. The Project site is not within a designated scenic area or located within a scenic vista. Therefore, site development would not have a substantial adverse effect on a scenic vista, and no impact would occur.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

No impact.

See above answer. The Project would not substantially damage scenic resources within a state scenic highway viewshed; there are no designated state scenic highways in the vicinity. No impact would occur, and no mitigation is required.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒

No impact.

The Project site is zoned Open Space/Recreational and is located in an urbanized area. A CAL FIRE helitack base already exists, but the Project proposes to upgrade the 1988-built base to fit modern needs. The Project would not conflict with applicable zoning or scenic quality regulations as a state project on state-owned land. The new facility will look similar to the existing facility with the addition of some new structures. No impact would occur, and no mitigation is required.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Would the Project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

No impact.

The Proposed Project would increase the number of buildings on the Project site and add additional outside lighting. However, day and nighttime views would not be adversely affected. As stated above, the Project area currently operates as a helitack base and emergency response station. This function would remain the same after the Proposed Project is completed. Additionally, commercial and industrial uses exist west of the Project site, and Prado Conservation Camp and CIM infrastructure exist to the north and east. No impact would occur and no mitigation is required.

4.1.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.2 Agriculture and Forestry Resources

4.2.1 Environmental Setting

4.2.1.1 San Bernardino County

San Bernardino and Riverside counties are home to the San Bernardino National Forest, which spans 679,380 acres. The U.S. Department of Agriculture (USDA) describes the history of the San Bernardino National Forest:

> The wildlands of the San Bernardino and San Jacinto Mountain Ranges were designated a National Forest more than a hundred years ago. In 1855, gold was discovered in the San Bernardino mountains. Over the second half of the 19th century, mining, timber, and grazing grew quickly, taking a heavy toll on the land. By the end of the 19th century, significant sectors of the forest had been felled and overgrazed. Streams and rivers were silting in and water quality was declining. Meanwhile a growing population and a thriving citrus industry made increasing demands for clean drinking and irrigation water.

The Forest Reserve Act was passed in 1891, giving the president authority to unilaterally set apart and reserve land in any state or territory having public land bearing forests as public reservations. From this act was born the San Bernardino Forest Reserve, which became the San Bernardino National Forest in 1907. The San Bernardino National Forest as public land was set aside for the conservation of natural resources such as trees, water, minerals, livestock range, recreation, or wildlife.

The San Bernardino National Forest is comprised of several departments and three Ranger Districts. It has Fire, Police, Planning and Permits, Recreation, and a Roads department…" (USDA 2012).

Milk is the top agricultural product from the County, accounting for 35 percent of total agricultural financial production value. Cattle and calf meat account for another 20 percent, and combined production totals $271,165,000. Eggs are the third most valuable commodity, generating $43,491,000 in 2018 (San Bernardino County 2019).

4.2.1.2 Project Vicinity

The CIM was the first prison in California constructed to represent a deliberate departure from the Auburn style of prison architecture to one reflecting an open campus, with the primary focus being on the training and rehabilitation of prisoners. From 1941 through the mid-twentieth century, the prison farm was the principal rehabilitation and employment program offered by the prison. Starting in the 1970s, the emphasis of the California prison system moved away from a focus on rehabilitation and the farming program gradually waned. Today, the remaining agricultural fields are leased to California State Polytechnic University, Pomona.

The Proposed Project would provide fire protection and rescue services to Chino and the surrounding area, including the San Bernardino, Cleveland, and Angeles national forests.

4.2.2 Agriculture and Forestry Resources (II) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐

No impact.

The California Department of Conservation (DOC) manages the Farmland Mapping and Monitoring Program, which identifies and maps significant farmland. Farmland is classified using a system of five categories including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. The classification of farmland as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance is based on the suitability of soils for agricultural production, as determined by a soil survey conducted by the Natural Resources Conservation Service (NRCS, DOC 2017a). DOC manages an interactive website called the California Important Farmland Finder. This website program identifies the Project site as being urban and built-up land, and, therefore, not considered to be agriculturally important land [DOC 2017b].

The approximately 116,250 sf to be acquired from the CIM are designated "Farmland of Statewide Importance." Using the Land Evaluation and Site Assessment (LESA) Model (*Appendix B*), the removal of these lands from agricultural use generated a LESA score of 23.4, below the threshold of significance.

Impacts are less than significant, and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

No impact.

The site is zoned Open Space/Recreational in the City of Chino Zoning Code. This zoning district was not intended for agricultural uses. The DOC also maintains mapping for Williamson Act contracts by county. As shown on the map for San Bernardino County, the site is not subject to a Williamson Act contract. [DOC 2010]. Therefore, the Proposed Project would result in no impact to Williamson Act contract lands or land zoned for agricultural uses. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒

No impact.

The Project site contains no forest or timber resources and is not zoned for forestland protection or timber production. There would be no impact, and no mitigation is required.

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No impact.

The Proposed Project would not convert forest land to non-forest use. There would be no impact, and no mitigation is required.

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Less than significant impact.

The Project site is located within the City of Chino on land zoned for open space/recreation and designated urban reserve. As noted above, the approximately 116,250 sf to be acquired from the CIM are designated "Farmland of Statewide Importance." Using the LESA Model (*Appendix B*), the removal of these lands from agricultural use generated a LESA score of 23.4, below the threshold of significance. (see answer to a, above). There is no forest land in the immediate area. The intended purpose of the Proposed Project will be to aid the response to natural disasters. Impacts are less than significant, and no mitigation is required.

4.2.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.3 Air Quality

4.3.1 Environmental Setting

The Project area is located in the City of Chino, in San Bernardino County. The California Air Resources Board (CARB) has divided California into regional air basins according to topographic features. The Project area is located within the South Coast Air Basin (SoCAB). The local air quality agency affecting the SoCAB is the South Coast Air Quality Management District (SCAQMD), which is charged with the responsibility of implementing air quality programs.

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project area.

Both the U.S. Environmental Protection Agency (USEPA) and the CARB have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants representing safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The six criteria pollutants are ozone (precursor emissions include nitrogen oxide [NOx] and reactive organic gases [ROGs]), carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas.

4.3.1.1 Ambient Air Quality

The USEPA and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. The National Ambient Air Quality Standards (NAAQS) (other than ozone (O_3), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards (CAAQS) are not to be exceeded during a three-year period. The attainment status for the SoCAB is included in Table 4.3-1**.**

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal

standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$ standards (CARB 2018).

Table 4.3-1. Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State Designation	Federal Designation
O_3	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Attainment

Source: CARB 2018

4.3.1.2 State Air Quality Management

California Clean Air Act

The California Clean Air Act (CCAA) allows states to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency (Cal-EPA), is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the California ambient air quality standards. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

California State Implementation Plan

The federal Clean Air Act (CAA) and its subsequent amendments requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The USEPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register. The 2016 Air Quality

Management Plan (2016 AQMP) is the SIP for the SoCAB. The 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air in the SoCAB and those portions of the Salton Sea Air Basin that are under SCAQMD's jurisdiction. The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in greenhouse gases and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The most effective way to reduce air pollution impacts is to reduce emissions from mobile sources. The AQMP relies on a regional and multi-level partnership of governmental agencies at the federal, state, regional, and local level. These agencies (USEPA, CARB, local governments, Southern California Association of Governments [SCAG] and the SCAQMD) are the primary agencies that implement the AQMP programs. The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including SCAG's latest Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. The 2016 AQMP includes integrated strategies and measures to meet the NAAQS.

4.3.1.3 Local Air Quality Management

South Coast Air Quality Management District

The SCAQMD is the air pollution control agency for Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino counties. The Project site is located in San Bernardino County. The agency's primary responsibility is ensuring that the federal and state ambient air quality standards are attained and maintained in the SoCAB. The SCAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, and conducting public education campaigns, as well as many other activities. All projects are subject to SCAQMD rules and regulations in effect at the time of construction.

The following is a list of noteworthy SCAQMD rules that are required of construction activities associated with the Proposed Project:

- **Rule 402 (Nuisance)** – This rule prohibits the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.
- **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust sources to implement best available control measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. This rule is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. PM_{10} suppression techniques are summarized below.

a) Portions of a construction site to remain inactive longer than a period of three months will be seeded and watered until grass cover is grown or otherwise stabilized.
b) All onsite roads will be paved as soon as feasible or watered periodically or chemically stabilized.
c) All material transported offsite will be either sufficiently watered or securely covered to prevent excessive amounts of dust.
d) The area disturbed by clearing, grading, earthmoving, or excavation operations will be minimized at all times.
e) Where vehicles leave a construction site and enter adjacent public streets, the streets will be swept daily or washed down at the end of the workday to remove soil tracked onto the paved surface.

- **Rule 1113 (Architectural Coatings)** – This rule requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce reactive organic gas (ROG) emissions from the use of these coatings, primarily by placing limits on the ROG content of various coating categories.

4.3.1.4 Thresholds of Significance

SCAQMD Thresholds

The significance criteria established by the applicable air quality management or air pollution control district (SCAQMD) may be relied upon to make the above determinations. According to the SCAQMD, an air quality impact is considered significant if the Proposed Project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The SCAQMD has established thresholds of significance for air quality for construction and operational activities of land use development projects such as that proposed, as shown in Table 4.3-2.

Table 4.3-2. SCAQMD Regional Significance Thresholds – Pounds per Day

Air Pollutant	Construction Activities	Operations
Reactive Organic Gas	75	55
Carbon Monoxide	550	550
Nitrogen Oxide	100	55
Sulfur Oxide	150	150
Coarse Particulate Matter	150	150
Fine Particulate Matter	55	55

Source: SCAQMD 1993 ($PM_{2.5}$ threshold adopted June 1, 2007)

Localized Significance Thresholds

The SCAQMD developed localized significance thresholds (LSTs) for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at new development sites (offsite mobile source emissions are not included in the LST analysis). LSTs represent the maximum emissions that can be generated at a Project site without expecting

to cause or substantially contribute to an exceedance of the most stringent national or state ambient air quality standards. LSTs are based on the ambient concentrations of that pollutant within the Project SRA, as demarcated by the SCAQMD, and the distance to the nearest sensitive receptor. LST analysis for construction is applicable for all projects that disturb five acres or less on a single day. Chino is located within SCAQMD SRA 33 (Southwest San Bernardino Valley). Table 4.3-3 shows the LSTs for a one-, two- and five-acre project site in SRA 33 with sensitive receptors located as close as 25 meters from the Project site.

Table 4.3-3. Local Significance Thresholds (Construction/Operations)

Project Size	Pollutant (pounds per day)			
	NO_X Construction/ Operations	CO Construction/ Operations	PM_{10} Construction/ Operations	$PM_{2.5}$ Construction/ Operations
1 Acre	118 / 118	863 / 863	5 / 2	4 / 1
2 Acres	170 / 170	1,232 / 1,232	6 / 2	5 / 1
5 Acres	270 / 270	2,193 / 2,193	16 / 4	9 / 2

Source: SCAQMD 2009

4.3.2 Air Quality (III.) Environmental Checklist and Discussion

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒

No impact.

As part of its enforcement responsibilities, the USEPA requires each state with federal nonattainment areas to prepare and submit a SIP that demonstrates the means to attain the federal air quality standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in federal nonattainment areas, using a combination of performance standards and market-based programs. As previously mentioned, the Project site is located within the SoCAB, which is under the jurisdiction of the SCAQMD. The SCAQMD is required, pursuant to the federal CAA, to reduce emissions of criteria pollutants for which the SoCAB is in nonattainment. In order to reduce such emissions, the SCAQMD drafted the 2016 AQMP, which establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving state (California) and national air quality standards. The 2016 AQMP is a regional and multi-agency effort including the SCAQMD, CARB, SCAG, and the USEPA. The plan's pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including SCAG's 2016 RTP/SCS, updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. The SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans. The Project is subject to the SCAQMD's Air Quality Management Plan.

According to the SCAQMD, in order to determine consistency with SCAQMD's air quality planning two main criteria must be addressed.

Criterion 1:

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

a) Would the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new air quality violations?

As shown below, in Tables 4.3-4, 4.3-6, 4.3-7, and 4.3-8, the Proposed Project would result in emissions that would be below the SCAQMD regional and localized thresholds during both construction and operations. Therefore, the Proposed Project would not result in an increase in the frequency or severity of existing air quality violations and would not have the potential to cause or affect a violation of the ambient air quality standards.

b) Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?

As shown in Tables 4.3-4 and 4.3-7, the Proposed Project would be below the SCAQMD regional thresholds for construction and operations. Since the Project would result in less than significant regional emission impacts, it would not delay the timely attainment of air quality standards or AQMP emissions reductions.

Criterion 2:

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it is important to recognize that air quality planning within the SoCAB focuses on attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining Project consistency focuses on whether or not the Proposed Project exceeds the assumptions utilized in preparing the forecasts presented its air quality planning documents. Determining whether or not a project exceeds the assumptions reflected in the 2016 AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

c) Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the 2016 AQMP?

A project is consistent with regional air quality planning efforts in part if it is consistent with the population, housing, and employment assumptions that were used in the development of the SCAQMD air quality plans. Generally, three sources of data form the basis for the projections of air pollutant emissions in Chino. Specifically, the Growth Management Chapter of the SCAG's Regional Comprehensive Plan and Guide (RCPG) provides regional population forecasts for the region and SCAG's 2016 RTP/SCS provides socioeconomic forecast projections of regional population growth. The City of Chino General

Plan 2025 (General Plan) informed the RTP/SCS order to assist forecasting future growth in Los Angeles County.

The Proposed Project is consistent with the land use designation and development density presented in the City of Chino General Plan 2025. As previously stated, the Project Site has a General Plan designation of *Urban Reserve*. This designation is for land where urban development is planned to take place. In addition, the Project is the upgrading of the existing Prado Helitack Base located at the Prado Conservation Camp and is not introducing a wholly new land use. The land use at the Project site would not change as a result of the Project. Furthermore, the Project does not involve any uses that would increase population beyond what is considered in the General Plan and, therefore, would not affect City-wide plans for population growth at the Project site. Thus, the Proposed Project is consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the General Plan and RCPG. As a result, the Project would not conflict with the land use assumptions or exceed the population or job growth projections used by SCAQMD to develop the 2016 AQMP. The City's population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City and are used by SCAG in all phases of implementation and review. Additionally, as the SCAQMD has incorporated these same projections into their air quality planning efforts, it can be concluded that the Proposed Project would be consistent with the projections. (SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans.) Therefore, the Proposed Project would be considered consistent with the population, housing, and employment growth projections utilized in the preparation of SCAQMD's air quality plans.

d) Would the project implement all feasible air quality mitigation measures?

In order to further reduce emissions, the Project would be required to comply with emission reduction measures promulgated by the SCAQMD, such as SCAQMD Rules 402, 403, and 1113. SCAQMD Rule 402 prohibits the discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. SCAQMD Rule 403 requires fugitive dust sources to implement Best Available Control Measures for all sources, and all forms of visible PM are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. SCAQMD 1113 requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce ROG emissions from the use of these coatings, primarily by placing limits on the ROG content of various coating categories. As such, the Proposed Project meets this consistency criterion.

e) Would the project be consistent with the land use planning strategies set forth by SCAQMD air quality planning efforts?

The AQMP contains air pollutant reduction strategies based on SCAG's latest growth forecasts, and SCAG's growth forecasts were defined in consultation with local governments and with reference to local general plans. The Proposed Project is consistent with the land use designation and development density

presented in the City's General Plan and therefore would not exceed the population or job growth projections used by the SCAQMD to develop the AQMP.

In conclusion, the determination of AQMP consistency is primarily concerned with the long-term influence of a project on air quality. The Proposed Project would not result in a long-term impact on the region's ability to meet state and federal air quality standards. The Proposed Project's long-term influence would also be consistent with the goals and policies of the SCAQMD's 2016 AQMP.

For these reasons, the Proposed Project would not conflict with or obstruct implementation of the 2016 AQMP. No impact would occur.

Would the project	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐

Less than significant impact.

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

Implementation of the Proposed Project could result in air quality impacts during Project construction and operation.

4.3.2.1 Construction Emissions

Regional Construction Significance Analysis

Construction-generated emissions are temporary and short-term but have the potential to represent a significant air quality impact. Three basic sources of short-term emissions will be generated through construction of the Proposed Project: operation of the construction vehicles (i.e., excavators, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and the use of asphalt or other oil-based substances during paving activities. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation. Construction activities would be subject to SCAQMD Rule 403, which

requires taking reasonable precautions to prevent the emissions of fugitive dust, such as using water or chemicals, where possible, for control of dust during the clearing of land and other construction activities.

Construction-generated emissions associated the Proposed Project were calculated using the CARB-approved California Emissions Estimator Model (CalEEMod) computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See *Appendix C1* for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted maximum daily construction-generated emissions for the Proposed Project are summarized in Table 4.3-4. Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SCAQMD's thresholds of significance.

Table 4.3-4. Construction-Related Emissions (Regional Significance Analysis)

Construction Activity	Pollutant (pounds per day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Construction in 2021	6.34	65.34	38.37	0.07	13.04	8.20
Construction in 2022	4.76	29.60	35.09	0.06	2.33	1.56
SCAQMD Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Exceed SCAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod version 2016.3.2. Refer to *Appendix C1* for Model Data Outputs.
Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: sweeping/cleaning adjacent roadway access areas daily; washing equipment tires before leaving the construction site; water exposed surfaces three times daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied. construction, paving, and painting are assumed to occur simultaneously. Construction emissions taken from the season (summer or winter) with the highest output.

As shown in Table 4.3-4, emissions generated during the construction of the Proposed Project would not exceed the SCAQMD's regional thresholds of significance.

Localized Construction Significance Analysis

The nearest sensitive receptor to the Project site is the Prado Conservation Camp and Ruben S. Ayla Park as close as 25 meters north of the Project site at the nearest point. In order to identify impacts to sensitive receptors, the SCAQMD recommends addressing LSTs for construction. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with Project-specific level proposed projects.

For this Project, the appropriate SRA for the LSTs is the Southwest San Bernardino Valley source receptor area (SRA 33) as this source receptor area includes the Project site. The SCAQMD has also issued guidance on applying the CalEEMod emissions software to LSTs for projects greater than five acres. Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil

disturbance activity possible for each piece of equipment, Table 4.3-5 is used to determine the maximum daily disturbed-acreage for comparison to LSTs.

Table 4.3-5 Equipment-Specific Grading Rates

Construction Phase	Equipment Type	Acres Graded/Disturbed per 8-Hour Day	Equipment Quantity	Operating Hours per Day	Acres Graded per Day
Site Preparation	Rubber Tired Dozers	0.5	3	8	1.5
	Tractors/ Loaders/ Backhoes	0.5	4	8	2.0
				Total:	**3.5**
Grading	Excavators	0.0	1	8	0.0
	Rubber Tired Dozer	0.5	1	8	0.5
	Graders	0.5	1	8	0.5
	Tractors/ Loaders/ Backhoes	0.5	3	8	1.5
				Total:	**2.5**

As shown in Table 4.3-5 above, Project implementation could potentially disturb up to 3.5 acres daily during the site preparation phase of construction, and 2.5 acres daily during the grading phase of construction. Thus, the LST value for a 3.5-acre construction site were sourced from the LST lookup tables for site preparation and the value for a 2.5-acre construction site were sourced from the LST lookup tables for Project grading activities.

LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. The nearest sensitive receptor to the Project site is located 25 meters distant; therefore, LSTs for receptors located at 25 meters were utilized in this analysis. The SCAQMD's methodology clearly states that "off-site mobile emissions from a project should not be included in the emissions compared to LSTs." Therefore, for purposes of the construction LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered. Table 4.3-6 presents the results of localized emissions during the site preparation activities associated with construction, which is the construction activity that disturbs the most acreage daily. The LSTs reflect a maximum disturbance of 3.5 acres daily during site preparation and 2.5 acres daily during grading activities at 25 meters for the Proposed Project.

Table 4.3-6. Construction-Related Emissions (Localized Significance Analysis)

Activity	Pollutant (pounds per day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Site Preparation	40.49	21.15	9.09	5.75
SCAQMD Localized Significance Threshold (3.5 acres of disturbance)	*220.00*	*1,712.51*	*11.0*	*7.00*
Grading	24.75	15.85	3.71	2.38
SCAQMD Localized Significance Threshold (2.5 acres of disturbance)	*186.67*	*1,392.17*	*7.67*	*5.67*
Exceed SCAQMD Threshold?	**No**	**No**	**No**	**No**

Source: CalEEMod version 2016.3.2. Refer to *Appendix C1* for Model Data Outputs.
Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: sweeping/cleaning adjacent roadway access areas daily; washing equipment tires before leaving the construction site; water exposed surfaces three times daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied. Construction emissions taken from the season (summer or winter) with the highest output.

Table 4.3-6 shows that the emissions of these pollutants on the peak day of construction would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, significant impacts would not occur concerning LSTs during construction activities.

4.3.2.2 Operational Emissions

As described in the Project Description, the Proposed Project is to replace the existing helitack facility with the construction of a new, modern helitack facility. The Project would include a new helitack base and associated facilities and structures. New facilities to be constructed would include a 26-bed barracks (with four offices), mess hall, and resources management office building. Other improvements would include a warehouse, training tower, helicopter hangar, garage, electrical building, and storage building. The Proposed Project would also include on and offsite improvements such as grading, drainage, paving, walkways, curbs, roads, utilities, electrical, telephone, irrigation, lighting, fencing, and landscaping. The Proposed Project would be constructed on property currently controlled by CAL FIRE and an expansion area that is currently part of the prison property. For the purposes of this analysis, projected operational emissions associated with proposed operations are compared to the existing baseline, which includes and approximately 3,000-sf office/barracks. Project emissions resulting from maximum facility operations are identified in Table 4.3-7.

Regional Operational Significance Analysis

Implementation of the Project would result in long-term operational emissions of criteria air pollutants such as PM_{10}, $PM_{2.5}$, CO, and SO_2 as well as ozone precursors such as ROG and NO_X. As previously described, the Project is the replacement of the existing helitack base, site improvements, and the addition of supporting CAL FIRE facilities.

As previously described, the anticipated number of flights daily is largely dependent on the type of activity and season. Based on current operations at the existing helitack based, during a peak-season fire event, the number of flights to and from the base could be five or more. Rescue events are more varied.

Planned training events generally generate one to three flights daily under current conditions, and these are expected to be the same under the Project. Off-season fire events generally generate two to three flights daily, but more can be required depending on need. Round-trip flights can range from a few minutes (in the event of a cancellation) to seven hours. The number and duration of helicopter flights occurring with implementation of the Proposed Project is anticipated to be similar to existing conditions.

Long-term operational emissions attributable to the Project are identified in Table 4.3-7 and compared to the existing baseline. The difference in daily criteria air pollutant emissions are compared to the regional operational significance thresholds promulgated by the SCAQMD.

Table 4.3-7. Operational-Related Emissions (Regional Significance Analysis)

Emission Source	Pollutant (pounds per day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Proposed Project Emissions						
Area	0.65	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.02	0.01	0.00	0.00	0.00
Mobile (automotive)	0.14	0.89	1.46	0.00	0.37	0.10
Mobile (helicopter operation)	55.20	222.08	66.83	0.00	0.15	0.00
Total	**55.99**	**222.99**	**68.30**	**0.00**	**0.52**	**0.10**
Existing Baseline Emissions						
Area	0.06	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile (automotive)	0.12	0.79	1.49	0.00	0.36	0.10
Mobile (helicopter operation)	55.20	222.08	66.83	0.00	0.15	0.00
Total	**55.38**	**222.87**	**67.32**	**0.00**	**0.51**	**0.10**
Difference						
Area	+0.59	0.00	0.00	0.00	0.00	0.00
Energy	0.00	+0.02	+0.01	0.00	0.00	0.00
Mobile (automotive)	+0.02	+0.10	-0.03	0.00	+0.01	0.00
Mobile (helicopter operation)	0.00	0.00	0.00	0.00	0.00	0.00
Total	**+0.61**	**+0.12**	**-0.02**	**0.00**	**+0.01**	**0.00**
SCAQMD Regional Significance Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Exceed SCAQMD Regional Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod version 2016.3.2; Guidance on the Determination of Helicopter Emissions 2015. Refer to *Appendix C1* for Model Data Outputs.

Notes: Automobile emissions projections account for an automotive trip generation rate identified in the Trip Generation Analysis prepared by the Fehr and Peers (2020), and helicopter emissions identified by the 'Sikorsky Black Hawk' emission factors contained in Guidance on the Determination of Helicopter Emissions (Rindlisbacher, Theo & Lucian Chabbey, 2015) (see *Appendix C2*). In order to estimate the highest daily emission rate of helicopter pollutants, fire season flights of up to five flights daily are assumed. Round-trip flights can range from a few minutes (in the event of a cancellation) to seven hours, thus the median flight time of 3.5 hours per flight is calculated. Helicopter emissions account for takeoff and landings as well. Operational emissions taken from the season (summer or winter) with the highest output.

As shown in Table 4.3-7, the Project's emissions would be generated at very similar rates as currently generated under existing conditions and would not exceed any SCAQMD regional significance thresholds for criteria air pollutants.

Localized Operational Significance Analysis

According to the SCAQMD localized significance threshold methodology, LSTs would apply to the operational phase of a proposed project if the project includes stationary sources or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., warehouse or transfer facilities). The Proposed Project is unique in that it includes onsite aircraft idling during takeoff and landing events. Therefore, in the case of the Proposed Project, the operational phase LST protocol is applied. Operational LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$.

The nearest sensitive receptor to the Project site is the Prado Conservation Camp and Ruben S. Ayla Park as close as 25 meters north of the Project site at the nearest point. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. The nearest sensitive receptor to the Project site is located 25 meters distant; therefore, LSTs for receptors located at 25 meters were utilized in this analysis.

The appropriate SRA for the LSTs is the Southwest San Bernardino Valley area (SRA 33). As described, the SCAQMD has produced look-up tables for projects that disturb one, two and five acres. While the proposed Project site is approximately 17 acres, the LST threshold value for a five-acre site was employed from the LST lookup tables. This is conservative since the analysis will only account for the dispersion of air pollutants over five acres before reaching sensitive receptors as opposed to accounting for the dispersion of air pollutants over a greater 17-acre area.

Onsite operational emissions attributable to the Project are identified in Table 4.3-8 and compared to the existing baseline. The difference is compared to the localized operational significance thresholds promulgated by the SCAQMD.

Table 4.3-8. Operational-Related Emissions (Localized Significance Analysis)

Activity	Pollutant (pounds per day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Onsite Project Emissions				
Area Source	0.65	0.00	0.00	0.00
Mobile (helicopter takeoffs and landings)	12.60	15.90	0.30	0.00
Total	**13.25**	**15.9**	**0.30**	**0.00**
Onsite Existing Baseline Emissions				
Area Source	0.06	0.00	0.00	0.00
Mobile (helicopter takeoffs and landings)	12.60	15.90	0.30	0.00
Total	**13.25**	**15.9**	**0.30**	**0.00**

Activity	Pollutant (pounds per day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Difference				
Area Source	+0.59	0.00	0.00	0.00
Mobile (helicopter takeoffs and landings)	0.00	0.00	0.00	0.00
Total	**+0.59**	**0.00**	**0.00**	**0.00**
SCAQMD Localized Significance Threshold (5 acres)	*270*	*2,193*	*4*	*2*
Exceed SCAQMD Threshold?	**No**	**No**	**No**	**No**

CalEEMod version 2016.3.2; Guidance on the Determination of Helicopter Emissions 2015. Refer to *Appendix C1* for Model Data Outputs.
Notes: Automobile emissions projections account for an automotive trip generation rate identified in the Trip Generation Analysis prepared by the Fehr and Peers (2020), and helicopter emissions identified by the 'Sikorsky Black Hawk' emission factors contained in Guidance on the Determination of Helicopter Emissions (Rindlisbacher, Theo & Lucian Chabbey, 2015) (see *Appendix C2*). In order to estimate the highest daily emission rate of helicopter pollutants, fire season flights of up to five flights daily are assumed. Round-trip flights can range from a few minutes (in the event of a cancellation) to seven hours, thus the median flight time of 3.5 hours per flight is calculated. Helicopter emissions account for takeoff and landings as well. Operational emissions taken from the season (summer or winter) with the highest output.

As shown in Table 4.3-8, the emissions of these pollutants on the peak day of operations would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, significant impacts would not occur concerning LSTs during operational activities.

The Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. This impact is less than significant.

Would the project	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Less than significant impact.

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. Based on the nature of the health effects associated with exposure to the pollutant, TACs are considered either carcinogenic or noncarcinogenic. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of TACs, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

Sensitive receptors closest to the Project site include the Prado Conservation Camp and Ruben S. Ayla Park, as close as 25 meters from the Project site, to the north and northeast. Detention facilities are located approximately 200 meters east of the Project site, at the closest point.

4.3.2.3 Short-Term Construction Impacts

Construction-related activities would result in temporary, short-term Proposed Project-generated emissions of diesel particulate matter (DPM), ROG, NO_x, CO, and PM_{10} from the exhaust of off-road, heavy-duty diesel equipment for site preparation, paving, and other miscellaneous activities. However, as shown in Tables 4.3-4 and 4.3-6, the Project would not exceed the SCAQMD regional or localized significance thresholds for emissions. The portion of the SoCAB that encompasses the Project area is designated as a nonattainment area for federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$ (CARB 2018). Thus, existing O_3 and PM_{10} levels in the SoCAB are at unhealthy levels during certain periods.

The health effects associated with O_3 are generally associated with reduced lung function. Because the Project would not involve construction activities that would result in O_3 precursor emissions (ROG or NO_x) in excess of the SCAQMD thresholds, the Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve construction activities that would result in CO emissions in excess of the SCAQMD thresholds. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

Particulate matter (PM_{10} and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. PM exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is the primary TAC of concern. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by the CARB in 1998. The potential cancer risk from the inhalation of DPM, as discussed below, outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs. Based on the emission modeling conducted, the maximum onsite construction-related daily emissions of exhaust $PM_{2.5}$, considered a surrogate for DPM, would be 1.88 pounds per day (see *Appendix C1*). ($PM_{2.5}$ exhaust is considered a surrogate for DPM

because more than 90 percent of DPM is less than one microgram in diameter and therefore is a subset of PM under 2.5 microns in diameter (i.e., $PM_{2.5}$). Most $PM_{2.5}$ derives from combustion, such as use of gasoline and diesel fuels by motor vehicles.) As with O_3 and NOx, the Project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the SCAQMD's thresholds. Additionally, the Project would be required to comply with SCAQMD Rule 403, described above, which limits the amount of fugitive dust generated during construction. Accordingly, the Project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, the Project would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Therefore, impacts associated with exposure of sensitive receptors to substantial pollutant concentrations would be less than significant.

4.3.2.4 Operational Impacts

Operation of the Proposed Project would not result in the development of any substantial sources of air toxics. There are no stationary sources associated with the operations of the Project. While there would be Project emissions attributable to takeoffs and landings associated with Project helicopters, as identified in Tables 4.3-7 and 4.3-8, these emissions would be the same as currently generated under existing conditions. Therefore, the Project would not generate substantial amounts beyond that currently generated onsite during operations.

For these reasons, the Project is not a source of TACs and less than significant impacts would occur.

Would the project:		Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
d)	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

No impact.

Individual responses to odors are highly variable and can result in various effects, including psychological (i.e., irritation, anger, or anxiety) and physiological (i.e., circulatory and respiratory effects, nausea, vomiting, and headache). Generally, the impact of an odor results from a variety of interacting factors such as frequency, duration, offensiveness, location, and sensory perception.

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources.

According to the SCAQMD, land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass

molding. The Proposed Project does not include any uses identified by the SCAQMD as being associated with odors. As such, no impact would occur.

4.3.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.4 Biological Resources

This section is based on the analysis and recommendations presented in the *Biological Technical Report* prepared for the Proposed Project (ECORP 2020a, *Appendix D*). The general biological resource assessment was conducted on March 20, 2020, by ECORP biologists Carley Lancaster and Adam Schroeder. Vegetation communities were mapped in the field by ECORP biologist Carley Lancaster using an iPad equipped with the ESRI Collector application. The results of the field survey, including site characteristics, plant communities, plants, wildlife, special-status species, and special-status habitats are summarized below.

4.4.1 Environmental Setting

4.4.1.1 Existing Site

Elevations of the 16.78-acre Project site range from 620 to 630 feet amsl. The Project site is located on a developed lot in a commercial and suburban environment. The majority of the parcel has been cleared and graded for parking areas, two helipads, paved access roads, and two portable office buildings. The Project site was recently mowed and tilled for weed abatement and portions of the property contain ruderal vegetation. The dominant plant community within the Project site includes nonnative annual grasses and invasive weedy species.

4.4.1.2 Expansion Site

As part of the Proposed Project, the State is purchasing approximately 116,250 sf of land from CIM, extending the southern border by 150 feet. This land was previously leased by the CIM to California State Polytechnic University, Pomona and used as agricultural land.

4.4.1.3 Vegetation Communities

The Project site and the 500-foot buffer for the Project site are characterized mostly by disturbed habitat with weedy and nonnative vegetation. Common species observed within the disturbed portions of the Project site and 500-foot buffer included annual bursage (*Ambrosia acanthicarpa*), red-stemmed filaree (*Erodium cicutarium*), cheeseweed (*Malva parviflora*), lamb's quarters (*Chenopodium album*), red brome (*Bromus madritensis* ssp. *rubens*), cheatgrass (*Bromus tectorum*), foxtail barley (*Hordeum murinum*), black mustard (*Brassica nigra*), and annual yellow sweetclover (*Melilotus indicus*). The Project site and the 500-foot buffer are also characterized by developed and landscaped land cover types. A complete list of plant species observed on the Project site and 500-foot buffer is included in Attachment B of *Appendix D*.

Table 2 of *Appendix D* lists the associated acreage for the land cover types that occur within the Project site, and Table 3 of *Appendix D* lists the associated acreages for the land cover types that occur within the 500-foot buffer.

Disturbed

Disturbed is not a vegetation classification, but rather a land cover type. Areas mapped as disturbed were largely devoid of native vegetation due to human disturbance and were dominated by open areas or nonnative weedy and ruderal vegetation. Areas of bare dirt and areas covered with nonnative annual plants that appeared to have been previously graded were also mapped as disturbed. Disturbed areas occurred mostly throughout the southern and western portions of the Project site and throughout the southern and eastern portions of the 500-foot buffer for the Project site. In addition, a small area near the northwestern corner of the 500-foot buffer was mapped as Disturbed. Plants present in this land cover type included nonnative weedy species such as red-stemmed filaree, cheeseweed, lamb's quarters, nonnative grasses, black mustard, and annual yellow sweetclover, but occasionally also included a few native plant species such as annual bursage. Approximately 8.557 acres of disturbed areas are present within the Project site and ±26.745 acres are present within the 500-foot buffer for the Project site.

Landscaped

Landscaped is not a vegetation classification, but rather a land cover type. Areas mapped as Landscaped had landscaping plants present including various fruit trees, black poui (*Jacaranda mimosifolia*), Taiwanese photinia (*Photinia serratifolia*) and sheoak (*Casuarina* sp.). Landscaped areas were mapped in the northeast corner of the Project site near housing facilities and in the northern portion of the 500-foot boundary surrounding Prado Conservation Camp. Approximately 0.943 acres of Landscaped areas are present within the Project site and ±7.954 acres are present within the 500-foot buffer for the Project site.

Developed

Developed is not a vegetation classification, but rather a land cover type. Areas mapped as developed were largely devoid of any vegetation due to human development. Several paved areas, including Central Avenue and the Prado Conservation Camp facilities were mapped as developed. Approximately 7.910 acres of developed areas are present within the Project site and ±23.562 acres are present within the 500-foot buffer for the Project site.

4.4.1.4 Wildlife

The flora and fauna observed during the field reconnaissance survey included those typical of the aforementioned vegetation communities. Bird species observed within the Project site and the 500-foot buffer included gull sp. (*Larus* sp.), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), western kingbird (*Tyrannus verticalis*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), bushtit (Psaltriparus minimus), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), white-crowned sparrow (*Zonotrichia leucophrys*), and house finch (*Haemorhous mexicanus*). One raptor species, American kestrel (*Falco sparverius*), was detected during the survey, and evidence of one other raptor species, barn owl (*Tyto alba*), was detected. Although none were observed, reptile species expected to occur are those

that can thrive amid disturbance, including western fence lizard (*Sceloporus occidentalis*) and side-blotched lizard (*Uta stansburiana*). Two mammal species, desert cottontail (*Sylvilagus audubonii*) and California ground squirrel (*Otospermophilus beecheyi*), were observed during the survey and evidence of one other mammal species, Botta's pocket gopher (Thomomys bottae), was detected. Small mammal burrows were detected throughout the Project site. A list of wildlife species observed during the field survey is included in *Appendix D*.

Special-Status Plants

No listed or special-status plant species have been documented on the Project site. No special-status plant species were determined to have a high potential to occur within the Project site. Four special-status plant species were determined to have a moderate potential to occur within the Project site. Thirty-nine special-status plant species were determined to have a low potential to occur and/or are unlikely to occur on the site itself. Listed and special-status plant species that were determined to have a moderate potential to occur are described in more detail below. Attachment D of *Appendix D* provides the list of special-status plant species with potential to occur (based upon the literature review in combination with habitat that occurs onsite) and an evaluation of their potential to occur.

Special-Status Plant Species with a Moderate Potential to Occur

Braunton's milkvetch (*Astragalus brauntonii*) is a federally listed endangered and California Native Plant Society (CNPS) 1B.1 plant species. This species is known to occur at elevations less than 650 meters (2,133 feet) and flowers between January and August. Braunton's milkvetch occurs in chaparral, coastal sage scrub, and valley and foothill grassland habitats. It is often found in recently burned or disturbed areas. The Disturbed portions of the Project site provide marginally suitable habitat for this species. Multiple records were returned during the literature review, including within five miles of the Project site.

Smooth Tarplant (*Centromadia pungens* ssp. *laevis*) is federally listed as endangered, state-listed as endangered, and a CNPS 1B.2 plant species. This species is known to occur at elevations lower than 640 meters (2,100 feet) and flowers between April and September. Smooth tarplant occurs in a variety of habitats, including chenopod scrub, meadows and seeps, riparian woodlands, and valley and foothill grassland habitats. It is often found on disturbed sites and along roadsides. The Disturbed portions of the Project site provide marginally suitable habitat for this species. Multiple records were returned during the literature review, including within five miles of the Project site.

Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*) is a CNPS 4.3 plant species. This species is known to occur at elevations between one and 885 meters (three and 2,904 feet) and flowers between January and July. Robinson's pepper-grass is known to occur in chaparral and coastal scrub habitats, often in disturbed areas. The Disturbed portions of the Project site provide marginally suitable habitat for this species. Multiple records were returned during the literature review, including within five miles of the Project site.

San Bernardino aster (*Symphyotrichum defoliatum*) is a CNPS 1B.2 plant species. This species is known to occur at elevations less than 2,050 meters (6,726 feet) and flowers between July and November. San Bernardino aster occurs in a variety of habitats including cismontane woodland, coastal sage scrub, lower

montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland, and disturbed areas. The Disturbed portions of the Project site provide marginally suitable habitat for this species. Multiple records were returned during the literature review, including within five miles of the Project site.

4.4.1.5 Special-Status Wildlife

No listed or special-status wildlife species have been documented on the Project site or within the 500-foot buffer. Three special-status wildlife species were determined to have a high potential to occur within the Project site and/or 500-foot buffer and are described in detail below. Seven special-status wildlife species were determined to have a low potential to occur and/or are unlikely to occur on the site itself. Eleven special-status wildlife species were presumed absent from the Project site. Attachment E of *Appendix D* provides the list of special-status wildlife species with potential to occur based upon the literature review, in combination with onsite habitat and an evaluation of their potential to occur.

Special-Status Wildlife Species with a High Potential to Occur

Cooper's hawk (*Accipiter cooperii*) is a California Department of Fish and Wildlife (CDFW) Watch List species. This species is typically associated with forests and woodlands but is often found in suburban areas such as parks and neighborhoods. It typically nests in pines, oaks, Douglas-firs, beeches, spruces, and other tree species, often on flat ground rather than hillsides, and in dense woods. Suitable trees for nesting occur along the northern edge of the site. Foraging habitat is present throughout much of the disturbed and landscaped portions of the site. One California Natural Diversity Database (CNDDB) record occurred within four miles of the site in 2012. Due to the presence of nesting and foraging habitat and a recently documented occurrence, this species was determined to have a high potential to occur.

Burrowing owl (*Athene cunicularia*) is a U.S. Fish and Wildlife Service (USFWS) bird of conservation concern and a CDFW species of special concern (SSC). It is typically found in dry open areas with few trees and short grasses; it is also found in vacant lots near human habitation. It uses uninhabited mammal burrows for roosts and nests, oftentimes in close proximity to California ground squirrel colonies. It primarily feeds on large insects and small mammals but will also eat birds and amphibians. The open disturbed habitat provides potential habitat throughout the site and survey area. Ground squirrel burrows that could be utilized by owls were detected throughout the site, but no owl sign was detected at the burrow entrances. Multiple observations of this species have been documented within five miles of the Project site. Due to the presence of suitable habitat and several known records within five miles of the site, this species was determined to have a high potential to occur.

Special-Status Wildlife Species with a Moderate Potential to Occur

White-tailed kite (*Elanus leucurus*) is a CDFW Fully Protected species. The species is associated with open habitat in lowlands including savanna, open woodlands, marshes, and agricultural fields. Suitable trees for nesting occur onsite; however, marsh habitat does not occur on or near the site. Foraging habitat is present throughout the disturbed portions of the site. Three CNDDB records occurred within four miles of the site in 2009. Due to the presence of foraging habitat and recently documented occurrences, this species was determined to have a moderate potential to occur.

4.4.2 Biological Resources (IV) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

Less than significant impact with mitigation incorporated.

Special-Status Plants

No listed or special-status plant species have been documented on the Project site. No special-status plant species were determined to have a high potential to occur within the Project site. Four special-status plant species were determined to have a moderate potential to occur within the Project site. Thirty-nine special-status plant species were determined to have a low potential to occur and/or are unlikely to occur on the site itself. The following plants were found to have the potential to occur onsite: Braunton's milkvetch, Smooth Tarplant, Robinson's pepper-grass, and San Bernardino aster. As such, impacts to special-status plants is considered potentially significant. Implementation of Mitigation Measure **BIO-1** would mitigate this impact to less than significant.

Special-Status Raptors/Migratory Birds

The Project site and surrounding 500-foot buffer contains potential nesting habitat for numerous migratory bird species. Native bird species and their nests are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code 703-712). Potential nesting habitat within the Project site is present for birds that nest on the ground and in open scrub habitat. In addition, several mature pine trees are also present along the northern edge of the Project site and can provide nesting substrate for various songbirds and raptors. The disturbed habitats that occur within the 500-foot buffer for the Project site provide potential raptor foraging habitat. The site also provides nesting habitat for ground-nesting species as well as species that nest low in shrubs and trees. The trees along the northern edge of the Project site provide potential nesting habitat for raptors in addition to passerine species. Clearing of vegetation would need to comply with MBTA regulations and should avoid the nesting bird season to the maximum extent possible, typically February 1 through September 15. As such, impacts to special status birds and nesting activity is considered potentially significant. Implementation of Mitigation Measure **BIO-2** would mitigate this impact to less than significant.

Burrowing Owl

The disturbed, relative flat areas provide potential breeding and overwintering habitat for the ground-dwelling burrowing owl. As such, impacts to burrowing owls is considered potentially significant. Implementation of Mitigation Measure **BIO-3** would mitigate this impact to less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

No Impact.

The Project site and the 500-foot buffer for the Project site are characterized mostly by disturbed habitat with weedy and nonnative vegetation. The proposed project does not contain riparian habitat and due to the highly disturbed nature of the site, is also void of other natural communities. Therefore, the Proposed Project will have no impact to riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS. No impact would occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

No Impact.

The Proposed Project does not contain federally protected wetlands. No impact would occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐

Less than significant impact.

Due to the highly disturbed nature of the Project site as well as the fences and other development, the potential for wildlife to use the Project site for movement is low. Therefore, Project implementation would

not constitute a significant loss of the available migration habitat in the area. Impacts would be less than significant and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

No Impact.

The Proposed Project is located on land that is highly disturbed and is regularly mowed/disced. Additionally, the Proposed Project does not include tree removal, nor does it conflict with any local policies or ordinances protecting biological resources. Therefore, no impact will occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

No impact.

The Project Site is not located within or adjacent to a habitat conservation plan or Natural Community Conservation Plan. There would be no impact, and no mitigation is required.

4.4.3 Mitigation Measures

BIO-1: Pre-Construction Sensitive Plant Surveys. The following shall be conducted prior to initiation of Project construction:

- Perform focused plant surveys according to USFWS, CDFW, and CNPS protocols. Surveys should be timed according to the blooming period for target species and known reference populations, if available, and/or local herbaria should be visited prior to surveys to confirm the appropriate phenological state of the target species. If special-status plant species are found during surveys within the Project site and avoidance of the species is not possible, seed collection, transplantation, and/or other conservation approaches may be developed in consultation with appropriate resource agencies to reduce impacts to special-status plant populations. If no special-status plants are found on the Project Site, no further measures pertaining to special-status plants are necessary.

BIO-2: Pre-Construction Bird Nesting Surveys. The following shall be conducted prior to initiation of Project construction:

- Conduct a pre-construction nesting raptor and bird survey of all suitable habitat on and adjacent to the Project Site as described below within 14 days of commencement of construction during the nesting season (February 1 – September 15). Surveys should be conducted within 300 feet of the Project Site for nesting raptors, including sharp-shinned hawk (*Accipiter striatus*), and 100 feet of the Project Site for nesting birds.
- A no-disturbance buffer around the nest shall be established if active nests are found. The buffer distance shall be established by a qualified biologist and is recommended to be 300 feet for raptors and 50 feet for non-raptor songbirds. If an active sharp-shinned hawk, yellow-breasted chat (*Icteria virens*), or yellow warbler (*Setophaga petechia*) nest is found, the no-disturbance buffer shall be determined through consultation with CDFW. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. No further measures are necessary once the young are independent of the nest. Pre-construction nesting surveys are not required for construction activity outside the nesting season.

BIO-3: Pre-Construction Burrowing Owl Surveys. The following shall be conducted prior to initiation of Project construction:

- Pre-construction surveys for burrowing owl shall be conducted prior to the start of construction. The surveys shall follow the methods described in the CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012). Two surveys shall be conducted, with the first survey being conducted between 30 and 14 days before initial ground disturbance (e.g., grading, grubbing, construction), and the second survey being conducted no more than 24 hours prior to initial ground disturbance. If burrowing owls and/or suitable burrowing owl burrows with sign (e.g., whitewash, pellets, feathers, prey remains) are identified on the Project site during the survey and impacts to those features are unavoidable, consultation with the CDFW shall be conducted and the methods described in the CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012) for avoidance and/or passive relocation shall be followed.

4.5 Cultural Resources

4.5.1 Environmental Setting

A *Cultural Resources Inventory and Evaluation* was prepared by ECORP Consulting, Inc. (ECORP 2020b, *CONFIDENTIAL Appendix E*) for the Proposed Project to determine if cultural resources were present in or adjacent to the Project area and assess the sensitivity of the Project area for undiscovered or buried cultural resources. The cultural context of the Project area including regional and local prehistory, ethnography, and regional and Project area histories can be found in the report in *Appendix E*. The confidential report can be made available to qualified individuals on a need to know basis by contacting DGS Real Estate Services Division.

The analysis of cultural resources was based on a records and literature search conducted at the South Central Coastal Information Center of the California Historic Resources Information Center (CHRIS) at California State University, Fullerton, on February 27, 2020, a literature review, and a field survey on April 22, 2020. The literature search included the results of previous surveys within a 0.5-mile (800 meters) radius of the Proposed Project location.

In addition to the record search, ECORP Associate Archaeologist Julian Acuña contacted the California Native American Heritage Commission (NAHC) on February 12, 2020, to request a search of the Sacred Lands File for the Project Area.

4.5.2 Cultural Resources (V) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒

No Impact.

Records, Map, and Aerial Photo Search Results

The records search results indicated that 35 previous cultural resources investigations have been conducted within one mile of the property, covering approximately 25 percent of the total area surrounding the property within the record search radius.

ECORP conducted a records search for historical resources using various sources. Of the 35 previous cultural studies conducted within the one-mile search radius, only one study crossed a portion of the Project Area. The records search also determined that 12 previously recorded resources are located within one mile of the Project Area. These consist of three pre-contact resources and nine historic-period resources. Pre-contact resources consist of one site and two isolated finds. The pre-contact site contains three rock features and human remains. The two pre-contact isolated finds consist of one mano and one modified faunal bone. Of these 12 previously recorded resources, one resource, a pre-contact isolated find consisting of one mano, was recorded within the Project Area.

The National Register Information System (National Park Service [NPS] 2020) failed to reveal any eligible or listed properties within the Project Area.

ECORP reviewed resources listed as *California Historical Landmarks* (Office of Historic Preservation [OHP] 1996) and by the OHP (OHP 2020) on April 4, 2020. As a result, it was determined that no California Historical Landmarks are located within the Project Area.

A search of historic General Land Office land patent records from the Bureau of Land Management's (BLM's) patent information database did not reveal the names of any previous owners of the property (BLM 2020).

A review of historical aerial photographs and maps of the Project Area provided information on the past land uses of the property and potential for buried archaeological sites. Based on this information, the 1942 U.S. Geological Survey (USGS) 15-minute "Corona, California" quadrangle map shows the property unchanged except for a light-duty road that runs parallel to Central Avenue. The Institute for Men is also depicted southeast of the project area. These conditions remain unchanged in the 1950 USGS 7.5-minute "Prado Dam, California" quadrangle map. The 1967, 1973 and 1981 USGS 7.5-minute "Prado Dam, California", quadrangle maps show the property remains unchanged with increasing growth in the vicinity, including directly north at the Prado Conservation Camp.

Field Survey Results

ECORP archaeologist Robert Cunningham surveyed the Project Area for archaeological and historic-period resources on April 22, 2020. At the time of the survey, the parcel contained a portable office building, a guard shack, a vehicle maintenance area, a storage container, two helipads, and a parking area all associated with the CAL FIRE Prado Helitack Base. Areas around the office buildings and helipads are landscaped and ground visibility was good (85-95 percent). The parking area is covered in imported gravel, and outlying areas are overgrown with dense vegetation and have poor ground visibility (0-10 percent). Approximately 30 percent of the property contained dense vegetation and poor ground visibility. The property is bounded on all sides by a chain link fence. A small electrical substation is located near the northwest corner of the Project Area, extending into the property from Central Avenue. The substation is separated from the Project Area by a chain link fence. A shed is located along the eastern boundary of the substation and within the Project Area. South of the shed, a north-south-trending chain link fence extends approximately 250 feet south. At the south end of the fence, a line of four historic-period fire trucks, covered with black tarps, are parked end-to-end in a line extending west.

Cultural Resources

One previously recorded pre-contact isolated find (P36-029352) was identified within the Project Area; however, ECORP was unable to locate previously recorded isolated find P36-029352 during the field visit. During the survey, the ECORP archaeologist identified one newly recorded resource (PH-001) within the Project Area.

Previously Recorded Resources

P36-029352 is a pre-contact isolated find originally recorded in 2015. The isolated find was described as a potential mano fragment found on the surface in a disturbed context within a landscaping feature in an area containing imported gravel and cobblestones. The site record states that the fragment may have been imported into this location with the gravel and cobblestone material (Velasquez 2015).

The resource location was revisited by an ECORP archaeologist on April 22, 2020. During this visit, the ECORP archaeologist inspected the area and was unable to locate the artifact.

Newly Recorded Resources

PH-001 is a single-feature historic-period site consisting of one concrete standpipe measuring five feet three inches tall and 42 inches in diameter. The pipe is coated with white paint. The standpipe is first visible in historic-period aerial photographs from 1949.

The pipe may be associated with the nearby previously recorded CIM, Chino State Prison complex (P36-033081). P36-033081 was first recorded in 2016 and described as the first prison in California constructed to represent a deliberate departure from the Auburn style of prison architecture to one reflecting an open campus with the primary focus being on the training and rehabilitation of prisoners. From 1941 through the mid-twentieth century, the prison farm was the principal rehabilitation and employment program offered by the prison. Starting in the 1970s, the emphasis of the California prison system moved away from a focus on rehabilitation and the farming program gradually waned. Today, the remaining agricultural fields are leased to California State Polytechnic University, Pomona. In 2016, the prison complex was evaluated for the National Register of Historic Places (NRHP) and was found not eligible for listing in the NRHP under any criteria (Cunningham 2016). However, because the association between the standpipe (PH-001) and the prison is tenuous, the standpipe was recorded as a separate resource for the purposes of this study.

Evaluation/Conclusions

One historic-period cultural resource (PH-001) was identified within the Project Area as a result of this study. The previously recorded pre-contact isolated find (P36-029352) was not visible during the field survey and is no longer extant in that location. PH-001 was evaluated using California Register of Historical Resources (CRHR) eligibility criteria and was evaluated as not eligible for listing in the CRHR under any criteria. Therefore, the Proposed Project would not impact any known Historical Resources as defined by CEQA. However, until the Lead Agency concurs with the identification and evaluation of eligibility of cultural resources, including archaeological sites and standing structures, no ground-disturbing activity or demolition should occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐

Less than Significant with Mitigation Incorporated.

Three pre-contact resources were previously recorded within a one-mile radius of the Project. These consist of one site and two isolated finds. Of these, one isolated find was found in a disturbed context, on the surface and was likely imported into the area. The other two pre-contact resources contain subsurface components; however, they are located near Chino Creek, nearly one mile south of the Project Area.

Surface sediments within the Project area consist of Holocene alluvial gravel and sand (Qa) (Dibblee and Ehrensbeck 2001). Holocene sediments are often considered to have the potential to contain subsurface

cultural resources because they were deposited concurrently with human occupation of the region. The Project Area is a former agricultural field that has been repeatedly plowed since the 1940s and has been partially developed and landscaped in the immediate past. Thus, any near-surface pre-contact sites that may have been present have likely been mixed, removed, or destroyed by agricultural and development activities. Therefore, although sediments within the Project Area have the potential to contain cultural material, the likelihood for the presence of subsurface archaeological deposits within the Project Area is considered low to moderate.

In all cases, the Lead Agency will require that any unanticipated (or post-review) discoveries found during Project construction be managed through a procedure designed to assess and treat the find as quickly as possible and in accordance with applicable state laws. The following mitigation measure shall be adopted and implemented by the Lead Agency to reduce potential adverse impacts to less than significant. Implementation of Mitigation Measure **CUL-1** would reduce this potential impact to less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Less than significant with mitigation incorporated.

No formal cemeteries are located within or near the Project site and no human remains have been reported in the Project vicinity. Therefore, the Proposed Project has low potential to disturb human remains. The potential exists however for previously unknown remains to be unearthed during construction. The impact on such resources would be less than significant with the implementation of Mitigation Measure **CUL-1**.

4.5.3 Mitigation Measures

CUL-1: Implement Measures to Protect Unanticipated Cultural Resources Discoveries.

- If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:
  - If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required.
  - If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify CAL FIRE. The agency shall consult on a finding of eligibility and implement appropriate

treatment measures, if the find is determined to be an Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines. Work may not resume within the no-work radius until the Lead Agency, through consultation as appropriate, determines that the site either: 1) is not an Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines; or 2) that the treatment measures have been completed to its satisfaction.

- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the San Bernardino County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC may mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate CHRIS; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the Lead Agency, through consultation as appropriate, determines that the treatment measures have been completed to its satisfaction.

4.6 Energy

4.6.1 Environmental Setting

Electricity/Natural Gas Services

SCE provides electrical services to Chino through state-regulated public utility contracts. SCE, the largest subsidiary of Edison International, is the primary electricity supply company for much of Southern California. It provides 14 million people with electricity across a service territory of approximately 50,000 square miles.

The Southern California Gas Company provides natural gas services to the Project area. Southern California Gas services approximately 21.6 million customers, spanning roughly 20,000 square miles of California.

Energy Consumption

Electricity use is measured in kilowatt-hours (kWh), and natural gas use is measured in therms. Vehicle fuel and helicopter fuel use is typically measured in gallons (e.g. of gasoline, diesel fuel, or aviation fuel), although energy use for electric vehicles is measured in kWh.

The electricity consumption associated with all non-residential uses in San Bernardino County from 2014 to 2018 is shown in Table 4.6-1. As indicated, the demand has increased since 2014.

Table 4.6-1. Non-Residential Electricity Consumption in San Bernardino County 2014-2018

Year	Non-residential Electricity Consumption (kWh)
2018	10,189,923,519
2017	10,079,280,332
2016	9,972,705,757
2015	9,826,231,162
2014	9,998,887,200

Source: California Energy Commission (CEC) 2019

The natural gas consumption associated with all non-residential uses in San Bernardino County from 2014 to 2018 is shown in Table 4.6-2. As indicated, the demand has increased since 2014.

Table 4.6-2. Non-Residential Natural Gas Consumption in San Bernardino County 2014-2018

Year	Non-residential Natural Gas Consumption (therms)
2018	268,614,328
2017	257,879,077
2016	259,752,692
2015	245,499,027
2014	238,061,850

Source: CEC 2019

Automotive fuel consumption in San Bernardino County from 2015 to 2019 is shown in Table 4.6-3. As shown, automotive fuel consumption has remained relatively constant in the county since 2015.

Table 4.6-3. Automotive Fuel Consumption in San Bernardino County 2015–2019

Year	Automotive Fuel Consumption (gallons)
2019	3,334,922,526
2018	3,385,160,075
2017	3,427,137,695
2016	3,469,323,122
2015	3,336,730,022

Source: CARB 2017

Helicopters currently used at the Prado Helitack Base consume approximately 160 gallons of fuel per hour of flight. Based on current operations at the existing helitack based, during a peak-season (214 days from April through November) fire event the number of daily flights to and from the base could be five or more. Rescue events are more varied. Planned training events generally generate one to three flights daily under current conditions, and these are expected to be the same under the Project. Off-season (151 days from November through April) fire events generally generate two to three flights daily, but more can be required depending on need. The estimated five flights daily during the peak fire season equate to 1,070 flights over this time span and the estimated three flight daily during the off-season equate to 453 flights, resulting in an annual total of 1,523 flights. Round-trip flights can range from a few minutes (in the event of a cancellation) to seven hours. Assuming a median flight time of 3.5 hours per flight, provides an estimate of 5,330.5 hours of annual flight time and 852,880 gallons of aviation fuel consumed.

4.6.2 Energy (VI) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐

Less than significant impact.

The impact analysis focuses on the four sources of energy that are relevant to the Proposed Project: electricity, natural gas, the equipment-fuel necessary for Project construction, and the fuel use (for both ground vehicles and helicopters) which will result from Project operations. Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use project. For the purpose of this analysis, the amount of electricity and natural gas estimated to be consumed by the Project is quantified and compared to that consumed by non-residential land uses in San Bernardino County. Similarly, the amount of fuel necessary for Project construction and vehicle use during operations is calculated and compared to that consumed in San Bernardino County. Fuel use for the helicopter is quantified but is anticipated to change very little from the baseline level of helicopter fuel use required for current helicopter operations.

The analysis of electricity and natural gas usage is based on CalEEMod modeling conducted by ECORP (*Appendix F1* quantifies energy use for Project operations). The amount of operational automotive fuel use was estimated using the CARB's EMFAC2017 computer program, which provides projections for typical daily fuel usage in San Bernardino County. The amount of total construction-related fuel use was estimated using ratios provided in the Climate Registry's General Reporting Protocol for the Voluntary Reporting Program, Version 2.1. Helicopter fuel was estimated based on the anticipated average hours of flight per day and anticipated flights per year as a function of 160 gallons of fuel use per hour. As with existing conditions, the anticipated number of Project flights daily is largely dependent on the type of

activity and season. The number and duration of helicopter flights occurring with implementation of the Proposed Project is anticipated to be similar to existing conditions. Energy consumption associated with the Proposed Project is summarized in Table 4.6-4.

Table 4.6-4. Proposed Project Energy and Fuel Consumption

Energy Type	Annual Energy Consumption	Percentage Increase Countywide (percent)
Electricity Consumption[1]	155,739 kWh	0.0015
Natural Gas Consumption[1]	773 therms	0.0002
Fuel Consumption		
Automotive - Project Construction[2]	73,596 gallons	0.0022
Automotive - Project Operations[3]	31,974 gallons	0.0009
Helicopter - Project Operations	852,880 gallons	Same as Existing Conditions

Source: [1]ECORP Consulting (see *Appendix F1*); [2]Climate Registry 2016; [3]EMFAC2017 (CARB 2017).
Notes: The Project increases in electricity and natural gas consumption are compared with all of the non-residential uses in the respective service provider's service area in 2018, the latest data available.
The Project increases in automotive fuel consumption are compared with the countywide fuel consumption in 2019, the most recent full year of data.
In order to estimate annual helicopter emissions, fire season flights of up to five flights daily are assumed and off-season flights of up to three flights daily are assumed. Fire season = April – November (214 days). 214 days x 5 flights = 1,070 flights. Off-Season = November – April (151 days). 151 x 3 = 453 flights. 1,070 + 453 = 1,523 annual flights. Median flight duration is 3.5 hours. 1,523 x 3.5 = 5,330.5 flight hours. Sikorsky S70 helicopters consume 160 gallons of fuel per hour of flight. 5,330.5 hours x 160 gallons = 852,880 gallons consumed annually.

As shown in Table 4.6-4, the increase in electricity usage as a result of the Project would constitute 155,739 kWh, or a 0.0015 percent increase in the typical annual electricity consumption attributable to non-residential uses in San Bernardino County. Energy use by the Project during operation would be attributable primarily to use of the aircraft hangar, barracks, warehouse, and other buildings. Additionally, Project increases in non-residential natural gas usage across the County would be negligible, 773 therms, which equates to a 0.0002 percent increase in use. For these reasons, the Project would not result in the inefficient, wasteful, or unnecessary consumption of building energy.

As further indicated in Table 4.6-4, the Project's fuel consumption during the construction period is estimated to be 73,596 gallons of fuel, which would increase the annual gasoline fuel use in the County by 0.0022 percent. As such, Project construction would have a nominal effect on local and regional energy supplies. No unusual Project characteristics would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or the state. Construction contractors would purchase their own gasoline and diesel fuel from local suppliers and would conserve the use of their supplies to minimize costs and maximize profit. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and require recycling of construction debris, would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

As indicated in Table 4.6-4, the Project is estimated to consume 31,974 gallons of automotive fuel per year, which would increase the annual countywide automotive fuel consumption by 0.0009 percent. The amount of operational automotive fuel use was estimated using CARB's EMFAC2017 computer program, which provides projections for typical daily fuel usage in San Bernardino County. This analysis conservatively assumes that all 73 anticipated automobile trips projected to be generated by the project (Fehr and Peers 2020) would be novel to San Bernardino County. The Project would not result in any unusual characteristics that would result in excessive long-term operational automotive fuel consumption. Fuel consumption associated with vehicle trips generated by the Project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

As previously described, the anticipated number of daily helicopter flights daily is largely dependent on the type of activity and season. During a peak-season fire event, the number of flights to and from the base could be five or more. A rescue event is more difficult to predict because the types of activities are more varied, but similar flight volume could be anticipated. Planned training events generally generate one to three flights daily. Off-season fire events generally generate two to three flights daily, but more can be required depending on need. It is estimated that flights would average 3.5 hours in length and 1,523 flights would occur per year. Considering the Sikorsky S70 Firehawk helicopter uses 160 gallons of fuel per hour, the Project would consume an estimated 852,880 gallons of fuel per year for helicopter operations, which is estimated to be the same amount of aviation fuel currently consumed due to existing operations at the Prado Helitack Base and thus would not result a substantial increase of fuel use beyond current conditions. The objective of the proposed Project is to construct a new, modern helitack facility that would allow CAL FIRE to continue to provide high quality fire protection and emergency response service for the region. All helicopter fuel use would be utilized for emergency response and emergency preparedness, and as such the use of fuel by the Project for helicopter operation would not constitute an inefficient, wasteful, or unnecessary consumption of energy.

For these reasons, this impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Less than significant impact.

The Project would be designed in a manner that is consistent with relevant energy conservation plans designed to encourage development that results in the efficient use of energy resources. The Project site is designated *Urban Reserve* by the Chino General Plan and is currently operating as a CAL FIRE helitack base. The Project is consistent with the General Plan designation and is the expansion of an existing use. As such, the Project is consistent with the development projections for the area and would not induce population growth. The Project would comply with relevant energy conservation policies included in the City of Chino General Plan (City of Chino 2010a), many of which are included in the *Open Space and Conservation* Element, as all Project buildings would be designed to meet the U.S. Green Building

Council's LEED Silver rating requirements, which equate to the highest echelon of green building standards in the United States. A major overarching goal of this element is to ensure that development in the City aligns with the City's resource conservation goals. Relevant goals include Goal OSC-4, which is to minimize the consumption of energy and nonrenewable resources, and promote environmental sustainability, and Goal OSC-5, which is to reduce greenhouse gas emissions by 15 percent below 2008 levels by 2020. The Project would not conflict with or obstruct any local or state plans for renewable energy or energy efficiency.

For these reasons, this impact would be less than significant.

4.6.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.7 Geology and Soils

This section of the checklist addresses the potential impact of the Proposed Project on geological and soil resources within the Project Area. The information and analysis presented here is based, in part, on the report entitled *Geotechnical Investigation Prado Helitack Base: New Facility* by SCST, LLC (2019). The Geotechnical Investigation is included with this Initial Study as *Appendix G*.

4.7.1 Environmental Setting

4.7.1.1 Geomorphic Setting

The Project site is located within the Peninsular Ranges Geomorphic Province of California, which stretches from the Los Angeles basin to the tip of Baja California. This province is characterized as a series of northwest-trending mountain ranges separated by subparallel fault zones, and a coastal plain of subdued landforms. The mountain ranges are underlain primarily by Mesozoic metamorphic rocks that were intruded by plutonic rocks of the southern California batholith, while the coastal plain is underlain by subsequently deposited marine and non-marine sedimentary formations. The Project site is located in the coastal plain portion of the province and is underlain by fill and young alluvium.

4.7.1.2 Soils

According to the NRCS Web Soil Survey database, the Project site is composed of one soil unit, Merrill silt loam, which makes up 100 percent of the Project area. The Web Soil Survey also identifies drainage, flooding, erosion, runoff, and the linear extensibility potential for Project area soils. This soil has the following properties:

- Somewhat poorly drained
- Flooding frequency class: Rare
- Hydrologic Soil Group: C

Hydrologic Soil Groups

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation.

- Group A: Soils having a high infiltration rate (low runoff potential) when thoroughly wet.
- Group B: Soils having a moderate infiltration rate when thoroughly wet.
- Group C: Soils having a slow infiltration rate when thoroughly wet.
- Group D: Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet.

4.7.1.3 Radon

Radon is a colorless, odorless, tasteless, and radioactive gas that is produced as a natural decay product of uranium. Because of its radioactivity, studies have shown that at elevated concentrations there is a link between radon and lung cancer. Persons living in a building with elevated radon concentrations may have an increased risk of contracting lung cancer over a period of years. The Project site is located in an area of medium radon potential with levels of radon typically below the USEPA radon threshold limit of 4.0 picocuries per liter of air (pCi/L). Potentially high radon levels are typically associated with geologic uplift, the uranium/lignite belt, or granite or shale outcrops. San Bernardino County is an USEPA Radon Zone 2, a county with predicted average indoor radon screening levels between 2 and 4 pCi/L. The Project site is underlain by the coastal plain portion of the Peninsular Ranges Geomorphic Province of California; therefore, radon is not anticipated to be a geologic hazard.

4.7.1.4 Naturally Occurring Asbestos

The Project site is located within the Peninsular Ranges Geomorphic Province, which consists of a series of mountain ranges separated by long valleys formed from faults branching from the San Andreas Fault. The topographic trend is similar to the Coast Ranges, but the geology is more like the Sierra Nevada, with granitic rocks intruding the older metamorphic rocks. This formation is not generally known to have asbestos-laden rocks. No outcrops of serpentinite ultramafic rocks were observed at the Project site during the site reconnaissance conducted for the Geotechnical Investigation.

4.7.2 Regulatory Setting

Laws and regulations relevant to the Proposed Project are presented below.

4.7.2.1 State

Alquist-Priolo Earthquake Fault Zoning Act (PRC, §§ 2621-2630).

This Act requires that "sufficiently active" and "well-defined" earthquake fault zones be delineated by the State Geologist and prohibits locating structures for human occupancy on active and potentially active surface faults. (Note that since only those potentially active faults that have a relatively high potential for

ground rupture are identified as fault zones, not all potentially active faults are zoned under the Alquist-Priolo Earthquake Fault Zone, as designated by the State of California.)

California Building Code (CCR, Title 23)

The California Building Code (CBC) provides a minimum standard for building design, which is based on the Uniform Building Code, but is modified for conditions unique to California. The CBC is selectively adopted by local jurisdictions, based on local conditions. The CBC contains requirements pertaining to multiple activities, including excavation, site demolition, foundations and retaining walls, grading activities including drainage and erosion control, and construction of pipelines alongside existing structures.

4.7.3 Geology and Soils (VII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐

Less than significant impact.

i) and ii)

The closest known active faults are the Central Avenue and Chino faults, which are located about ½ and 1 mile southwest of the site, respectively. The faults are part of the Elsinore fault zone, which is anticipated to produce a 6.8 magnitude earthquake. The site is not located in an Alquist-Priolo Earthquake Fault Zone. No active faults are known to underlie or project toward the site. However, due to the site's proximity to an Alquist-Priolo Earthquake Fault Zone, the probability of fault rupture-related damage should be considered.

iii)

Liquefaction is the loss of soil strength or stiffness due to a buildup of pore-water pressure during severe ground shaking. Liquefaction is associated primarily with loose, saturated, fine- to medium-grained, cohesionless soils. Effects of severe liquefaction can include sand boils, excessive settlement, bearing capacity failures and lateral spreading. The site has not been evaluated for liquefaction potential on the State of California Seismic Hazards Zones Map (California Geological Survey [CGS] 2001). Due to the lack of shallow groundwater, SCST anticipates the liquefaction potential to be negligible. However, there are layers of medium dense cohesionless materials that are prone to dynamic settlement. Project construction will follow the recommendations of the geotechnical report and impacts of the Project will be less than significant. No mitigation is required.

iv)

The site has not been evaluated for the potential of earthquake-induced landslide movement on the State of California Seismic Hazards Zones Map (CGS 2001). No evidence of landslides or slope instabilities was observed. The potential for landslides or slope instabilities to occur at the site is considered less than significant. No mitigation is required.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Less than Significant Impact.

BMPs are included as part of the SWPPP prepared for the Proposed Project and would be implemented to manage erosion and the loss of topsoil during construction-related activities (see Section 4.10 *Hydrology and Water Quality*). Soil erosion impacts would be reduced to a less than significant impact. No mitigation is required.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐

Less than Significant Impact.

The current soil and ground conditions are not likely to be susceptible to liquefaction and coseismic compaction. Construction would be consistent with the Project's geotechnical report, which includes

recommendations designed to address and mitigate site-specific soil conditions. Therefore, related impacts would be less than significant, and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐

Less than Significant Impact.

The onsite materials tested by SCST possess a low to medium expansion potential. Project construction will follow geotechnical report recommendations that address these conditions. Related impacts are considered less than significant. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

No impact.

The Project site currently has sewer lines already in place and would tie into the City's system. The Proposed Project will not require the use of septic tanks or alternative waste water disposal systems. Therefore, there would be no impact and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated.

The entire Project site has surface deposits that consist of younger Quaternary Alluvium, derived broadly as alluvial fan deposits from the San Bernardino Mountains to the north. These deposits typically do not contain significant vertebrate fossils in the uppermost layers, but at relatively shallow depth there are likely older Quaternary deposits that may well contain significant vertebrate fossils. The closest fossil vertebrate localities from older Quaternary deposits south-southwest of the Proposed Project area are in

the hills just south of Los Serrano. Both produced specimens of fossil horse (*Equus*). In English Canyon almost due west of the Proposed Project area, an older Quaternary locality produced fossil specimens of horse, and camel (*Camelops*), at a depth of 15 feet southwest of the intersection of the Pomona Freeway (SR 60) and the Corona Freeway (SR 71), the older Quaternary locality produced a fossil specimen of bison (*Bison bison*). Slightly further to the southwest of the Proposed Project area, in the uppermost reaches of Soquel Canyon, an older Quaternary locality produced fossil specimens of ground sloth (*Nothrotheriops*), and horse (E. *giganteus*). Just south of due east of the Proposed Project area, west of Mira Loma, east of Archibald Avenue along Sumner Road, north of Cloverdale Road, an older Quaternary locality produced a fossil specimen of whipsnake (*Masticophis*), at a depth of nine to 11 feet below the surface. Just northeast of that locality, west of Mira Loma and just north of due east of the Proposed Project area, an older Quaternary locality produced fossil specimens of undetermined elephant (*Proboscidea*), bear (*Ursus*), dog (*Canis dirus*), horse (*Equus*), camel, and bison, at shallow but unstated depth.

Shallow excavations in the younger Quaternary Alluvium exposed throughout the Proposed Project area are unlikely to uncover significant fossil vertebrate remains. Deeper excavations there that extend down into the older Quaternary sediments, however, have the potential to encounter significant vertebrate fossils. Therefore, because unknown paleontological resources could be discovered during excavation, this impact is considered potentially significant. Implementation of Mitigation Measure **GEO-1** would reduce this impact to a less than significant level.

4.7.4 Mitigation Measures

GEO-1: Discovery of Unknown Paleontological Resources.

- If any paleontological resources (i.e., fossils) are found during Project construction, construction shall be halted immediately in the subject area and the area shall be isolated using orange or yellow fencing until CAL FIRE is notified and the area is cleared for future work. A qualified paleontologist shall be retained to evaluate the find and recommend appropriate treatment of the inadvertently discovered paleontological resources. In addition, in the event of an inadvertent find, sediment samples should be collected and processed to determine the small fossil potential on the Project Site. If CAL FIRE resumes work in a location where paleontological remains have been discovered and cleared, CAL FIRE will have a paleontologist onsite to observe any continuing excavation to confirm that no additional paleontological resources are in the area. Any fossil materials uncovered during mitigation activities should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

4.8 Greenhouse Gas Emissions

4.8.1 Environmental Setting

Greenhouse gases (GHGs) are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons, creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a

naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps more than 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. The local air quality agency regulating the SoCAB is the SCAQMD, the regional air pollution control officer for the basin. To provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, SCAQMD staff convened a GHG CEQA Significance Threshold Working Group. The Working Group was formed to assist the SCAQMD's efforts to develop a GHG significance threshold and is composed of a wide variety of stakeholders including the State Office of Planning and Research (OPR), CARB, the Attorney General's Office, a variety of city and county planning departments in the SoCAB, various utilities such as sanitation and power companies throughout the SoCAB, industry groups, and environmental and professional organizations. On October 8, 2008, the SCAQMD released the Draft AQMD Staff CEQA GHG Significance Thresholds. On September 28, 2010, SCAQMD Working Group Meeting #15 provided further guidance, including a numeric "bright-line" threshold of 3,000 metric tons of CO_2e annually and an efficiency-based threshold of 4.8 metric tons of CO_2e per service population (defined as the people who work, study, live, patronize and/or congregate on the Project site) per year in 2020 and 3.0 metric tons of CO_2e per service population per year in 2035. The numeric bright line and efficiency-based thresholds were developed to be consistent with CEQA requirements for developing significance thresholds, are supported by substantial evidence, and provide guidance to CEQA practitioners and lead agencies with regard to determining whether GHG emissions from a proposed project are significant.

In Center for Biological Diversity v. Department of Fish and Wildlife (2015) 62 Cal. 4th 2014, 213, 221, 227, following its review of various potential GHG thresholds proposed in an academic study [Crockett, Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World (July 2011), 4 Golden Gate U. Envtl. L. J. 203], the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, PRC § 21003(f) provides it is a policy of the state that:

> "[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment."

The Supreme Court-reviewed study noted:

"[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts." (Crockett, Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World (July 2011), 4 Golden Gate U. Envtl. L. J. 203, 221, 227.)

4.8.2 Greenhouse Gas Emissions (VIII) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

Less than Significant Impact.

The Lead Agency may set a project-specific threshold based on the context of each particular project, including using the SCAQMD Working Group expert recommendation, for this Project because it is in the same air quality basin that the experts analyzed. For the Proposed Project, the SCAQMD's 3,000 metric tons of CO_2e per year screening threshold is used as the significance threshold in addition to Project comparison to the City of Chino Climate Action Plan (CAP, 2013), as expanded upon under Issue b. The 3,000 metric tons of CO_2e per year screening threshold represents a 90 percent capture rate (i.e., this threshold captures projects that represent approximately 90 percent of GHG emissions from new sources). The 3,000 metric tons of CO_2e per year value is typically used in defining small projects within this air basin that are considered less than significant because it represents less than one percent of the future 2050 statewide GHG emissions target and the lead agency can provide more efficient implementation of CEQA by focusing its scarce resources on the top 90 percent. This screening threshold is correlated to the 90 percent capture rate for industrial projects within the air basin. Land use projects above the 3,000 metric tons of CO_2e per year level would fall within the 90 percent of largest projects that are worth mitigating without wasting scarce financial, governmental, physical and social resources. (SCAQMD, Draft Guidance Document – Interim CEQA Greenhouse Gas Significance Threshold, at pp. 3-2 and 3-3; Crockett 2011). As noted in the academic study, the fact that small projects below a numeric bright line threshold are not subject to CEQA-based mitigation, does not mean such small projects do not help the state achieve its climate change goals because even small projects participate in or comply with non-CEQA-based GHG reduction programs, such as constructing development in accordance with statewide GHG-reducing energy efficiency building standards, called the California Green Building Standards (CALGreen) or Title 24 energy-efficiency building standards (Crockett 2011).

The Project's GHG emissions would occur during the duration of construction and would consist primarily of emissions from equipment exhaust. Construction-related activities that would generate GHGs include worker commute trips, haul trucks carrying supplies and materials to and from the Project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 4.8-1 illustrates the specific construction generated GHG emissions that would result from construction of the Project.

Table 4.8-1. Construction-Related Greenhouse Gas Emissions

Emissions Source	CO_2e (Metric Tons/Year)
Construction in 2021	553
Construction in 2022	194
Total:	**747**

Source: CalEEMod version 2016.3.2. Refer to *Appendix C1* for Model Data Outputs.

As shown in Table 4.8-1, Project construction would result in the generation of approximately 747 metric tons of CO_2e over the course of construction. Once construction is complete, the generation of these GHG emissions would cease. Projected GHGs from construction have been quantified and amortized over the life of the Project (30 years). The amortized construction emissions are added to the annual average operational emissions consistent with SCAQMD recommendations (see Table 4.8-2).

There would also be long-term regional emissions associated with Project-related new vehicular trips, and indirect source emissions, such as electricity usage for lighting. It is noted that the new buildings would be designed to meet the U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) requirements to attain a Silver rating. Therefore, it is plausible that implementation of the Proposed Project would actually generate less demand for energy and thus less GHG emissions than identified.

Helicopter operations would also generate GHG emissions. As previously described, the anticipated number of flights daily is largely dependent on the type of activity and season. Based on current operations at the existing helitack base, during a peak-season fire event, the number of flights to and from the base could be five or more. Off-season fire events generally generate two to three flights daily, but more can be required depending on need. Round-trip flights can range from a few minutes (in the event of a cancellation) to seven hours. The number and duration of helicopter flights occurring with implementation of the Proposed Project is anticipated to be similar to existing conditions.

Long-term operational GHG emissions attributable to the Project are identified in Table 4.8-2 and compared to the existing baseline. The difference in annual GHG emissions are compared to the SCAQMD's 3,000 metric tons of CO_2e per year numeric threshold.

Table 4.8-2. Operational-Related Greenhouse Gas Emissions

Emissions Source	CO_2e (Metric Tons/ Year)
Proposed Project	
Construction Emissions (Amortized over 30 years)	25
Area Source Emissions	0
Energy Source Emissions	43
Mobile (automotive)	85
Mobile (helicopter operation)	10,183
Solid Waste Emissions	13
Water Emissions	29
Total Emissions:	**10,378**
Existing Baseline	
Area Source Emissions	0
Energy Source Emissions	9
Mobile (automotive)	82
Mobile (helicopter operation)	10,183
Solid Waste Emissions	1
Water Emissions	3
Total Emissions:	**10,278**
Difference	
Construction Emissions (Amortized over 30 years)	+25
Area Source Emissions	0
Energy Source Emissions	+34
Mobile (automotive)	+3
Mobile (helicopter operation)	0
Solid Waste Emissions	+12
Water Emissions	+26
Total Emissions:	**+100**
SCAQMD Screening Threshold	*3,000*
Exceed SCAQMD Threshold?	**No**

CalEEMod version 2016.3.2; Guidance on the Determination of Helicopter Emissions 2015. Refer to *Appendix F1* for Model Data Outputs.

Notes: Automobile emissions projections account for an automotive trip generation rate identified in the Trip Generation Analysis prepared by the Fehr and Peers (2020), and helicopter emissions are based on emission rates (CO_2e per gallon of fuel consumed) contained in Emission Factors for Greenhouse Gas Inventories (USEPA 2018, see *Appendix F2*). In order to estimate annual helicopter emissions, fire season flights of up to five flights daily are assumed and off-season flights of up to three flights daily are assumed. Fire season = April – November (214 days). 214 days x 5 flights = 1,070 flights. Off-Season = November – April (151 days). 151 x 3 = 453 flights. 1,070 + 453 = 1,523 annual flights. Median flight duration is 3.5 hours. 1,523 x 3.5 = 5,330.5 flight hours. Sikorsky S70 helicopters consume 160 gallons of fuel per hour of flight. 5,330.5 hours x 160 gallons = 852,880 gallons consumed annually.

As shown in Table 4.8-2, operational-generated emissions would be generated at very similar rates as currently generated under existing conditions and would not exceed the SCAQMD's numeric bright-line threshold of 3,000 metric tons of CO_2e annually. This impact is less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

No Impact.

The City of Chino adopted a CAP in 2013 and serves as a component of the City Municipal Code for the City to address GHG emissions (Municipal Code Section 15.45). As part of the CAP, the City of Chino selected a goal to reduce the City's GHG emissions to a level 15 percent below its 2008 GHG emissions levels by 2020, which was determined to be consistent with the GHG emissions reduction mandates of AB 32 and as recommended in the AB 32 Scoping Plan. Since the Project will not be operational until after the year 2020, a Project consistency comparison to the City CAP on its own is not considered an appropriate threshold under CEQA. Nonetheless, the CAP does provide a focused roadmap for advancing environmental sustainability and reducing GHG emissions in the City and contains GHG-reducing policy provisions that place the City on the trajectory to achieve future GHG-reducing goals. Therefore, Project consistency with the CAP is considered for disclosure purposes. A majority of the local GHG reduction policies specified in the adopted CAP require compliance with existing City ordinances and/or provide guidance to City staff and decision makers to ensure that GHGs are reduced at a policy level; as such, a majority of the GHG reduction policies specified in the CAP are not directly applicable to new development projects (Chino 2013). However, the CAP does establish performance standards for new development projects to reduce GHG emissions through implementation of one or a combination of the following three options:

1) Exceed by three percent the mandatory California Energy Code (Title 24, Part 6) standards in effect at the time of development application submittal;

2) Achieve an equivalent reduction through voluntary measures in the California Green Building Standards Code (Title 24, Part 11, CALGreen) in effect at the time of development application submittal;

OR

3) Provide other equivalent GHG reductions through design measures that would result in GHG emissions reductions of 0.04 metric ton of CO_2e per residential dwelling unit per year and/or 0.11 metric ton of CO_2e per thousand square feet of commercial/industrial use per year.

The Chino CAP is a strategic planning document that identifies sources of GHG emissions within the City's boundaries, presents current and future emissions estimates, identifies a GHG reduction target for future

years, and presents strategic programs, policies, and projects to reduce emissions from the energy, transportation, land use, water use, and waste sectors. The GHG-reduction strategies in the CAP build on inventory results and key opportunities prioritized by City staff and members of the public. The CAP strategies consist of strategies that identify the steps the City will take to support reductions in GHG emissions. The City will achieve these reductions in GHG emissions through a mix of voluntary programs and new strategic standards. All standards presented in the CAP respond to the needs of development, avoiding unnecessary regulation, streamlining new development, and achieving more efficient use of resources.

Both the existing and the projected GHG inventories in the CAP were derived based on the land use designations and associated densities defined in the City of Chino General Plan 2025. The Proposed Project is consistent with the land use designation and development density presented in the City of Chino General Plan 2025 (City of Chino 2010a). As previously stated, the Project site is designated by the City's General Plan as *Urban Reserve*, and the Project is the construction of a new helitack base (in place of the existing base) and associated facilities/structures. The General Plan states the *Urban Reserve* designation is for land where urban development is planned to take place. The Project site would continue to be utilized for CAL FIRE operations as it is under existing conditions. Since the Project is consistent with the General Plan it is consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the General Plan. As a result, the Project would not conflict with the land use assumptions or exceed the population or job growth projections used by the City to develop the CAP.

In addition, a specific Project proposal is considered consistent with the Chino CAP if it complies with the "required" GHG reduction measures in the adopted CAP. The CAP establishes performance standards for new development projects to reduce GHG emissions through implementation of one or a combination of the following three options:

1) Exceed by three percent the mandatory California Energy Code (Title 24, Part 6) standards in effect at the time of development application submittal;
2) Achieve an equivalent reduction through voluntary measures in CALGreen (Title 24, Part 11) in effect at the time of development application submittal;

OR

3) Provide other equivalent GHG reductions through design measures that would result in GHG emissions reductions of 0.04 metric ton of CO_2e per residential dwelling unit per year and/or 0.11 metric ton of CO_2e per thousand square feet of commercial/industrial use per year.

As previously described, all Project buildings would be designed to meet the USGBC's LEED Silver rating requirements, which equate to the highest echelon of green building standards in the United States. The LEED Silver rating would equate to Option 1) above. Therefore, the Project would comply with the Chino CAP, and would not conflict with an applicable plan intended to reduce GHG emissions. As such, no impact would occur.

4.8.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.9 Hazards and Hazardous Materials

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined by the California Health and Safety Code, § 25501 as follows:

> "Hazardous material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

A hazardous material is defined in 22 CCR § 662601.10 as follows:

> A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

Transporters of hazardous waste in California are subject to many federal and state regulations. They must register with the California Department of Health Services (DHS) and ensure that vehicle and waste container operators have been trained in the proper handling of hazardous waste. Vehicles used for the transportation of hazardous waste must pass an annual inspection by the California Highway Patrol (CHP). Transporters must allow the CHP and/or the DHS to inspect its vehicles and must make certain required inspection records available to both agencies. The transport of hazardous materials that are not wastes is regulated by the U.S. Department of Transportation through national safety standards.

Other risks resulting from hazardous materials include the use of these materials in local industry, businesses and agricultural production. The owner or operator of any business or entity that handles a hazardous material above threshold quantities is required, by state and federal laws, to submit a business plan to the local Certified Unified Program Agency (CUPA). The Hazardous Materials Division of the San Bernardino County Fire Department is designated by the State Secretary for Environmental Protection as the CUPA for the County of San Bernardino in order to focus the management of specific environmental programs at the local government level. The CUPA is charged with the responsibility of conducting compliance inspections for over 7000 regulated facilities in San Bernardino County.

As a CUPA, San Bernardino County Fire Department manages six hazardous material and hazardous waste programs. The CUPA program is designed to consolidate, coordinate, and uniformly and consistently administer permits, inspection activities, and enforcement activities throughout San Bernardino County. This approach strives to reduce overlapping and sometimes conflicting requirements of different

governmental agencies independently managing these programs. Large cases of hazardous materials contamination or violations to the Santa Ana Regional Water Quality Control Board (RWQCB) (Region 8) and the California Department of Toxic Substances Control (DTSC). It is not at all uncommon for other agencies, such as federal and state Occupational Safety and Health Administrations (OSHA), to become involved when issues of hazardous materials arise.

Under Government Code Section 65962.5, both the DTSC and the SWRCB are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. The Project site is not listed by the DTSC or SWRCB as a hazardous substances site on the list of hazardous waste sites compiled pursuant to Government Code § 65962.5 (Cortese List).

4.9.1 Environmental Setting

The Project site is located at the southeast corner of the intersection of Central Avenue and Eucalyptus Avenue at 14467 Central Avenue, Chino, in San Bernardino County, and is currently used by CAL FIRE as a helitack base. The site contains has two helicopter pads, several small storage structures, and a modular building used for office space and barracks. The majority of the existing site is characterized as undeveloped open land with grass and gravel as the main ground cover. The property is bounded on all sides by a chain link fence. There is an SCE electrical substation in the northwest portion of the site adjacent to Central Avenue, separated from the Project site by a chain link fence. The site gently slopes north to south.

4.9.2 Hazards and Hazardous Materials (IX) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

Less than significant.

Implementation of the Project would result in the development of a new 12,000-gallon above-ground jet fuel tank and a new 2,000-gallon self-contained above-ground fuel tank. The tanks would be specifically designed and certified for the purpose of fuel storage. Routine transportation of these fuels would occur in order to refill the tanks. Transportation of these fuels would be via an approved fuel transport trucks that have been licensed specifically for this purpose. The transport of hazardous materials by truck is regulated by federal safety standards under the jurisdiction of the U.S. Department of Transportation. The CHP is responsible for tanker truck inspections and permitting within the state. Because of existing requirements for the use, transport, and disposal of propane, diesel and gasoline, as well as jet fuel, the potential for significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous fuels is less than significant.

Additionally, CAL FIRE would comply with all federal, state, and local regulations regarding the storage of hazardous waste and all onsite hazardous waste handling and storage would occur within the specially designed hazardous waste storage building which would be equipped with secondary containment.

Other hazardous material use may include lubricants, fuels, and solvents in relatively small quantities. Because all on- and offsite storage and use of would be conducted consistent with applicable regulations, use of these materials would not create a significant hazard to the public and impacts would be less than significant. No mitigation would be required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

Less than significant.

As stated above in (a), the Proposed Project site will include a new 12,000-gallon above-ground jet fuel tank and a new 2,000-gallon self-contained above-ground fuel tank. Therefore, hazardous materials, such as diesel fuel and oil, would be used during construction, demolition, and operation and maintenance at the Project site. The release of any hazardous substance to the environment would be prevented through the implementation of BMPs listed in the SWPPP and SPCC Plan. As described above in the discussion under a), routine use, storage, and handling of hazardous substances would be conducted in accordance with applicable federal, state, and local regulations. Hazards related to building and vehicle maintenance materials would be present at the Project site.

Because of existing requirements for the use, transport, and storage, of diesel and gasoline, as well as jet fuel, the potential for significant hazards to the public, construction workers, and environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would be reduced to a less than significant impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐

Less than significant.

There are no schools located within ¼ mile of the Project site. The nearest school to the Project site is Edwin Rhodes Elementary School, located approximately two miles to the northeast and Glenmeade Elementary School, located approximately 2.5 miles southwest. Please see the response to b) above. Impacts would be less than significant. No mitigation would be required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

No impact.

ECORP conducted a search of the DTSC's Hazardous Waste and Substance List (Cortese List), EnviroStor online database, and the SWRCB's GeoTracker online database for the Project Area and did not identify any potential or confirmed active state or federal Superfund sites located within or immediately adjacent to the Project site. Therefore, the Proposed Project would not be located on a site which is included on a list of hazardous material sites. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

No impact.

The closest airport to the Project site is Chino Airport, approximately three miles southeast of the Project site. The Project site currently has helicopter operations onsite and has flight plans associated with the function and service of the existing helicopters and helipads. The Proposed Project will not change these existing flight patterns or the function of the onsite helicopter operations. Due to the distance of the Proposed Project Site to a public use airport and the ongoing nature of helicopter operations, no hazards to people residing or working in the Proposed Project Area would result. No impact would occur.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

No Impact.

The San Bernardino County Fire Office of Emergency Services *Emergency Operations Plan* (2018) sets forth policies to address and respond to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies affecting San Bernardino County. Construction of the Proposed Project would not interfere with the above-listed emergency response and recovery plan and would enhance ability to respond to emergency situations locally. No impact would occur.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Less than significant.

According to the *Draft Fire Hazard Severity Zones* in State and Local Responsibility Area Maps published by CAL FIRE, the Project site is not located in a high hazard severity zone. Additionally, as described in the Project Description, the facility is designed and equipped to respond to both natural and manmade disasters (including fire). Therefore, the Proposed Project will have a less than significant impact on increasing the wildfire risk within the area or further exposing people or structures to additional significant risk of loss, injury, or death involving wildland fires.

4.9.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.10 Hydrology and Water Quality

4.10.1 Environmental Setting

4.10.1.1 Regional Hydrology

The site is located within the Chino Groundwater Basin which is one of the largest groundwater basins in southern California and contains approximately 5,000,000 acre-feet (AF) of water and has an unused storage capacity of approximately 1,000,000 AF. The Chino Basin consists of approximately 235 square miles of the upper Santa Ana River watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. Approximately five percent of the Chino Basin is located in Los Angeles County, 15

percent in Riverside County, and 80 percent in San Bernardino County. The Chino Basin is bounded by Cucamonga Basin and the San Gabriel Mountains to the north, the Temescal Basin to the south, Chino Hills and Puente Hills to the southwest, San Jose Hills, Pomona and Claremont Basins on the northwest and the Rialto/Colton Basins on the east. The legal boundaries of the Chino Basin are defined in the Judgment.

4.10.1.2 Site Hydrology and On-Site Drainage

The Project site would maintain existing grades. The site currently slopes from north to south. There is an existing storm drain located on the north side of the Project site that collects offsite runoff from the north. This drain would be protected in place.

Stormwater BMPs might include the following:

- Underground infiltration dependent on soil percolation test results
- Vegetated swales

Design options will be fully evaluated once the site plan and soil report are fully developed.

4.10.2 Hydrology and Water Quality (X) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐

Less than significant.

The majority of the precipitation for the area occurs during the winter months; however, adverse storm events can also occur outside of the winter. During construction of the Proposed Project, impacts to water resources could occur without proper controls to protect water quality and reduce impacts to soil erosion. Soil can be loosened during demolition, fill and grading, paving, and tree removal processes. Loosened soils and spills of fluids or fuels from construction vehicles and equipment or miscellaneous construction materials and debris could degrade surface and ground water quality. A heavy rainfall event could cause pollutants to flow offsite and reach nearby surface water drainage facilities. The Project Site and area impacted would be more than one acre, making the Proposed Project subject to the requirements of the statewide National Pollutant Discharge Elimination System (NPDES) storm water permit for construction (Order 98-08-DWQ). A SWPPP, a required element of the NPDES, includes a listing of BMPs to prevent construction pollutants and products from violating water quality standards or waste discharge requirements. The SWPPP would be required for the Proposed Project.

Stormwater BMPs might include the following:

- Underground infiltration dependent on soil percolation test results
- Vegetated swales

Additionally, all operational activities would be performed consistent with water quality regulations and all hazardous material special use areas would be designed to protect against surface and groundwater contamination. CAL FIRE would comply with all federal, state, and local regulations regarding the storage of hazardous waste and all onsite hazardous waste storage would occur within the specially designed hazardous waste storage building, which would be equipped with secondary containment. Therefore, the proposed project will have a less then significant impact on water quality. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐

Less than significant.

Domestic water for the Proposed Project would be provided by the City. Project implementation will result in an increase of impervious surfaces on the site; therefore, a stormwater treatment system would be provided in compliance with local stormwater quality regulations. The onsite runoff would be collected and treated on the south side of the site consistent with current site conditions. The Proposed Project would not substantially increase the amount of impervious surface regionally nor substantially interfere with groundwater recharge. The onsite runoff would be collected and treated on the south side of the site consistent with current site conditions. As such, the Proposed Project would have a less than significant impact on groundwater. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐

Less than significant.

The Proposed Project will not substantially alter the existing drainage pattern of the site; however, improvements to the drainage system will be made to better convey stormwater runoff. Site drainage would be designed for the 85th percentile storm event and therefore would not exceed the capacity of downstream existing or planned drainage systems. The Proposed Project will have a less than significant impact to flood flows. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐

Less than significant.

The Project Site is not located in an area protected by levees. According to the Federal Emergency Management Agency maps, the Project Site is located in Zone X (area of minimal flood hazard). Additionally, The Project Site is neither located near any large bodies of water nor located inland, and not within a seiche, tsunami, or mudflow hazard area. Therefore, the Proposed Project would not be subject to inundation by seiche, tsunami, or mudflow. A less-than-significant impact would occur. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

No impact.

As stated above, the Proposed Project would be required to comply with SWPPP and NPDES regulations and would not obstruct or conflict with water quality control or sustainable groundwater management plans. No mitigation is required.

4.10.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.11 Land Use and Planning

4.11.1 Environmental Setting

The Project site is located at 14467 Central Avenue in the City of Chino. The site is zoned as Commercial Service and has a General Plan designation of Urban Reserve. Immediately east and south of the Project site is open space associated with the CIM facility. This area is characterized by flat terrain with minimal vegetative cover. Prison facilities are located farther to the east and south. The western side of Central Avenue opposite the site contains commercial and industrial uses. The Prado Conservation Camp and Ruben S. Ayla Park occupy the land north and northeast of the Project site. The nearest residential use is 4,500 feet east of the Project site.

The majority of the Project site is currently operated as a helitack base, and that use will remain after the completion of the Proposed Project.

The State of California and State-owned land, such as the CAL FIRE parcel, are not subject to local city or county land use and zoning regulations. However, the state is subject to the requirement under CEQA to assess Project-related impacts that may occur as a result of conflicts between existing and proposed land uses.

4.11.2 Land Use and Planning (XI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒

No Impact.

Projects such as a railroad line, major highway, or water canal may result in physically dividing an established community by removing existing roadway connections, walkways and bike paths and other types of links between community areas. This may result in the division of an existing community by removing those connections. The Proposed Project involves upgrading an existing helitack base on the same site with a small expansion into vacant former CIM property. No removal of roadways or other connections to the surrounding community would occur. No impact will occur, and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

No Impact.

The State of California and State-owned land, such as a CAL FIRE facility, are not subject to local city or county land use and zoning regulations. Although the State is not subject to local land use and zoning regulations, local land use regulations were considered in this IS/MND, and the Project as proposed does not appear to conflict with any local regulations. Therefore, the Proposed Project would have no impact in this area. No mitigation is required.

4.11.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.12 Mineral Resources

4.12.1 Environmental Setting

Minerals are defined as any naturally occurring chemical elements or compounds, formed from inorganic processes and organic substances. Minable minerals or an 'ore deposit' is defined as a deposit of ore or minerals having a value materially in excess of the cost of developing, mining and processing the mineral and reclaiming the Project area. Mineral resources are an integral part of development and the economic well-being of San Bernardino County. The conservation, extraction and processing of those mineral resources is essential to meeting the needs of society. In San Bernardino County minerals are a foremost natural resource, with the Desert Planning Area accounting for over 90 percent of all County mining activities. There are 92 mines within the County, [including] several large calcium carbonate mining operations. The County is home to the largest cement producer in the state. It also has the largest rare earth mine in North America. Extensive aggregate mining is also a major component of the mining industry within the County (San Bernardino County General Plan EIR, 2006).

4.12.2 Regulatory Setting

4.12.2.1 Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act of 1975 (SMARA) states that cities and counties must adopt an ordinance(s) "which establishes procedures for the review and approval of reclamation plans and the issuance of a permit to conduct surface mining operations" (PRC Section 2774). The intent of this legislation is to ensure the prevention or mitigation of the adverse environmental impacts of mining, the reclamation of mined lands, and the production and conservation of mineral resources are consistent with recreation, watershed, wildlife, and public safety objectives (PRC Section 2712).

SMARA requires the State Geologist to classify land into Mineral Resource Zones (MRZs) , according to the known or inferred mineral potential of that land. The process is based solely on geology, without regard to existing land use or land ownership. The primary goal of mineral land classification is to ensure that the mineral potential of land is recognized by local government decision makers and considered before land use decisions, which could preclude mining, are made. Areas subject. to California mineral land classification studies are divided into Mineral Resource Zone (MRZ) categories that reflect varying degrees of mineral potential:

- MRZ-1: Areas of no mineral resource significance
- MRZ-2: Areas of identified mineral resource significance
- MRZ-3: Areas of undetermined mineral resource significance
- MRZ-4: Areas of unknown mineral resource significance

Goals, Programs, and Policies that are applicable to the Proposed Project are listed below.

4.12.2.2 San Bernardino County

Policy LU 7.1: *Ensure that land use developments within the state-delineated Mineral Resource Zones (MRZs) are in accordance with the adopted mineral resources management policies of the County.*

Policy CO 7.2 *Implement the state Mineral Resource Zone (MRZ) designations to establish a system that identifies mineral potential and economically viable reserves.*

4.12.3 Mineral Resources (XII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

No Impact.

According to Mineral Land Classification maps located on the DOC website, the Project Site is not located in an MRZ. The Proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. There are no mining activities being conducted on or near the site and no mining activities are planned for the site. Therefore, no impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

No Impact.

The Proposed Project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan, because no mining operations exist on or adjacent to the Project site (San Bernardino County 2006). The Project site is currently used as a helitack base and will remain so following Project implementation. Therefore, no impact would occur.

4.12.4 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.13 Noise

4.13.1 Environmental Setting

4.13.1.1 Noise Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. The selection of a proper noise descriptor for a specific source is dependent on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the average daily noise levels/community noise equivalent level (in L_{dn}/CNEL). The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA "weighting" added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
- **Community Noise Equivalent Level (CNEL)** is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the

hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source (USEPA 1971). Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed (FHWA 2011).

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60- to 70-dBA range, and high, above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of one dBA cannot be perceived by humans.
- Outside of the laboratory, a three-dBA change is considered a just-perceivable difference.
- A change in level of at least five dBA is required before any noticeable change in community response would be expected. An increase of five dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Noise Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as hospitals, historic sites, cemeteries, and certain recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The Project is proposing the renovation of an existing Helitack Base and associated facilities/structures on the existing Prado Conservation Camp, as well as offsite improvements on Central Avenue. The offsite improvements are located directly adjacent to the Project site, as such onsite and offsite improvements will be discussed collectively. The nearest noise sensitive receptors to the Project site are the barracks located on the existing Prado Conservation Camp, directly adjacent to the Proposed Project. However, because the barracks are associated with the Proposed Project and are currently impacted by operations on the Project site, they will not be included in this analysis. The nearest offsite sensitive receptors to the Project site are residences to the south located approximately 1,400 feet distant. Additionally, as previously mentioned, prison facilities are located to the east and south. These facilities include dormitories that are considered noise sensitive receptors with the closest one being approximately 1,500 feet distant. As previously described, the existing Helicopter approach and departure is northeast-southwest of the facility (see Figure 2-5), which would remain under the Proposed Project. The nearest sensitive receptors along the flight path are residences located approximately 0.26 mile in each direction.

4.13.1.2 Vibration Fundamentals

Ground vibration can be measured several ways to quantify the amplitude of vibration produced. This can be through peak particle velocity (PPV) or root mean square velocity. These velocity measurements measure maximum particle at one point or the average of the squared amplitude of the signal, respectively.

Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

4.13.1.3 Existing Ambient Noise Environment

The City of Chino and the Project vicinity are impacted by various noise sources. It is subject to typical urban noise such as noise generated by traffic, heavy machinery, and day-to-day outdoor activities as well as noise generated from the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout Chino that generate stationary source noise. According to the City of Chino General Plan EIR Noise Element (2010b), the most significant source of noise in the City is produced by traffic on area roadways and aircraft operations from the Chino Airport and Ontario International Airport, located 2.4 miles to the east and six miles to the northeast, respectively. Central Avenue, classified as a major arterial street in the City, serves as the western boundary of the Project site. Major arterial

streets serve major activity centers within the City, carrying the majority of intra-City trips, and providing access to high volume corridors, such as freeways. The Project site is surrounded by the existing Prado Conservation Camp to the north; vacant land, the prison and industrial uses to the east; vacant land with residents beyond to the south; and industrial and commercial uses to the west. The Project site currently consists of two existing helicopter pads, several small storage structures and a modular building used for office space and barracks, located south of the Prado Conservation Camp, that are mainly used by CAL FIRE first responders.

4.13.1.4 Existing Ambient Noise Measurements

The Project site can be characterized mainly as undeveloped open land with grass and gravel as the main ground cover, though it does include two helicopter pads, proposed for removal, several small storage structures and a modular building used for office space and barracks. In order to quantify existing ambient noise levels in the Project area, ECORP conducted three short-term noise measurements on February 2, 2020. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site; specifically, Ruben S. Ayla Park to the north and the residential neighborhood located under the northeast flight path (see *Appendix H* for a visual depiction of the Noise Measurement Locations). No helicopter activity (i.e., takeoff, flyover, or landing) occurred when measurements were being conducted. The 10-minute measurements were taken between 9:51 a.m. and 11:02 a.m. Short-term (L_{eq}) measurements are considered representative of the noise levels throughout the daytime. The average noise levels and sources of noise measured at each location are listed in Table 4.13-1. Additionally, ECORP has conducted various noise measurements in areas surrounding the Project site for a variety of other land use projects. Two project sites located in the City of Chino Hills approximately 1.4 miles and 1.2 miles southwest of the Proposed Project site and under the southwest flight path are also presented in Table 4.13-1.

Table 4.13-1. Existing (Baseline) Noise Measurements

Location Number	Location	L_{eq} dBA	Lmin dBA	Lmax dBA	Time
1	At Ruben S. Ayala Park adjacent to the fenced golf area.	**46.9**	44.4	51.4	9:51 a.m. – 1-:05 a.m. February 2, 2020
2	Residential neighborhood east of the Project site at the intersection of Satterfield Way and Notre Dame.	**53.3**	40.9	68.2	10:16 a.m. – 10:26 a.m. February 2, 2020
3	Residential neighborhood east of the Project site at the intersection of Magnolia Avenue and La Grange.	**59.7**	36.3	78.5	10:52 a.m. – 11:02 a.m. February 2, 2020
4	Along Los Serranos Boulevard, due south of Lake Los Serranos.	**56.3**	39.6	72.0	1:16 p.m. – 1:26 p.m. February 12, 2020
5	Pipeline/Glen Ridge Drive Intersection, west of Lake Los Serranos.	**72.9**	56.0	92.8	1:38 p.m. – 1:48 p.m. February 12, 2020
6	El Molino/Los Serrano Boulevard Intersection, south of Lake Los Serranos.	**62.8**	44.2	83.9	1:54 p.m. – 1:04 p.m. February 12, 2020
7	Valley Vista and Ramona Avenue Intersection, east of Lake Los Serranos.	**67.9**	49.3	90.8	2:07 p.m. – 2:17 p.m. February 12, 2020

Location Number	Location	L_{eq} dBA	Lmin dBA	Lmax dBA	Time
8	On the southeastern corner of Ramona Avenue and SR 71 interchange.	**64.9**	54.4	77.6	11:26 a.m.-11:36 a.m. February 12, 2020
9	On the southeastern corner of Chino Hills Parkway and SR 71 interchange	**63.0**	55.7	74.2	11:46 a.m. – 11:56 a.m. February 12, 2020
10	Terminus of Timberwood Court, adjacent to Village Drive	**50.9**	43.6	73.2	1:54 p.m. – 2:04 p.m. February 12, 2020

Source: Measurements were taken by ECORP with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See *Appendix H* for noise measurement outputs.

As shown in Table 4.13-1, the ambient recorded noise levels at Ruben S. Ayla Park and the residential neighborhood located under the northeast flight path range from 49.6 to 59.7 dBA. The ambient recorded noise levels to the southwest of the Proposed Project site and under the southwest flight path range from 50.9 to 72.9 dBA. The most common noise in the Project vicinity is produced by automotive vehicles on adjacent roadways as well as normal neighborhood activity (e.g., dogs barking, yard maintenance activity). Helicopter noise associated with the existing operations of the Prado Helitack Base also contributes to the overall ambient noise environment in these areas.

4.13.2 Regulatory Setting

City of Chino General Plan Noise Element

The Proposed Project is located in the City of Chino; therefore, Chino noise standards are referred to in this analysis. The Noise Element of the General Plan is a comprehensive program for including noise management in the planning process, providing a tool for planners to use in achieving and maintaining land uses that are compatible with existing and future environmental noise levels. The Noise Element identifies current noise conditions within Chino, and projects future noise impacts resulting from continued growth allowed by the General Plan *Land Use Element*. The Noise Element identifies noise-sensitive land uses and noise sources and defines areas of noise impact for the purpose of developing programs to ensure that residents in Chino will be protected from excessive noise intrusion.

As development proposals are submitted to the City, each is evaluated with respect to the policy provisions in the Noise Element to ensure that noise impacts are reduced through planning and project design. Through implementation of the policies and programs of the Noise Element, Chino seeks to reduce or avoid adverse noise impacts for the purposes of protecting the general health, safety, and welfare of the community.

The most basic planning strategy to minimize adverse impacts on new land uses due to noise is to avoid designating certain land uses at locations within the City that would negatively affect noise sensitive land uses. Uses such as schools, hospitals, child care, senior care, congregate care, churches, and all types of residential use should be located outside of any area anticipated to exceed acceptable noise levels as defined by the City of Chino Interior and Exterior Noise Standards. These standards provide exterior and

interior noise standards within the City and provide restrictions on the amount of noise generated at a property line and are shown in Table 4.13-2.

Table 4.13-2. Interior and Exterior Noise Standards

Land Use Category	Specific Land Use	Interior Noise Standard dBA ($CNEL/L_{dn}$)[a]	Exterior Noise Standard dBA ($CNEL/L_{dn}$)[b]
Residential	Single-Family, Duplex, Multi-Family	45c	65
	Mobile Home	--	65d
Commercial, Industrial, Institutional	Hotel, Motel, Transient Lodging	45	65
	Commercial Retail, Bank, Restaurant	55	--
	Office Building, Research & Development, Professional Offices, City Office Building	50	--
	Amphitheater, Concert Hall, Auditorium, Meeting Hall	45	--
	Gymnasium (multipurpose)	50	--
	Sports Club	55	--
	Manufacturing, Warehousing, Wholesale, Utilities	65	--
	Movie Theaters	45	--
Institutional	Hospital, Schools, Classroom	45	65
	Church, Library	45	--
Open Space	Park	--	65

Source: City of Chino 2010b

Notes:

dB(A): (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.

a. Indoor environment excluding bathrooms, toilets, closets, corridors.
b. Outdoor environment limited to private yard of single-family or multi-family private patio or balcony which is served by a means of exit from inside, mobile home park, hospital patio, park's picnic area, school's playground, and hotel and motel recreation area.
c. Noise level requirement with closed windows. Mechanical ventilation system or other means of natural ventilation shall be provided per the California Building Code.
d. Exterior noise level should be such that interior noise levels will not exceed 45 dB L_{dn}.

The Noise Element also contains objectives and policies that must be used to guide decisions concerning land uses that are common sources of excessive noise levels. The following relevant and applicable goals and policies from the City's Noise Element have been identified for the Project.

Objective N-1.1: Ensure appropriate exterior and interior noise levels for existing and new land uses.

Policy P2: The City shall require measures to ensure noise-sensitive uses have appropriate interior noise environments when located in areas adjacent to major noise generators.

Policy P6: The City shall only approve projects which comply with adopted noise standards or meet the provisions of the California Environmental Quality Act.

Objective N-1.3: Control sources of construction noise.

Policy P1: The City shall require a noise monitoring plan to be prepared and submitted prior to starting all construction projects. The noise monitoring plan shall identify monitoring locations and frequency, instrumentation to be used, and appropriate noise control measures that will be incorporated.

Policy P2: The City shall limit all construction in the vicinity of noise sensitive land uses, such as residences, hospitals, or senior centers, to daylight hours or 7:00 a.m. to 7:00 p.m. In addition, the following construction noise control measures shall be included as requirements at construction sites to minimize construction noise impacts:

- *Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.*
- *Ensure that during construction, trucks and equipment are running only when necessary.*
- *Shield all construction equipment with temporary noise barriers to reduce construction-related noise impacts.*
- *Locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction area.*
- *Utilize "quiet" air compressors and similar equipment, where available.*

City of Chino Municipal Code

The City of Chino's regulations with respect to the direct generation of stationary-source noise are included in Chapter 9.40 of the Municipal Code, also known as the Noise Ordinance. The Noise Ordinance provides noise standards within the City and the following references are those portions of the Noise Ordinance that may be applicable to the Project. These standards provide restrictions on the amount and duration of noise generated by stationary sources at a property. The City's stationary-source noise limits are shown in Table 4.13-3.

Table 4.13-3. City of Chino Stationary-Source Noise Standards at Residential Receptors

Maximum time of Exposure	Level Not to Exceed 7:00 am to 10:00 pm (dBA)	Level Not to Exceed 10:00 pm to 7:00 am (dBA)
30 minutes/hour (L_{50})	55	50
15 minutes/hour (L_{25})	60	55
5 minutes/hour (L08)	65	60
1 minutes/hour (L02)	70	65
Any Period of Time (L_{max})	75	70

Source: City of Chino 1995; 2010b

Section 9.40.060 of the Noise Ordinance exempts certain activities from the noise standards presented in Table 4.13-3. For example, noise created by construction, repair, remodeling or grading of any real property are exempt provided said activities do not take place outside the hours for construction as defined by Policy P2 of the Noise Element. Construction related ground vibration is also exempt. Additionally, any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle, work or warning alarm or bell, provided the sounding of any bell or alarm on any building or motor vehicle shall terminate its operation within thirty minutes in any hour of its being activated.

4.13.3 Noise (XIII) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐

Less than Significant Impact.

4.13.3.1 Project Construction

Construction noise associated with the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., demolition, building construction). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of

acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive receptors in the vicinity of the construction site.

Noise levels associated with individual construction equipment are summarized in Table 4.14-4.

Table 4.14-4. Typical Construction Equipment Noise Levels

Equipment	Typical Noise Level (dBA) at 50 Feet from Source	
	L_{max}	L_{eq}
Air Compressor	77.7	73.7
Backhoe	77.6	73.6
Concrete Mixer Truck	78.8	74.8
Concrete Saw	89.9	82.6
Crane	80.6	72.6
Dozer	81.7	77.7
Excavator	80.7	76.7
Generator	80.6	77.6
Gradall (Forklift)	83.4	79.4
Grader	85.0	81.0
Other Equipment	85.0	82.0
Pavement Scarifier	89.5	82.5
Paver	77.2	74.2
Roller	80.0	73.0
Scraper	83.6	79.6
Tractor	84.0	80.0
Welder	74.0	70.0

Source: FHWA, Roadway Construction Noise Model (FHWA-HEP-05-054), dated January 2006.

Notes: L_{eq} is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eg} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or night, L_{max} is the maximum noise level during the measurement period.

Nearby noise-sensitive land uses consist of residents 0.3 mile (1,400 feet) to the south and prison dormitories 1,500 feet east of Proposed Project construction. Based on the construction equipment noise levels listed in Table 4.14-4 and assuming an average noise attenuation rate of 6 dB per doubling of distance from the source, predicted maximum eight-hour noise levels at the nearest sensitive receptor would range from approximately 44.1 dBA L_{eq} to 54.7 dBA L_{eq}.

The City of Chino does not promulgate numeric thresholds pertaining to the noise associated with construction. Instead, the City exempts all noise associated with by construction, repair, remodeling or

grading as long as it is conducted during daylight hours or 7:00 a.m. to 7:00 p.m. Additionally, the following construction noise control measures are required at all construction sites in the City per *General Plan Noise Element* Policy P2 in order to minimize construction noise impacts:

- Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Ensure that during construction, trucks and equipment are running only when necessary.
- Shield all construction equipment with temporary noise barriers to reduce construction-related noise impacts.
- Locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction area.
- Utilize "quiet" air compressors and similar equipment, where available.

The City is a developing urban community and construction noise is generally accepted as a reality within the urban environment. Furthermore, construction would occur throughout the Project site and would not be concentrated at one point. Therefore, noise generated during construction activities, as long as conducted within the permitted hours and following the construction noise control measures presented in the General Plan, would not exceed City noise standards. Thus, a less than significant impact would occur in this regard.

4.13.3.2 Project Operations

Operational Automobile Traffic Noise

Project operation would result in additional traffic on adjacent roadways, thereby increasing vehicular noise in the Project area. According to Caltrans' *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013a), doubling of traffic on a roadway is necessary in order to result in an increase of 3 dB (a barely perceptible increase, as previously described). According to the Transportation Assessment prepared by Fehr & Peers (2020), Central Avenue, which traverses the western boundary of the Project site, accommodates approximately 10,143 to 16,398 trips per day. The Project is estimated to generate approximately 20 new trips per day. This amount of additional traffic would not result in a doubling of traffic on any of the vicinity roadways, and thus the Project's contribution to existing traffic noise would not be perceptible. Traffic noise as a result of Project operations would be less than significant.

Operational Stationary Noise

As previously mentioned, the Project proposes to upgrade the existing Prado Helitack Base located at the Prado Conservation Camp. This includes the construction of 26-bed barracks (with four offices), mess hall, and resources management office building. Other improvements would include two new helipads, warehouse, training tower, helicopter hangar, garage, electrical building, and storage building. In this analysis, each constructed use is grouped into their dominant noise sources and analyzed collectively. The most prominent noise source on the Project site will be that of helicopter activities (i.e., takeoff, flyover, or landing) however, the Project site currently contains two helipads and supports full CAL FIRE helicopter

operations. As previously discussed, the nearest offsite sensitive receptors to the Project site are residents to the south located approximately 0.3 mile (1,400 feet) away. Additionally, there are dormitories located on prison property that are located approximately 1,500 feet away.

Barracks, Mess Hall, Resource Management Office Building, Electrical Building and Storage Building

The main operational stationary noise source associated with the barracks, mess hall, resource management office building, electrical building and storage building would include mechanical equipment associated with the buildings. According to field noise measurements conducted by ECORP, mechanical heating, ventilation, and air conditioning equipment generates noise levels less than 45 dBA at 20 feet, which is less than the City's daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise standards presented in the City's Municipal Code (Table 4.13-3). Additionally, the ambient recorded noise levels range from 49.6 to 59.7 dBA near the Project site. The noise produced by the mechanical equipment associated with the Proposed Project would be less than that currently experienced and have an imperceptible effect on the current noise environment. These uses are similar to those on the current Prado Conservation Camp, located directly north of the development site, and would not result in a substantial increase in ambient noise levels.

Warehouse, Helicopter Hanger, and Garage

The main operational noise that could result from Project operations at the warehouse, helicopter hanger and garage would be primarily generated from the use of power tools. Additionally, it is likely that large vehicles such as fire engines would be visiting these buildings and maneuvering around the Project site. According to field noise measurements conducted by ECORP, power tools and general activity from a large autobody shop generates noise levels of 66.3 dBA L_{eq} at approximately 15 feet. A Loading Dock Noise Study conducted in the City of San Jose (2014) found that a truck backup alarm is the loudest aspect of a maneuvering truck and generates noise up to 79 dB at 30 feet. Assuming an average noise attenuation rate of 6 dB per doubling of distance from the source, noise levels from these uses could generate noise levels up to 46.1 dBA at the nearest residence. This noise level falls below the day and nighttime noise standards presented in the City's Municipal Code.

Emergency Sirens

Residential receptors in the immediate vicinity of the Project would experience periodic exposure to siren noise. The potential adverse effects of noise associated with the use of emergency vehicle sirens on the quality of life of nearby residents is often a concern in development of new fire stations, which is not the case with the Proposed Project and the noise events from sirens experienced at nearby sensitive receptors would be similar to events that they are currently experiencing.

Federal regulation limits emergency siren noise at 123 dBA at 10 feet. Factoring an attenuation rate of approximately 6 dBA per doubling of distance from the source equates to a noise level of approximately 103.5 dBA at 100 feet. Since emergency vehicle response is by nature rapid, the duration of exposure to this peak noise level is estimated to last for a maximum of 10 seconds as emergency vehicles pause at the driveway exit, engage the siren and turn onto Central Avenue and accelerate rapidly away from the station. Thus, receptors would be exposed to very short-duration high noise levels for approximately 10

seconds for each emergency response event. Further, the typical practice for CAL FIRE-related emergency vehicle use is to use sirens to break traffic at intersections or warn drivers of the emergency vehicle approach when traffic is congested. Responses to nighttime emergency calls routinely occur without the use of sirens, when nuisance noise is most noticeable. It is also noted that the manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller Miller & Hanson Inc. [HMMH] 2006).

A key focus of analysis with regard to noise is the potential for long-term exposure to higher noise levels (i.e., continuous, involuntary exposure for many hours per day over a long period of time) that may adversely affect human health. As a result of this emphasis, noise standards focus on increases in long-term exposure to ongoing average noise levels rather than infrequent short-duration peak effects. Siren noise from intermittent emergency vehicle trips sourced from the Project site would not substantially change the L_{dn} or CNEL, described above, for the Project vicinity as the intermittent siren use would not constitute a significant change in the existing noise environment. Additionally, per Section 9.40.060 of the City's Municipal Code, all noise related to any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle, work or warning alarm or bell is exempt from the City noise standards. All noise producing activity related to emergency response siren noise would be produced from CAL FIRE due to emergency and training operations as well as from the Chino Valley Fire Department. As such, all noise related to sirens as a result of the Proposed Project is exempt from City noise standards.

Helipads and Training Tower

As previously mentioned, the most prominent noise source on the Project site would be that of helicopter activities. Improvements proposed for helicopter operations include the construction of two new helipads, to replace the existing two that are proposed to be removed, and a training tower with a helicopter landing platform on the top level. The Sikorsky S70 Firehawk helicopter is used by CAL FIRE first responders at the Prado Helitack Base. The anticipated number of flights daily is largely dependent on the type of activity and season. During a peak-season fire event, the number of flights to and from the base could be five or more. A rescue event is more difficult to predict because the types of activities are more varied, but similar flight volume could be anticipated. Planned training events generally generate one to three flights daily. Off-season fire events generally generate two to three flights daily, but more can be required depending on need. Round-trip flights can range from a few minutes (in the event of a cancellation) to seven hours.

The most noticeable acoustical characteristic of all helicopters is the modulation of sound by the relatively slow-turning main rotor. Concerning nearby sensitive receptors, this noise is more pronounced when the helicopter is on the ground and decreases as the aircraft ascends. According to previous measurements conducted by ECORP staff, a single helicopter taking off generates a noise level of 87.0 dBA at 330 feet distant, and 87.9 dBA L_{max} while landing, with each event lasting less than five minutes in duration. As previously described, the nearest sensitive receptors are single-family residences located 0.3 mile to the south and based on an attenuation rate of 6 dBA per doubling of distance, these receptors would experience L_{max} noise levels of 70.9 dBA L_{max} during take-off and 71.8 dBA during landing. As previously

mentioned, the Project site currently contains two helipads and accommodates all helitack base activity for the CAL FIRE first responders. Chino Valley Fire also uses the second helipad when available to perform medical air transport. The noise events experienced at the nearby sensitive receptors would be similar to events that they are currently experiencing. Additionally, per Section 9.40.060 of the City's Municipal Code, all noise related to any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle, work or warning alarm or bell is exempt from the City noise standards. All noise producing activity related to helicopter noise would be produced from CAL FIRE due to emergency and training operations as well as from the Chino Valley Fire Department. As such, all noise related to helicopter activity as a result of the Proposed Project is exempt from City noise standards.

As discussed above, operational noise produced as a result of the Project would result in a less than significant impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

Less than Significant Impact.

4.13.3.3 Construction-Generated Vibration

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Proposed Project would be primarily associated with short-term construction-related activities. Construction on the Project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment such as dozers and trucks. It is not anticipated that pile drivers would be necessary during Project construction. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table 4.13-5.

Table 4.13-5. Representative Vibration Source Levels for Construction Equipment

Equipment Type	PPV at 25 Feet (inches per second)
Large Bulldozer	0.089
Pile Driver	0.170
Caisson Drilling	0.089
Loaded Trucks	0.076
Rock Breaker	0.089
Jackhammer	0.035
Small Bulldozer/Tractor	0.003

Source: FTA 2018; Caltrans 2013b

The City's Municipal Code, Section 9.40.060, exempts vibration created by construction, repair, remodeling or grading as long as done within permitted hours and following the construction noise control measures presented in the General Plan explained above. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2013b) recommended standard of 0.2 inch per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

It is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure. The offsite nearest structure of concern to the construction site is located approximately 50 feet away at the existing Prado Conservation Camp. Based on the vibration levels presented in Table 4.13-5, in the case that pile drivers are employed, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.170 inch per second PPV at 25 feet. Ground vibration would only reach a maximum of 0.089 inch per second in the case that pile drivers are not used. Thus, the structure located 50 feet away would not be negatively affected. Predicted vibration levels at the nearest structures would not exceed recommended criteria and there would be a less than significant impact.

4.13.3.4 Operation-Generated Vibration

Project operations would not include the use of any stationary equipment that would result in excessive groundborne vibration levels. Impacts would be less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

No Impact.

The National Institute for Occupational Safety and Health, a division of the U.S. Department of Health and Human Services, identifies a worker-related noise level threshold based on the duration of exposure to the source. The worker-related noise level threshold starts at 85 dBA for more than eight hours per day; for every 3 dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day.

The Project site is located approximately 2.5 miles southeast of the Chino Airport and approximately 6.0 miles northeast of the Ontario International Airport. The Project site is located outside of the 65 dBA noise contours for the Chino Airport and Ontario International Airport per the Noise Element of the General Plan. Implementation of the Proposed Project would neither affect airport operations nor result in increased exposure of staff residing at the Project site to aircraft noise. No impact would occur.

4.13.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.14 Population and Housing

4.14.1 Environmental Setting

The Project site will have the same use after the completion of the Proposed Project. The population of Chino was approximately 91,583 in 2018. (US Census Bureau 2018). Total number of housing units in the city is not available, but Census data shows the average number of persons per household is 3.43 for the approximately 20,536 households city-wide. By comparison, San Bernardino County averages 3.3 persons per household across its 630,633 households county-wide.

4.14.2 Population and Housing (XIV) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒

No Impact.

The Proposed Project would not increase the number of homes or provide additional offsite infrastructure in the area. No impact would occur.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No Impact.

The Proposed Project would not displace any people or existing housing. CAL FIRE staff would continue to operate from the existing facility throughout construction. No impact would occur.

4.14.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.15 Public Services

4.15.1 Environmental Setting

4.15.1.1 Police Services

The Chino Police Department provides for the public safety of the community and serves as part of the emergency response for the City. The Department headquarters is located at 5450 Guardian Way, Chino.

4.15.1.2 Fire Services

The Chino Valley Fire District (CVFD) is located in the southwest region of San Bernardino County. CVFD's jurisdiction covers approximately 80 square miles and has an estimated population of 173,000. It is estimated that the CVFD population will be over 200,000 within the next 20 years. The cities of Chino,

Chino Hills, and surrounding unincorporated areas of San Bernardino County are served by the CVFD (CVFD 2020).

In addition to the CVFD, the CAL FIRE Prado Station serves the City of Chino for fire protection and emergency response. The Prado Base responds to an average of 55 fire calls per year, and provides coverage to Orange, Riverside, and San Bernardino counties and the Cleveland, San Bernardino, and Angeles national forests.

4.15.1.3 Schools

The Chino Valley Unified School District, headquartered at 5130 Riverside Drive in Chino, is home to 21 California Distinguished Schools. There are no schools within one mile of the Project site; however, there are several schools within two miles of the Project site in nearly every direction.

4.15.1.4 Parks

There are several parks in the City of Chino and a couple near the Project site. See Section 4.16 *Recreation* for more information on Chino parks.

4.15.1.5 Other Public Facilities

Other public facilities in the vicinity of the Project site include the CIM, immediately southeast of the Project site, and City of Chino Public Works, City Hall, and the Chino Branch Library, north of the Project site.

4.15.2 Public Services (XV) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☐	☒
	Fire Protection?	☐	☐	☐	☒
	Police Protection?	☐	☐	☐	☒
	Schools?	☐	☐	☐	☒
	Parks?	☐	☐	☐	☒
	Other Public Facilities?	☐	☐	☐	☒

No Impact.

There will be no substantial adverse impacts associated with the Proposed Project, which will replace the existing Prado facility with the construction of a new, modern helitack facility that would allow the base to continue to provide high-quality fire protection and emergency-response service within the SRA and would accommodate the changing aviation and event-response parameters of the facility. The Proposed Project does not require an expansion of residential housing and would not induce population growth. No impact would occur to public facilities in the area.

4.15.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.16 Recreation

4.16.1 Environmental Setting

Chino's Community Services Department manages parks within the City. College Park and Olympic Park are located about one mile east of the Project site. Ruben S. Ayala Park is located immediately north of the Prado Conservation Camp on the north side of College Park Avenue. It is the city's largest community park, located on the corner of Central and Edison avenues, and totals 140 acres in size. Offered amenities include softball, baseball, and soccer fields; picnic structures; barbecues; playground equipment; restrooms and concessions buildings; a skate park; batting cages; horseshoe pits; and a multipurpose trail.

Prado Regional Park lies 3.75 miles southeast of the Project site; it offers fishing, a shooting range, archery, camping, hiking, horseback riding, and a golf course. Prado Regional Park is managed by San Bernardino County.

4.16.2 Recreation (XVI) Materials Checklist

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

No Impact.

The Proposed Project would not generate a substantial increase in the area population; therefore, it would not significantly increase the use of existing neighborhood or regional parks and recreational facilities. There would be no impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

No Impact.

The Proposed Project does not include recreational facilities or require the construction or expansion of recreational facilities. There would be no impact.

4.16.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.17 Transportation

This section is based on the *Transportation Assessment* by Fehr & Peers (2020), included with this Initial Study as *Appendix I*.

On September 27, 2013, Governor Jerry Brown signed Senate Bill 743 into law and started a process that will fundamentally change transportation impact analysis conducted as part of CEQA compliance. The Governor's OPR was charged with developing new guidelines for evaluating transportation impacts under CEQA using methods that no longer focus on measuring automobile delay and level of service (LOS).

OPR issued proposed updates to the CEQA guidelines in support of these goals in November 2017 and a supporting technical advisory in December 2018. The updates establish vehicle miles traveled (VMT) as the metric for evaluating a project's environmental impacts on the transportation system.

Lead agencies, including CAL FIRE, had until July 1, 2020, to implement these new requirements. The City of Chino has not yet adopted specific VMT metrics or thresholds of significance for transportation studies.

OPR has recommended that land use projects within metropolitan planning organization areas achieve a 15 percent reduction in VMT per capita or per worker as compared to the existing regional average.

OPR also recommends that impact analysis be streamlined through Project screening. Projects identified as VMT-reducing or VMT-efficient projects have a presumption of a less than significant impact on VMT, and therefore do not require a full VMT assessment. OPR identifies the following project types as appropriate for screening:

- Projects that generate fewer than 110 daily trips
- Projects located in low-VMT areas
- Projects located in a Transit Priority Area (TPA)

- TPAs are defined as areas within ½ mile of an existing major transit stop or existing stop along a high-quality transit corridor with headways of 15 minutes of less.

- Projects that are affordable housing developments

4.17.1 Environmental Setting

4.17.1.1 Existing Street Setting

Central Avenue is a north-south major arterial that connects to SR 71 to the south and runs along the west side of the Project site. Adjacent to the infill site, Central Avenue is a four-lane roadway with left-turn pockets at intersections and bicycle lanes in both directions south of Edison Avenue. According to the City's General Plan, Central Avenue between Schaefer Avenue and SR-71 is categorized as a large truck route.

Eucalyptus Avenue is an east-west primary arterial between Oaks Avenue and the City's eastern border and between Pipeline and Ramona avenues. It is a secondary arterial between Ramona and Central avenues. Eucalyptus Avenue is a four-lane facility with bicycle lanes in each direction. The posted speed limit on Eucalyptus Avenue near the Project is 45 miles per hour. Eucalyptus Avenue is categorized as a truck route between Pipeline and Central avenues according to the City's General Plan.

See Figure 1 of *Appendix I* for an overview of the described roads.

Transit Lines

OmniTrans Route 83

Route 83 serves Upland and Chino and runs along Euclid Avenue. Service headways during weekday peak periods and weekend service headways are approximately 60 minutes.

OmniTrans Route 365

Route 365 provides local service to Chino and Chino Hills. In the Project area, the route runs along Chino Hills Parkway, Schaefer Avenue, and Central Avenue. Service headways during weekday peak periods and weekend service headways are approximately 60 minutes.

Bicycle and Pedestrian Facilities

Central Avenue provides a Class II facility between Edison Avenue and Fairfield Ranch Road. Class II bicycle facilities, known as bicycle lanes, are lanes on the outside edge of roadways reserved for the exclusive use of bicycles, and designated with special signing and pavement markings. Bicycle parking is not currently identified on the site plan. It is not expected that staff or visitors would typically use a bicycle to access the Project site.

Along the western edge of the Project site (Central Avenue), sidewalks between nine and 12 feet wide are present on the western side of Central Avenue. Along the northern edge of the Project site, there is a private driveway access with no sidewalks. The Project proposes to install accessible curb ramps at the southern and eastern crosswalks of the Central Avenue and Eucalyptus Avenue intersection.

Existing Traffic Volumes

Intersection turning movement counts were conducted at the Central Avenue and Eucalyptus Avenue intersection during the weekday AM peak period (between 7:00 and 9:00 a.m.) and weekday PM peak period (between 4:00 p.m. and 6:00 p.m.) in May 2018. AM and PM peak hour intersection LOS analysis was conducted for the intersection. Existing weekday AM peak hours operated at LOS A with a 7.8-second delay and PM peak hour volumes were at LOS B with a 12.1-second delay. The intersection was found to operate acceptably at LOS A and LOS B.

The Project is anticipated to add 20 or fewer trips during the peak hours (10 trips or fewer during the AM peak hour and 10 trips or fewer during the PM peak hour), and Project traffic distribution is assumed to assign traffic in all directions. Therefore, the traffic added to the street network by the Project is not expected to result in significant changes to intersection operations or increases in queuing.

4.17.2 Transportation (XVII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐

Less than Significant Impact.

The nearby intersection of Central Avenue and Eucalyptus Avenue operates acceptably during the AM and PM peak hours. The trip generation estimates show that the Project's added vehicular traffic will not result in a conflict with a transportation system performance at the intersection of Central Avenue and Eucalyptus Avenue. Thus, a traffic impact analysis is not required to calculate the Project's effect on the transportation system.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒

No Impact.

The City of Chino has not yet adopted specific VMT metrics or thresholds of significance for transportation studies in accordance with CEQA Guidelines section 15064.3, subdivision (b). However, OPR has identified projects generating less than 110 daily trips as appropriate for screening from VMT analysis. The project generates less than 110 daily net new trips and would therefore be screened from VMT analysis according to the OPR recommendations.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐

Less than Significant Impact.

The onsite circulation pattern is adequate for the proposed use and the site plan provides separate pathways for pedestrian circulation. The Project would not introduce transportation hazards and related impacts are less than significant. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in inadequate emergency access?	☐	☐	☒	☐

Less than Significant Impact.

During the City of Chino and County of San Bernardino Fire Department's required review of the Project's applications, the Project's design would be reviewed to ensure that adequate access to and from the site is provided for emergency vehicles. The Project itself provides fire protection and emergency response to other areas. Impacts are expected to be less than significant, and no further analysis is required on this subject.

4.17.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.18 Tribal Cultural Resources

4.18.1 Environmental Setting

Ethnographic accounts of Native Americans indicate that the Gabrielino (also known as Tongva) once occupied the region that encompasses the Project Area. At the time of contact with Europeans, the Gabrielino were the main occupants of the southern Channel Islands, the Los Angeles basin, much of Orange County, and extended as far east as the western San Bernardino Valley. The term "Gabrielino" came from the group's association with Mission San Gabriel Arcángel, established in 1771. The Gabrielino are believed to have been one of the most populous and wealthy Native American tribes in southern California prior to European contact. (Bean and Smith 1978; McCawley 1996; Moratto 1984). The Gabrielino spoke a Takic language. The Takic group of languages is part of the Uto-Aztecan language family.

The Gabrielino occupied villages located along rivers and at the mouths of canyons. Populations ranged from 50 to 200 inhabitants. Residential structures within the villages were domed, circular, and made from thatched tule or other available wood. Gabrielino society was organized by kinship groups, with each group composed of several related families who, together, owned hunting and gathering territories. Settlement patterns varied according to the availability of floral and faunal resources (Bean and Smith 1978; McCawley 1996; Miller 1991).

Vegetal staples consisted of acorns, chia, seeds, piñon nuts, sage, cacti, roots, and bulbs. Animals hunted included deer, antelope, coyote, rabbits, squirrels, rodents, birds, and snakes. The Gabrielino also fished and collected marine shellfish (Bean and Smith 1978; McCawley 1996; Miller 1991). By the late eighteenth century, the Gabrielino population had significantly dwindled due to introduced European diseases and dietary deficiencies. Gabrielino communities disintegrated as families were taken to the missions (Bean and Smith 1978; McCawley 1996; Miller 1991). However, current descendants of the Gabrielino are preserving Gabrielino culture.

4.18.2 Regulatory Setting

4.18.2.1 Assembly Bill 52

Effective July 1, 2015, AB 52 amended CEQA to require that: 1) a lead agency provide notice to those California Native American tribes that requested notice of projects proposed by the lead agency; and 2) for any tribe that responded to the notice within 30 days of receipt with a request for consultation, the lead agency must consult with the tribe. Topics that may be addressed during consultation include Tribal Cultural Resources (TCRs), the potential significance of project impacts, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

Pursuant to AB 52, Section 21073 of the PRC defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes.

Section 21074(a) of the PRC defines TCRs for the purpose of CEQA as:

1. Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

    a. included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
    b. included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
    c. a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria a and b also meet the definition of an historical resource under CEQA, a TCR may also require additional consideration as an historical resource. TCRs may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their tribal cultural resources and heritage, AB 52 requires that CEQA lead agencies provide tribes that requested notification an opportunity to consult at the commencement of the CEQA process to identify TCRs. Furthermore, because a significant effect on a TCR is considered a significant impact on the environment under CEQA, consultation is used to develop appropriate avoidance, impact minimization, and mitigation measures.

4.18.2.2 Summary of AB 52 Consultation

CAL FIRE notified the Pechanga Band of Luiseño Indians, Rincon Band of Luiseño Indians, San Manuel Band of Mission Indians, and the Soboba Band of Luiseño Indians of the Proposed Project in accordance to AB 52 via letters sent on April 24, 2020. Each recipient was provided a brief description of the Project and its location, the lead agency contact information, and a notification that the tribe has 30 days to request consultation.

On April 22nd the Governor signed Executive Order N-54-20. Section 9 of the Executive Order States:

> *The time frames set forth in Public Resources Code sections 21080.3.1 and 21082.3, within which a California Native American tribe must request consultation and the lead agency must begin the consultation process relating to an Environmental Impact Report, Negative Declaration, or Mitigated Negative Declaration under the California Environmental Quality Act, are suspended for 60 days.*

Based on the EO, the time period for the Tribes to request consultation for this project was extended to July 22, 2020, 30 days after the expiration of the EO occurred (June 22, 2020).

As a result of the initial notification letters, the Rincon Band of Luiseño Indians responded vie a letter dated May 15, 2020 stating that the Project is not within the Band's specific Area of Historic Interest, they have no additional information to provide, and recommending that CAL FIRE contact a Tribe closer to the Project.

Tribal Cultural Resources

In the absence of tribes wishing to consult, information about potential impacts to TCRs was drawn from the results of a search of the Sacred Lands File of the NAHC, existing ethnographic information about pre-contact lifeways and settlement patterns, and information on archaeological site records obtained from the CHRIS.

Sacred Lands File Search

The results of the Sacred Lands File records search, as conducted by NAHC staff, were received by ECORP on February 21, 2020. The search results were negative, indicating that a search of the Sacred Lands File by the NAHC did not indicate the presence of Native American Sacred Lands in the Project Area. The NAHC included a list of suggested tribal representatives to contact who may have more information. The San Manuel Band of Mission Indians was included on the list provided by the NAHC.

Ethnographic Information

The ethnographic information reviewed for the Project, including ethnographic maps (Bean and Smith 1978), do not show any Native American villages near the Project Area. There is nothing in the ethnographic literature that suggests that the Project location is either known or suspected to have ethnographic villages or resources within its boundaries.

CHRIS Records Search and Pre-Contact Resources

The CHRIS records search determined that 12 previously recorded resources are located within one mile of the Project Area. These include three pre-contact resources consisting of one site and two isolated finds. The pre-contact site contains three rock features and human remains. The two pre-contact isolated finds consist of one mano and one modified faunal bone. The isolated pre-contact mano was located within the Project Area. This mano was noted in the original 2015 site record as being found within a landscaping feature in an area containing imported gravel and cobblestones. Thus, it was likely not in its original context at that time of discovery and may have been brought to the Project Area as part of the landscaping material. During the 2020 cultural survey for this Project, the archaeologist from ECORP inspected the area and was unable to locate the artifact (ECORP 2020).

4.18.2.3 Significance Criteria

AB 52 established that a substantial adverse change to a TCR has a significant effect on the environment. In assessing substantial adverse change, the CCC must determine whether or not the Project will adversely affect the qualities of the resource that convey its significance. The qualities are expressed through integrity. Integrity of a resource is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association [CCR Title 14, § 4852(c)]. Impacts are significant if the resource is demolished or destroyed or if the characteristics that made the resource eligible are materially impaired [CCR Title 14, §15064.5(a)]. Accordingly, impacts to a TCR would likely be significant if the Project negatively affects the qualities of integrity that made it significant in the first place. In making this determination, the CCC need only address the aspects of integrity that are important to the TCR's significance.

4.18.3 Tribal Cultural Resources (XVIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☐	☐	☒
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.	☐	☒	☐	☐

Less than Significant with Mitigation Incorporated.

The searches of the Sacred Lands File by the NAHC did not identify sacred lands within or immediately adjacent to the Project Area. The CHRIS records search indicated there are three pre-contact Native American resources within one mile of the Project Area, including one site containing rock features and human remains, and one likely redeposited mano that was located within the Project Area but is no longer present in that location. Therefore, evidence suggests that there is a low to moderate potential for TCRs inside the Project Area.

No TCRs were identified within the Proposed Project Area and the Proposed Project would not cause a substantial adverse action to a known TCR. However, impacts to unknown TCRs that may be discovered during Project construction is considered a potentially significant impact. Implementation of Mitigation Measure **TCR-1** would reduce this impact to less than significant.

4.18.4 Mitigation Measures

TCR-1: Implement Measures to Protect Unanticipated Tribal Cultural Resources Discoveries. If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within 100 feet of the discovery. The construction foreman will notify RESD and CAL FIRE, which shall notify culturally affiliated tribe(s) and a qualified professional archaeologist. The responding tribe(s) will be afforded a reasonable opportunity to visit the discovery location to determine whether or not it is a tribal cultural resource. The following actions shall apply, depending on the nature of the find:

- If the culturally affiliated tribe(s) determines that the find does not represent a tribal cultural resource, and the qualified professional archaeologist determines that the find does not represent a potential historical resource, and CAL FIRE concurs, then work may resume immediately, and no further action is required.
- If the culturally affiliated or consulting tribe(s) determines that the find does represent a tribal cultural resource, as defined in PRC Section 21074(a) though (c) of the CEQA Guidelines, RESD and CAL FIRE shall consult with the tribe on appropriate treatment measures. Work may not resume within the no-work radius until RESD and CAL FIRE, through consultation as appropriate, determines that the treatment measures have been completed to their satisfaction.
- If the find includes human remains, or remains that are potentially human, the construction supervisor shall ensure reasonable protection measures are taken to protect the discovery from disturbance (Assembly Bill [AB] 2641) and shall immediately notify RESD, CAL FIRE, and the San Bernardino County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC within 24 hours. The NAHC will designate a Native American Most Likely Descendant (MLD) for the discovery (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with San Bernardino County (AB 2641). Work may not resume within the no-work radius until RESD and/or CAL FIRE, through consultation as appropriate, determines that the treatment measures have been completed to its satisfaction.

4.19 Utilities and Service Systems

4.19.1 Environmental Setting

The Project site has been operating using the CIM water and sewer systems but will be separating from the water and sewer connections as part of the Proposed Project. The Project will be connecting to the City of Chino water and sewer systems. Proposed utility improvements associated with the Project include the following:

- New sanitary sewer connection in Central Avenue
- New storm drain connection in Central Avenue
- New fire flow connection in Central Avenue
- Reactivation of domestic water connection in Central Avenue
- Reactivation of reclaimed water connection in Central Avenue

It is assumed the new onsite utilities will be owned and operated by CAL FIRE or the State.

4.19.1.1 Water Service

The Project site would be served by separate domestic and fire flow water systems by the City of Chino. Fire flow service laterals would include associated backflow devices, double-check assemblies and CVFD connections. Currently, there is an existing water service line extending from Central Avenue. This existing service would be utilized for domestic water service. A new fire flow service would be established from the City line.

There is an existing reclaimed water system and meter onsite. This system has served the site for irrigation purposes, but it is currently disconnected at the meter located at Central Avenue. The service account would be reactivated.

4.19.1.2 Wastewater

A new gravity sanitary sewer connection and system would be constructed to pick up effluent discharge from the new proposed buildings. The existing sewer system connection to the CIM's sewer main east of the site would be disconnected and capped from the prison's property.

4.19.1.3 Drainage

The Project site would maintain existing grades. Generally, the site currently slopes from north to south. There is an existing storm drain located on the north side of the Project site that collects offsite runoff from the north. This drain would be protected in place.

4.19.1.4 Electricity

SCE will continue to provide electricity for the Project site.

4.19.1.5 Natural Gas

SCE would provide natural gas for the Project site. Gas service will come from an existing gas meter just north of the site within the Prado Conservation Camp property.

4.19.1.6 Solid Waste

Solid waste collection in the City of Chino is provided by Waste Management.

4.19.2 Utilities and Service Systems (XIX) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐

Less than Significant Impact.

Project implementation will result in more impervious surfaces on the site; therefore, a stormwater treatment system would be provided in compliance with local stormwater quality regulations. The onsite runoff would be collected and treated on the south side of the site consistent with current site conditions. A new storm drain connection will be required as well.

Stormwater BMPs might include the following:

- Underground infiltration dependent on soil percolation test results
- Vegetated swales

Design options will be fully evaluated once the site plan and soil report are fully developed.

The City of Chino has the ability to provide water service and wastewater conveyance and treatment for the Proposed Project. The Project would not result in the construction or relocation of new utility infrastructure having significant environmental effects. A less than significant impact would occur. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project will include new water and sewer connections to allow abandonment of the existing water and sewer connections from the prison and establish new connections to City facilities. The City has indicated sufficient supply capacity exists to serve Project demands. The City has also preliminarily determined that the existing water line in Central Avenue has sufficient capacity to serve the Project, and a new fire water service connection would also be established from the City line. A less than significant impact would occur. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐

Less than Significant Impact.

The City has agreed to collect and treat wastewater for the Proposed Project. The Proposed Project will include new sewer connections to allow abandonment of the existing sewer connections from the prison and establish a new connection to City facilities. A less than significant impact would occur. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐

Less than Significant Impact.

Construction activities associated with the Project are not expected to generate substantial amounts of solid waste. The solid waste generated would not exceed the capacity of local infrastructure/landfills and

would not impair the attainment of solid waste reduction goals. The Project site will largely operate similar to current conditions and produce solid waste quantities similar to those currently generated at the site. Related impacts are less than significant. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Less than Significant Impact.

The California Integrated Waste Management (CIWM) Act requires every county to adopt an integrated waste management plan that describes county objectives, policies, and programs relative to waste disposal, management, sources reduction, and recycling. San Bernardino County Department of Public Works, Solid Waste Management Division, reviews and approves all new construction projects required to submit a Construction and Demolition Solid Waste Management Plan that is consistent with the CIWM Act. The disposal of solid waste due to construction activities will comply with all federal, state, and local statues and regulations. Impacts to solid waste statues and regulations will be less than significant. No mitigation is required.

4.19.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.20 Wildfire

4.20.1 Environmental Setting

The Project proposes to upgrade the existing Prado Helitack Base located at the Prado Conservation Camp in Chino, California, thereby allowing CAL FIRE to better serve Chino, the Cleveland, San Bernardino, Angeles national forests, and surrounding areas. The Project objective is to replace the facility with the construction of a new, modern helitack facility that would allow the base to continue to provide high-quality fire protection and emergency-response service within the SRA and that would accommodate the changing aviation and event-response parameters of the facility. The Proposed Project is in an urbanized area and has limited vegetation. It is not located within a heavily wooded area nor is it immediately surrounded by wildlands or forests.

Generally, California fire season extends from spring to late fall. Fire conditions arise from a combination of hot weather, an accumulation of vegetation, and low moisture content in the air. These conditions, when combined with high winds and years of drought, increase the potential for wildfire to occur. CAL FIRE provides wildland fire protection services on private, non-federal lands for the purpose of life, property and resource protection. U.S. Forest Service and BLM provide wildland fire protection services on

federal lands in Federal Responsibility Areas for watershed and resource protection. Some areas are also identified as Local Responsibility Areas.

4.20.2 Wildfire (XX) Environmental Checklist and Discussion

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

No Impact.

The Proposed Project is not located in or near SRAs or lands classified as very high fire hazard severity zones. Additionally, it will not impair any adopted emergency response plans. No impact would occur.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒

No Impact.

The Proposed Project is not located in or near SRAs or lands classified as very high fire hazard severity zones. No impact would occur.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒

No Impact.

The Proposed Project is not located in or near SRAs or lands classified as very high fire hazard severity zones. No impact would occur.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

No Impact.

The Proposed Project is not located in or near SRAs or lands classified as very high fire hazard severity zones. No impact would occur.

4.20.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.21 Mandatory Findings of Significance

4.21.1 Mandatory Findings of Significance (XXI) Environmental Checklist and Discussion

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

Less than Significant with Mitigation Incorporated.

As described in Section 4.4 *Biological Resources* of this document, biological resources on the site could be affected by the Proposed Project. Mitigation Measures **BIO-1** through **BIO-3** would be implemented to ensure all potential impacts to sensitive species and their habitats, are mitigated to less than significant levels.

As indicated in Section 4.5 *Cultural Resources* and Section 4.18 *Tribal Cultural Resources*, the Proposed Project is expected to avoid direct impacts to known cultural and tribal resources. Further, implementation of Mitigation Measures **CUL-1** and **TCR-1** will ensure potential impacts to unknown cultural and tribal resources are reduced to less than significant levels. Should any cultural or tribal cultural resources or

human remains be encountered during construction, all construction activities would be halted, and a professional archeologist consulted. Similarly, implementation of Mitigation Measure **GEO-1** would ensure potential impacts to unknown paleontological resources are mitigated to less than significant.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐

Less than Significant With Mitigation Incorporated.

As described above, impacts to biological, cultural, and paleontological impacts will be reduced with implementation of listed mitigation. All other impacts were found to be less than significant (including traffic, air quality, noise and greenhouse gas). Therefore, cumulative would be less than significant.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Less than Significant Impact.

Potential impacts to human beings include increases in ambient noise during construction and increases in air emissions including PM (dust) during construction. These impacts were found to be temporary and less than significant. Implementation of the Project's Mitigation Monitoring Program will ensure compliance with related measures and would minimize impacts to the greatest extent feasible.

SECTION 5.0 LIST OF PREPARERS

5.1 State of California Department of Forestry and Fire Protection (Lead Agency)

Matthew McCleod, MPA, PE

Don Clark, MS, PE

5.2 California Department of General Services, Real Estate Services Division

Dakota Smith, Senior Environmental Planner

Judy Haavisto, Project Director

5.3 ECORP Consulting, Inc.

CEQA Documentation/Air Quality/Biological Resources/Cultural Resources/Energy/Greenhouse Gas/Noise

Chris Stabenfeldt, AICP, Program Manager

Amberly Morgan, Senior Environmental Planner

Matteo Rodriquez, Assistant Environmental Planner

Seth Myers, Air Quality/GHG/Noise Analyst

Adam Schroeder, Staff Biologist

Carley Lancaster, Associate Biologist

Wendy Blumel, Senior Archaeologist

Robert Cunningham, Staff Archaeologist

Julian Acuña, Associate Archaeologist

Jeff Swager, GIS Manager

Laura Hesse, Technical Editor

5.4 Fehr and Peers

Transportation Assessment Memorandum

Spencer Reed, PE

Saima Musharrat, Transportation Planner

5.5 Other Contributing Parties

Bruce Unger, President, Dean F. Unger AIA, Inc.

Sean Cordone, Dean F. Unger AIA

Jeff Wright, President, Heliplanners

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SECTION 7.0 LIST OF APPENDICES

Appendix A – Schematic Design Plans, Dean F. Unger, AIA, Inc. May 2019.

Appendix B – Land Evaluation and Site Assessment (LESA) Model Calculation Tables. June 2020.

Appendix C1 – Criteria Air Pollutants, ECORP Consulting, Inc. June 2020.

Appendix C2 – Helicopter Criteria Air Pollutants, ECORP Consulting, Inc. June 2020.

Appendix D – Biological Technical Report, ECORP Consulting, Inc. June 2020.

Appendix E – CONFIDENTIAL Cultural Resources Inventory and Evaluation, ECORP Consulting, Inc. June 2020.

Appendix F1 – Emissions Modeling Outputs, ECORP Consulting, Inc. June 2020.

Appendix F2 – Helicopter Fuel Consumption, ECORP Consulting, Inc. June 2020.

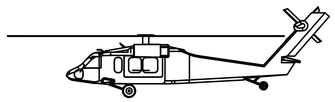
Appendix G – Geotechnical Investigation Prado Helitack Base: New Facility, SCST, LLC. August 2019.

Appendix H – Noise Analysis, ECORP Consulting, Inc. June 2020.

Appendix I – Transportation Assessment Memorandum. Fehr & Peers. May 2020.

APPENDIX A

Schematic Design Plans



PRADO HELITACK BASE - NEW FACILITY
DEPARTMENT OF FORESTRY AND FIRE PROTECTION
CHINO, SAN BERNADINO COUNTY, CALIFORNIA 91710
PROJECT #DGS000000004691

APN # 1026-021-01-0000

DIRECTORY:

DEPARTMENT OF GENERAL SERVICES
REAL ESTATE SERVICES DIVISION
707 3rd Street, 4th Floor
West Sacramento, CA 95605

Judy Haavisto, Project Director II
Office: (916) 376-1638
Mobile: (916) 945-6117
judy.haavisto@dgs.ca.gov

ARCHITECTURE
DEAN F, UNGER, AIA, INC.
700 Alhambra Blvd.
Sacramento, CA 95816

Bruce F. Unger, AOR
Office: (916) 443-5747
Mobile: (916) 214-5747
bruce@deanunger.com

Camelia Luca, Project Manager
Office: (916) 443-5747
cluca@deanunger.com

Sean Cordone, Project Coordinator
Office: (916) 443-5747
scordone@deanunger.com

CIVIL
PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071

Alysen Weiland, Principal-In-charge
Office: (213) 223-1525
Mobile: (213) 924-3702
aweiland@psomas.com

Cecilia Hamilton, CEOR
Direct: (213) 223-1518
Mobile: (213) 223-1518
cecilia.hamilton@psomas.com

Jungwoo Lee, Civil Engineer
Office: (213) 223-1432
Jungwoo.lee@psomas.com

LANDSCAPE
THE HLA GROUP
301 University Avenue, Suite 110
Sacramento, CA 95825

Greg Hauser, LAOR
Office: (916) 447-7400
Direct: (916) 233-3465
ghauser@hlagroup.com

Scott Redding, Landscape Designer
Office: (916) 447-7400
Direct: (916) 233-3463
sredding@hlagroup.com

Ken Doty, Landscape Designer
Office: (916) 447-7400
Direct: (916) 233-3446
kdoty@hlagroup.com

STRUCTURAL
BUEHLER ENGINEERING
600 Q Street, Suite 200
Sacramento, CA 95811

Bill Rader, SEOR
Office: (916) 443-0303
Mobile: (916) 799-3019
brader@buehlerengineering.com

GEOTECHNICAL
SCST
1600 Dove Street, Suite 400
Newport Beach, CA 92660

Reza Saeedzadeh, Geotechnical Engineer
Office: (619) 501-2804
Mobile: (972) 391-3309
rsaeedzadeh@scst.com

CAL FIRE - HEADQUARTERS
1416 9th Street
PO Box 944246
Sacramento, CA 94244

Don Clark, M.S., P.E.
Office: (916) 324-1649
Don.Clark@fire.ca.gov

CAL FIRE - SOUTHERN REGION
23256 Castle Street
Riverside, CA 92518

Matt McCleod, Civil Engineer-Southern Region
Office: (951) 320-6133
Mobile: (951) 901-5115
matt.mccleod@fire.ca.gov

CAL FIRE - PRADO CONSERVATION CAMP
14467 Central Ave,
Chino, CA 91710

Ron Janssen, Division Chief
Office: (909) 597-2911
Mobile: (951) 314-0401
Luis.ocampo@fire.ca.gov

MECHANICAL AND PLUMBING
SACRAMENTO ENGINEERING CONSULTANTS
10555 Old Placerville Road
Sacramento, CA 95827

Rick Henriksen, MEOR
Office: (916) 368-4468
rh@saceng.com

Himanshu Bhartiya, Principal Mechanical & Fire Protection
Office: (916) 368-4468
himanshu@saceng.com

Ming Cheng, Mechanical Engineer
Office: (916) 368-4468
Mobile: (916) 842-6581
ming@saceng.com

ELECTRICAL
M. NEILS ENGINEERING, INC.
100 Howe Avenue, Suite 235N
Sacramento, CA 95825

Jesse Bastian, EEOR
Office: (916) 923-4400 Ex. 22
Mobile: (916) 622-2054
jbastian@mneilsengineering.com

Stuart Lindsay, Project Manager
Office: (916) 923-4400 Ex. 25
Mobile: (916) 812-5011
slindsay@mneilsengineering.com

AVIATION SPECIALIST
HELIPLANNERS
41689 Enterprise Circle North, Suite 212
Temecula, CA 92590

Jeffrey Wright, Principal Aviation Planner
Office: (951) 693-5090
Mobile: (951) 203-8900
jeffwright@heliplanners.com

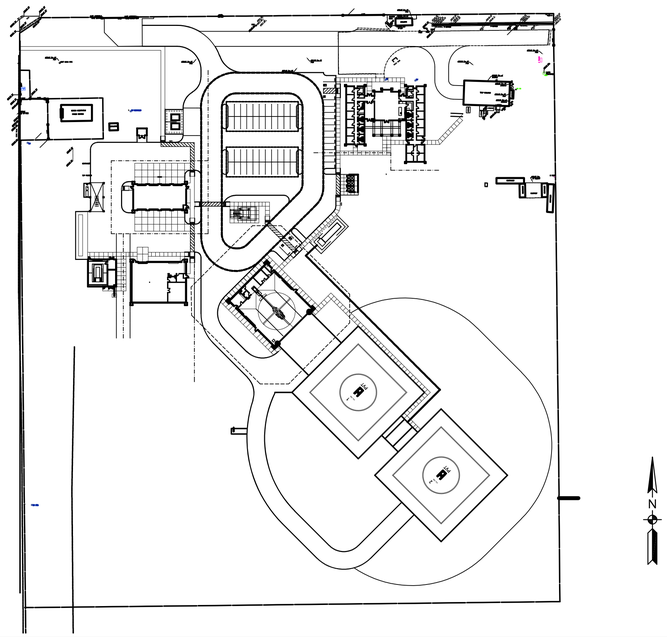
Kathryn Wright, Principal Aviation Planner
Office: (951) 693-5090
Mobile: (619) 694-9449
katwright@heliplanners.com

COST ESTIMATING
SIERRA WEST GROUP
9700 Business Park Drive, # 102
Sacramento, CA 95827

John Moreno, Cost Estimator
Office: (916) 203-9802
jlmoreno@sierrawestgroup.com

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SITE



PROJECT SCOPE

DESIGN A NEW HELITACK BASE ON STATE PROPERTY.

NEW CONSTRUCTION INCLUDES:
- AN AIRCRAFT HANGAR CAPABLE OF ENCLOSING A MULTI-BLADE HELICOPTER - 7,421 S.F.
- A WAREHOUSE/ SHOP BUILDING - 4,800 S.F.
- A GARAGE TO ENCLOSE SUPPORT VEHICLES - 2,990 S.F.
- A 22 BED BARRACKS BUILDING/ MESSHALL - 6,776 S.F.
- A ELECTRICAL/ GENERATOR BUILDING - 1,667 S.F.
- A WASH RACK CANOPY - 1,000 S.F.
- A STORAGE BUILDING - 150 S.F.
- A HELICOPTER TRAINING TOWER/ HOIST - 51'-4" HEIGHT

THE SCOPE OF WORK ALSO INCLUDES NECESSARY GRADING AND DRAINAGE, ABOVE GROUND FUEL STORAGE AND DISPENSING FACILITIES, WATER TANK AND FIRE SUPPRESSION PUMP SYSTEM, ASPHALT PAVING, SIDEWALKS, CURBS, GENERAL PARKING AND ACCESSIBLE PARKING, LANDSCAPING, LIGHTING, SOLAR POWER, FENCING, UTILITIES INCLUDING WATER, SEWER, ELECTRICAL POWER INCLUDING GENERATOR, LPG/ NATURAL GAS, TELEPHONE CABLING/ INSTALLATION, RADIO CABLING/ INSTALLATION, AND ASSOCIATED APPURTENANCES.

THIS PROJECT SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF LEED SILVER.

DESIGN SUBMISSION

100 PERCENT SCHEMATIC DESIGN SUBMISSION
JANUARY 27 2020

STATEMENT OF GENERAL CONFORMANCE

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. XX-XXXXXX **File No.** XX-XXXXXX

☒ The drawings or sheets listed on the cover or index sheet
☐ 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: ☒ All drawings or sheets listed on the cover or index sheet ☐ This drawing or page

☒ is/are in general conformance with the project design, and
☒ has/have been coordinated with the project plans and specifications.

Signature **Date**
Architect or Engineer designated to be in general responsible charge
Print Name
License Number **Expiration Date**

☒ is/are in general conformance with the project design intent, and
☒ has/have been coordinated with the project plans and specifications.

Signature **Date**
Architect or Engineer delegated responsability for this portion of the work
Print Name
License Number **Expiration Date**

VICINITY MAP



DEFFERED APPROVAL

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

revisions

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL.# 04- XXXXXX
APPL.# 04- XXXXXX
AC _____ FLS _____ SS _____
DATE _____

CALIFORNIA STATE FIRE MARSHAL APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on project site at all times.
Reviewed by:_____

AOR
LICENSED ARCHITECT BRUCE F. UNGER NO. C15804 REN. 5-31-21 STATE OF CALIFORNIA

EOR

drawn by CL
checked by BFU
job no. 2018-23
date 5-1-2019
cad file name G0.0.dwg
drawing no. G0.0
sheet title TITLE SHEET
sheet no.
of sheets

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DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

revisions

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL.# 04- XXXXXX
APPL.# 04- XXXXXX

AC _____ FLS _____ SS _____
DATE _____

CALIFORNIA STATE FIRE MARSHAL APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on project site at all times.
Reviewed by:_____

AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR

drawn by CL
checked by BFU
job no. 2018-23
date 5-1-2019
cad file name G0.1.dwg
drawing no. G0.1
sheet title DRAWING INDEX
sheet no.
of sheets

GENERAL NOTES

1. THESE DRAWINGS DO NOT CONTAIN THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.

2. THESE DOCUMENTS AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, ARE THE PROPERTY OF DEAN F. UNGER, AIA INC., AND ARE NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF DEAN F. UNGER, AIA, INC.

3. THE WORK SHOWN ON THESE DRAWINGS AS EXISTING CONDITIONS WAS PREPARED FROM INFORMATION FURNISHED BY THE OWNER. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, DEAN F. UNGER, AIA, INC. IS NOT RESPONSIBLE FOR THE ACCURACY OR ADEQUACY OF ANY WORK SHOWN AS EXISTING NOR IS DEAN F. UNGER, AIA, INC. RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THESE DRAWINGS AS A RESULT.

4. FIRE SAFETY DURING CONSTRUCTION

A. GENERAL: FIRE SAFETY DURING CONSTRUCTION SHALL COMPLY WITH CALIFORNIA FIRE CODE (CFC), CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 9, CHAPTER 5 AND CHAPTER 33.

B. ACCESS ROADS: FIRE DEPARTMENT ACCESS ROADS SHALL BE ESTABLISHED AND MAINTAINED IN ACCORDANCE WITH CHAPTER 5, SECTION 501.4 AND CHAPTER 33, SECTION 3310.

C. WATER SUPPLY: WATER MAINS AND HYDRANTS SHALL BE OPERATIONS IN ACCORDANCE WITH CHAPTER 5, SECTION 501.4 AND CHAPTER 33, SECTION 3312.

D. BUILDING ACCESS: ACCESS TO BUILDINGS FOR THE PURPOSE OF FIREFIGHTING SHALL BE PROVIDED. CONSTRUCTION MATERIAL SHALL NOT BLOCK ACCESS TO BUILDINGS, HYDRANTS OR FIRE APPLIANCES.

E. ALTERATIONS OF BUILDINGS: SHALL COMPLY WITH APPLICABLE PROVISIONS OF CHAPTER 33.

F. DEMOLITION OF BUILDINGS: SHALL COMPLY WITH APPLICABLE PROVISIONS OF CHAPTER 33.

G. FIRE WATCH: MAINTAIN FIRE WATCH WHEN REQUIRED BY THE BUILDING OFFICIAL AND WHEN EXISTING FIRE PROTECTION SYSTEMS ARE SHUT DOWN FOR ALTERATIONS IN ACCORDANCE WITH CHAPTER 33, SECTION 3304.5. FIRE WATCH SHALL REMAIN IN EFFECT UNTIL EXISTING FIRE PROTECTION SYSTEMS ARE RETURNED TO SERVICE OR AS ALLOWED BY THE BUILDING OFFICIAL.

5. PENETRATIONS TO FIRE RATED MATERIALS OR ASSEMBLIES SHALL BE RESTORED TO EQUAL RATING. FIRE STOP SYSTEMS AS LISTED BY UNDERWRITERS LABORATORIES SHALL BE INSTALLED PER FIRE RESISTANCE DIRECTORY. FIRE STOP SYSTEMS SHALL BE AS SPECIFIED.

6. NONRESIDENTIAL ENERGY STANDARDS COMPLIANCE STATEMENT (TITLE 24, PART 6): THE DESIGN INDICATED HEREIN COMPLIES WITH REQUIREMENTS OF THE ENERGY CONSERVATION STANDARDS OF TITLE 24, PART 6, CALIFORNIA CODE OF REGULATIONS. THE PROPOSED BUILDING(S) WILL BE IN COMPLIANCE WITH THE ENERGY CONSERVATION STANDARDS PROVIDED IT (THEY) IS (ARE) BUILT ACCORDING TO THESE DRAWINGS AND SPECIFICATIONS AND PROVIDED ANY FUTURE IMPROVEMENTS ARE COMPLETED ACCORDING TO THE REQUIREMENTS OF TITLE 24, PART 6, CALIFORNIA CODE OF REGULATIONS. THESE PLANS AND SPECIFICATIONS HAVE BEEN PREPARED TO INCLUDE ALL SIGNIFICANT ENERGY CONSERVATION FEATURES REQUIRED FOR COMPLIANCE WITH THE STANDARDS. BUILDING AREAS THAT ARE UNCONDITIONED AND/OR NOT SUBJECT TO THE STANDARDS ARE INDICATED ON THE PLANS.

ENVELOPE MANDATORY MEASURES:

A. INSTALLED INSULATING MATERIALS SHALL HAVE BEEN CERTIFIED BY THE MANUFACTURER TO COMPLY WITH THE CALIFORNIA QUALITY STANDARDS FOR INSULATING MATERIAL.

B. ALL INSULATING MATERIALS SHALL BE INSTALLED IN COMPLIANCE WITH THE FLAME SPREAD RATING AND SMOKE DENSITY REQUIREMENTS OF TITLE 24, PART 2, CALIFORNIA CODE OF REGULATIONS, SECTIONS 720 AND 2603.

C. ALL EXTERIOR JOINTS AND OPENINGS IN THE BUILDING ENVELOPE THAT ARE POTENTIAL AND OBSERVABLE SOURCES OF AIR LEAKAGE SHALL BE CAULKED, GASKETED, WEATHER STRIPPED OR OTHERWISE SEALED.

D. SITE CONSTRUCTED DOORS, WINDOWS, AND SKYLIGHTS SHALL BE CAULKED BETWEEN THE UNIT AND THE BUILDING, AND SHALL BE WEATHER STRIPPED (EXCEPT FOR UNFRAMED GLASS DOORS AND FIRE DOORS).

E. MANUFACTURED DOORS AND WINDOWS INSTALLED SHALL HAVE AIR INFILTRATION RATES CERTIFIED BY THE MANUFACTURER IN ACCORDANCE WITH TITLE 24, PART 6, CALIFORNIA CODE OF REGULATIONS, SECTION 110.6.

F. MANUFACTURED FENESTRATION PRODUCTS IN THE ENVELOPE OF THE BUILDING, INCLUDING, BUT NOT LIMITED TO, WINDOWS, SLIDING GLASS DOORS, FRENCH DOORS, SKYLIGHTS, CURTAIN WALLS, AND GARDEN WINDOWS MUST BE LABELED FOR U-VALUE IN ACCORDANCE WITH THE (NFRC) NATIONAL FENESTRATION RATING COUNCIL'S INTERIM U-VALUE RATING PROCEDURE.

G. DEMISING WALL INSULATION SHALL BE INSTALLED IN ALL OPAQUE PORTIONS OF FRAMED WALLS (EXCEPT DOORS).

7. INSPECTOR OF RECORD REQUIREMENTS

A. ONE OR MORE INSPECTORS EMPLOYED BY THE OWNER IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 24 OF THE CALIFORNIA CODE OF REGULATIONS WILL BE ASSIGNED TO THE WORK. THE INSPECTORS DUTIES ARE SPECIFICALLY DEFINED IN SECTION 4-342 OF SAID TITLE 24, PART 1 AND IN ADDITION SHALL BE AS STIPULATED IN INTERRELATION OF REGULATION DOCUMENT IR A-8.

B. INSPECTOR SHALL BE CERTIFIED AS A CLASS [1] [2] [3] [4] INSPECTOR THROUGH THE DIVISION OF THE STATE ARCHITECT INSPECTOR EXAMINATION PROGRAM. INSPECTOR SHALL ALSO BE SPECIFICALLY APPROVED BY THE DIVISION OF THE STATE ARCHITECT FOR THIS PROJECT AT LEAST 10 DAYS PRIOR TO THE START OF ANY WORK FOR THIS PROJECT.

8. ALL WORK SHOWN ON THESE DRAWINGS SHALL COMPLY WITH THE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

9. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGE DOCUMENT APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY TITLE 24, CCR, PART 1, SECTION 4-338.

10. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

11. DRINKING WATER SHALL COMPLY WITH ALL LOCAL HEALTH DEPARTMENT REQUIREMENTS.

12. FOOD HANDLING FACILITIES SHALL COMPLY WITH ALL LOCAL HEALTH REQUIREMENTS AND THE CALIFORNIA RETAIL FOOD FACILITIES LAW.

13. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ADDITION, ALTERATIONS OR RECONSTRUCTION IS IN COMPLIANCE WITH THE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS SUCH AS DETERIORATION OF NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT IDENTIFIED BY THE CONTRACT DOCUMENTS WHEREIN THE FINAL WORK WOULD NOT COMPLY WITH THE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND THE ARCHITECT OF THE CONDITION IN WRITING. NECESSARY INFORMATION REQUIRED TO CORRECT THE CONDITIONS ENCOUNTERED WILL BE ISSUED BY THE ARCHITECT. A CHANGE ORDER MAY BE ISSUED TO ADJUST THE CONTRACT SUM OR TIME COMMENSURATE WITH THE AMONG OF ADDITIONAL WORK REQUIRED IN ANY. THE CHANGE ORDER SHALL BE APPROVED BY THE DIVISION OF THE STATE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK REQUIRED BY THE CHANGE ORDER.

14. ALL SLOPE AND CROSS SLOPE OF ACCESSIBLE ROUTE PAVING INDICATED ON THESE DRAWINGS WAS DESIGNED IN COMPLIANCE WITH THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN AND THE ACCESSIBILITY STANDARDS OF THE CALIFORNIA BUILDING CODE, (CBC) TITLE 24, PART 2, CHAPTER 11B OF THE CALIFORNIA CODE OF REGULATIONS (CCR). STRICT EXECUTION OF THE SLOPE AND CROSS SLOPE OF ACCESSIBLE ROUTE PAVING IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR SHOULD A CONDITION PRESENT ITSELF THAT WOULD RESULT IN AN INSTALLATION OTHER THAT WHAT IS INDICATED IN THESE DRAWINGS, DEAN F. UNGER, AIA, INC. SHALL BE NOTIFIED IN WRITING AND A COMPLIANT RESOLUTION WILL BE FORMULATED.

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ABBREVIATIONS

&	AND
∠	ANGLE
@	AT
C_L	CENTERLINE
ø	DIAMETER OR ROUND
⊥	PERPENDICULAR
#	POUND
✓	TYPICAL
(E)	EXISTING
A.B.	ANCHOR BOLT
ACOUS.	ACOUSTICAL
ASPH.	ASPHALT
A/C	AIR CONDITIONING
ADJ.	ADJUSTABLE
AGGR.	AGGREGATE
ALUM.	ALUMINUM
ARCH.	ARCHITECTURAL
ANOD.	ANODIZED
BD.	BOARD
BET.	BETWEEN
BLDG.	BUILDING
BM.	BEAM
BOT.	BOTTOM
CAB.	CABINET
C.B.	CATCH BASIN
C.C.	CENTER TO CENTER
CEM.	CEMENT
C.G.	CORNER GUARD
C.I.	CAST IRON
C.J.	CONSTRUCTION JOINT
CLG.	CEILING
COL.	COLUMN
CONC.	CONCRETE
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
C.T.	CERAMIC TILE
D.F.	DRINKING FOUNTAIN
DET.	DETAIL
DIA.	DIAMETER
DIAG.	DIAGONAL
DIM.	DIMENSION
D.P.	DIMENSION POINT
DISP.	DISPENSER
DN.	DOWN
D.O.	DOOR OPENING
DR.	DOOR
DS.	DOWNSPOUT
DWG.	DRAWING
DWR.	DRAWER
E.	EAST
EA.	EACH
E.B.	EXPANSION BOLT
E.G.	EXISTING GRADE
E.J.	EXPANSION JOINT
ELEC.	ELECTRIC
ELEV.	ELEVATION
E.P.	ELECTRIC PANEL
EQ.	EQUAL
EQUIP.	EQUIPMENT
EXH.	EXHAUST
EXP.	EXPANSION
EXT.	EXTERIOR
F.D.	FLOOR DRAIN
F.E.	FIRE EXTINGUISHER
F.F.	FACTORY FINISH
F.G.	FINISH GRADE
F.H.	FIRE HYDRANT
F.H.C.	FIRE HOSE CABINET
FIN.	FINISH
FL.	FLOOR
F.O.C.	FACE OF CONCRETE
F.O.F.	FACE OF FINISH
F.O.S.	FACE OF STUD
FT.	FOOT
FTG.	FOOTING
FUR.	FURRING
GA.	GAUGE
GALV.	GALVANIZED
G.B.	GRAB BAR
GEN.	GENERAL
G.I.	GALVANIZED IRON
GL.	GLASS
GR.	GRADE
GYP.	GYPSUM
HDR.	HEADER
H.B.	HOSE BIBB
HDWD.	HARDWOOD
HGT.	HEIGHT
HORIZ.	HORIZONTAL
H.M.	HOLLOW METAL
H.W.H.	HOT WATER HEATER
HR.	HOUR
I.D.	INSIDE DIAMETER
INSUL.	INSULATION
INT.	INTERIOR
JST.	JOIST
JT.	JOINT
KPL.	KICKPLATE
LAM.	LAMINATE
LAV.	LAVATORY
LT.	LIGHT
MANUF.	MANUFACTURED
MAX.	MAXIMUM
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MTL.	METAL
N.	NORTH
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
NO.	NUMBER
O.A.	OVER ALL
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OPP.	OPPOSITE
O.F.S.	OUTSIDE FACE OF STUD
PERF.	PERFORATED
P.G.	PAINT GLOSS
P.H.	PANIC HARDWARE
PL.	PLATE
P.LAM.	PLASTIC LAMINATE
PT.	POINT
PWD.	PLYWOOD
P.V.C.	POLY VINYL CHLORIDE
Q.T.	QUARRY TILE
R.	RISER
R.A.	RETURN AIR
R.B.	RUBBER BASE
RCPTR.	RECEPTOR
R.D.	ROOF DRAIN
REFR.	REFRIGERATOR
REG.	REGISTER
REINF.	REINFORCED
REQD.	REQUIRED
RESL.	RESILIENT
RFG.	ROOFING
RF.H.	ROOF HATCH
R.H.W.S.	ROUND HEAD WOOD SCREW
RM.	ROOM
R.O.	ROUGH OPENING
RWD.	REDWOOD
R.W.L.	RAIN WATER LEADER
S.	SOUTH
S.C.	SOLID CORE
S.C.D.	SEAT COVER DISPENSER
S.D.	SOAP DISPENSER
SCHD.	SCHEDULE
SECT.	SECTION
SHELV.	SHELVING
S & L	STAIN & LACQUER
SHT.	SHEET
SIM.	SIMILAR
S.J.	SAW JOINT
S.M.	SHEET METAL
S.M.S.	SHEET METAL SCREW
S.P.	STRUCTURAL PLYWOOD
SQ.	SQUARE
S.SK.	SERVICE SINK
S.ST.	STAINLESS STEEL
STL.	STEEL
STD.	STANDARD
STOR.	STORAGE
STRL.	STRUCTURAL
SUSP.	SUSPENDED
SYM.	SYMMETRICAL
T.	TOILET
T.C.	TOP OF CURB
T.O.C.	TOP OF CONCRETE
TEL.	TELEPHONE
T.O.G.	TOP OF GRADE
THRS.	THRESHOLD
THK.	THICKNESS
T & G	TONGUE& GROOVE
TKBD.	TACKBOARD
T.PTN.	TOILET PARTITION
T.T.D.	TOILET TISSUE DISPENSER
TV.	TELEVISION
TYP.	TYPICAL AT ALL SIMILAR CONDITION
U.	URINAL
UC.	UNDERCUT
UNF.	UNFINISHED
U.O.N.	UNLESS OTHERWISE NOTED
VAR.	VARNISH
V.T.	VINYL TILE
VERT.	VERTICAL
V.F.	VINYL FABRIC
V.G.	VERTICAL GRAIN
VIN.	VINYL
V.J.	VEE JOINT
W.	WEST
W/	WITH
W.C.	WATER CLOSET
WD.	WOOD
WDW.	WINDOW
W.GL.	WIRE GLASS
W.W.M.	WELDED WIRE MESH
W/O	WITHOUT
WP.	WATERPROOFING
WSCT.	WAINSCOT
W/S	WEATHER-STRIPPING
W.R.B.	WEATHER-RESISTANT BARRIER
W.W.F.	WELDED WIRE FABRIC

APPLICABLE CODES AND STANDARDS

2019 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 1

2019 CALIFORNIA BUILDING CODE (CBC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 2
(2018 INTERNATIONAL BUILDING CODE (IBC) WITH CALIFORNIA AMENDMENTS)

2019 CALIFORNIA ELECTRICAL CODE (CEC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 3
(2018 NATIONAL ELECTRICAL CODE (NEC) **WITH CALIFORNIA AMENDMENTS**)

2019 CALIFORNIA MECHANICAL CODE (CMC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 4
(2018 UNIFORM MECHANICAL CODE (UMC) **WITH CALIFORNIA AMENDMENTS**)

2019 CALIFORNIA PLUMBING CODE (CPC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 5
(2018 UNIFORM PLUMBING CODE (UPC) **WITH CALIFORNIA AMENDMENTS**)

2019 CALIFORNIA ENERGY CODE
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 6

2016 CALIFORNIA HISTORICAL BUILDING CODE (CHBC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 8
(2018 INTERNATIONAL FIRE CODE (IFC) **WITH CALIFORNIA AMENDMENTS**)

2019 CALIFORNIA FIRE CODE (CFC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 9
(2018 INTERNATIONAL EXISTING **BUILDING CODE (IEBC) WITH CALIFORNIA AMENDMENTS**)

2016 CALIFORNIA EXISTING BUILDING CODE
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 10
2004 STATE FIRE MARSHAL REGULATIONS (AS AMENDED TO DATE) CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 19

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CGBSC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 11
2010 AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN (ADAS)

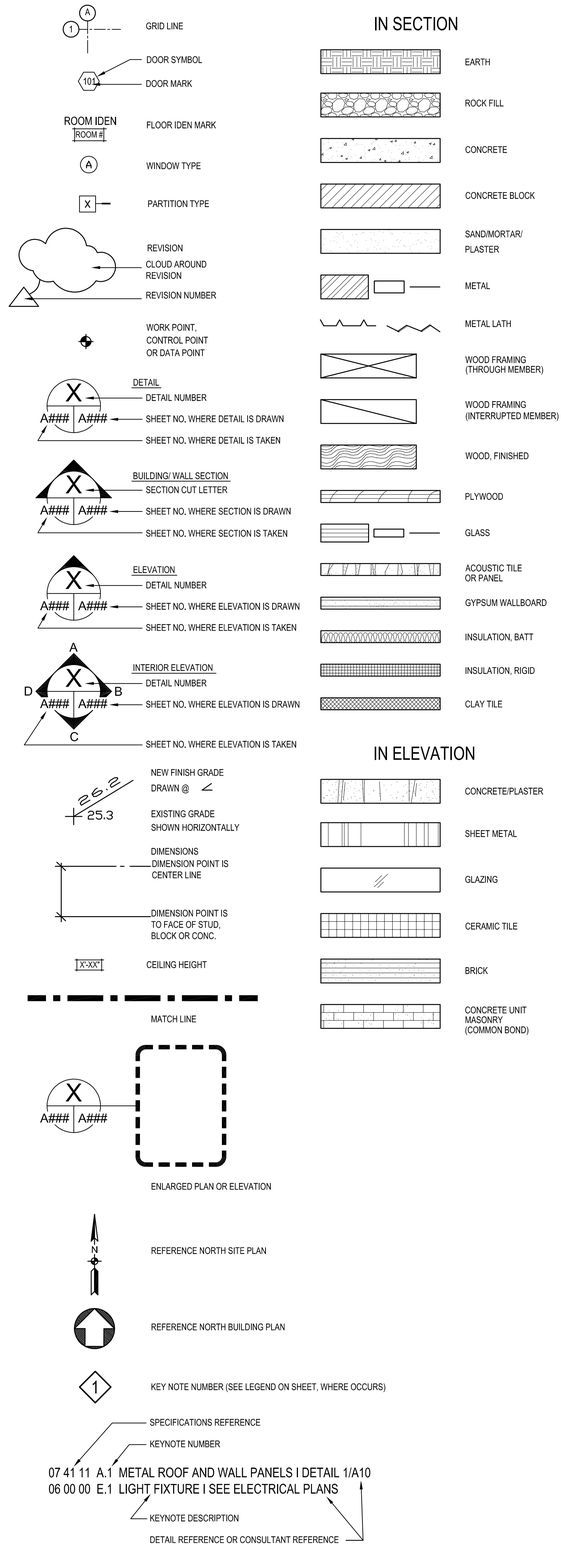
2019 CALIFORNIA REFERENCED STANDARDS CODE **CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 12**

NFPA STANDARDS

NFPA 13	-	AUTOMATIC SPRINKLER SYSTEMS, 2019 EDITION
NFPA 14	-	STANDPIPE SYSTEMS, 2019 EDITION
NFPA 17	-	DRY CHEMICAL EXTINGUISHING SYSTEMS, 2019 EDITION
NFPA 17A	-	WET CHEMICAL SYSTEMS, 2019 EDITION
NFPA 20	-	STATIONARY PUMPS, 2019 EDITION
NFPA 22	-	WATER TANKS FOR PRIVATE FIRE PROTECTION, 2019 EDITION
NFPA 24	-	PRIVATE FIRE MAINS, 2019 EDITION
NFPA 72	-	NATIONAL FIRE ALARM CODE, 2019 EDITION
NFPA 80	-	FIRE DOORS AND OTHER OPENING PROTECTIVE, 2019 EDITION
NFPA 92	-	STANDARD FOR SMOKE CONTROL SYSTEMS, 2019 EDITION
NFPA 253	-	CRITICAL RADIANT FLUX OF FLOOR COVERINGS, 2019 EDITION
NFPA 2001	-	CLEAN AGENT FIRE EXTINGUISHING SYSTEMS, 2019 EDITION
ICC 300	-	ICC STANDARDS FOR BLEACHERS, FOLDING AND TELESCOPIC SEATING, AND GRANDSTANDS, 2017 EDITION
UL 300	-	FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF COMMERCIAL RESTAURANT COOKING AREAS, 2019 EDITION.
UL 464	-	AUDIBLE SIGNAL APPLIANCES, 2019 EDITION
UL 521	-	HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS, 2019 EDITION

NOTE: ALL NFPA STANDARDS AS LISTED ARE TO CONFORM TO THE EDITION AS LISTED WITH THE LATEST CALIFORNIA AMENDMENTS. REFERENCE THE 2019 CBC, TITLE 24, PART 2 - CHAPTER 35 FOR ADDITIONAL APPLICABLE NFPA, UL STANDARDS AND ANY CALIFORNIA AMENDMENTS TO NFPA STANDARDS.

SYMBOLS



DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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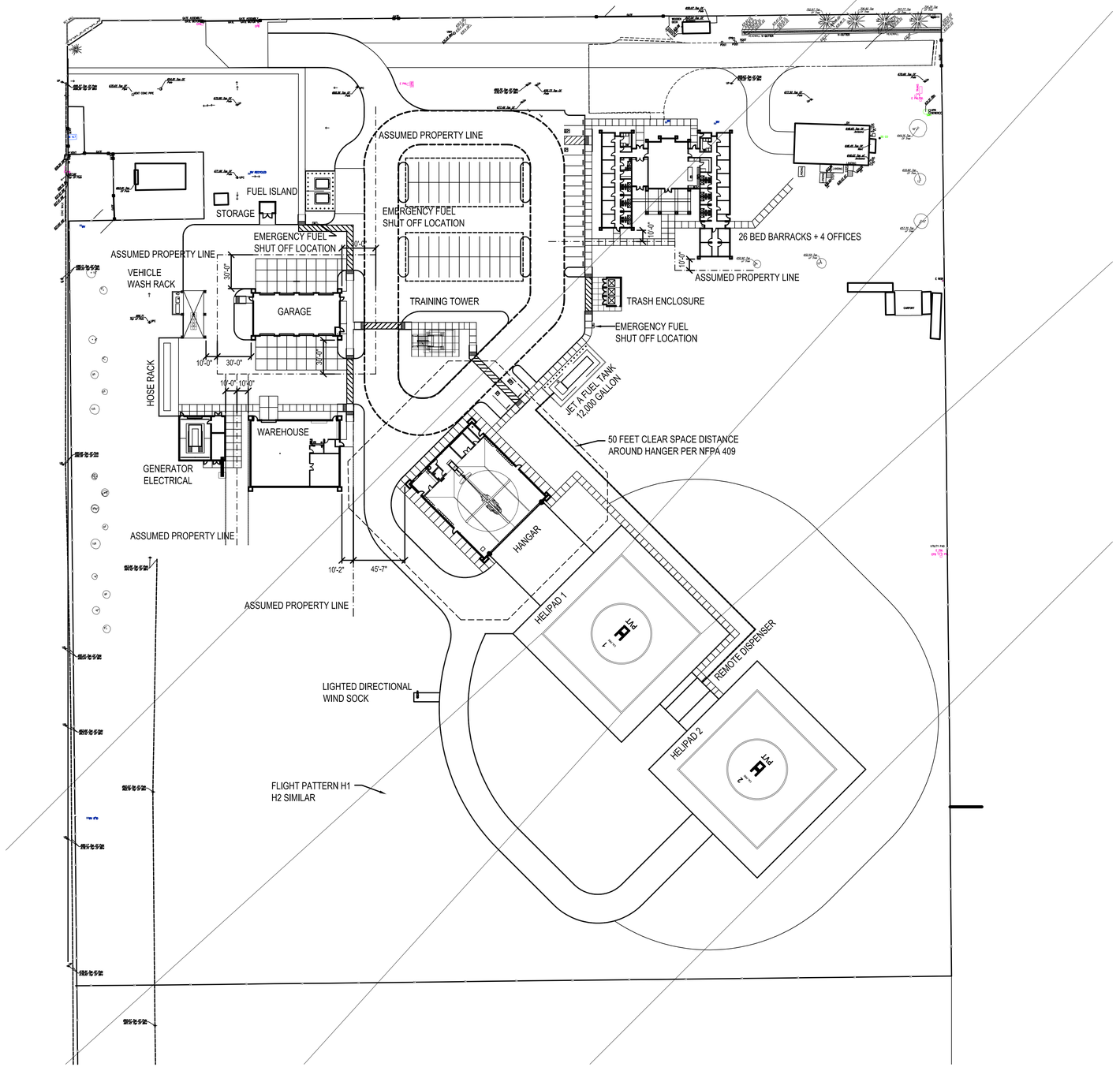
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Reviewed by:_____

AOR
LICENSED ARCHITECT BRUCE F. UNGER NO. C15804 REN. 5-31-21 STATE OF CALIFORNIA

EOR

drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	G0.2.dwg
drawing no.	G0.2
sheet title	NOTES, CODES
sheet no.	SYMBOLS
of	sheets



OVERALL SITE PLAN CODE ANALYSIS

1/50"=1'-0"

0′ 50′ 100′ 150′

N

BUILDING DESCRIPTIONS

26 BED BARRACKS + 4 OFFICES

BUILDING OCCUPANCY CLASSIFICATION AND USE
1. GROUP (R-2 DORMITORY)
2. GROUP (B OFFICE 689 SF. LESS THAN 10% OF BUILDING AREA)

BUILDING CONSTRUCTION TYPE
TYPE V-B (S-SPRINKLERED)

TOTAL BUILDING AREA
GROSS BUILDING AREA CONDITIONED SPACE 7,465 SF.
FIRE AREA INCLUDING SUPPORTED ROOF OVERHANGS 9,675 SF.

WAREHOUSE

BUILDING OCCUPANCY CLASSIFICATION AND USE
S-1 MODERATE-HAZARD

BUILDING CONSTRUCTION TYPE
TYPE V-B (S-SPRINKLERED)

TOTAL BUILDING AREA
GROSS BUILDING AREA 4,800 SF.
FIRE AREA INCLUDING SUPPORTED ROOF OVERHANGS 5,561 SF.

GARAGE

BUILDING OCCUPANCY CLASSIFICATION AND USE
H-3 (GARAGE HOUSES (2) JET A FUEL TENDER TRUCKS EA. CONTAINING 1,000 GALLONS EA. OF FUEL CLASSIFIED AS CLASS II COMBUSTIBLE LIQUID IN CLOSED CONTAINER UNDER 15 PSI PRESSURE) OTHER SPACES HOUSE U3551 SUPPORT VANS

BUILDING CONSTRUCTION TYPE
TYPE V-B (S-SPRINKLERED)

TOTAL BUILDING AREA
GROSS BUILDING AREA 2,990 SF.
FIRE AREA INCLUDING SUPPORTED ROOF OVERHANGS 3,669 SF.

TRAINING TOWER

BUILDING OCCUPANCY CLASSIFICATION AND USE
1. GROUP U HELICOPTER TRAINING TOWER

BUILDING CONSTRUCTION TYPE
TYPE V B NON SPRINKLERED

BUILDING HEIGHT
PER TABLE 504.3 U OCC 40 FEET MAX. HIEGHT
PER 504.3 EXCEPTION: TO TABLE 504.3 TOWERS MAY BE OF UNLIMITED HEIGHT IF MADE OF NON COMBUSTIBLE MATERIALS
TOWER IS CONSTRUCTED ENTIRELY OF NON COMBUSTIBLE MATERIALS

TOTAL BUILDING AREA
TOWER AREA AT BASE 406 SF.

VEHICLE WASH RACK

BUILDING OCCUPANCY CLASSIFICATION AND USE
GROUP U VEHICLE WASH RACK

BUILDING CONSTRUCTION TYPE
TYPE V B NON SPRINKLERED

TOTAL BUILDING AREA
1,093 GROSS SF.

STORAGE

BUILDING OCCUPANCY CLASSIFICATION AND USE
GROUP S-1 MODERATE HAZARD STORAGE

BUILDING CONSTRUCTION TYPE
TYPE V B NON SPRINKLERED

TOTAL BUILDING AREA
156 GROSS SF.

GENERAL NOTES

1. SEE G SERIES SHEETS FOR INDIVIDUAL BUILDING CODE ANALYSIS
2. HANGER BUILDING AND ELECTRICAL BUILDING / GENERATOR YARD CODE ANALYSIS IS PROVIDED IN THE ESSENTIAL SERVICES SET OF PLANS.

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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CAL FIRE
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14467 CENTRAL AVE.,
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DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR

drawn by CL
checked by BFU
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drawing no. G1.1
sheet title SITE PLAN
sheet no. CODE ANALYSIS
of sheets

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ACCESSIBILITY

BUILDING USE

DORMITORY CONSIDERED PUBLIC HOUSING FACILITY AND IS SUBJECT TO CBC CHAPTER 11B REQUIREMENTS INCLUDING 11B-233.3

AT LEAST ONE OF EVERY COMMON USE FACILITY SHALL BE ACCESSIBLE TO PERSONS WITH DISABILITIES

ALL ENTRANCES, EXITS, DOORS, FIXTURES AND CONTROLS SHALL BE ACCESSIBLE AND ON AN ACCESSIBLE ROUTE.

COMMON USE AREAS INCLUDE:

DAY ROOM
DINING ROOM
LIVING ROOM
KITCHEN
ACTIVITIES ROOM
LAUNDRY ROOMS
OFFICES

ONE RESTROOM B119 HAS MOBILITY FEATURES WHICH INCLUDE A SHOWER, TOILET, SINK AND BENCH AND IS EQUAL TO 5 PERCENT OF THE 13 SLLEPING ROOMS IN THE FACILITY PER CBC 11B 233.3.1.3

EXIT ANALYSIS

EXIT WIDTH CALCULATIONS

EXIT 1 (73 OCC) X .2" = 14.6" . MIN. REQUIRED 32"
PAIR DOORS WITH 68" CLR. OPENING = 68" OK

EXIT 2 (60 OCC) X .2" = 12 ". MIN. REQUIRED 32"
PAIR DOORS WITH 68" CLR. OPENING = 68" OK

EXIT 3 (10 OCC) X .2" = 2 "MIN. REQUIRED 32"
ONE DOOR WITH 34" CLR. OPENING = 34" OK

EXIT 4 (50 OCC) X .2" = 10". MIN. REQUIRED 32"
PAIR DOORS WITH 68" CLR. OPENING = 68" OK

EXIT 5 (12 OCC) X .2" = 2.4" MIN. REQUIRED 32"
PAIR DOORS WITH 68" CLR. OPENING = 68" OK

EXIT 6 (11 OCC) X .2" = 2.2 " MIN. REQUIRED 32"
ONE DOOR WITH 34" CLR. OPENING = 34" OK

EXITS REQUIRED
R-2 OCCUPANCY GREATER THAN 10 OCCUPANTS 2 EXITS REQUIRED. OK

EXITS CORRIDOR WIDTH
MINIMUM REQUIRED WIDTH 44". 54" PROVIDED. OK

NOTE FOR TEXTILE EXIT ROUTE AND EXIT SIGNAGE REQUIREMENTS
REFER TO SHEET X

CODE ANALYSIS

BUILDING OCCUPANCY CLASSIFICATION AND USE
1. GROUP (R-2 DORMITORY)
2. GROUP (B OFFICE 689 SF. LESS THAN 10% OF BUILDING AREA)

BUILDING CONSTRUCTION TYPE
TYPE V-B (S-SPRINKLERED)

NUMBER OF STORIES
1 STORY (ALLOWABLE PER
TABLE 504.4 2 STORIES WITH SPRINKLER

BUILDING HEIGHT
ACTUAL BUILDING HEIGHT 22 FEET (ALLOWABLE PER
TABLE 504.3 40 FEET WITH SPRINKLER

TOTAL BUILDING AREA
GROSS BUILDING AREA CONDITIONED SPACE 7,465 SF.
FIRE AREA INCLUDING SUPPORTED ROOF OVERHANGS 9,675 SF.

ALLOWABLE BUILDING AREA
R-2 OCC. -7,000 SF.
S1 SPRINKLER INCREASE 28,000 SF. 9,675 SF. ACTUAL > THAN 28,000 SF. OK

AUTOMATIC FIRE SPRINKLER SYSTEM
REQUIRED PER CBC 420.4 FOR GROUP R OCCUPANCIES
WET PIPE SYSTEM PROVIDED FOR BUILDING INCLUDING ATTIC SPACES AND OVERHANGS WHERE REQUIRED

FIRE RESISTIVE REQUIREMENTS

CONSTRUCTION TYPE VB - NONE REQUIRED
EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE GREATER THAN 20 FEET AND V-B CONSTRUCTION AND GROUP R OCCUPANCY NON REQUIRED

508.3 NON SEPARATED OCCUPANCIES - NON SEPARATED
EXCEPTION 2. R-2 SLEEPING UNITS SEPARATED FROM OTHER SLEEPING AND FROM OTHER OCCUPANCIES CONTIGUOUS TO THEM IN ACCORDANCE WITH REQUIREMENTS OF SECTION 420

420.2 SEPARATION WALLS. WALLS SEPARATING DWELLING UNITS IN THE SAME BUILDING, WALLS SEPARATING SLEEPING UNITS IN THE SAME BUILDING AND WALLS SEPARATING DWELLING OR SLEEPING UNITS FROM OTHER OCCUPANCIES CONTIGUOUS TO THEM IN THE SAME BUILDING SHALL BE CONSTRUCTED AS FIRE PARTITIONS IN ACCORDANCE WITH SECTIONS 708

SECTION 708 FIRE PARTITIONS.
708.3 EXCEPTION 2, DWELLING UNIT AND SLEEPING UNIT SEPARATION IN BUILDINGS OF TYPE IIB, IIIB AND VB CONSTRUCTION SHALL HAVE A FIRE RESISTIVE RATINGS OF NOT LESS THAN ½ HOUR IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.1.1

FIRE PARTITIONS PROVIDED
1 HOUR FIRE PARTITIONS PROVIDED BETWEEN EACH SLEEPING UNITS AND EACH SLEEPING UNIT CONTIGUOUS TO OTHER OCCUPANCIES

SECTION 718.4.2 DRAFTSTOPPING
EXCEPTION 2, DRAFTSTOPPING IS NOT REQUIRED IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1

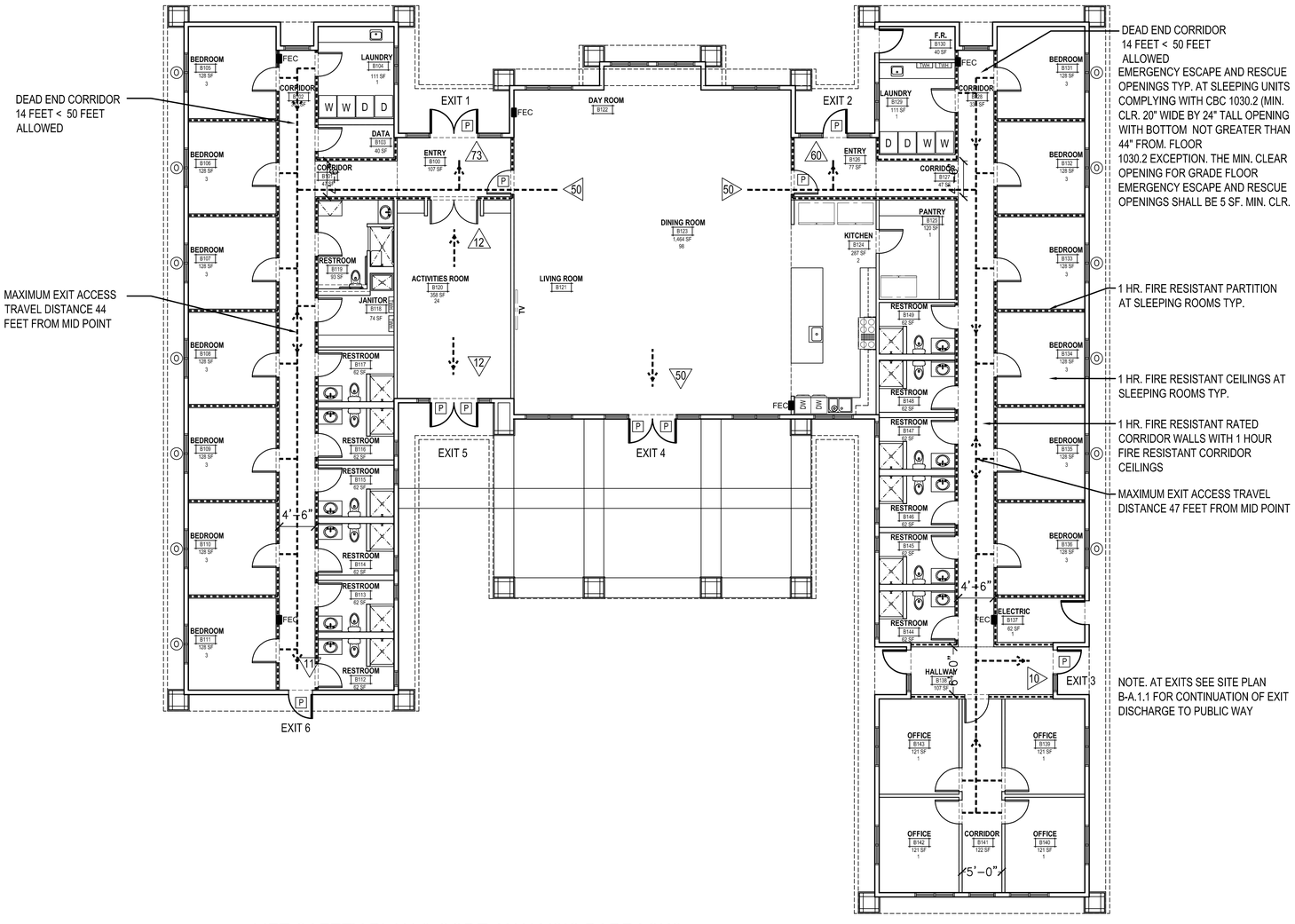
SECTION 1020 CORRIDORS
TABLE 1020.1 CORRIDOR FIRE-RESISTANCE RATING R-2 OCCUPANCY 1HOUR WITH FIRE SPRINKLER SYSTEM. CORRIDOR DOORS 20 MINUTE FIRE RATED

SECTION 1017 EXIT ACCESS TRAVEL DISTANCE
TABLE 1017.2 EXIT ACCESS TRAVEL DISTANCE R OCCUPANCY 250 FEET WITH SPRINKLER SYSTEM

SMOKE DETECTION AND FIRE ALARM SYSTEMS
REQUIRED PER 420.6.1 FOR GROUP R OCCUPANCIES

OCCUPANT LOAD PER TABLE 1004.1.2

DORMITORIES	50 SF. PER OCCUPANT
ASSEMBLY TABLE AND CHAIRS	15 SF. PER OCCUPANT
KITCHEN	200 SF. PER OCCUPANT
ACTIVITIES ROOM	15 SF. PER OCCUPANT
BUSINESS AREAS	100 SF. PER OCCUPANT
BUSINESS AREAS	100 SF. PER OCCUPANT
LAUNDRY	300 SF. PER OCCUPANT



LIFE SAFETY PLAN & CODE ANALYSIS BARRACKS

1/8"=1'-0"

0' 5' 10' 20' 30'

LEGEND:

- ACCESSIBLE ROUTE
- 60 — COMBINED OCCUPANT LOAD WITH ADJOINING ROOMS EXITING THROUGH 1 ADJACENT SPACE
- ILLUMINATED DIRECTIONAL EXIT SIGN, SEE ELECTRICAL PLANS
- FEC — FIRE EXTINGUISHER CABINET TO BE INSTALLED; 2A-10BC RATING U.O.N. SEE DETAIL FOR MOUNTING TYPE AND RATED PENETRATION
- O — OPERABLE WINDOW COMPLYING WITH 2016 CBC 11B-309; SEE WINDOW SCHEDULE FOR ALL OTHER OPERABLE WINDOWS
- P — PANIC HARDWARE; SEE HARDWARE SCHEDULE

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DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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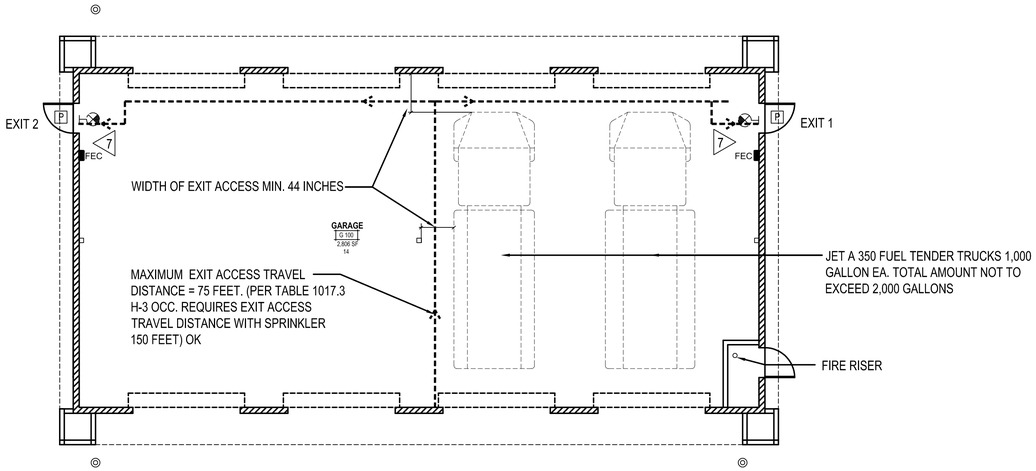
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job no. 2018-23
date 5-1-2019
cad file name G1.3.dwg
drawing no. G1.3
sheet title LIFE SAFETY
sheet no. BARRACKS
of sheets



LIFE SAFETY PLAN & CODE ANALYSIS GARAGE

1/8"=1'-0" 0' 5' 10' 20' 30'

EXIT ANALYSIS

EXIT WIDTH CALCULATIONS

EXIT 1 (7 OCC) X .2" = 1.4" . MIN. REQUIRED 32"
ONE DOOR WITH 34" CLR. OPENING = 34" OK

EXIT 2 (7 OCC) X .2" = 1.4" . MIN. REQUIRED 32"
ONE DOOR WITH 34" CLR. OPENING = 34" OK

NOTE FOR TEXTILE EXIT ROUTE AND EXIT SIGNAGE REQUIREMENTS REFER TO SHEET X

NOTE FOR HAZARDOUS MATERIALS SIGNAGE REQUIREMENTS REFER TO SHEET X

CODE ANALYSIS GARAGE

BUILDING OCCUPANCY CLASSIFICATION AND USE
H-3 (GARAGE HOUSES (2) JET A FUEL TENDER TRUCKS EA. CONTAINING 1,000 GALLONS EA. OF FUEL CLASSIFIED AS CLASS II COMBUSTIBLE LIQUID IN CLOSED CONTAINER UNDER 15 PSI PRESSURE) OTHER SPACES HOUSE U3551 SUPPORT VANS

BUILDING CONSTRUCTION TYPE
TYPE V-B (S-SPRINKLERED)

NUMBER OF STORIES
1 STORY (ALLOWABLE PER TABLE 504.4 1 STORY)

BUILDING HEIGHT
ACTUAL BUILDING HEIGHT 25 FEET 4 INCHES (ALLOWABLE PER TABLE 504.3 40 FEET)

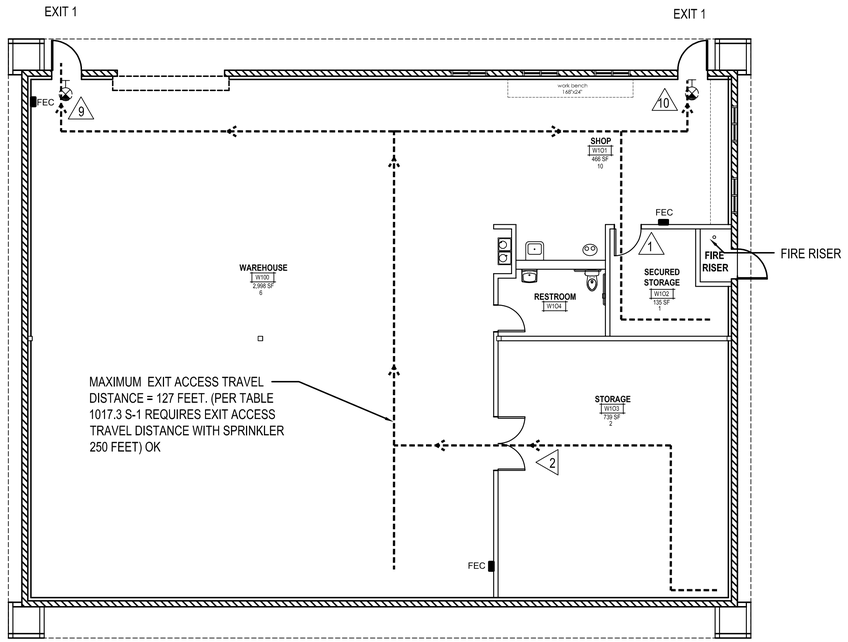
TOTAL BUILDING AREA
GROSS BUILDING AREA 2,990 SF.
FIRE AREA INCLUDING SUPPORTED ROOF OVERHANGS 3,669 SF.

ALLOWABLE BUILDING AREA
H-3 OCC. 5,000 SF. (3,669 SF. < 5,000 SF.) OK

AUTOMATIC SPRINKLER SYSTEM REQUIRED
WET PIPE SPRINKLER PROVIDE FOR BUILDING INCLUDING OVERHANGS WHERE REQUIRED

OCCUPANT LOAD PER TABLE 1004.1.2
GARAGE 200 SF. PER OCCUPANT

FIRE RESISTIVE REQUIREMENTS
CONSTRUCTION TYPE VB - NONE REQUIRED
EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE GREATER THAN 30 FEET AND V-B CONSTRUCTION AND GROUP H OCCUPANCY NON REQUIRED
NOTE: 415.6.13 H-3 OCCUPANCY DETACHED BUILDING SET BACK OF 50 FEET IS NOT APPLICABLE SINCE QUANTITY OF CLASS II LIQUID DOES NOT EXCEED 2,000 GALLONS PER TABLE 415.6.2



LIFE SAFETY PLAN & CODE ANALYSIS WAREHOUSE

1/8"=1'-0" 0' 5' 10' 20' 30'

EXIT ANALYSIS

EXIT WIDTH CALCULATIONS

EXIT 1 (10 OCC) X .2" = 2" . MIN. REQUIRED 32"
ONE DOOR WITH 34" CLR. OPENING = 34" OK

EXIT 2 (9 OCC) X .2" = 1.8" . MIN. REQUIRED 32"
ONE DOOR WITH 34" CLR. OPENING = 34" OK

NOTE FOR TEXTILE EXIT ROUTE AND EXIT SIGNAGE REQUIREMENTS REFER TO SHEET X

CODE ANALYSIS WAREHOUSE

BUILDING OCCUPANCY CLASSIFICATION AND USE
S-1 MODERATE-HAZARD

BUILDING CONSTRUCTION TYPE
TYPE V-B (S-SPRINKLERED)

NUMBER OF STORIES
1 STORY (ALLOWABLE PER TABLE 504.4 2 STORY)

BUILDING HEIGHT
ACTUAL BUILDING HEIGHT 29 FEET 4 INCHES (ALLOWABLE PER TABLE 504.3 60 FEET)

TOTAL BUILDING AREA
GROSS BUILDING AREA 4,800 SF.
FIRE AREA INCLUDING SUPPORTED ROOF OVERHANGS 5,561 SF.

ALLOWABLE BUILDING AREA
S-1 OCC. 36,000 SF. (5,561 SF.< 36,000 SF.) OK

AUTOMATIC SPRINKLER SYSTEM REQUIRED
WET PIPE SPRINKLER PROVIDE FOR BUILDING INCLUDING OVERHANGS WHERE REQUIRED

OCCUPANT LOAD PER TABLE 1004.1.2
WAREHOUSE 500 SF. PER OCCUPANT
SHOP 50 SF. PER OCCUPANT
STORAGE 300 SF. PER OCCUPANT

FIRE RESISTIVE REQUIREMENTS
CONSTRUCTION TYPE VB - NONE REQUIRED
EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE GREATER THAN 10 FEET AND V-B CONSTRUCTION AND GROUP S-1 OCCUPANCY NON REQUIRED

LEGEND:

ACCESSIBLE ROUTE

60 — COMBINED OCCUPANT LOAD WITH ADJOINING ROOMS EXITING THROUGH 1 ADJACENT SPACE

ILLUMINATED DIRECTIONAL EXIT SIGN, SEE ELECTRICAL PLANS

FEC — FIRE EXTINGUISHER CABINET TO BE INSTALLED; 2A-10BC RATING U.O.N. SEE DETAIL FOR MOUNTING TYPE AND RATED PENETRATION

P — PANIC HARDWARE; SEE HARDWARE SCHEDULE

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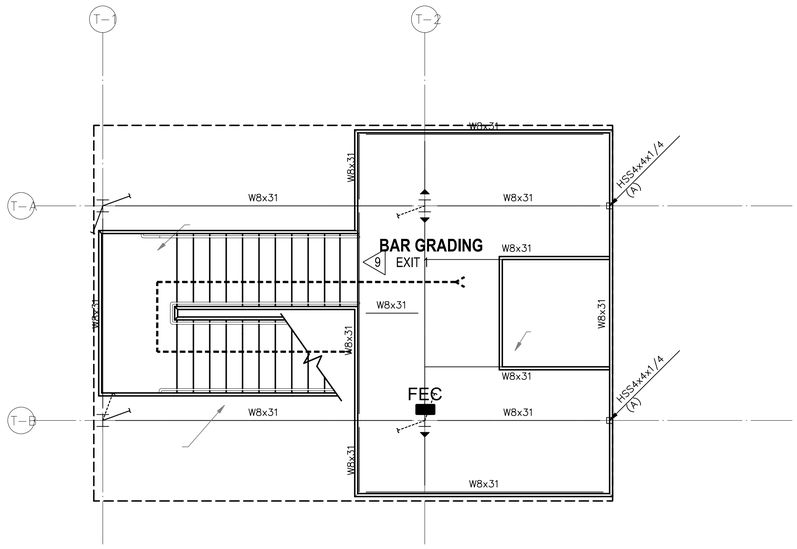
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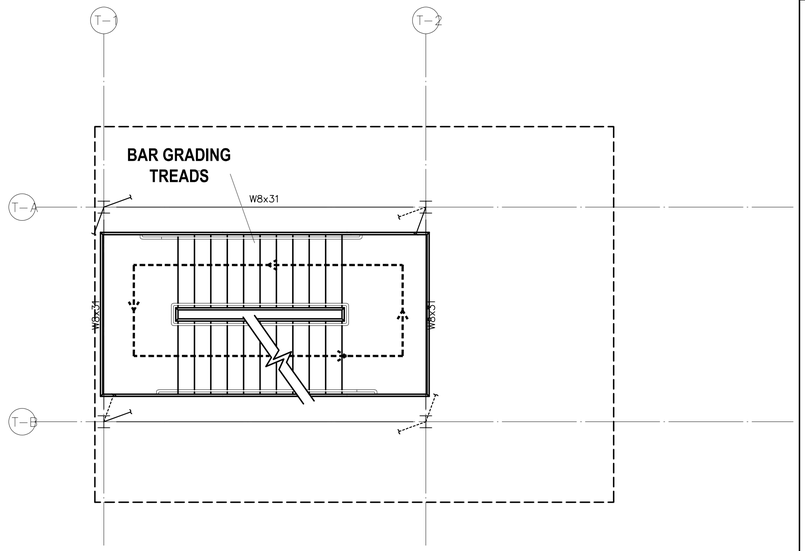
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drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	G1.4.dwg
drawing no.	G1.4
sheet title	LIFE SAFETY
sheet no.	WAREHOUSE AND GARAGE
of	sheets

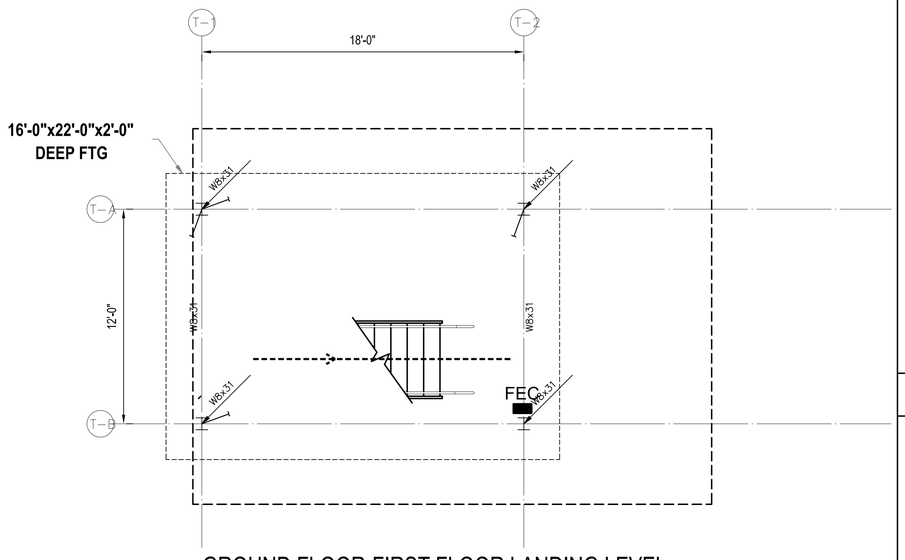
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LANDING LEVEL 5 - PLATFORM LEVEL



LANDING LEVELS 2 THROUGH 4



GROUND FLOOR-FIRST FLOOR LANDING LEVEL

LIFE SAFETY PLAN & CODE ANALYSIS TRAINING TOWER

1/8"=1'-0" 0' 5' 10' 20' 30'

CODE ANALYSIS

BUILDING OCCUPANCY CLASSIFICATION AND USE
1. GROUP U HELICOPTER TRAINING TOWER

BUILDING CONSTRUCTION TYPE
TYPE V B NON SPRINKLERED

BUILDING HEIGHT
PER TABLE 504.3 U OCC 40 FEET MAX. HIEGHT
PER 504.3 EXCEPTION: TO TABLE 504.3 TOWERS MAY BE OF UNLIMITED HEIGHT IF MADE OF NON COMBUSTIBLE MATERIALS
TOWER IS CONSTRUCTED ENTIRELY OF NON COMBUSTIBLE MATERIALS

TOTAL BUILDING AREA
TOWER AREA AT BASE 406 SF.

ALLOWABLE BUILDING AREA
PER TABLE 506.2 ALLOWABLE AREA 5,500 SF.
406 SF. < 5,500 SF. OK

OCCUPANT LOAD PER TABLE 1004.1.2
TRAINING TOWER 50 SF. PER OCCUPANT

FIRE RESISTIVE REQUIREMENTS
CONSTRUCTION TYPE VB - NONE REQUIRED
EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE GREATER THAN 30 FEET AND V-B CONSTRUCTION AND GROUP U OCC NON REQUIRED

EXIT WIDTH
9 OCC X 0.3" = 2.7 INCHES REQUIRED. 43" PROVIDED OK

LEGEND:

NON ACCESSIBLE ROUTE ACCESSIBILITY EXEMPT AT TRAINING TOWER

60 OCCUPANT LOAD AT EXIT

FEC FIRE EXTINGUISHER CABINET TO BE INSTALLED; 2A-10BC RATING U.O.N. SEE DETAIL FOR MOUNTING TYPE AND RATED PENETRATION

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
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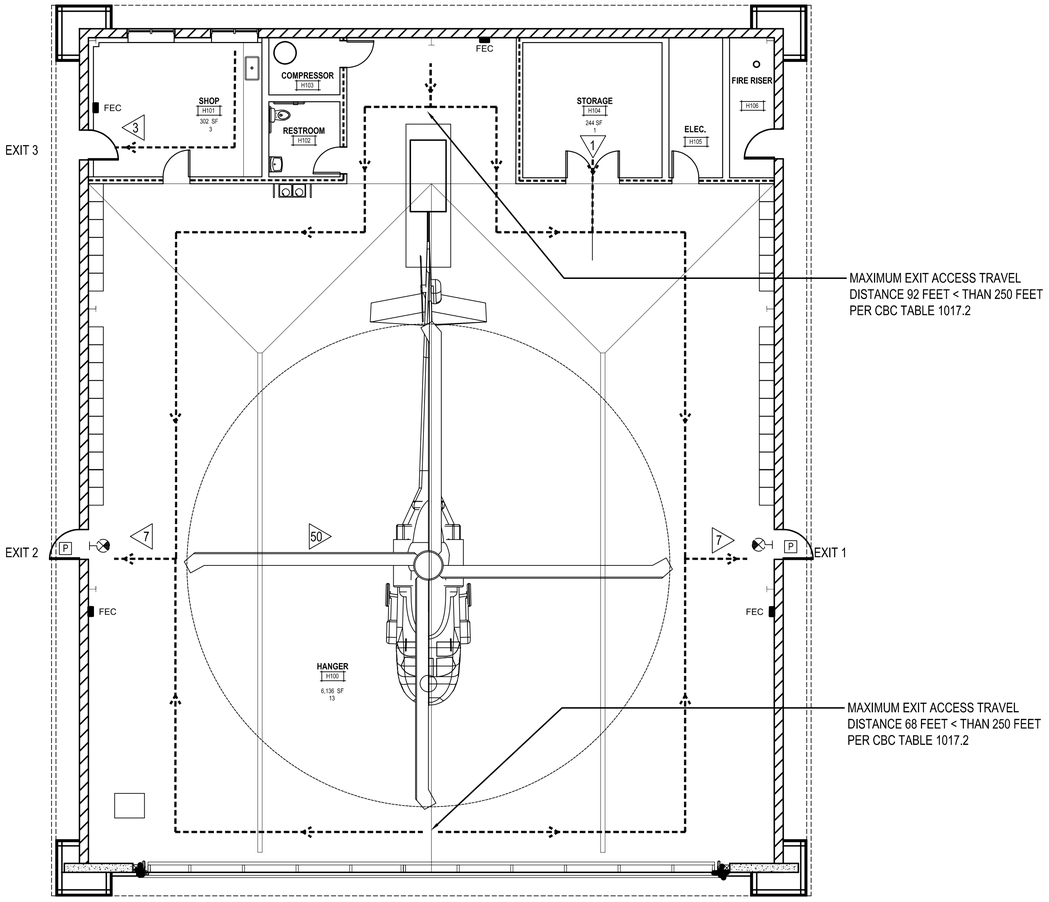
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LIFE SAFETY PLAN & CODE ANALYSIS HELICOPTER HANGER
ESSENTIAL SERVICE FACILITY

1/8"=1'-0" 0' 5' 10' 20' 30'

EXIT ANALYSIS

EXIT WIDTH CALCULATIONS

EXIT 1 (7 OCC) X .2" = 1.4". MIN. REQUIRED 32"
ONE DOOR WITH 34" CLR. OPENING = 34" OK
EXIT 2 (7 OCC) X .2" = 1.4". MIN. REQUIRED 32"
ONE DOOR WITH 34" CLR. OPENING = 34" OK
EXIT 3 (3 OCC) X .2" = .6 ". MIN.REQUIRED 32"
ONE DOOR WITH 34" CLR. OPENING = 34" OK

NOTE FOR TEXTILE EXIT ROUTE AND EXIT SIGNAGE REQUIREMENTS
REFER TO SHEET X

CODE ANALYSIS

BUILDING OCCUPANCY CLASSIFICATION AND USE
1. S-1 AIRCRAFT HANGER ESSENTIAL SERVICE FACILITY

BUILDING CONSTRUCTION TYPE
TYPE III B (S-SPRINKLERED)
NUMBER OF STORIES
ACTUAL1 STORY (ALLOWABLE PER
TABLE 504.4 2 STORIES WITH SPRINKLERS)
BUILDING HEIGHT
ACTUAL BUILDING HEIGHT 42 FEET (ALLOWABLE PER
TABLE 504.3 75 FEET WITH SPRINKLERS)
TOTAL BUILDING AREA
GROSS BUILDING AREA CONDITIONED SPACE 7,421 SF.
FIRE AREA INCLUDING SUPPORTED ROOF OVERHANGS 8,311 SF.
ALLOWABLE BUILDING AREA
S-1 OCC. - SF.
S1 SPRINKLER INCREASE 70,000 SF. 8,311 SF. ACTUAL < THAN 70,000 SF. OK
NFPA 409
CONSTRUCTION TYPE III 200
4.1.3 MAXIMUM FIRE AREA 12,000 SF. TO MEET REQUIREMENTS FOR GROUP III HANGER
GROUP III HANGER
MAXIMUM HANGER DOOR HEIGHT 28 FEET
CLEAR SPACE DISTANCE TO PROPERTY LINES AND OTHER BUILDINGS OR STRUCTURES ON THE SITE 50 FEET. 50 FEET PROVIDED SEE SITE PLAN SHEET. A1.1. NOTE CLEAR SPACE IS REQUIRED FOR ACCESS AROUND THE HANGER
1 HOUR FIRE RATED PARTITIONS ARE REQUIRED AT HANGER SEPARATIONS FROM SHOP AND STORAGE AREAS
FIRE SUPPRESSION
REQUIRED PER GROUP III HANGER
FIRE SUPPRESSION SHALL BE BASED ON NFPA 409 TYPE III 200, GROUP III AIRCRAFT HANGER WITH A MAXIMUM SINGLE FIRE AREA OF 8,311 SF. < 12,000 SF ALLOWABLE FOR GROUP III AND A HANGER DOOR LESS THAN 28 FEET.
NO HAZARDOUS OPERATION IE. FUEL TRANSFER, WELDING, TORCH CUTTING, TORCH SOLDERING, DOPING AND SPRAY PAINTING INSIDE THE HANGER
FIRE RESISTIVE REQUIREMENTS
CONSTRUCTION TYPE III B
EXTERIOR BEARING WALLS TABLE 601 REQUIRE 2 HOUR FIRE RATING
PRIMARY STRUCTURAL FRAME- NO RATING REQUIRED
FIRE SEPARATION DISTANCE BASED ON CBC 412.3.1, 30 FEET OF SEPARATION IS REQUIRED AND PROVIDED.
FIRE PARTITIONS AS REQUIRED BY NFPA 409
1 HOUR FIRE PARTITIONS REQUIRED FOR SEPARATION OF SHOP , RESTOOM, STORAGE AND MECHANICAL / ELECTRICAL SPACE
EXIT ACCESS TRAVEL DISTANCE NOT TO EXCEED 250 FEET PER CBC TABLE 1017.2

OCCUPANT LOAD PER TABLE 1004.1.2

HANGER	500 GROSS SF. PER OCCUPANT
SHOP AREA	100 GROSS SF. PER OCCUPANT
STORAGE	300 GROSS SF. PER OCCUPANT

HEATING EQUIPMENT
HEATING EQUIPMENT SHALL BE PLACED IN ANOTHER ROOM SEPARATED BY 2 HOUR FIRE BARRIERS CONSTRUCTED IN ACCORDANCE WITH SECTION 707 OR HORIZONTAL ASSEMBLIES CONSTRUCTED IN ACCORDANCE WITH SECTION 711, OR BOTH ENTRANCE SHALL BE FROM THE OUTSIDE OR BY MEANS OF A VESTIBULE PROVIDING A TWO DOORWAY SEPARATION CBC 412.4.4

EXCEPTIONS: UNIT HEATERS AND VENTED INFRARED RADIANT HEATING EQUIPMENT SUSPENDED NOT LESS THAN 10 FEET ABOVE THE UPPER SURFACE OF THE WINGS OR ENGINE ENCLOSURE OF THE HIGHEST AIRCRAFT THAT ARE PERMITTED TO BE HOUSED IN THE HANGER NEED NOT BE IN A SEPARATE ROOM PROVIDED THEY ARE MOUNTED NOT LESS THAN 8 FEET ABOVE THE FLOOR IN SHOPS, OFFICES AND OTHER SECTIONS OF THE HANGER COMMUNICATING WITH STORAGE OR SERVICE AREAS.

HELICOPTER TO BE HOUSED
S-70i / M FIREHAWK
HEIGHT TO UPPER ROTOR 15 FEET
FUEL CAPACITY 360 GALLONS JET A FUEL

LEGEND:

ACCESSIBLE ROUTE

60 COMBINED OCCUPANT LOAD WITH ADJOINING ROOMS EXITING THROUGH 1 ADJACENT SPACE

ILLUMINATED DIRECTIONAL EXIT SIGN, SEE ELECTRICAL PLANS

FEC FIRE EXTINGUISHER CABINET TO BE INSTALLED; 2A-10BC RATING U.O.N. SEE DETAIL FOR MOUNTING TYPE AND RATED PENETRATION

P PANIC HARDWARE; SEE HARDWARE SCHEDULE

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Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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700 Alhambra Blvd.
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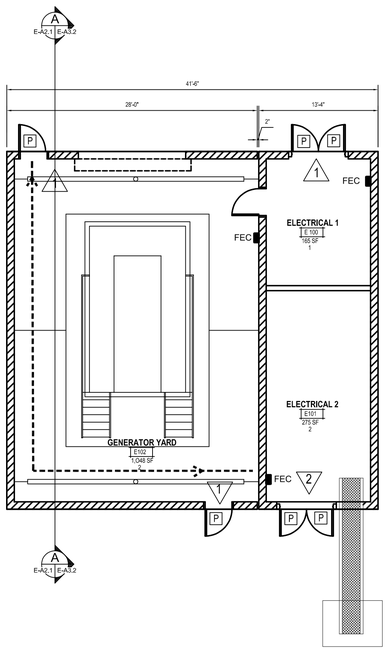
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drawing no. G1.6
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sheet no. HANGER
of sheets



LIFE SAFETY PLAN & CODE ANALYSIS ELECTRICAL BUILDING & GENERATOR YARD

ESSENTIAL SERVICE FACILITY

1/8"=1'-0" 0' 5' 10' 20' 30'

CODE ANALYSIS

BUILDING OCCUPANCY CLASSIFICATION AND USE

1. GROUP U ELECTRICAL ROOMS 1 AND 2 WITH ADJACENT EXTERIOR EMERGENCY GENERATOR YARD WITH DIESEL BELLY TANK

BUILDING CONSTRUCTION TYPE

TYPE V-B NON SPRINKLERED

NUMBER OF STORIES

1 STORY (ALLOWABLE PER TABLE 504.4 1 STORY)

BUILDING HEIGHT

ACTUAL BUILDING HEIGHT 14 FEET 10 INCHES (ALLOWABLE PER TABLE 504.3 40 FEET)

TOTAL BUILDING AREA

GROSS BUILDING AREA 1,660 SF.

ALLOWABLE BUILDING AREA

U OCC. 5,500 SF. (1,660 SF. < 5,500 SF.) OK

OCCUPANT LOAD PER TABLE 1004.1.2

ELECTRICAL EQUIPMENT 3OO SF. PER OCCUPANT

FIRE RESISTIVE REQUIREMENTS

CONSTRUCTION TYPE V-B - NONE REQUIRED PER TABLE 601

EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE GREATER THAN 10 FEET AND V-B CONSTRUCTION AND GROUP U OCCUPANCY NON REQUIRED PER TABLE 602

LEGEND:

NON ACCESSIBLE ROUTE ACCESSIBILITY EXEMPT AT ELECTRICAL SERVICE

60 COMBINED OCCUPANT LOAD WITH ADJOINING ROOMS EXITING THROUGH 1 ADJACENT SPACE

ILLUMINATED DIRECTIONAL EXIT SIGN, SEE ELECTRICAL PLANS

FEC FIRE EXTINGUISHER CABINET TO BE INSTALLED; 2A-10BC RATING U.O.N. SEE DETAIL FOR MOUNTING TYPE AND RATED PENETRATION

P PANIC HARDWARE; SEE HARDWARE SCHEDULE

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CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:

CAL FIRE

PRADO HELITACK BASE

14467 CENTRAL AVE.,
CHINO, CA 91710

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ARCHITECTURE AND ENVIRONMENTAL PLANNING
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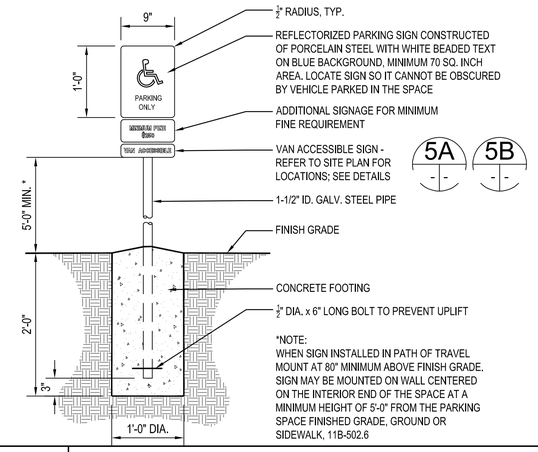
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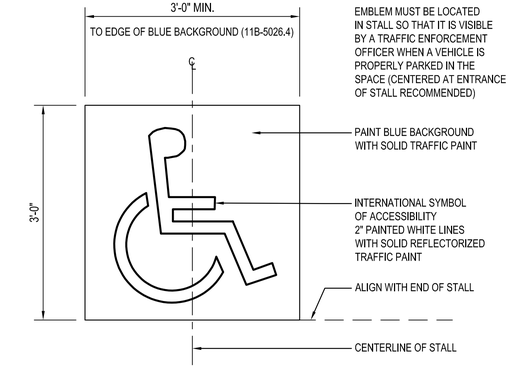
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cad file name	G1.7.dwg
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sheet title	LIFE SAFETY
sheet no.	ELECTRICAL / GENERATOR YARD
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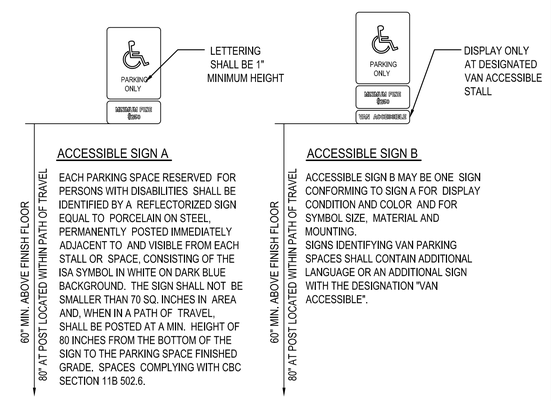
4 POST MOUNTED ACCESSIBLE SIGNS

SCALE: 1" = 1'-0"



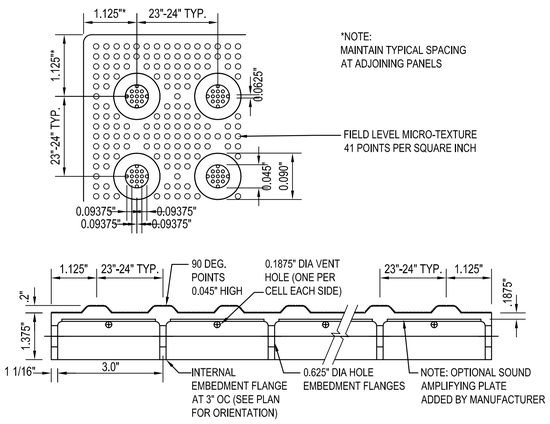
1 TYPICAL PAVEMENT SYMBOL ACCESSIBLE SIGN

SCALE: 1" = 1'-0"



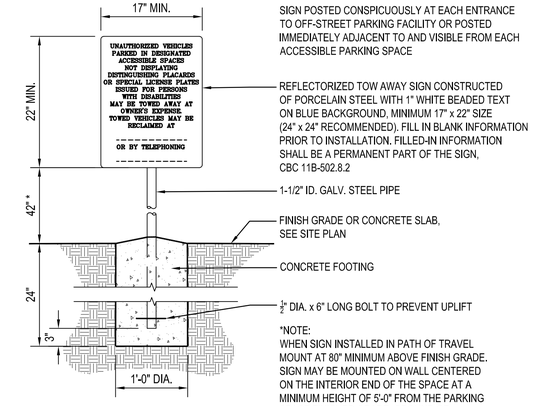
5 ACCESSIBLE PARKING SIGNS

SCALE: N.T.S.



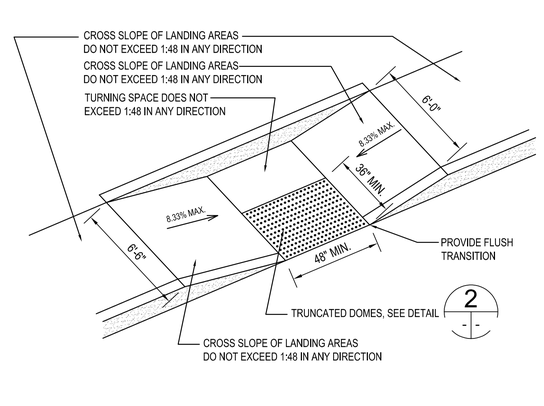
2 CAST-IN-PLACE DETECTABLE WARNING TRUNCATED DOMES

SCALE: N.T.S.



6 ACCESSIBLE PARKING TOW SIGN

SCALE: 1" = 1'-0"



3 ACCESSIBLE CURB RAMP

SCALE: N.T.S.

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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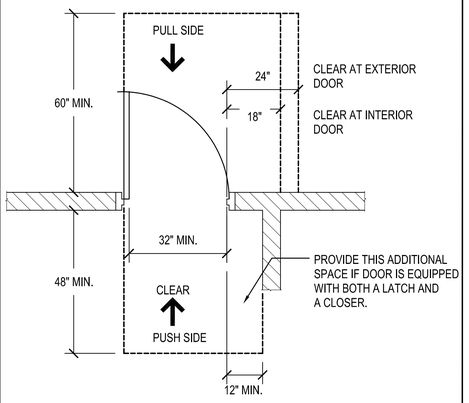
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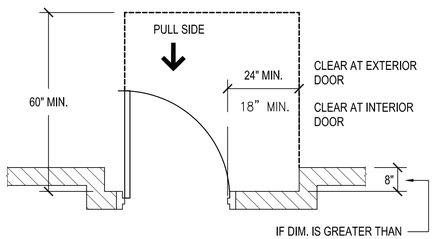
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7 ACCESSIBLE REQUIREMENTS AT TYPICAL DOORS

SCALE: 1/2" = 1'-0"

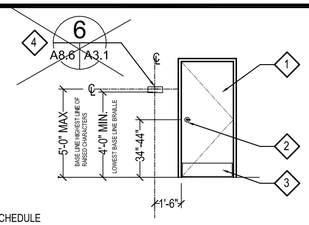


NOTE:

DOORS LOCATED AT A RECESS OR ALCOVE

8 ACCESSIBLE REQUIREMENTS AT DOORS IN RECESS/ ALCOVE

SCALE: 1/2" = 1'-0"



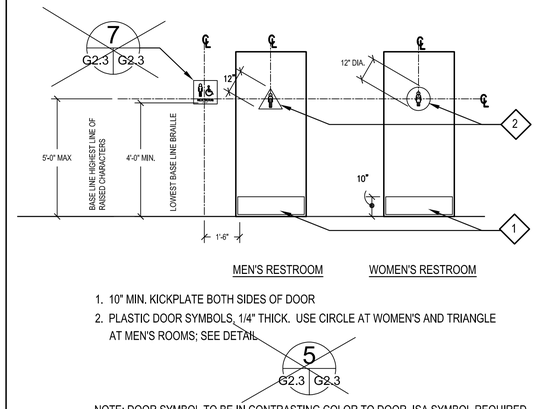
1. SEE DOOR SCHEDULE
2. SEE HARDWARE SCHEDULE
3. SMOOTH SURFACE AT 10" FROM BOTTOM OF DOOR
4. CHARACTERS TYPE ON SIGN SHALL BE RAISED 1/32" MIN. AND SHALL BE SANS SERIF UPPERCASE. RAISED CHARACTERS SHALL BE A MIN. OF 5/8" AND MAX. OF 2" HIGH AND SHOULD BE ACCOMPANIED BY CONTRACTED (GRADE 2) BRAILLE COMPLYING WITH 2016 CBC CHAPTER 11B.
   RAISED CHARACTER AND BRAILLE EXIT SIGNS SHALL COMPLY WITH CHAPTER 11B, SECTIONS 11B-703.1, 11B-703.2, 11B-703.3 AND 11B-703.5.
   PICTORIAL SYMBOL SIGNS SHALL BE ACCOMPANIED BY THE VERBAL DESCRIPTION PLACED DIRECTLY BELOW THE PICTOGRAM. THE OUTSIDE DIMENSION OF THE PICTOGRAM FIELD SHALL BE A MIN. OF 6" IN HEIGHT.
   CHARACTERS AND BRAILLE SHALL BE IN HORIZONTAL FORMAT. BRAILLE SHALL BE PLACED A MIN. OF 3/8" AND A MAX. OF 1/2" DIRECTLY BELOW THE TACTILE CHARACTERS FLUSH LEFT OR CENTERED. WHEN TACTILE TEXT IS MULTILINED, ALL BRAILLE SHALL BE PLACED TOGETHER BELOW ALL LINES OF TACTILE TEXT. DOTS SHALL BE RAISED A MIN. OF 1/40" ABOVE THE BACKGROUND AND SHALL BE DOMED OR ROUNDED.

NOTE:

DOOR SIGNS & SYMBOLS SHALL BE MADE IN CONTRASTING COLOR TO DOOR IN ACCORDANCE WITH 2016 CBC CHAPTER 11B. SEE DETAIL 6/G2.3 FOR MOUNTING REQUIREMENTS AT RESTROOMS.

4 SIGNAGE MOUNTING REQUIREMENTS AT DOORS

SCALE: N.T.S.

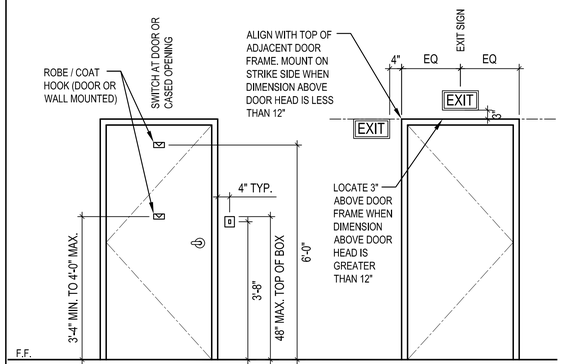


1. 10" MIN. KICKPLATE BOTH SIDES OF DOOR
2. PLASTIC DOOR SYMBOLS, 1/4" THICK. USE CIRCLE AT WOMEN'S AND TRIANGLE AT MEN'S ROOMS; SEE DETAIL

NOTE: DOOR SYMBOL TO BE IN CONTRASTING COLOR TO DOOR. ISA SYMBOL REQUIRED ON DOOR, WALL, OR SEPARATE SIGN.

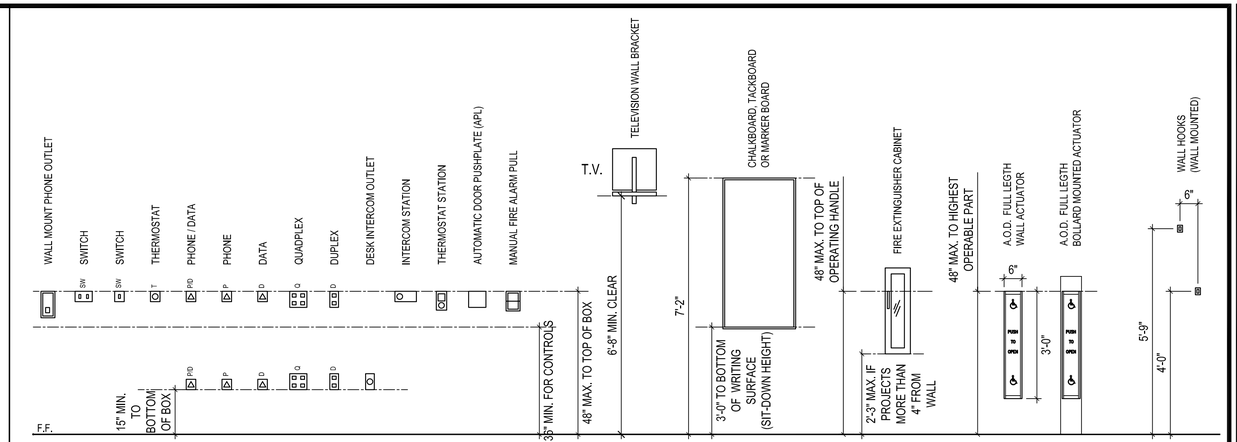
5 SIGNAGE MOUNTING REQUIREMENTS AT RESTROOM DOORS

SCALE: N.T.S.



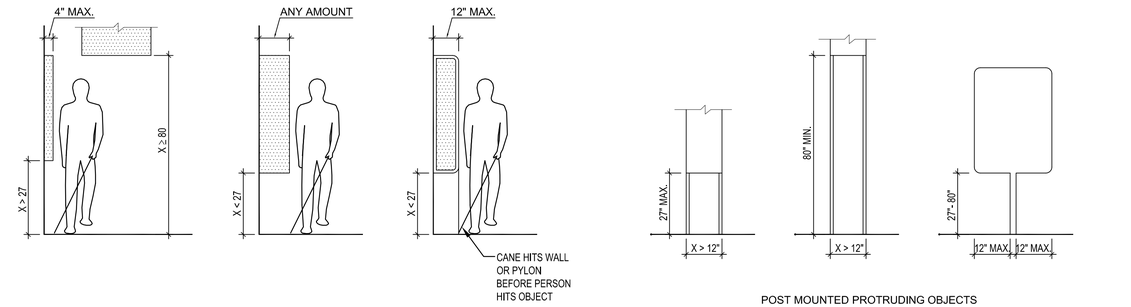
6 MOUNTING HEIGHTS AND CLEARANCES

SCALE: 1/2" = 1'-0"



1 ELECTRICAL DEVICES AND MISCELLANEOUS EQUIPMENT MOUNTING HEIGHTS & CLEARANCES

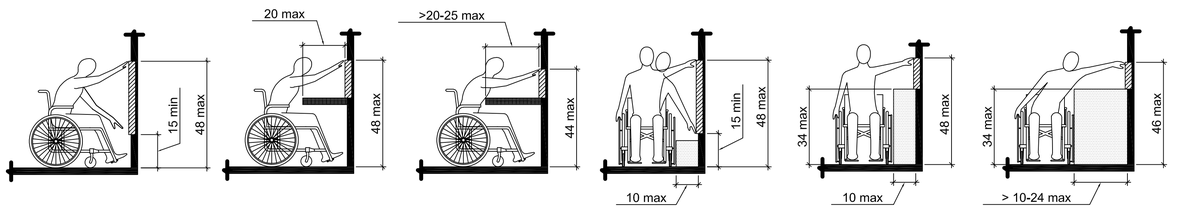
SCALE: 1/2" = 1'-0"



POST MOUNTED PROTRUDING OBJECTS

2 PROTRUDING OBJECTS

SCALE: N.T.S.



1. ACCESSIBLE TOILET COMPARTMENT DOORS ARE TO BE EQUIPPED WITH LOOP OR U-SHAPE HANDLE IMMEDIATELY BELOW THE LATCH, CBC 11B-604.8.1.2.
2. CONTROLS FOR LAVATORIES, WATER CLOSETS, SHOWERS AND URINALS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 POUNDS-FORCE, CBC 11B-309.4.
3. ALL DIMENSIONS ARE CLEAR DIMENSIONS FROM EDGE OF FIXTURE OR FACE OF FINISH.
4. CONTRACTOR TO PROVIDE STRUCTURAL SUPPORT AND/ OR METAL REINFORCEMENT IN STUD WALLS AT ALL CASEWORK,, CABINETS, SHELVING, EQUIPMENT, ETC.
5. ALL RECESSED SPECIALITIES SHOWN ON ELEVATIONS THAT ARE LOCATED IN FIRE RATED WALLS ARE TO BE 5-SIDED WITH 5/8" TYPE "X" GYP. BOARD.
6. GRAB BAR SPACING: THE SPACE BETWEEN THE WALL AND THE GRAB BAR SHALL BE 1-1/2". THE SPACE BETWEEN THE GRAB BAR AND PROJECTING OBJECTS BELOW AND AT THE ENDS SHALL BE 1-1/2" MIN. THE SPACE BETWEEN THE GRAB BAR AND PROJECTING OBJECTS ABOVE SHALL BE 12" MIN, CBC 11B-609.3.
7. ALL ACCESSORIES SHALL NOT PROJECT MORE THAN 4" FROM THE FINISH WALL SURFACE WHEN LOCATED 27" ABOVE AND BELOW 80" FROM THE FINISH FLOOR, CBC 11B-307.2.
8. ACCESSIBLE DRINKING FOUNTAIN TO HAVE BUBBLER ORIFICE LOCATED WITHIN 5" OF THE FRONT OF THE DRINKING FOUNTAIN, 15" MINIMUM FROM THE VERTICAL SUPPORT AND WITHIN 36" OF THE FLOOR WITH THE WATER STREAM SUBSTANTIALLY PARALLEL TO THE FRONT EDGE OF THE FOUNTAIN. THE DRINKING FOUNTAIN SPOUT SHALL HAVE A FLOW OF WATER AT LEAST 4" HIGH SO AS TO ALLOW THE INSERTION OF A CUP OR GLASS UNDER THE FLOW OF WATER, CBC 11B-602.5 & 11B-602.6.
9. AT LEAST ONE OF EACH TYPE OF STORAGE FACILITY (CABINET, SHELVES, CLOSETS OR DRAWERS) SHALL COMPLY WITH CBC SECTION 11B-225 BY HAVING THE FOLLOWING: A CLEAR FLOOR SPACE AT LEAST 30" BY 48" THAT ALLOWS EITHER A FORWARD OR PARALLEL APPROACH SHALL BE PROVIDED; SHALL BE WITHIN AT LEAST ONE OF THE REACH RANGES SPECIFIED IN CBC SECTION 11B-308; HAVING HARDWARE COMPLYING WITH CBC 11B-309.4 SUCH AS TOUCH LATCHES OR U-SHAPED PULLS.

9 ACCESSIBILITY GENERAL NOTES

SCALE: N.T.S.

3 REACH RANGE

SCALE: N.T.S.

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DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
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PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
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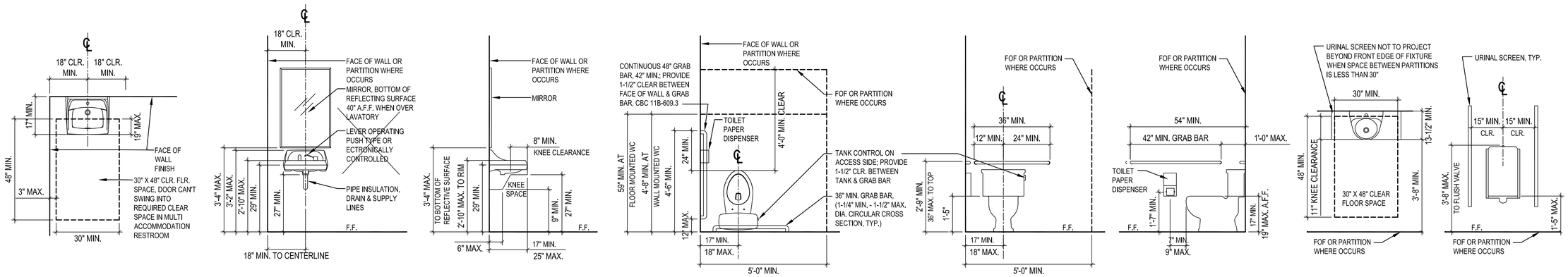
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LICENSED ARCHITECT BRUCE F. UNGER NO. C15804 REN. 5-31-21 STATE OF CALIFORNIA

EOR

drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	G2.2.dwg
drawing no.	G2.2
sheet title	ACCESSIBLE
sheet no.	INTERIOR DETAILS
of	sheets



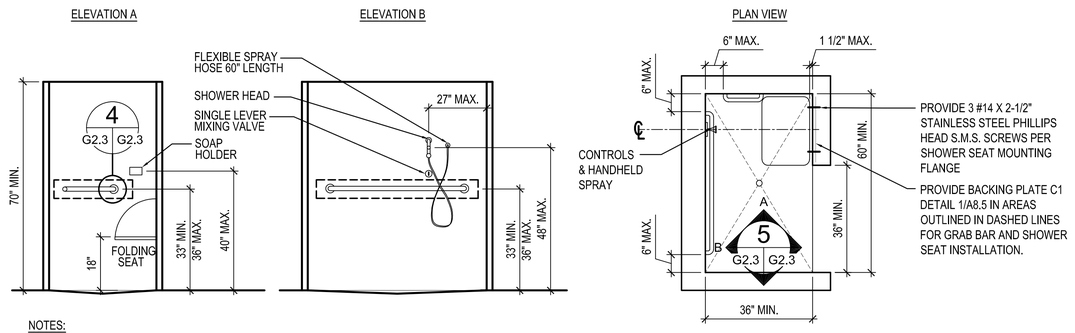
LAVATORY

WATER CLOSET

URINAL

1 TOILET ROOM MOUNTING HEIGHTS AND CLEARANCES

SCALE: 1/2" = 1'-0"



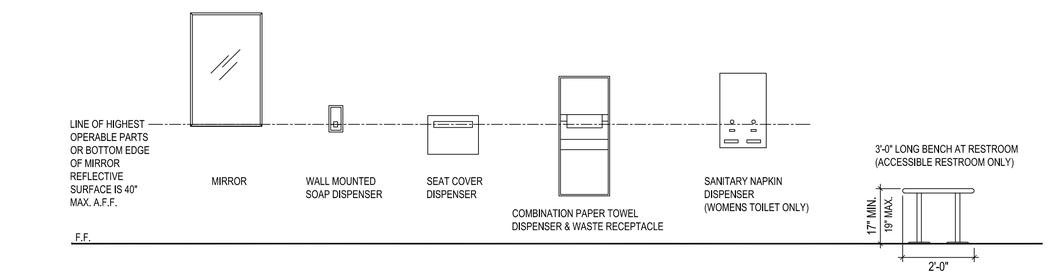
NOTES:

1. SHOWER FLOORING SHALL BE A SLIP RESISTANT MATERIAL.
2. THRESHOLDS ARE NOT ALLOWED.
3. 2% MAXIMUM SLOPE.
4. SEE DETAIL 11/A8.1.1 FOR SHOWER FLOOR DRAIN.
5. ALL DIMENSIONS ARE TO FINISH FACE OF WALLS AND FLOORS.

SHOWER TO COMPLY WITH CBC 2016 11B-608.2 AND FIGURE 11B-608.2.3 "ALTERNATE ROLL-IN SHOWER"

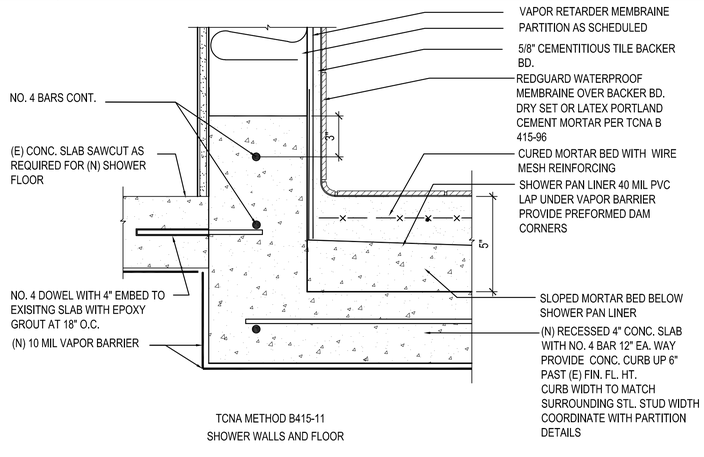
5 ACCESSIBLE SHOWER PLAN AND ELEVATIONS

SCALE: 1/2" = 1'-0"

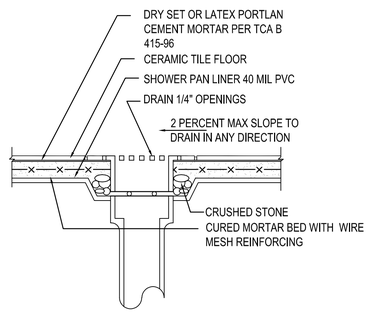


2 TOILET ROOM ACCESSORIES MOUNTING HEIGHTS AND CLEARANCES

SCALE: 1/2" = 1'-0"



TCNA METHOD B415-11
SHOWER WALLS AND FLOOR

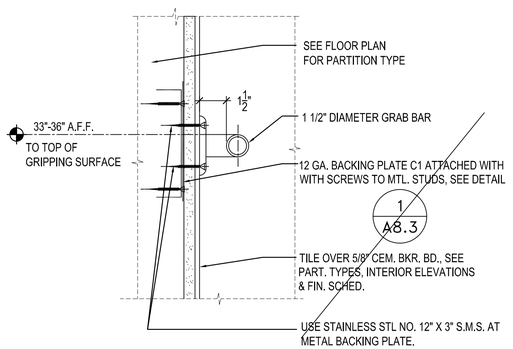


TCNA METHOD B415-11
SHOWER FLOOR AT DRAIN

6 TILE WALL / BASE / FLOOR AND DRAIN AT SHOWER

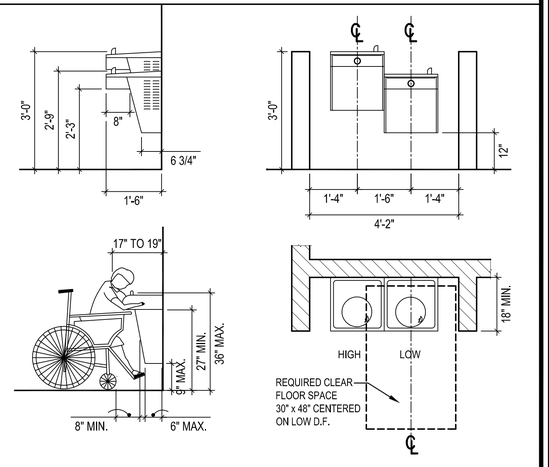
SCALE: 3" = 1'-0"

NOTE: GRAB BARS AND OTHER WALL-MOUNTED ACCESSORIES SHALL BE INSTALLED AND SEALED TO PROTECT STRUCTURAL ELEMENTS FROM MOISTURE PER CBC 2016 SECTION 11B



4 SECTION DETAIL GRAB BAR

SCALE: 3" = 1'-0"



3 HI-LOW DRINKING FOUNTAIN

SCALE: 1/2" = 1'-0"

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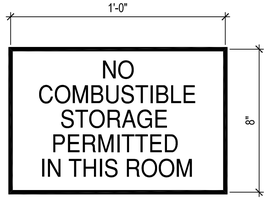
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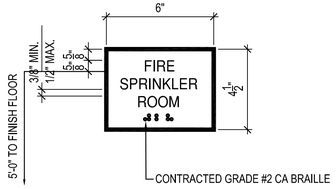
EOR

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drawing no.	G2.3
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sheet no.	INTERIOR DETAILS
of	sheets



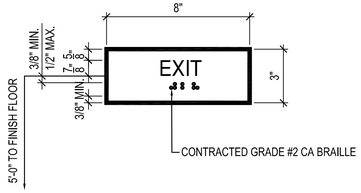
13 NCS- No Combustible Storage Sign

SCALE: 3" = 1'-0"



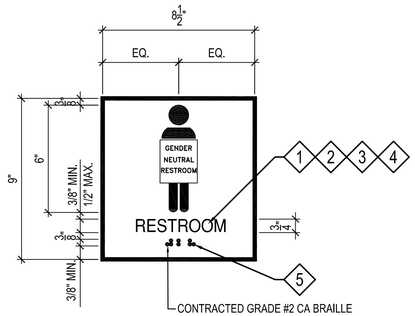
9 FSS- Fire Sprinkler Riser Sign

SCALE: 3" = 1'-0"



5 EXT - Exit Sign

SCALE: 3" = 1'-0"



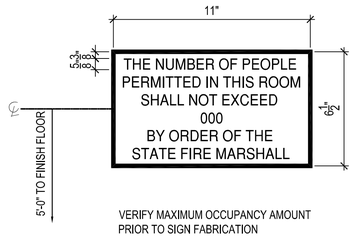
1 RWS - Restroom Wall Sign (All Gender Restroom)

SCALE: 3" = 1'-0"



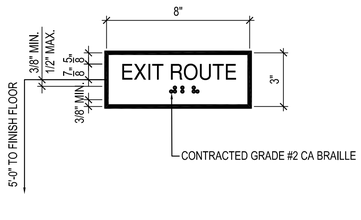
14 FE - Fire Extinguisher Sign

SCALE: 3" = 1'-0"



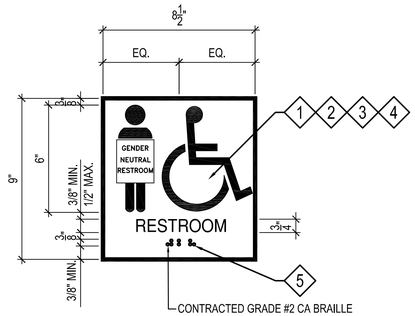
10 OLS - Occupant Load Sign

SCALE: 3" = 1'-0"



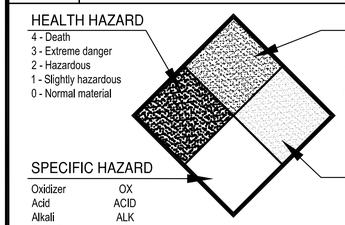
6 ER - Exit Route Sign

SCALE: 3" = 1'-0"



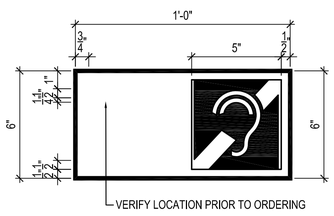
2 ARWS - Accessibble Restroom Wall Sign (All Gender Restroom)

SCALE: 3" = 1'-0"



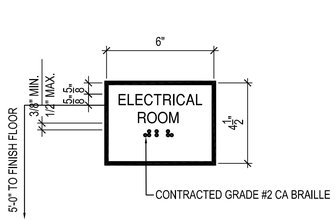
15 NFPA - National Fire Protection Association 704 Placard

SCALE: 3" = 1'-0"



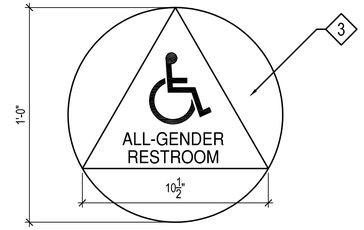
11 ALS- Assistive Listening System Sign

SCALE: 3" = 1'-0"



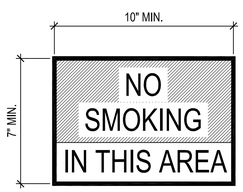
7 ERS- Electrical Room Sign

SCALE: 3" = 1'-0"



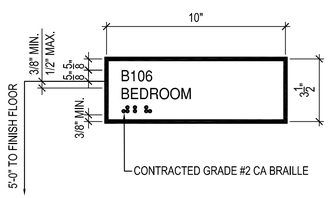
3 ARDS - Accessibble Restroom Door Sign (All Gender Restroom)

SCALE: 3" = 1'-0"



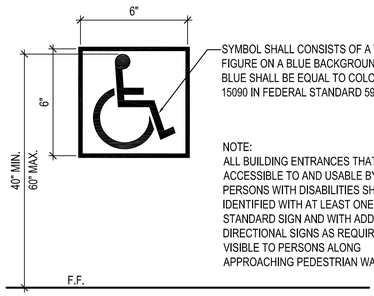
12 NSS - No Smoking Sign

SCALE: 3" = 1'-0"



8 RIS- Room Identification Sign

SCALE: 3" = 1'-0"



4 ISA - International Symbol of Accessibility

SCALE: 3" = 1'-0"

SIGNAGE NOTES

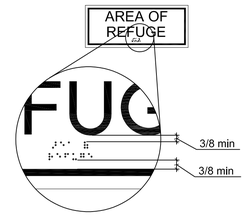
1. CHARACTER TYPE:
CHARACTERS ON SIGNS SHALL BE RAISED 1/32" (0.794 mm) MINIMUM ABOVE THEIR BACKGROUND AND SHALL BE SANS SERIF UPPERCASE CHARACTERS ACCOMPANIED BY GRADE 2 BRAILLE, (SEE NOTE 5 BELOW)
11B-703.2.1 & 11B-703.2.2 & 11B-703.2.3

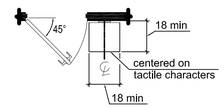
2. CHARACTER SIZE:
CHARACTER HEIGHT MEASURED VERTICALLY FROM THE BASELINE OF THE CHARACTER SHALL BE 5/8" (15.9 mm) MINIMUM AND 2" (51 mm) MAXIMUM BASED ON THE HEIGHT OF THE UPPERCASE LETTER "I". 11B-703.2.5

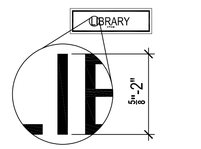
3. FINISH AND CONTRAST:
SYMBOLS OF ACCESSIBILITY AND THEIR BACKGROUND SHALL HAVE A NON-GLARE FINISH. SYMBOLS OF ACCESSIBILITY SHALL CONTRAST WITH THE BACKGROUND WITH EITHER A LIGHT SYMBOL ON A DARK BACKGROUND OR A DARK SYMBOL ON A LIGHT BACKGROUND. 11B-703.7.1

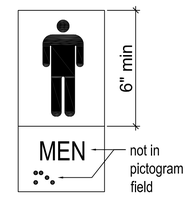
4. PROPORTIONS:
VISUAL CHARACTERS ON SIGNS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 60" MIN. AND 110% MAX. OF THE HEIGHT OF THE UPPERCASE LETTER "I". STROKE THICKNESS OF THE UPPERCASE "I" SHALL BE 15% MAX. OF THE HEIGHT OF THE CHARACTER.

5. BRAILLE:
BRAILLE SHALL BE CONTRACTED (GRADE 2) AND SHALL COMPLY WITH SECTIONS 11B-703.3 AND 11B-703.4
DIMENSIONS AND CAPITALIZATION:
BRAILLE DOTS SHALL HAVE A DOMED OR ROUNDED SHAPE AND SHALL COMPLY WITH TABLE 11B-703.3.1. THE IDENTIFICATION OF UPPERCASE LETTER OR LETTERS SHALL ONLY BE USED BEFORE THE FIRST WORD OF SENTENCES, PROPER NOUNS, INDIVIDUAL LETTERS OF THE ALPHABET, INITIALS, AND ACRONYMS. 11B-703.3.1









GENERAL NOTES

A. ALL ROOM LOCATION OF SIGNAGE SHALL BE REVIEWED BY OWNER BEFORE INSTALLATION.

B. PROVIDE BLANK SIGN ON OPPOSITE SIDE OF GLASS TO COVER SIGN MOUNTING WHEN SIGN IS MOUNTED TO SIDELIGHT OR WINDOW.

C. SIGNS MUST NOT BE INSTALLED BEHIND OBSTRUCTIONS & THE READER MUST BE ABLE TO APPROACH THE SIGN WITHOUT BEING HIT BY THE SWING OF A DOOR OR ENCOUNTERING ANY PROTRUDED OBJECTS.

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Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
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916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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STATE OF CALIFORNIA
DEPARTMENT OF MOTOR VEHICLES
CAL FIRE PRADO HELITACK STATION
14467 CENTRAL AVE. CHINO, CA 91710
SAN BERNARDINO COUNTY

GENERAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING:

   (A) OBTAINING ALL REQUIRED PERMITS FROM CITY OF CHINO OR REGULATORY AUTHORITIES AT THE CONTRACTOR'S COST INCLUDING PERMITS REQUIRED FOR WORK WITHIN THE PUBLIC RIGHT-OF-WAY.

   (B) RESTORATION OF ANY EXISTING IMPROVEMENTS INCLUDING (BUT NOT LIMITED TO) FENCES, SOD, LANDSCAPING, PAVEMENT, SPRINKLER SYSTEMS.

   (C) VERIFICATION AND PROTECTION OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF CONSTRUCTION.

   (D) PROVIDING AS-BUILT DRAWINGS TO THE CITY AND ENGINEER.

   (E) ALL PERMITTING, DEVELOPMENT, LOCATION, CONNECTION, AND INSPECTION.

   (F) SCHEDULING ALL REQUIRED INSPECTIONS.

SITE PLAN NOTES:

1. ALL SITE PLAN MEASURES ARE SUBJECT TO GENERAL NOTES ON THE COVER SHEET OF THESE PLANS.
2. FEATURES REMOVED DURING MASS/DEMOLITION GRADING ARE NOT SHOWN.
3. ALL STRIPING AND SIGNAGE SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AS PUBLISHED BY THE US DEPARTMENT OF TRANSPORTATION.

GRADING NOTES:

1. CONTOURS SHOWN ARE FOR FINISHED PAVING, SIDEWALK, SLAB, OR GROUND. ADJUSTMENT TO SUBGRADE IS THE CONTRACTOR'S RESPONSIBILITY.
2. ALL DISTURBED AREAS THAT ARE UNSURFACED OR ARE NOT DESIGNATED AS LANDSCAPE AREAS ARE TO BE SEEDED, FERTILIZED, AND WATERED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
3. IF DURING THE OVERLOT GRADING PROCESS, CONDITIONS ARE ENCOUNTERED WHICH COULD INDICATE AN UNIDENTIFIED SITUATION IS PRESENT, THE GEOTECHNICAL ENGINEER SHALL BE CONTACTED FOR RECOMMENDATIONS.
4. UNLESS OTHERWISE SHOWN, NO PROPOSED SLOPE SHALL EXCEED THREE (3) HORIZONTAL TO ONE (1) VERTICAL. ALL SLOPED AREAS MUST BE PROTECTED FROM EROSION.
5. IF STRIPPED MATERIALS CONSISTING OF VEGETATION AND ORGANIC MATERIALS ARE STOCKPILED ON THE SITE, TOPSOIL MAY BE PLACED TO A HEIGHT OF FIVE FEET. SILT FENCE SHALL BE PLACED AROUND THE BASE OF THE STOCKPILE AND THE STOCKPILE SHALL BE SEEDED WITH NATIVE SEED MIX IMMEDIATELY AFTER STRIPPING OPERATIONS ARE COMPLETE.
6. ON-SITE MATERIALS SUITABLE FOR FILL BENEATH DRIVES AND PARKING AREAS BEYOND 5 FEET OF THE BUILDING SHALL BE COMPACTED IN ACCORDANCE WITH GUIDELINES PRESENTED IN THE PROJECT SPECIFICATIONS AND IN THE SOILS REPORT.
7. SPOT ELEVATIONS SHALL TAKE PRECEDENCE OVER CONTOURS AND SLOPES SHOWN. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF SPOT ELEVATIONS THAT DO NOT APPEAR TO BE CONSISTENT WITH THE CONTOURS AND SLOPES. SPOT ELEVATIONS AND SPECIFIC PROFILE DESIGN SHALL BE USED FOR SETTING ELEVATIONS OF CURB, GUTTER, AND UTILITIES.
8. BENCHMARK VERIFICATION: CONTRACTOR SHALL USE BENCHMARKS AND DATUM SHOWN HEREON TO SET PROJECT BENCHMARK(S), BY RUNNING A LEVEL LOOP BETWEEN AT LEAST TWO BENCHMARKS, AND SHALL PROVIDE SURVEY NOTES OF SUCH TO PROJECT ENGINEER PRIOR TO COMMENCING CONSTRUCTION.
9. ALL UTILITIES (MANHOLES, VALVE COVERS, CLEANOUTS, VAULTS, BOXES, ETC.) SHALL BE ADJUSTED TO FINAL GRADE PRIOR TO THE FINAL LIFT OF ASPHALT.
10. ALL EARTH MOVING AND PLACEMENT OPERATIONS SHALL BE IN CONFORMANCE WITH THE PROJECT SPECIFICATIONS. THE CONTRACTOR SHALL HAVE A SIGNED AND SEALED COPY OF THE PROJECT DRAWINGS AND SPECIFICATIONS ON THE SITE AT ALL TIMES.
11. GRADES WITHIN ASPHALT PARKING AREAS SHALL BE CONSTRUCTED TO WITHIN 0.10 FEET OF THE DESIGN GRADE. HOWEVER, THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE IN ALL PAVEMENT AREAS AND ALONG ALL CURBS. ALL CURBS SHALL BE BUILT IN ACCORDANCE TO THE PLANS AND SPECIFICATIONS. CURBS OR PAVEMENT AREAS WHICH DO NOT PROVIDE PROPER DRAINAGE MUST BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

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GRADING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THEIR OWN ESTIMATE OF EARTHWORK QUANTITIES.
2. ALL LANDSCAPED ISLANDS SHALL HAVE A CROWN OF TOPSOIL PRIOR TO LANDSCAPING. REFER TO LANDSCAPE PLAN FOR SPECIFICATIONS.
3. WHERE NEW CURB AND GUTTER IS BEING CONSTRUCTED ADJACENT TO EXISTING ASPHALT OR CONCRETE PAVEMENT, THE FOLLOWING SHALL APPLY: PRIOR TO PLACEMENT OF ANY CONCRETE THE CONTRACTOR SHALL HAVE A LICENSED SURVEYOR VERIFY THE GRADE AND CROSS SLOPE OF THE CURB AND GUTTER FORMS. THE CONTRACTOR SHALL SUBMIT THE SLOPES AND GRADES TO THE ENGINEER FOR APPROVAL PRIOR TO PLACEMENT OF CONCRETE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY SECTION WHICH DOES NOT CONFORM TO THE DESIGN OR TYPICAL CROSS SECTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CURB AND GUTTER POURS WITHOUT THE APPROVAL OF THE ENGINEER.
4. THE EARTHWORK FOR ALL BUILDING FOUNDATIONS AND SLABS SHALL BE IN ACCORDANCE WITH ARCHITECTURAL BUILDING PLANS AND SPECIFICATIONS.
5. EXISTING GRADE CONTOUR INTERVALS ARE SHOWN AT 1 FOOT INTERVALS.
6. PROPOSED GRADE CONTOUR INTERVALS ARE SHOWN AT 1 FOOT INTERVALS.
7. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
8. THE CONTRACTOR SHALL PREPARE AND ADHERE TO ALL TERMS AND CONDITIONS AS OUTLINED IN THE GENERAL PERMIT FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES. CONTRACTOR IS SOLELY RESPONSIBLE FOR MAINTAINING A CURRENT STORM WATER POLLUTION PREVENTION PLAN COMPLETE WITH ALL REQUIRED DOCUMENTATION ON SITE AT ALL TIMES.
9. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
10. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
11. TOPOGRAPHIC INFORMATION TAKEN FROM A TOPOGRAPHIC SURVEY PREPARED BY PSOMAS TOPOGRAPHIC INFORMATION IS TO BE CONSIDERED ACCURATE WITHIN 1/2 OF A CONTOUR INTERVAL PER THE STANDARD ESTABLISHED BY THE UNITED STATES NATIONAL MAP ACCURACY STANDARDS. TOPOGRAPHY REPRESENTS THE SURFACE AS FOUND AT THE TIME OF THE SURVEY. THE ENGINEER AND OWNER CANNOT GUARANTEE THAT THE TOPOGRAPHIC CONDITIONS AT THE TIME OF CONSTRUCTION ARE THE SAME AS AT THE TIME THE TOPOGRAPHIC MAP WAS PRODUCED. THE CONTRACTOR SHALL VERIFY THE ACCURACY OF THE TOPOGRAPHY AT THE TIME OF BIDDING BY UTILIZING SPOT CHECKS THROUGHOUT THE SITE. IN THE EVENT THE CONTRACTOR DISAGREES WITH THE ACCURACY OF THE TOPOGRAPHY OF FINDS DISCREPANCIES, THEN IT MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY EARTHWORK. BY SUBMITTING AN EARTHWORK BID THE CONTRACTOR ACKNOWLEDGES THAT THEY HAVE VERIFIED THE ACCURACY OF THE TOPOGRAPHIC INFORMATION FOUND ON THESE PLANS AND TAKE NO EXCEPTION TO THE DATA PROVIDED.
12. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE A MINIMUM OF 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. (CONTRACTOR SHALL PLACE SOD OR HYDROSEED DISTURBED AREAS IN ACCORDANCE WITH SPECIFICATIONS AND MAINTAINED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.)
13. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
14. SITE WORK SHALL MEET OR EXCEED CITY OF CHINO SITE SPECIFICATIONS.
15. ALL CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 4000 psi.
16. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL INVESTIGATION PREPARED BY XXXX DATED DECEMBER XX, 20XX.
17. SUBGRADE MATERIALS SHALL BE TESTED TO EVALUATE THE MECHANICAL STRENGTH OF THE PROPOSED ROADWAY SUBGRADE BY CALIFORNIA BEARING RATIO (CBR) PENETRATION TESTS. THE FINAL DETERMINATION FOR STRUCTURAL PAVEMENT SECTION SHALL BE DETERMINED FOLLOWING AN EVALUATION OF THESE TEST RESULTS.

UTILITY NOTES:

1. ALL INSTALLATION AND MATERIALS SHALL, AT A MINIMUM, CONFORM TO CITY OF CHINO STANDARDS, SPECIFICATIONS, AND PLANS.
2. THE CONTRACTOR SHALL OBTAIN A PERMIT FOR UTILITY CONSTRUCTION AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL UTILITIES AND NOTIFYING THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION.
4. TRENCH EXCAVATIONS WITHIN EXISTING RIGHT-OF-WAYS SHALL BE BACKFILLED WITH IMPORT MATERIALS CONSISTENT WITH CITY OF CHINO STANDARDS FOR BACKFILL MATERIALS.
5. COMPACTION TESTING FOR ALL TRENCH EXCAVATIONS WILL BE REQUIRED AT EACH LIFT IN ACCORDANCE WITH CITY OF CHINO STANDARDS AND SPECIFICATIONS.
6. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
7. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICE.
8. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
9 UNDERGROUND UTILITIES SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
10. CONTRACTOR SHALL NOTIFY THE CITY OF CHINO ENGINEERING INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING UTILITY.
11. ALL FILL MATERIAL IS TO BE IN PLACE AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
12. EXISTING UTILITIES AND CONNECTIONS POINTS AND ELEVATIONS SHALL BE VERIFIED IN FIELD PRIOR TO INSTALLATION OF ANY NEW LINES.
13. WATERLINES SHALL BE TESTED AND DISINFECTED IN ACCORDANCE WITH THE CITY OF CHINO STANDARDS, SPECIFICATIONS, AND PLANS.
14. MANHOLES SHALL BE PRECAST CONFORMING TO ASTM C-478. CONCRETE BASES SHALL BE POURED IN PLACE OR PRECAST.
15. TOPS OF EXISTING MANHOLES SHALL BE RAISED AS NECESSARY TO BE FLUSH WITH PROPOSED PAVEMENT ELEVATIONS. ANY EXISTING MANHOLES IN UNPAVED AREAS SHALL BE 6 INCHES ABOVE FINISHED GROUND ELEVATIONS WITH WATER TIGHT LIDS.
16. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH AT 4000 PSI.
17. SITE WORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL IMPROVEMENTS TO WITHIN 5 FEET OF PROPOSED BUILDING UNLESS SPECIFIED OTHERWISE. SITE WORK CONTRACTOR SHALL COORDINATE WITH BUILDING CONTRACTOR ON ALL UTILITY BUILDING ENTRANCE LOCATIONS.
18. PIPE MATERIAL SUBSTITUTIONS WILL REQUIRE PRIOR APPROVAL OF THE ENGINEER. FAILURE TO OBTAIN PRIOR APPROVAL MAY REQUIRE THE REPLACEMENT OF THE PIPE AT THE CONTRACTOR'S EXPENSE AT THE DISCRETION OF THE ENGINEER, AND SHALL CONFORM TO THE CITY OF CHINO STANDARDS, SPECIFICATIONS, AND PLANS. LENGTHS OF WATER PIPES ARE THE HORIZONTAL DISTANCES FROM CENTERLINE TO CENTERLINE OF FITTING/BEND. LENGTHS OF STORM DRAIN AND SEWER PIPE ARE THE HORIZONTAL DISTANCES FROM THE INSIDE EDGE OF EACH ADJOINING STRUCTURE. THEREFORE LENGTHS SHOWN ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND FITTING LENGTHS.
19. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATERLINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE SANITARY LINE SHALL BE DUCTILE IRON PIPE WITH MECHANICAL JOINTS AT LEAST 10 FEET ON BOTH SIDES OF CROSSING, THE WATERLINE SHALL HAVE MECHANICAL JOINTS WITH APPROPRIATE THRUST BLOCKING AS REQUIRED TO PROVIDE A MINIMUM OF 18-INCHES CLEARANCE. MEETING REQUIREMENTS OF ANSI A21.10 OR ANSI A21.11 (AWWA C-151) (CLASS 50). MEASUREMENTS SHALL BE TAKEN FROM EDGE TO EDGE.
20. DRAWINGS DO NOT PURPORT TO SHOW ALL EXISTING UTILITIES.
21. CONTRACTOR SHALL VERIFY UTILITY LOCATIONS PRIOR TO SUBSURFACE WORK FOR LIGHT POLES (BORING ETC.) AND SIMILAR STRUCTURES.

STORM DRAIN & SEWER NOTES:

1. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CITY OF CHINO STANDARDS, SPECIFICATIONS, AND PLANS.
2. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED. EXISTING PIPES ARE TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS PRIOR TO CONNECTION OF NEW PIPES.
3. DISTANCES FOR STORM SEWER ARE THE HORIZONTAL DISTANCES FROM INSIDE EDGE OF MANHOLE OR INLET TO INSIDE EDGE OF MANHOLE OR INLET. THEREFORE, DISTANCES SHOWN ON PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT. CONSTRUCTION.
4. RIM ELEVATIONS SHOWN ARE APPROXIMATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATION. PIPELINE CONTRACTOR SHALL USE PRECAST CONCRETE ADJUSTMENT RINGS, GROUT, AND STEEL SHIMS TO ADJUST THE MANHOLE FRAME TO THE REQUIRED FINAL GRADE IN CONFORMANCE WITH CITY OF CHINO STANDARDS, SPECIFICATIONS, AND PLANS. ALL FRAMES SHALL BE ADJUSTED TO FINAL GRADE PRIOR TO THE FINAL LIFT OF ASPHALT.
5. COMPACTION OF ALL TRENCHES WITHIN THE PROJECT SITE MUST BE ATTAINED AND COMPACTION RESULTS SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.
6. STORM DRAIN PIPE MAY BE ANY TYPE OUTLINED IN THE SPECIFICATIONS, UNLESS OTHERWISE NOTED ON PLANS. CONTRACTOR IS RESPONSIBLE FOR SELECTING APPROPRIATE PIPE TYPES BASED ON A 30 YEAR DESIGN LIFE, MINIMUM AND MAXIMUM COVER, AND SUBJECTED CONDITIONS.
7. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
8. ALL STORM DRAIN MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING LIDS. MANHOLES IN UNPAVED AREAS SHALL BE 6 INCHES ABOVE FINISH GRADE. ALL STORM DRAIN LIDS SHALL BE LABELED "STORM DRAIN".
9. ALL STORM STRUCTURES SHALL HAVE, AT A MINIMUM, A 12 INCH SUMP TO CATCH AND TRAP SEDIMENT UNLESS OTHERWISE NOTED.
10. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING STORM SEWER STRUCTURES, PIPES, AND ALL UTILITIES PRIOR TO CONSTRUCTION.
11. UTILITIES SHALL BE BEDDED IN ACCORDANCE WITH CITY OF CHINO STANDARDS AND SPECIFICATIONS.

ABBREVIATIONS:

BDRY	BOUNDARY	LOD	LIMIT OF DISTURBANCE	SWR	SEWER
BLDG	BUILDING	LS	LANDSCAPE	SYM	SYMBOL
BM	BENCHMARK	LF	LINEAR FEET (FOOT)	SYS	SYSTEM
C&G	CURB AND GUTTER	MAX	MAXIMUM	T	TOWNSHIP
CB	CATCH BASIN	MECH RM	MECHANICAL ROOM	TBC	TOP BACK OF CURB
CL	CENTER LINE	MH	MANHOLE	TEMP	TEMPORARY
CO	CLEANOUT	MON	MONUMENT	TG	TOP OF GRATE
COMM	COMMUNICATION	NA	NOT APPLICABLE	TOC	TOP OF CONCRETE
CONC	CONCRETE	NPW	NON-POTTABLE WATER	TOP	TOP OF PAVEMENT
CONC DB	CONCRETE DUCT BANK	NTS	NOT TO SCALE	TOPO	TOPOGRAPHY
COR	CORNER	OD	OUTSIDE DIAMETER	TOW	TOP OF WALL
CTR	CENTER	PC	POINT OF CURVATURE	TYP	TYPICAL
CTRL	CONTROL	PCC	PRECAST CONCRETE	UGND	UNDERGROUND
CU FT	CUBIC FEET	PI	POINT OF INTERSECTION	UTIL	UTILITY
CU YD	CUBIC YARD	PRC	POINT OF REVERSE CURVE	VC	VERTICAL CURVE
DEMO	DEMOLITION	PROP	PROPERTY	VERT	VERTICAL
DET	DETAIL	PSL	PIPE SLEEVE	W	WATER
DIA	DIAMETER	PT	POINT OF TANGENCY	W/	WITH
DIP	DUCTILE IRON PIPE	PVC	POLYVINYL CHLORIDE (PLASTIC)	W/O	WITHOUT
E	ELECTRIC	RAD	RADIUS	WM	WATER METER
EC	EDGE OF CURB	RAD PT	RADIUS POINT		
EG	EXISTING GRADE	RCP	REINFORCED CONCRETE PIPE		
EL	ELEVATION	REQ	REQUIRED		
EQUIP	EQUIPMENT	RD	ROOF DRAIN		
EXIST	EXISTING	RDC	REDUCER		
F	FIRE	REV	REVISION		
FF EL	FINISH FLOOR ELEVATION	RMP	ROCKY MOUNTAIN POWER		
FG	FINISHED GRADE	ROW	RIGHT OF WAY		
FH	FIRE HYDRANT	SCHEM	SCHEMATIC		
FL	FLOW LINE	SD	STORM DRAIN		
FOC	FACE OF CURB	SDMH	STORM DRAIN MANHOLE		
FOW	FACE OF WALL	SECT	SECTION		
FT	FEET OR FOOT	SF	SQUARE FEET (FOOT)		
FS	FINISHED SURFACE	SP EL	SPOT ELEVATION		
FUT	FUTURE	SPEC	SPECIFICATION		
FW	FIRE WATER	SQ	SQUARE		
G	GROUND	SQ YD	SQUARE YARD		
GV	GATE VALVE	SS	SANITARY SEWER		
HC	HANDICAP	STA	STATION		
HDPE	HIGH DENSITY POLYETHYLENE	STD	STANDARD		
HORIZ	HORIZONTAL	SURF	SURFACE		
HP	HIGH POINT	SURV	SURVEY		
INV	INVERT	SW	SIDEWALK		
LATL	LATERAL				

SHEET INDEX

C0.00	TITLE SHEET
C0.01-C0.06	EXISTING CONDITIONS
C1.01-C1.06	DEMOLITION PLAN
C3.01-C3.06	GRADING PLAN
C4.01-C4.06	UTILITY PLAN

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

PSOMAS
555 SOUTH FLOWER STREET, SUITE 4300
LOS ANGELES, CA 90071
Tel: 213-223-1400
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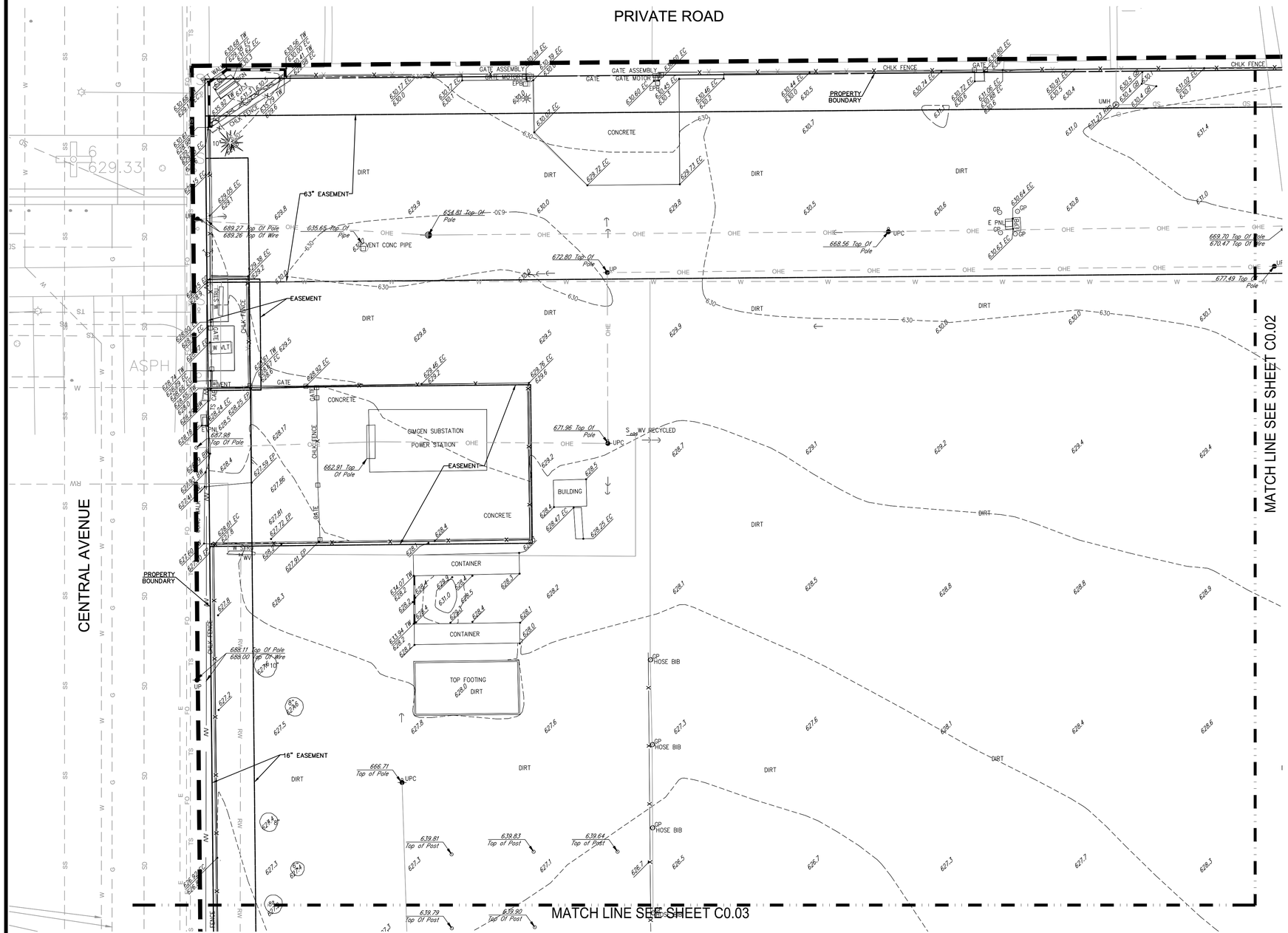
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AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
CECILIA S. HAMILTON
No. C70585
CIVIL
STATE OF CALIFORNIA

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checked by	CSH
job no.	
date	11-8-2019
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sheet no.	C0.00
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CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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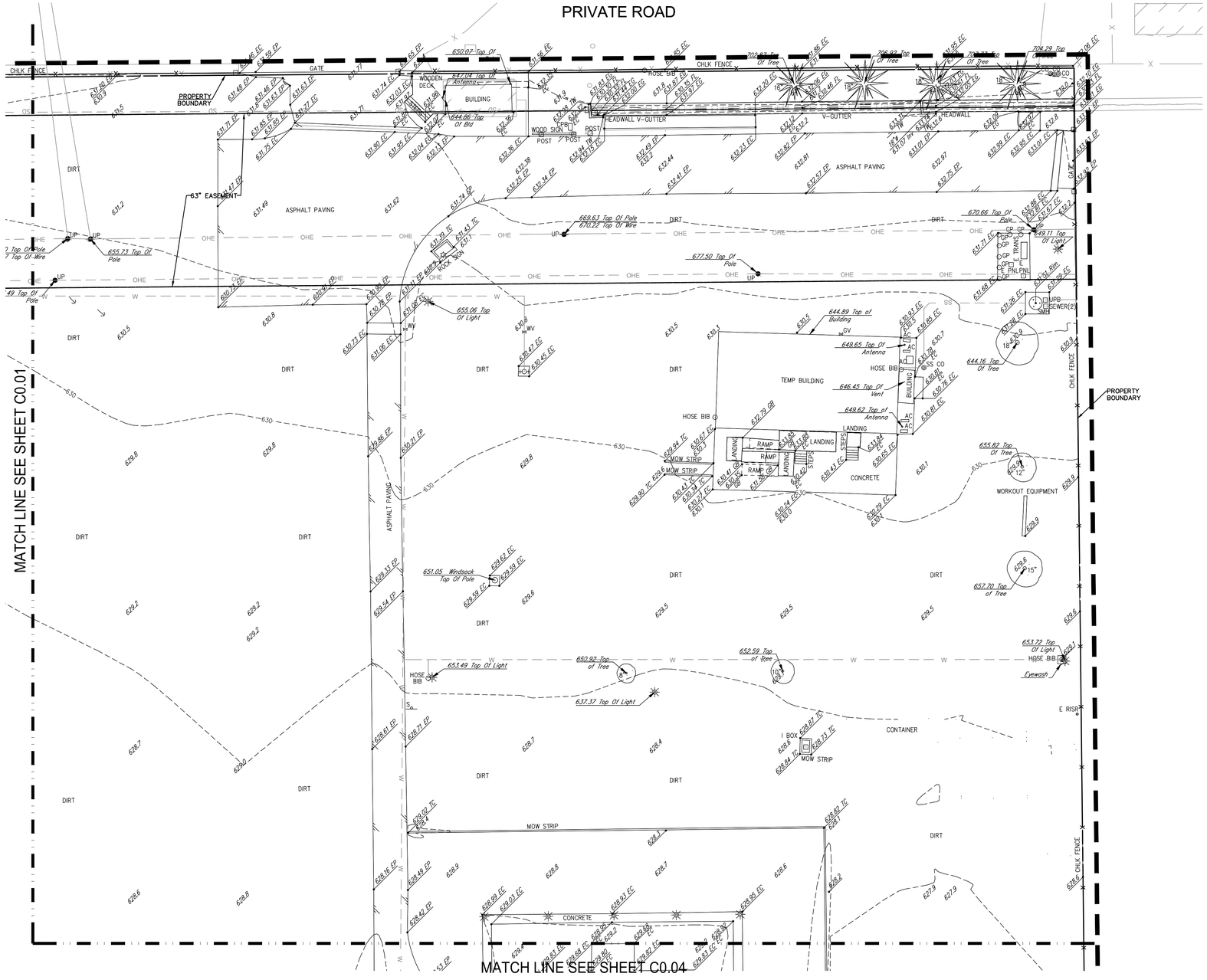
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CECILIA S. YAMILOV
No. C70585
CIVIL
STATE OF CALIFORNIA

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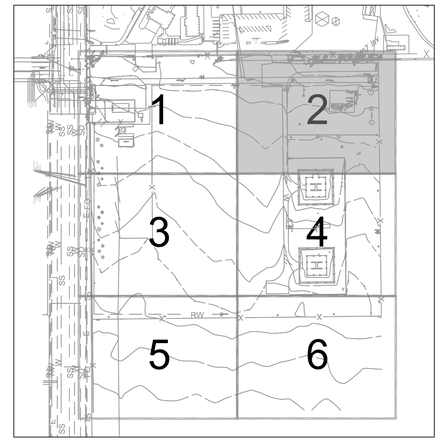
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LEGEND

- EASEMENT
- PROPERTY LINE
- LIMIT OF WORK

FEET
20 10 0 20 40
1 1/2 0 1 2
INCHES



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Judy Haavisto, Project Director II
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West Sacramento, California 95605
916-376-1638 Voice
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STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
CECILIA S. HAMILTON
No. C70585
CIVIL
STATE OF CALIFORNIA

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MATCH LINE SEE SHEET C0.04

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CENTRAL AVENUE

16" EASEMENT

PROPERTY BOUNDARY

CHLK FENCE

DIRT

I BOX

I BOX RECLAIMED

I BOX RECYCLED

685.66 Top Of Pole
686.56 Top Of Arm

681.04 Top Of Pole
680.64 Top Of Wire

662.68 Top Of Pole
663.42 Top Of Wire

663.86 Top Of Pole
664.42 Top Of Wire

CP
HOSE BIB

RW

LEGEND

EASEMENT

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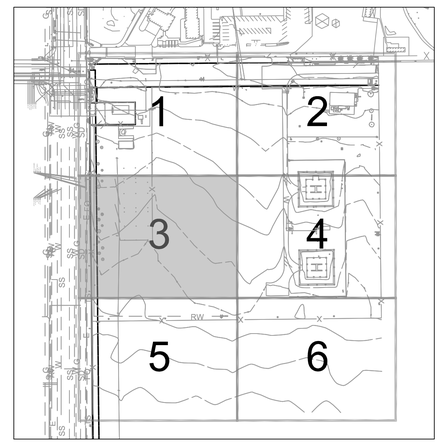
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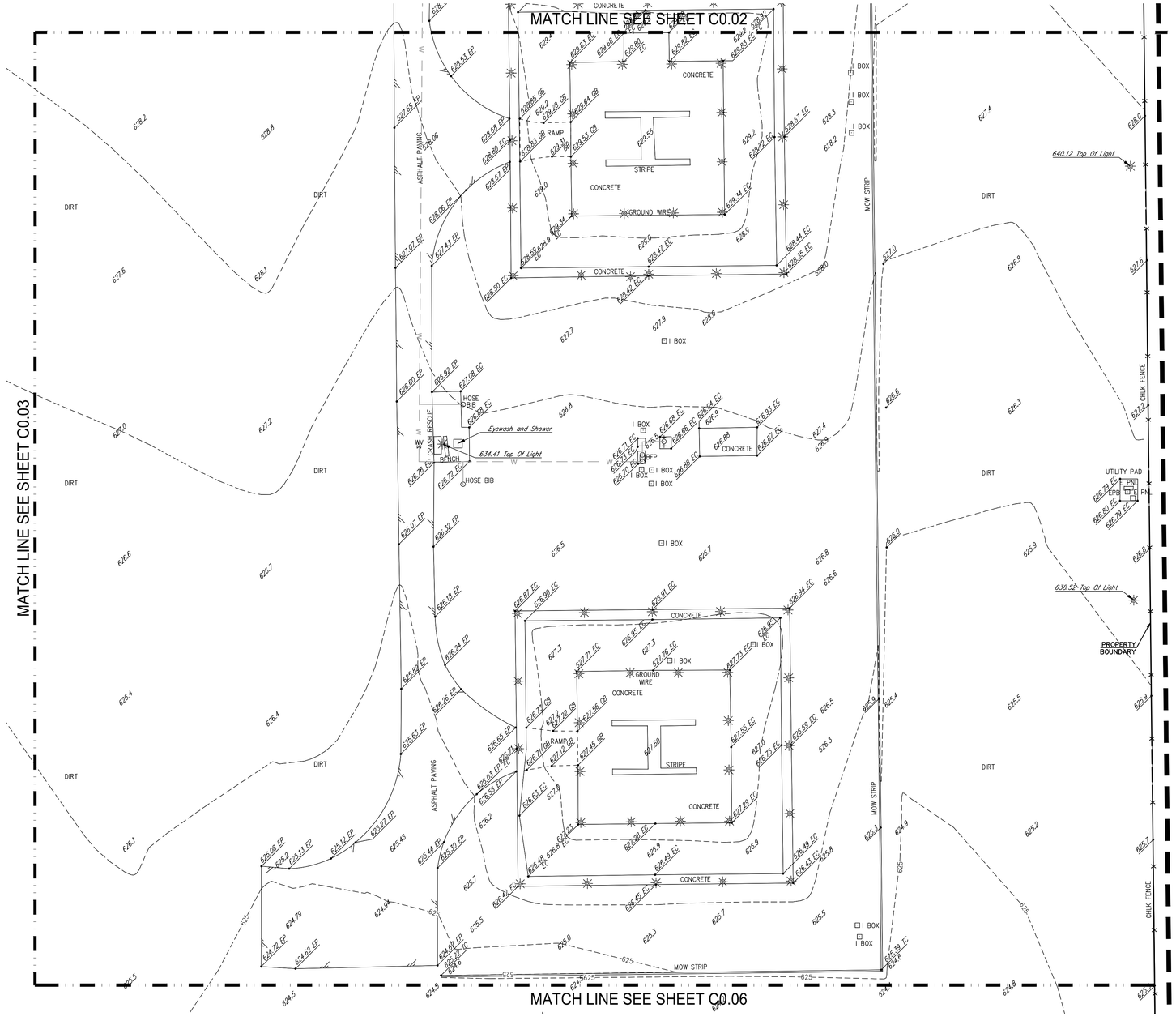
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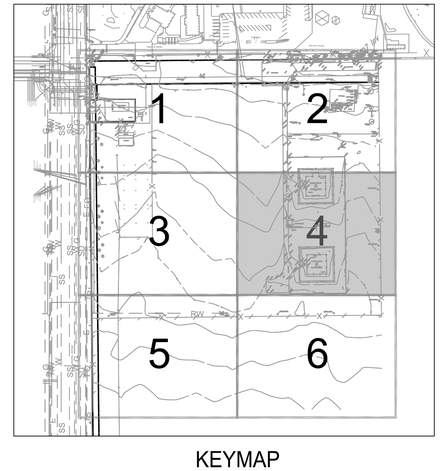
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Judy Haavisto, Project Director II
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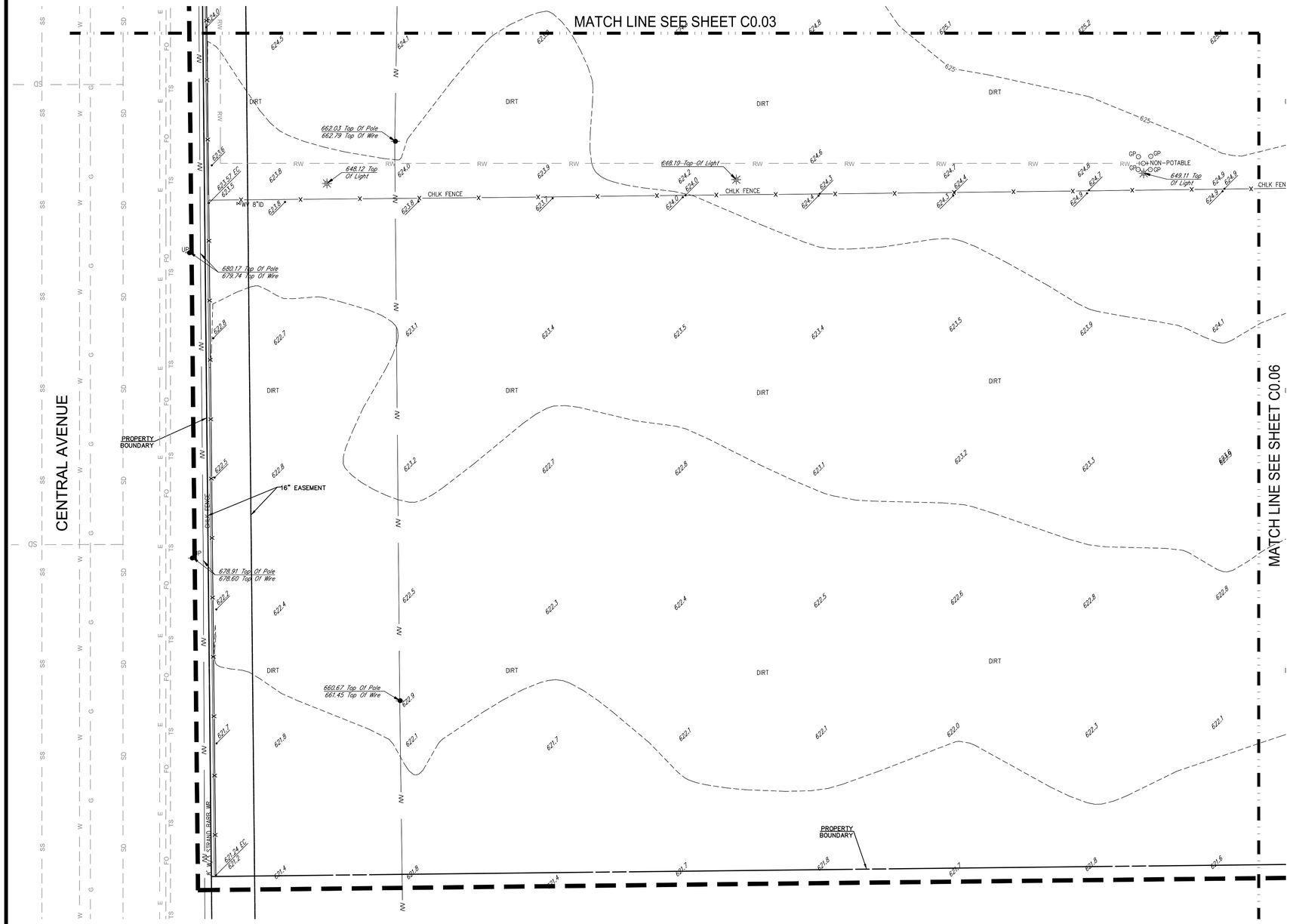
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STATE OF CALIFORNIA

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CIVIL
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date	1-20-2020
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drawing no.	C0.04
sheet title	EXISTING CONDITIONS
sheet no.	5
of	26 sheets



LEGEND

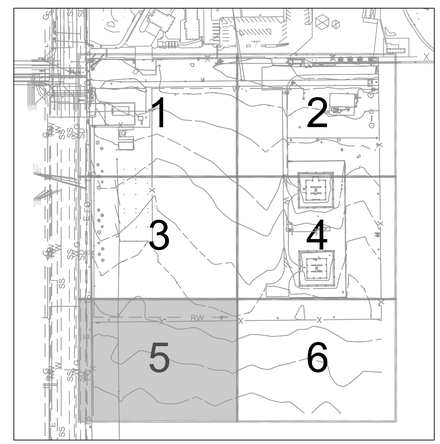
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- PROPERTY LINE
- LIMIT OF WORK

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Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE
AND ENVIRONMENTAL
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700 Alhambra Blvd.
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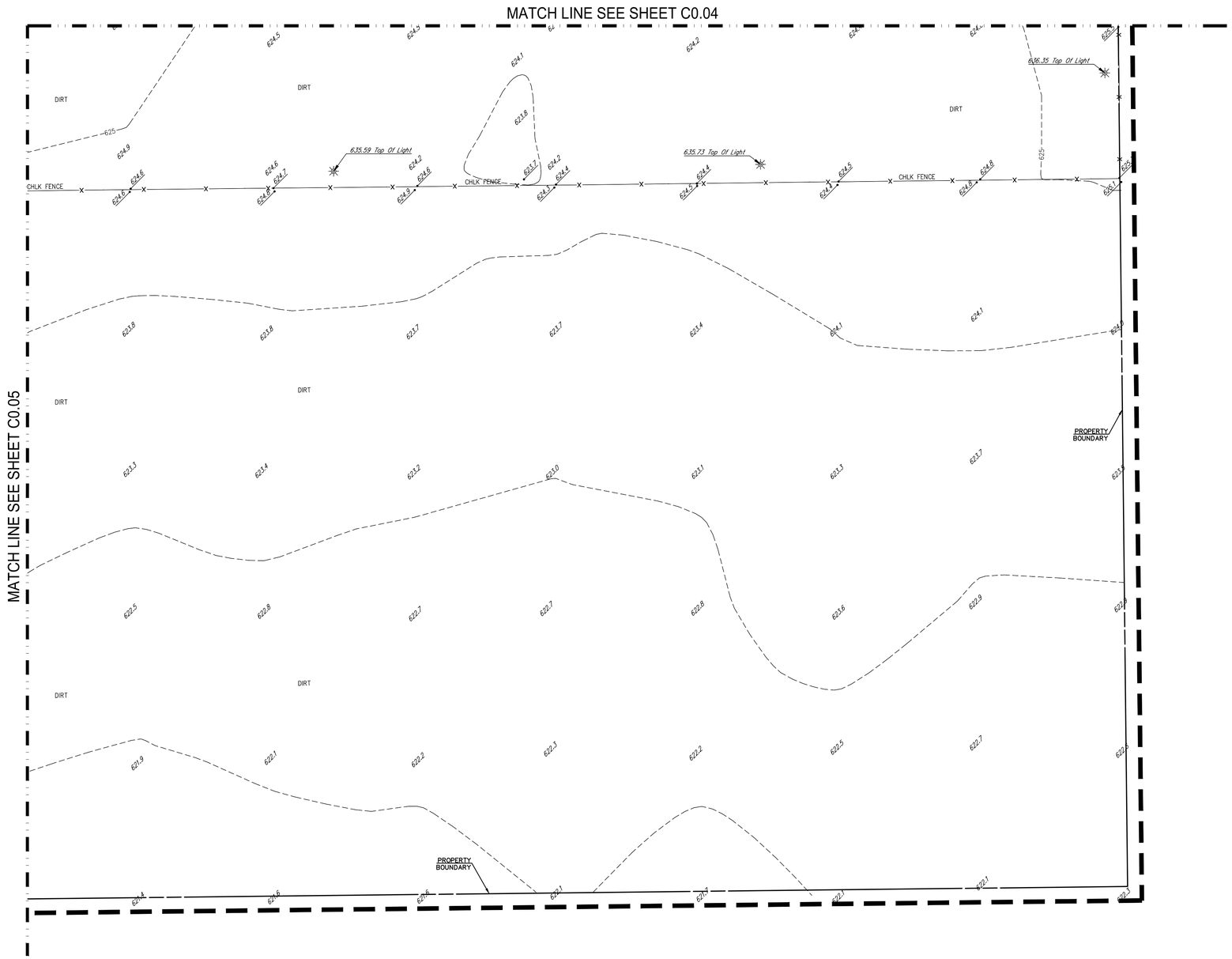
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Reviewed by:_____

AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
CECILIA S. HAMILTON
No. C70585
CIVIL
STATE OF CALIFORNIA

drawn by JL
checked by CSH
job no.
date 1-20-2020
cad file name
drawing no. C0.05
sheet title EXISTING CONDITIONS
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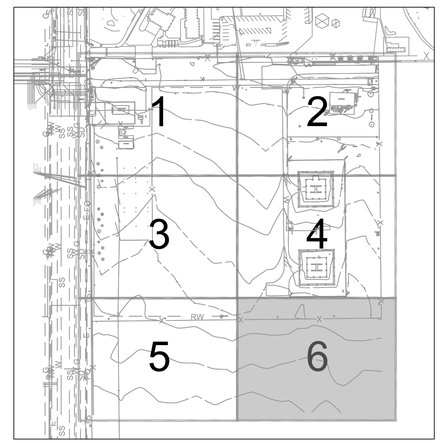
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job no.

date 1-20-2020

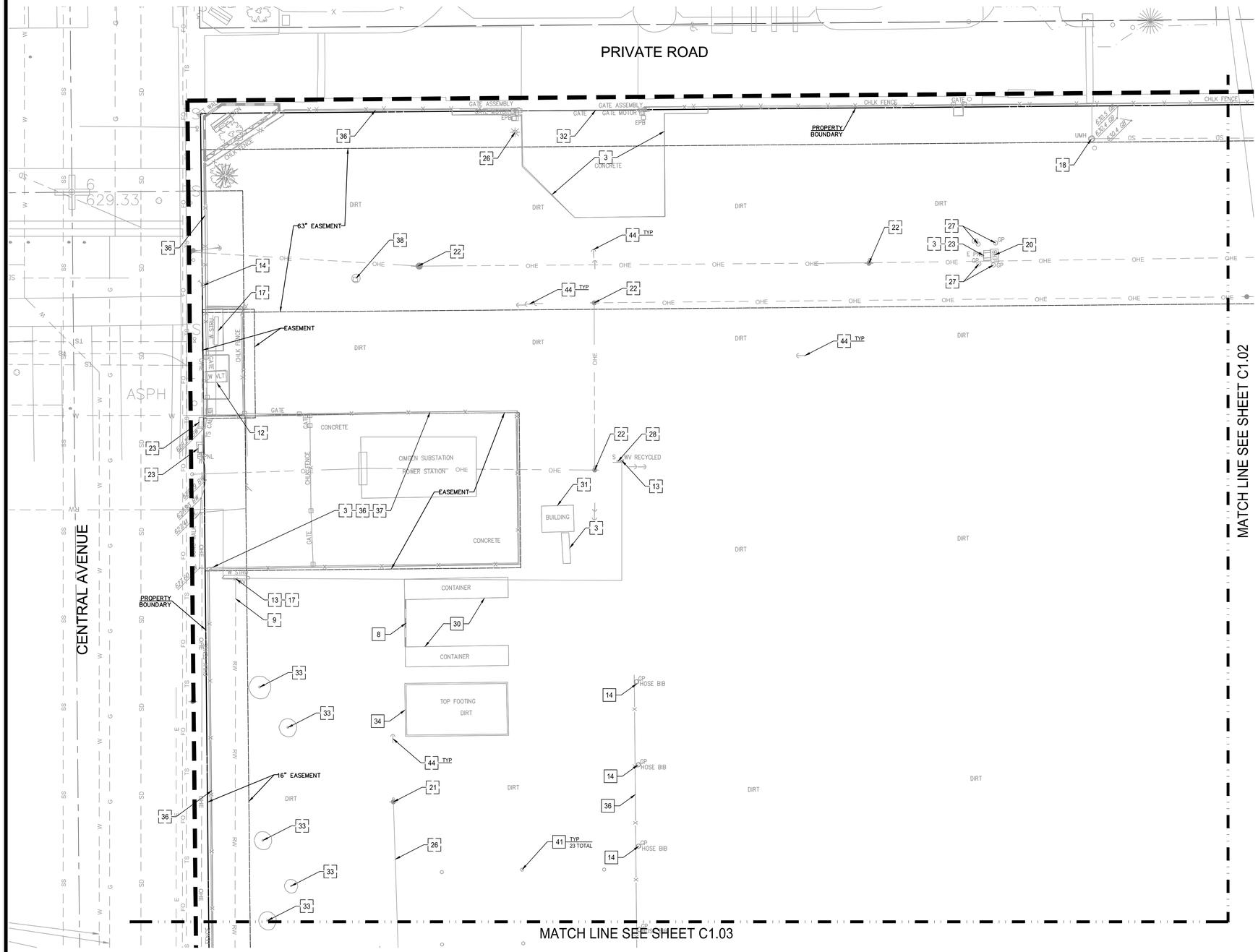
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sheet no. 7

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DEMOLITION NOTES

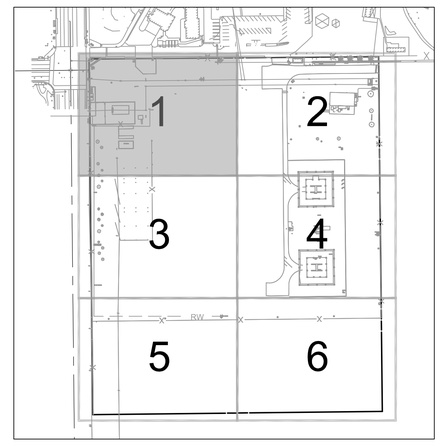
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43. STORAGE
44. GUY WIRE

LEGEND

- LIMIT OF WORK
- EASEMENT
- PROPERTY LINE
- EXISTING UTILITY TO BE REMOVED

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West Sacramento, California 95605
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916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
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700 Alhambra Blvd.
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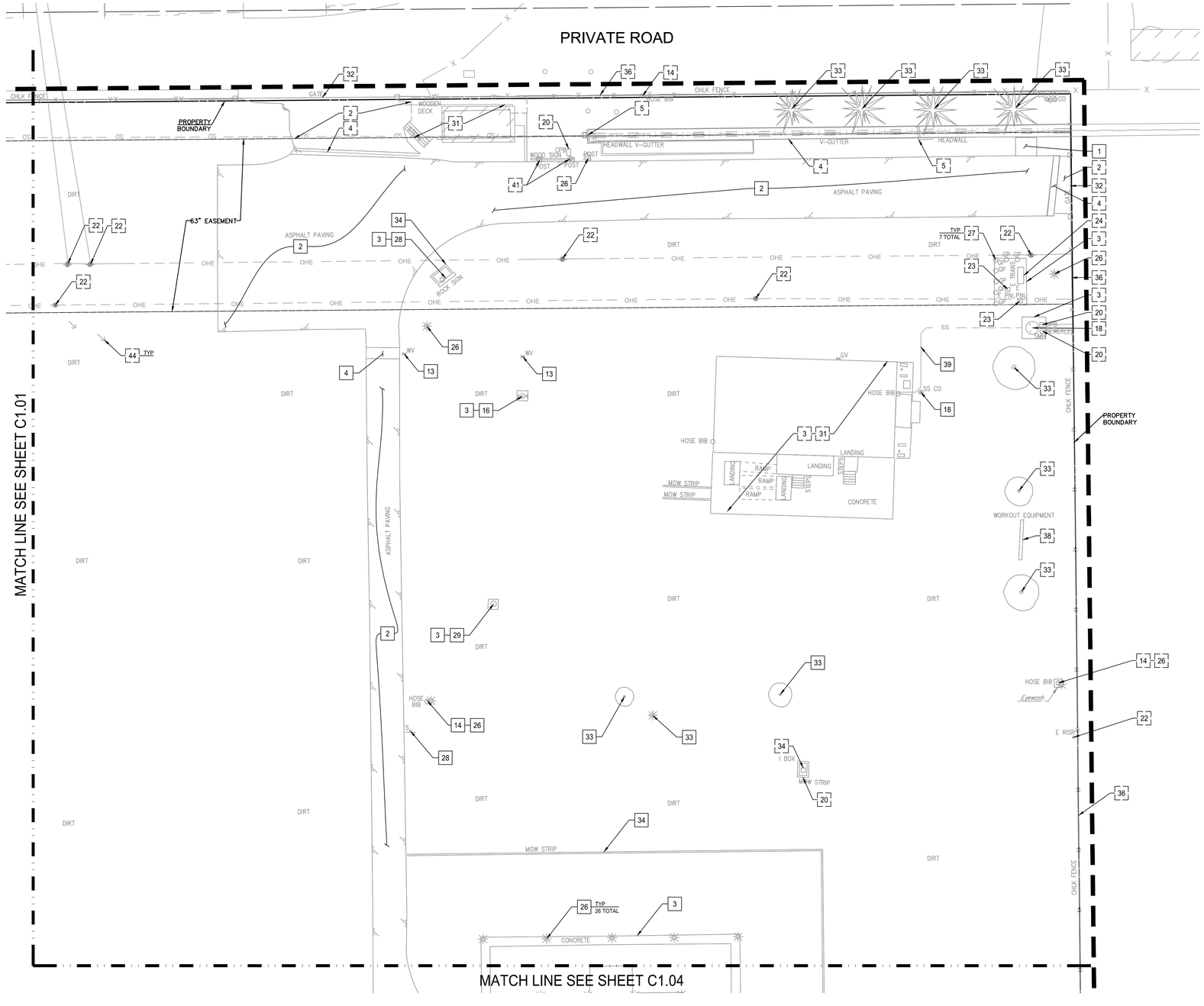
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BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
CECILIA S. YAMILTON
No. C70585
CIVIL
STATE OF CALIFORNIA

drawn by	JL
checked by	CSH
job no.	
date	1-20-2020
cad file name	
drawing no.	C1.01
sheet title	DEMOLITION PLAN
sheet no.	8
of	26 sheets



DEMOLITION NOTES

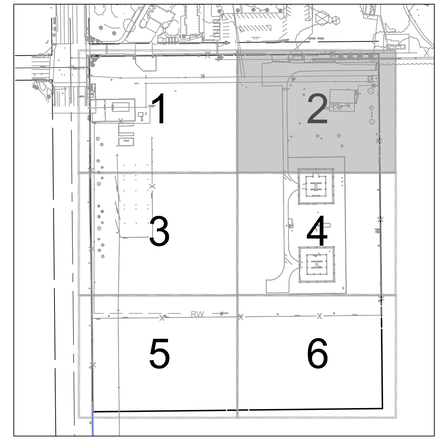
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LEGEND

- LIMIT OF WORK
- EASEMENT
- PROPERTY LINE
- EXISTING UTILITY TO BE REMOVED

FEET
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Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
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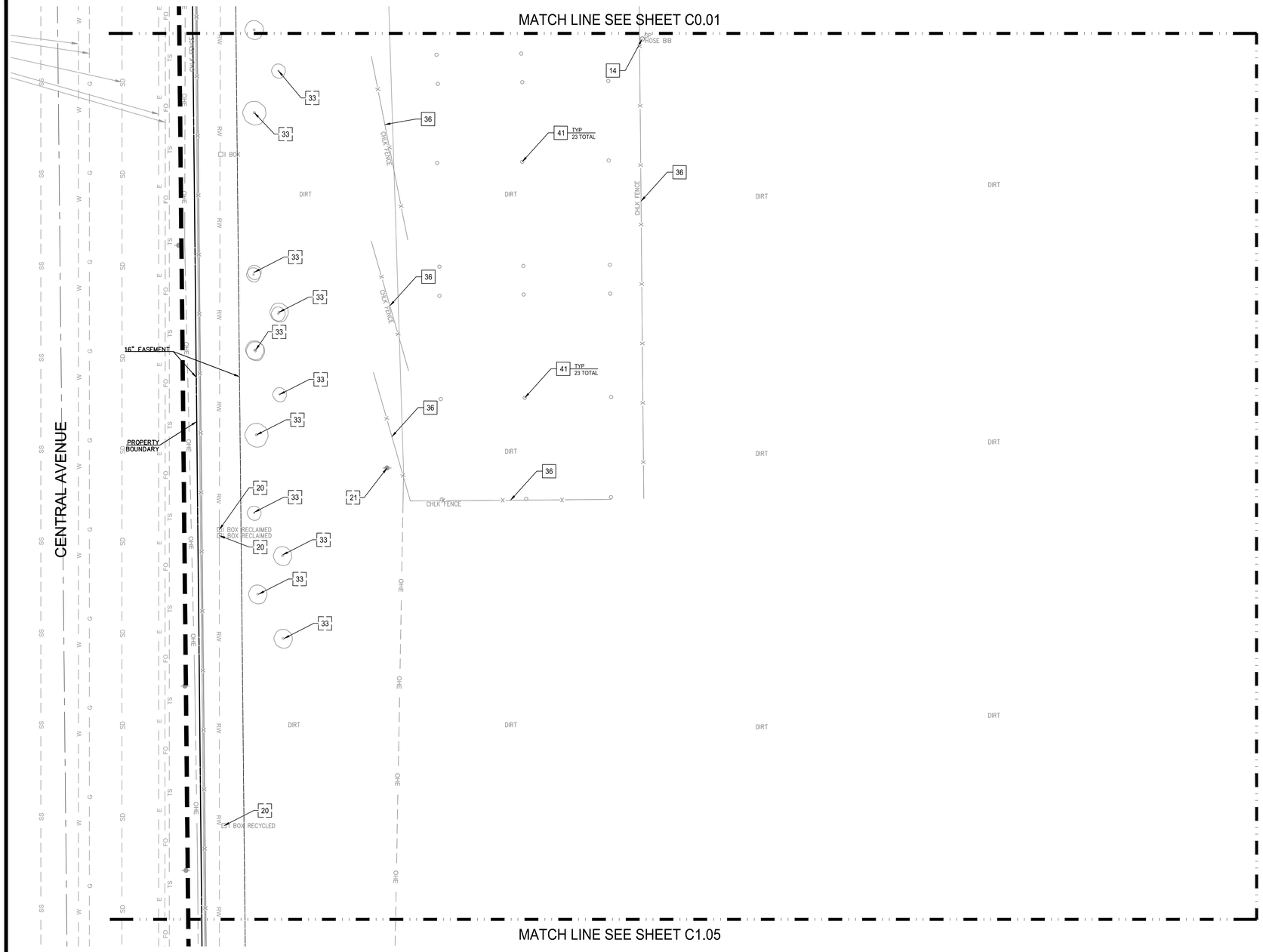
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BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
CECILIA S. HAMILTON
No. C70585
CIVIL
STATE OF CALIFORNIA

drawn by JL
checked by CSH
job no.
date 1-20-2020
cad file name
drawing no. C1.02
sheet title DEMOLITION PLAN
sheet no. 9
of 26 sheets



DEMOLITION NOTES

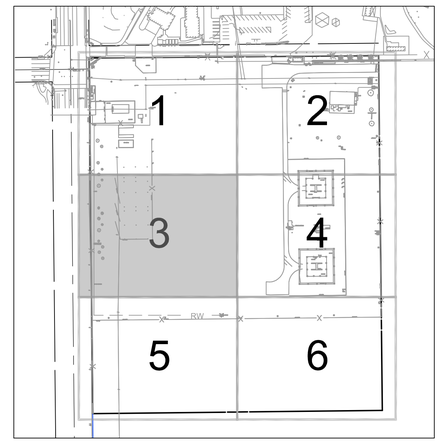
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LEGEND

- LIMIT OF WORK
- EASEMENT
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Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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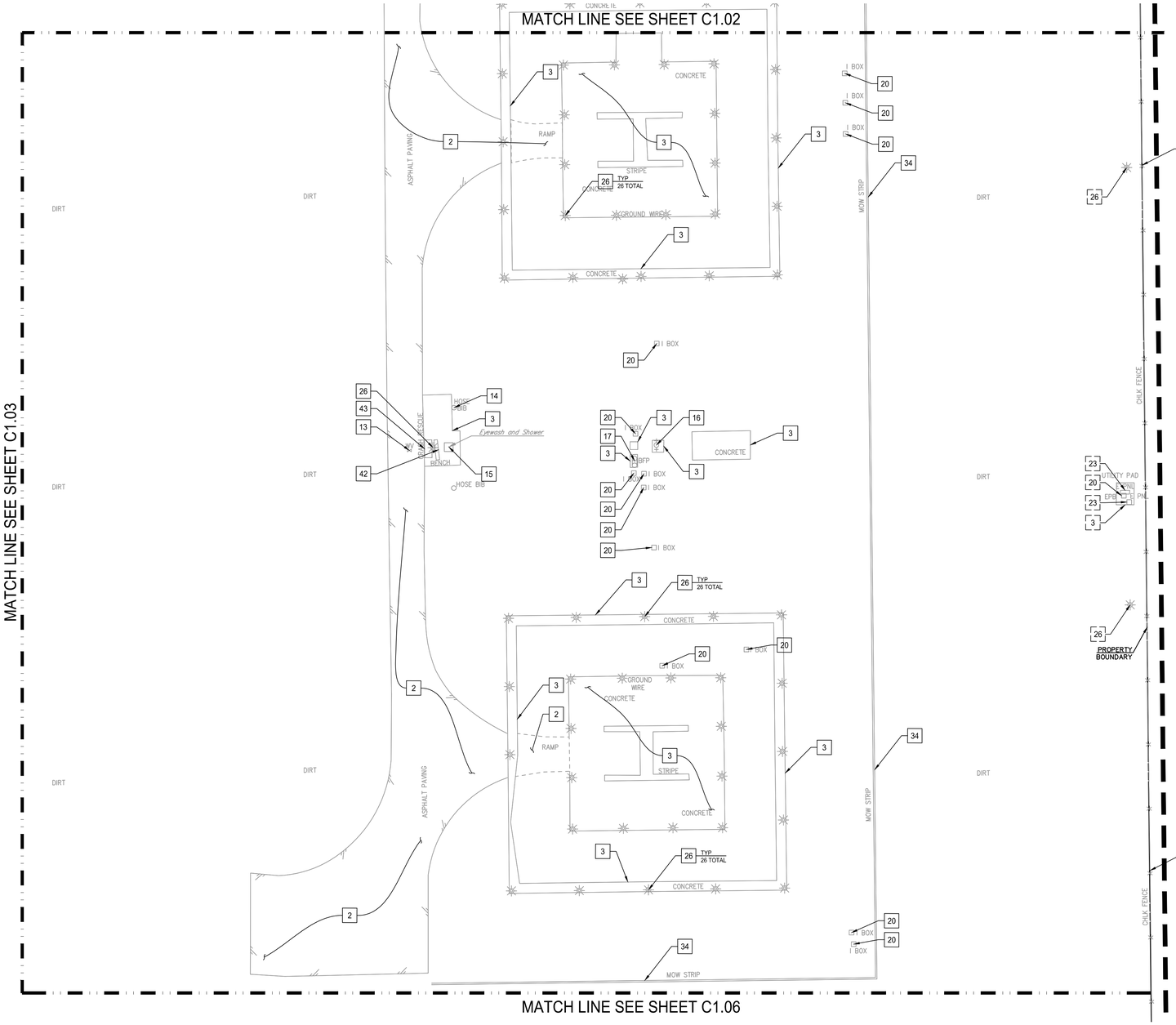
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CIVIL
STATE OF CALIFORNIA

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checked by CSH
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cad file name
drawing no. C1.03
sheet title DEMOLITION PLAN
sheet no. 10
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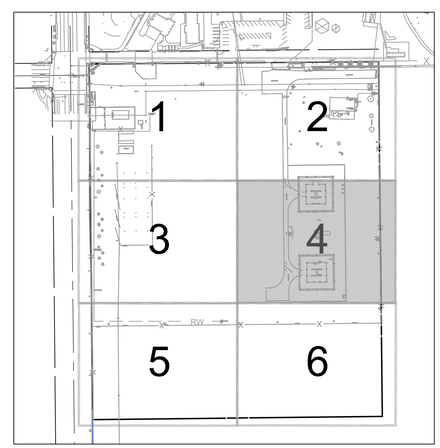
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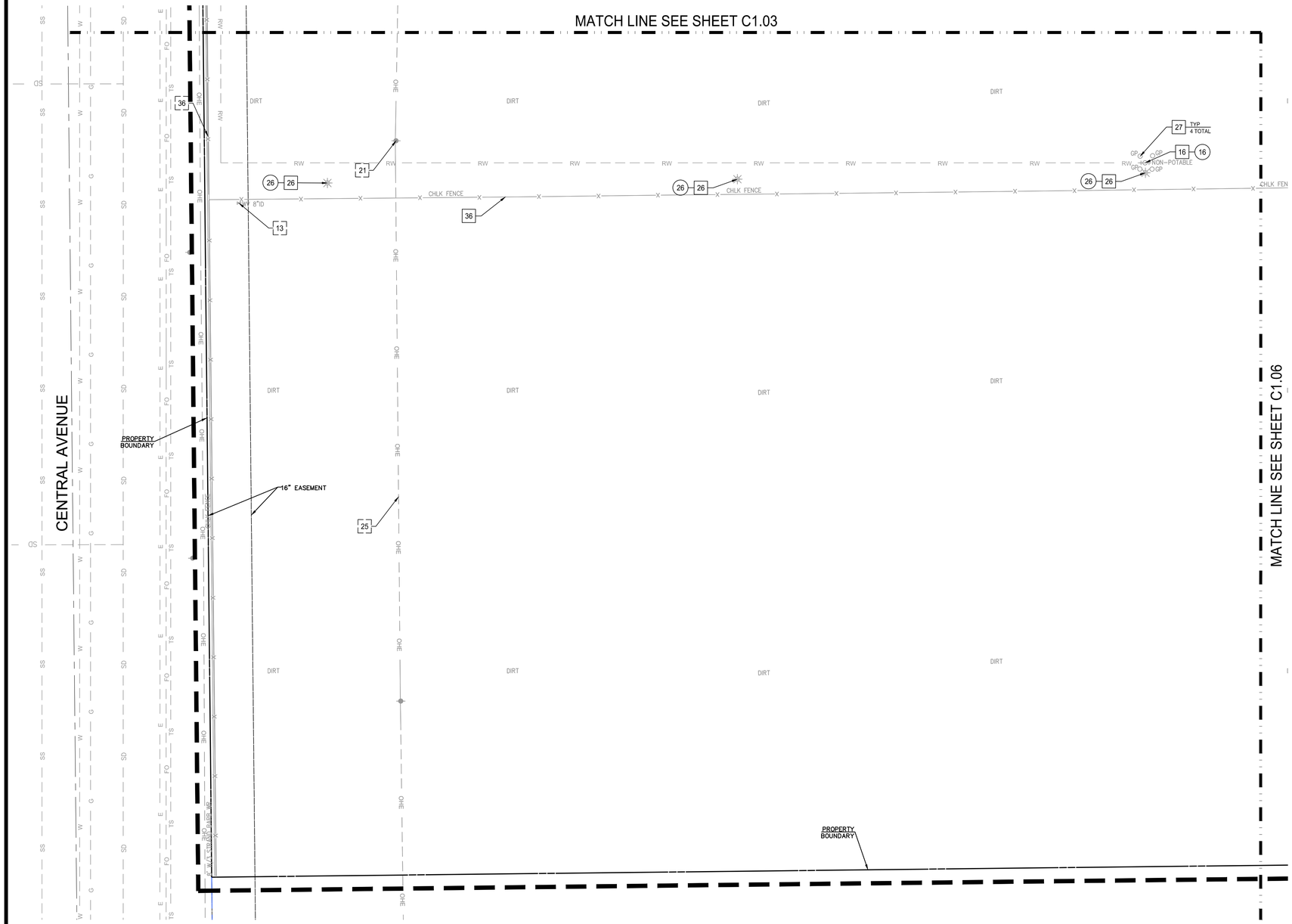
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DEMOLITION NOTES

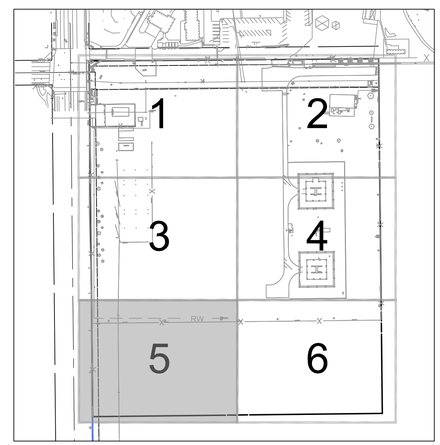
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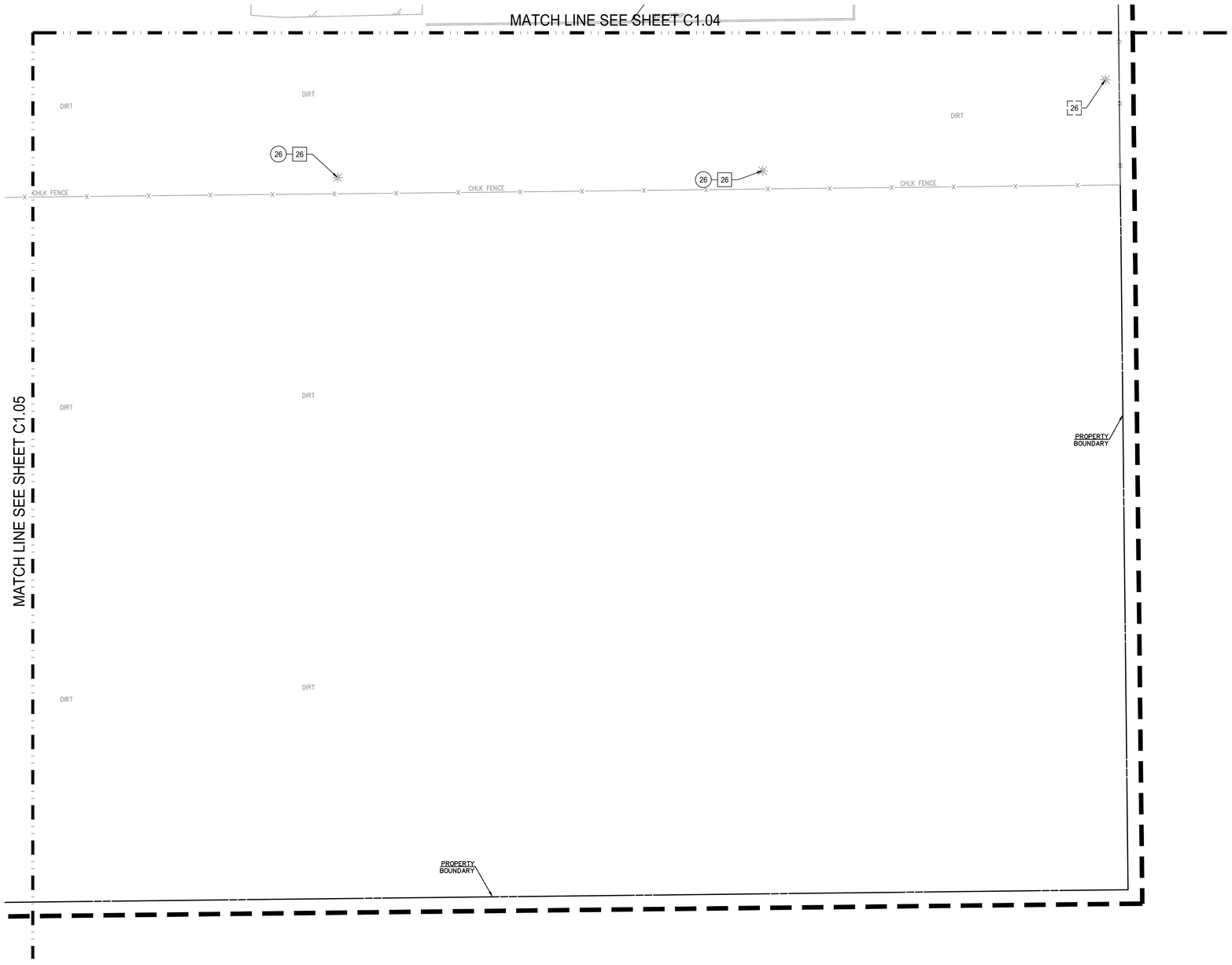
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AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
CECILIA S. HAMILTON
No. C70585
CIVIL
STATE OF CALIFORNIA

drawn by JL
checked by CSH
job no.
date 1-20-2020
cad file name
drawing no. C1.05
sheet title DEMOLITION PLAN
sheet no. 12
of 26 sheets



DEMOLITION NOTES

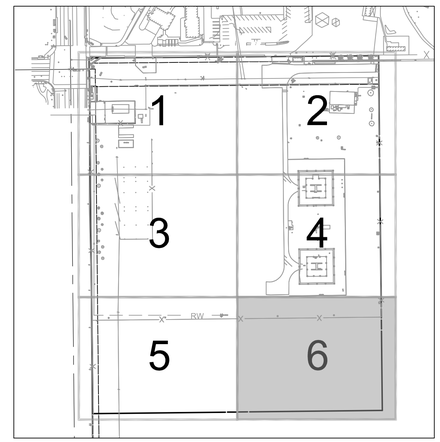
- CONSTRUCT
- EXISTING TO REMAIN OR PROTECT IN PLACE
- EXISTING TO REMOVE
- REMOVE & RELOCATE
- ADJUST TO GRADE
- REFER TO LANDSCAPE PLANS

1. CONCRETE PAVEMENT
2. ASPHALT PAVEMENT
3. CONCRETE PAD
4. CONCRETE GUTTER
5. CONCRETE HEADWALL
6. CONCRETE SIDEWALK
7. CONCRETE BENCH
8. CONCRETE WALL
9. RECLAIMED WATER LINE
10. WATER LINE
11. WATER METER
12. WATER VAULT
13. WATER VALVE
14. WATER HOSE BIB / FACET
15. EYEWASH
16. FIRE HYDRANT
17. BACKFLOW PREVENTION ASSEMBLY
18. SEWER MANHOLE
19. SEWER METER
20. UTILITY PULL BOX
21. ELECTRICAL POLE
22. ELECTRICAL RISER
23. ELECTRICAL PANEL
24. ELECTRICAL TRANSFORMER
25. OVERHEAD ELECTRICAL LINE
26. LIGHT POLE
27. GUARD POST
28. SIGN POST
29. WINDSOCK POST
30. CONTAINER
31. BUILDING
32. CHAIN FENCE GATE
33. TREE
34. MOW STRIP
35. LANDSCAPING AREA
36. CHAIN LINK FENCE
37. SCE POWER STATION
38. UTILITY VENT
39. SEWER LINE
40. NOT USED
41. WOOD POST
42. CONCRETE BENCH
43. STORAGE
44. GUY WIRE

LEGEND

- LIMIT OF WORK
- EASEMENT
- PROPERTY LINE
- EXISTING UTILITY TO BE REMOVED

FEET
20 10 0 20 40
1 1/2 0 1 2
INCHES



KEYMAP

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DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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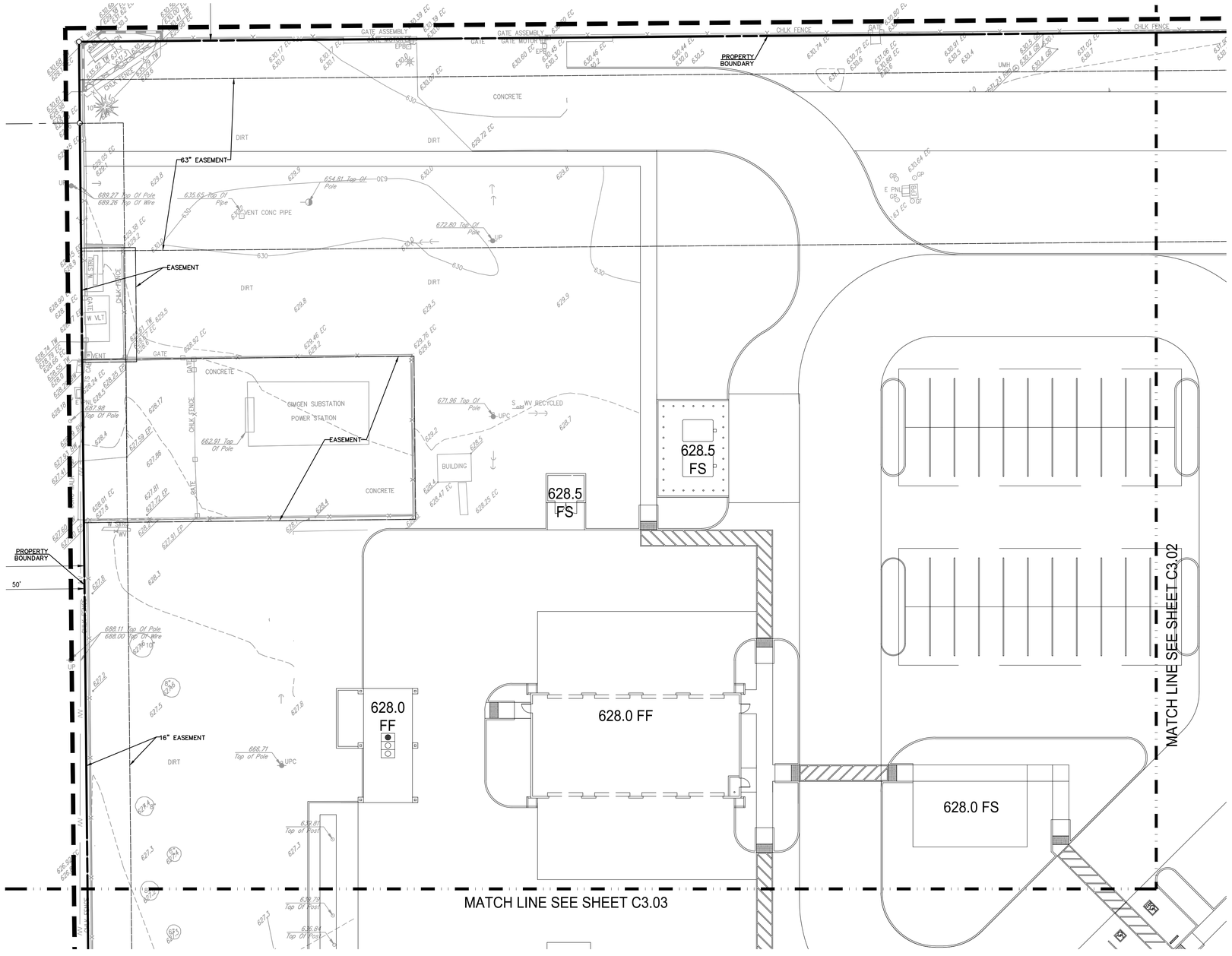
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CECILIA S. HAMILTON
No. C70585
CIVIL
STATE OF CALIFORNIA

drawn by JL
checked by CSH
job no.
date 1-20-2020
cad file name
drawing no. C1.06
sheet title DEMOLITION PLAN
sheet no. 13
of 26 sheets



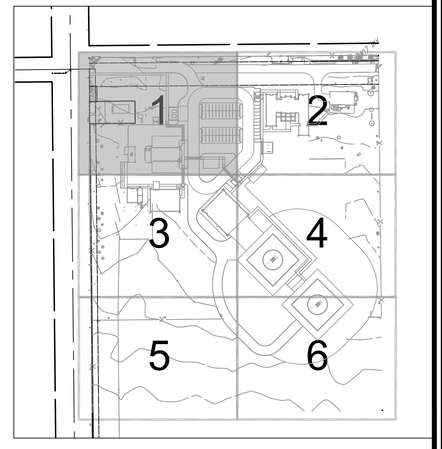
CONSTRUCTION NOTES:

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- EXISTING TO REMOVE
- REMOVE & RELOCATE
- ADJUST TO GRADE
- WORK BY OTHERS

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4. CONCRETE WALKWAY
5. ASPHALT CONCRETE (AC) PAVEMENT
6. CATCH BASIN PER CIVIL UTILITY PLANS
7. SAW CUT AND JOIN
8. VEGETATED SWALE
9. STEEL BOLLARDS
10. BUILDING

LEGEND:

- LIMITS OF CIVIL WORK
- SAWCUT LINE
- 235 (EXIST) PROPOSED CONTOUR LINE
- EXISTING CONTOUR LINE
- BUILDING OUTLINE
- PROPOSED BUILDING
- DAYLIGHT LINE
- NEW RETAINING WALL
- GB GRADE BREAK
- R RIDGE LINE
- SWALE FLOW LINE
- BUILDING OVERHANG/ STRUCTURE ABOVE
- EASEMENT
- PROPERTY LINE
- EXISTING UTILITY TO BE REMOVED
- CONCRETE PAVEMENT
- LANDSCAPE AREA (PER LANDSCAPE PLANS)
- HEAVY DUTY CONCRETE



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Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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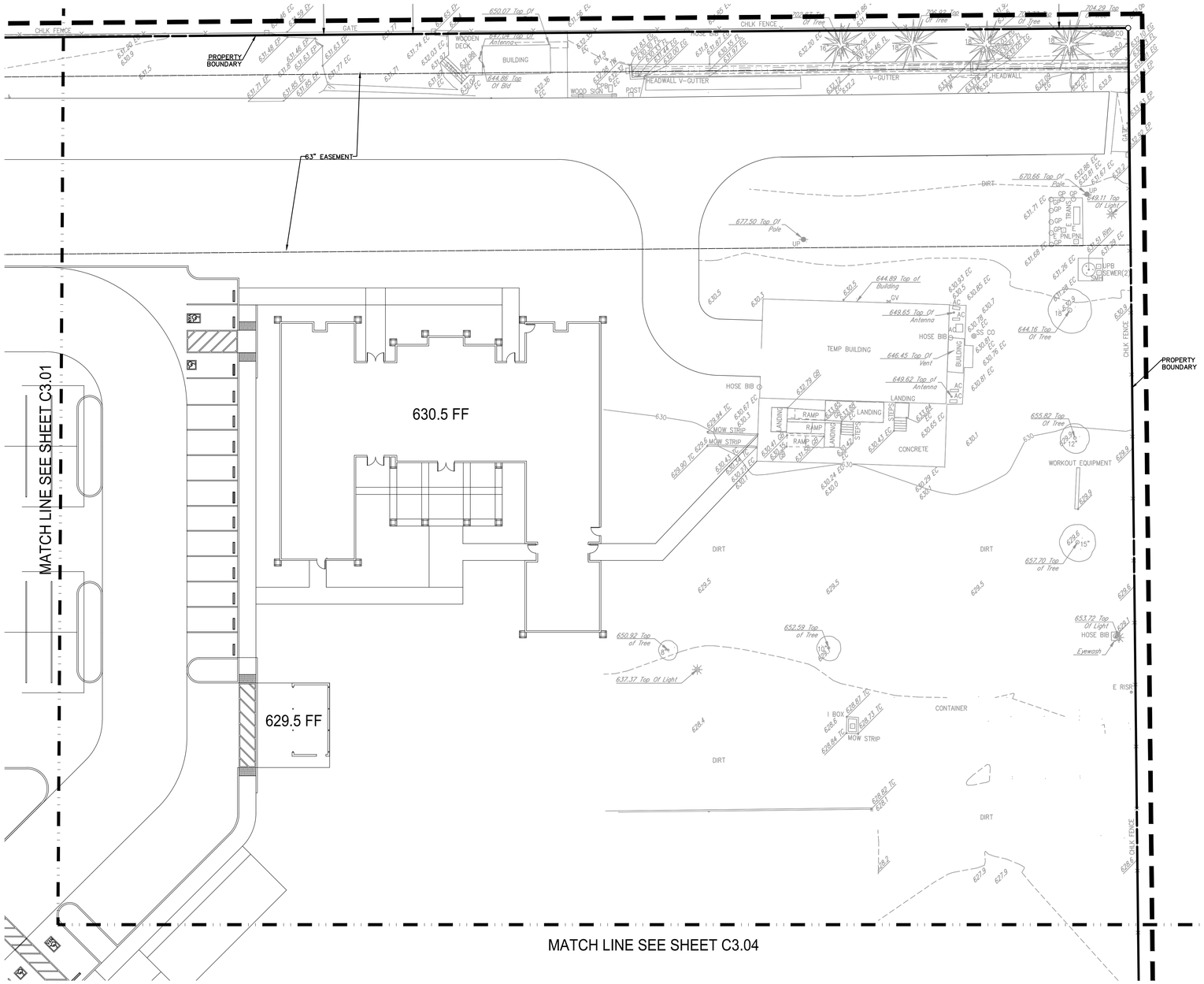
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EOR
REGISTERED PROFESSIONAL ENGINEER CECILIA S. PAMILCO No. C70585 CIVIL STATE OF CALIFORNIA

drawn by	JL
checked by	CSH
job no.	
date	11-8-2019
cad file name	
drawing no.	C3.01
sheet title	GRADING PLAN
sheet no.	20
of	26 sheets



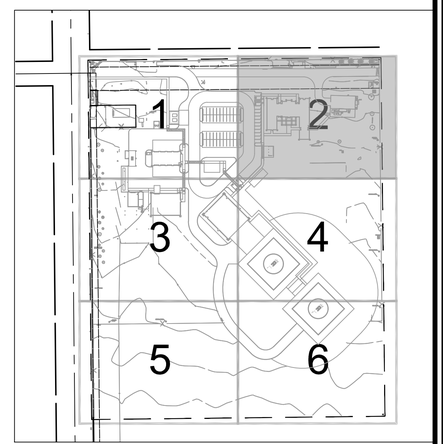
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LEGEND:

- LIMITS OF CIVIL WORK
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- 235 (235') PROPOSED CONTOUR LINE
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Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
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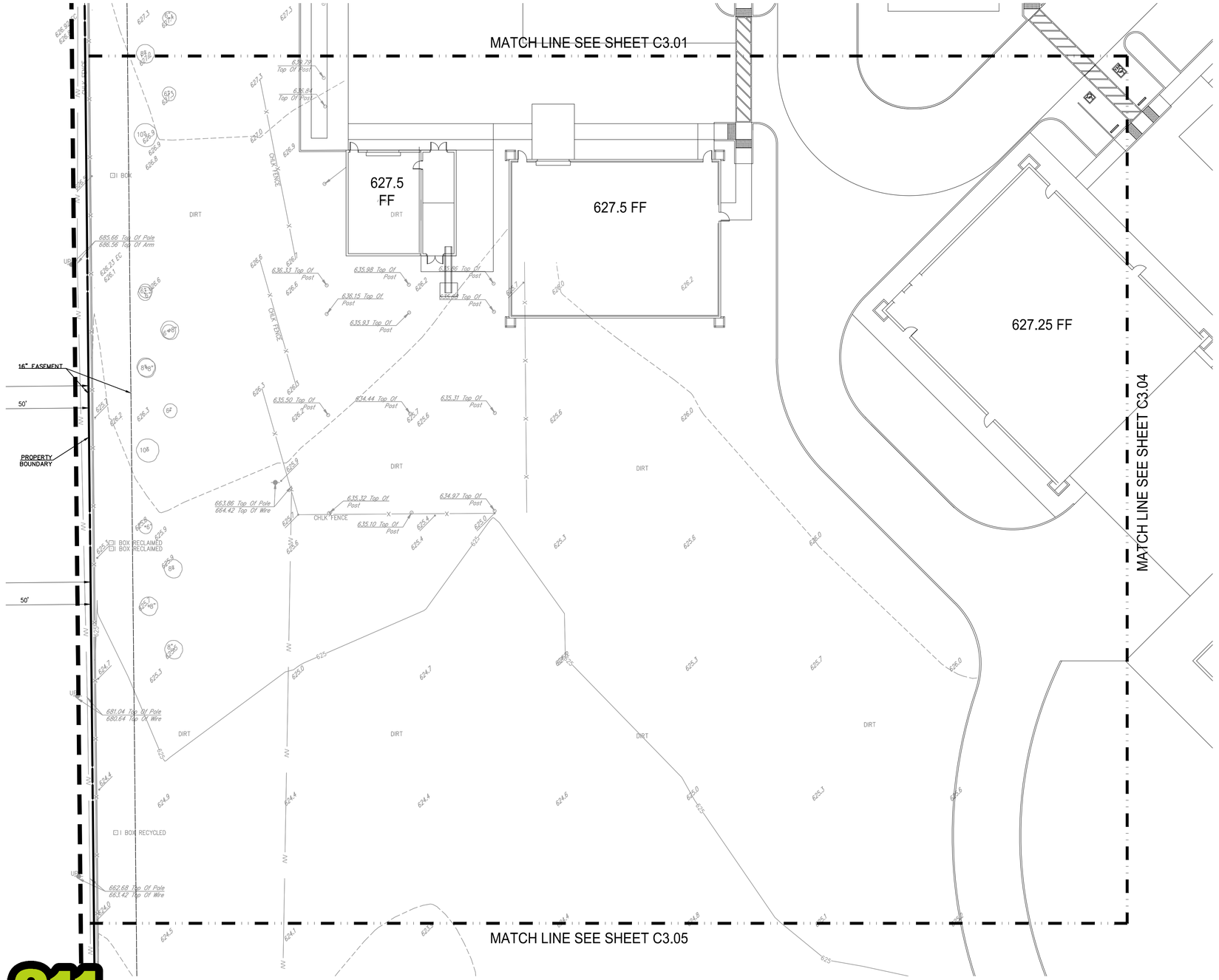
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CECILIA S. HAMILTON
No. C70585
CIVIL
STATE OF CALIFORNIA

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job no.	
date	11-8-2019
cad file name	
drawing no.	C3.02
sheet title	GRADING PLAN
sheet no.	21
of	26 sheets



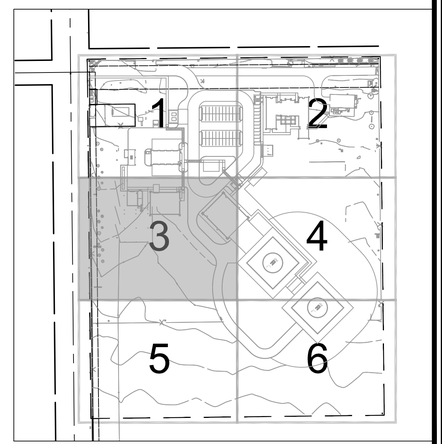
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LEGEND:

- LIMITS OF CIVIL WORK
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West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
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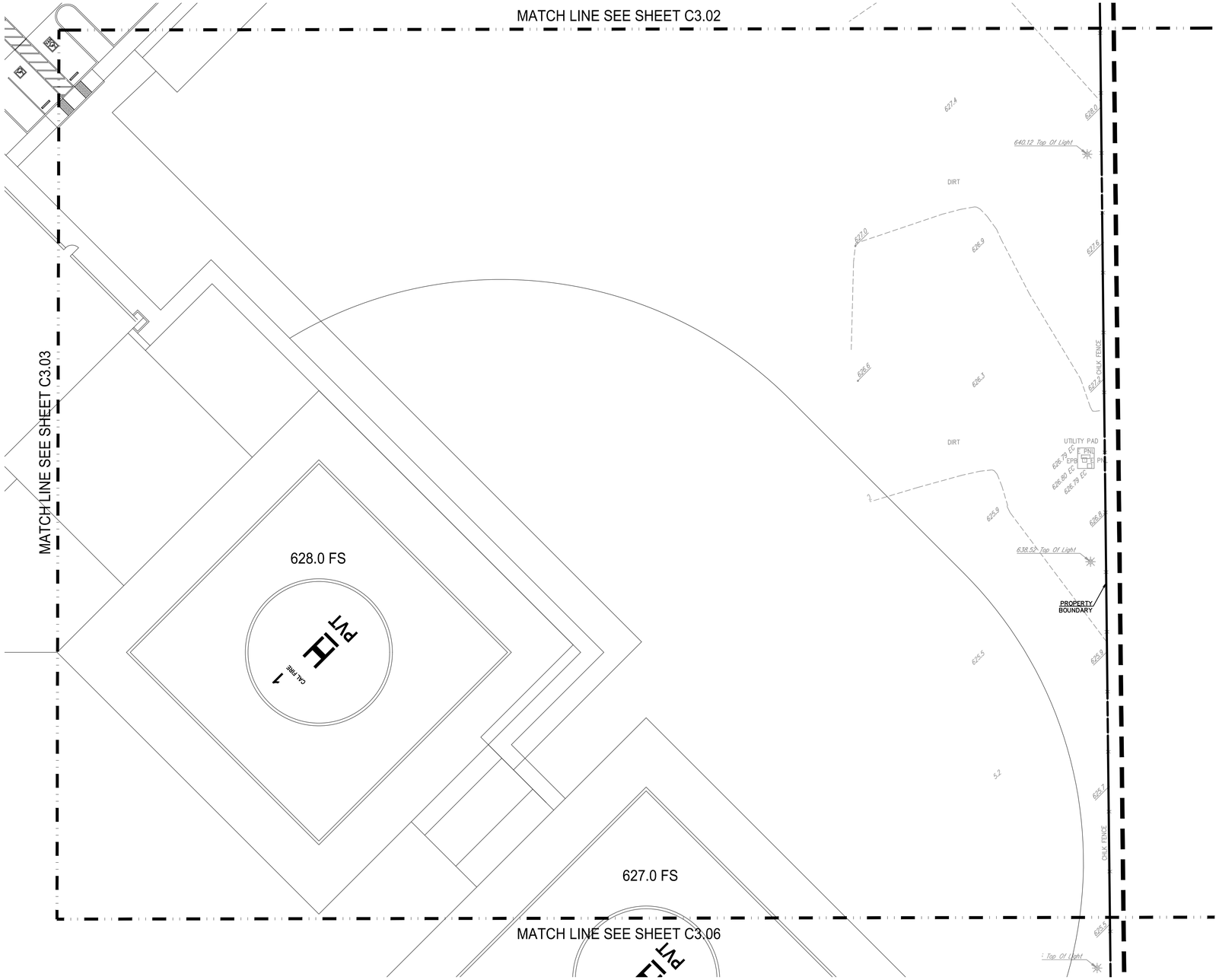
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EOR
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date	11-8-2019
cad file name	
drawing no.	C3.03
sheet title	GRADING PLAN
sheet no.	22
of	26 sheets



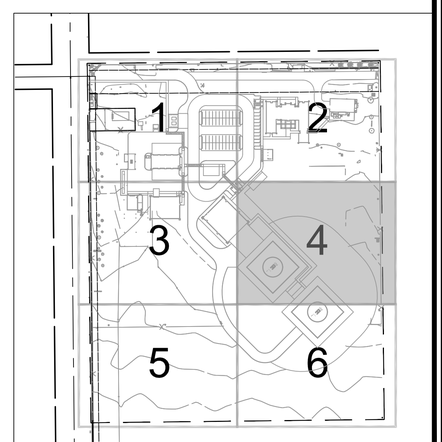
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LEGEND:

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Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
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PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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700 Alhambra Blvd.
Sacramento, California
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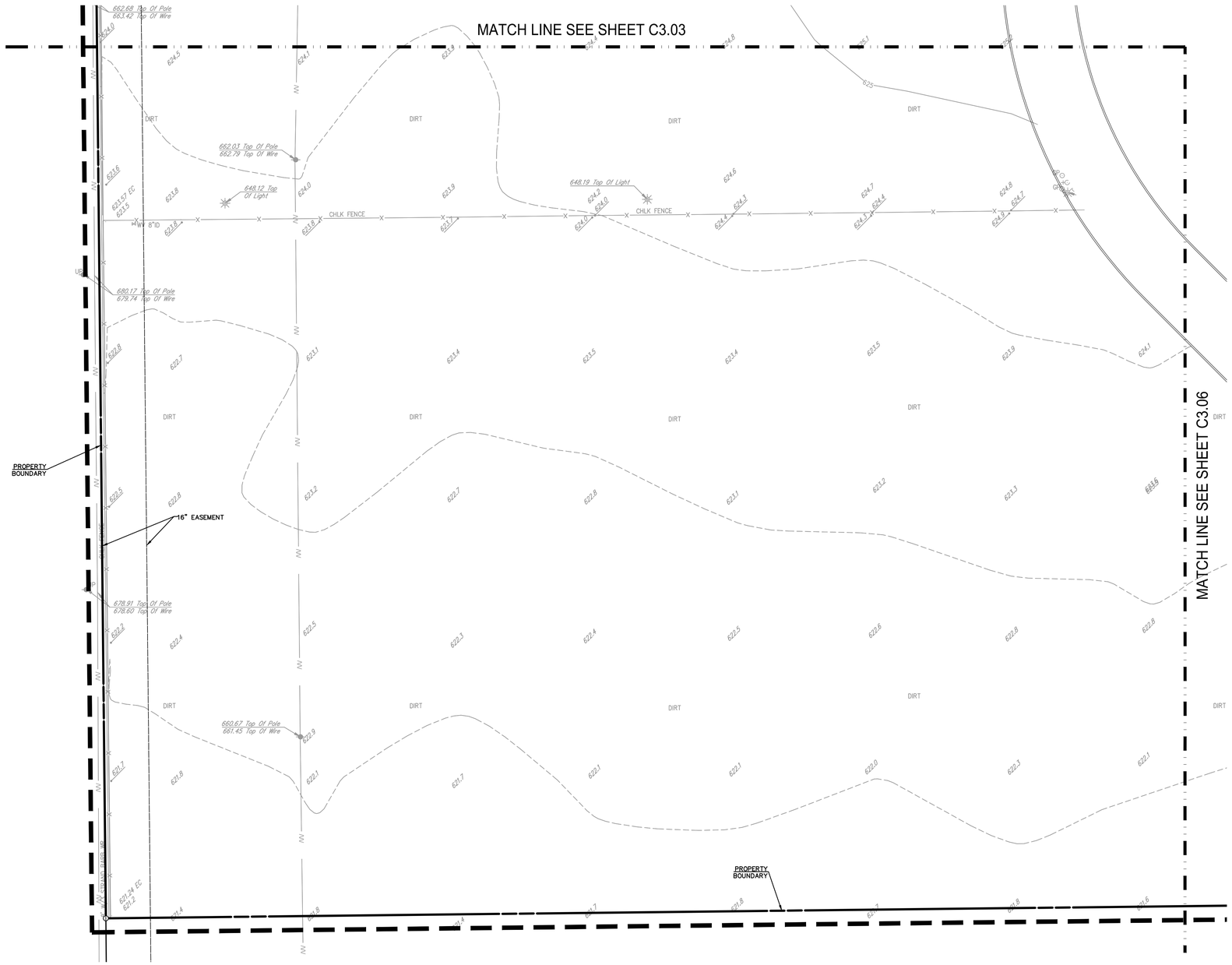
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date 11-8-2019
cad file name
drawing no. C3.04
GRADING
sheet title PLAN
sheet no. 23
of 26 sheets



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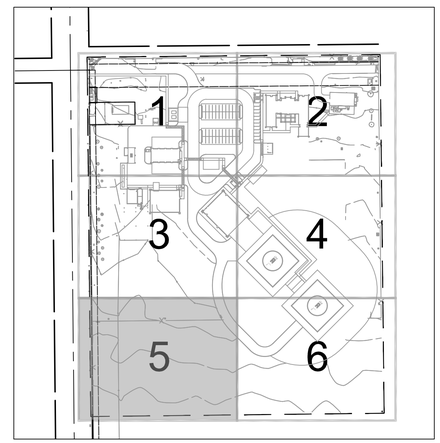
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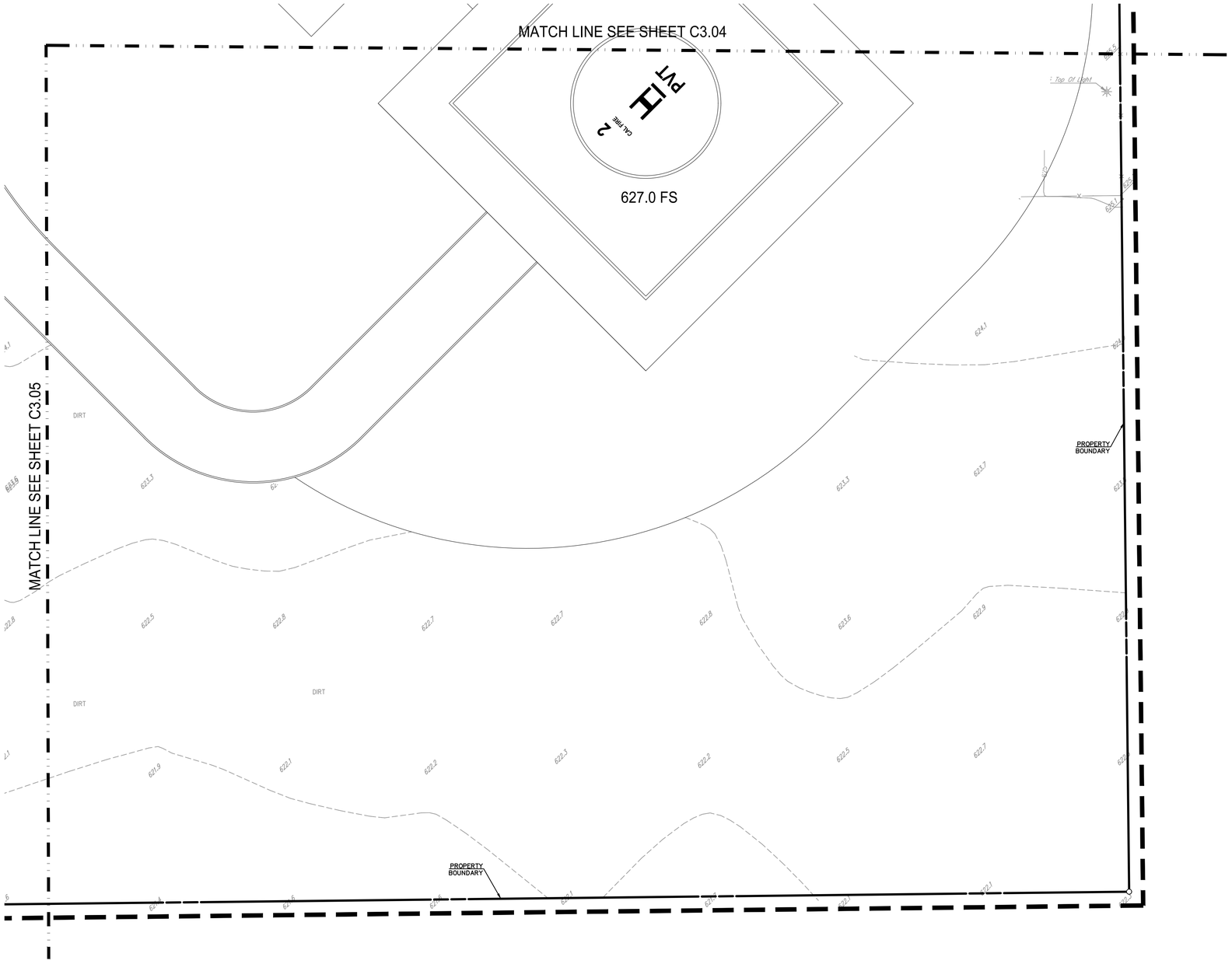
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drawn by JL
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job no.
date 1-20-2020
cad file name
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sheet title GRADING PLAN
sheet no. 18
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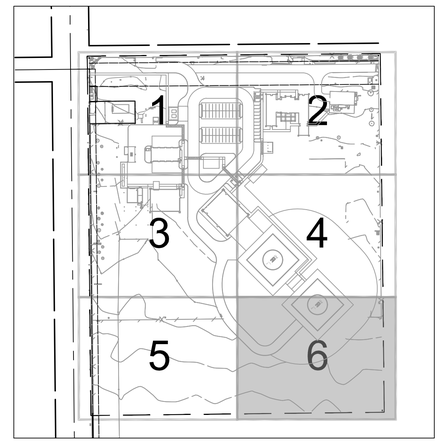
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- EXISTING UTILITY TO BE REMOVED
- CONCRETE PAVEMENT
- LANDSCAPE AREA (PER LANDSCAPE PLANS)
- HEAVY DUTY CONCRETE



KEYMAP

FEET
20 10 0 20 40
1 1/2 0 1 2
INCHES

811 Know what's below. Call before you dig.

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DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
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Sacramento, California
95816 916 443 5747

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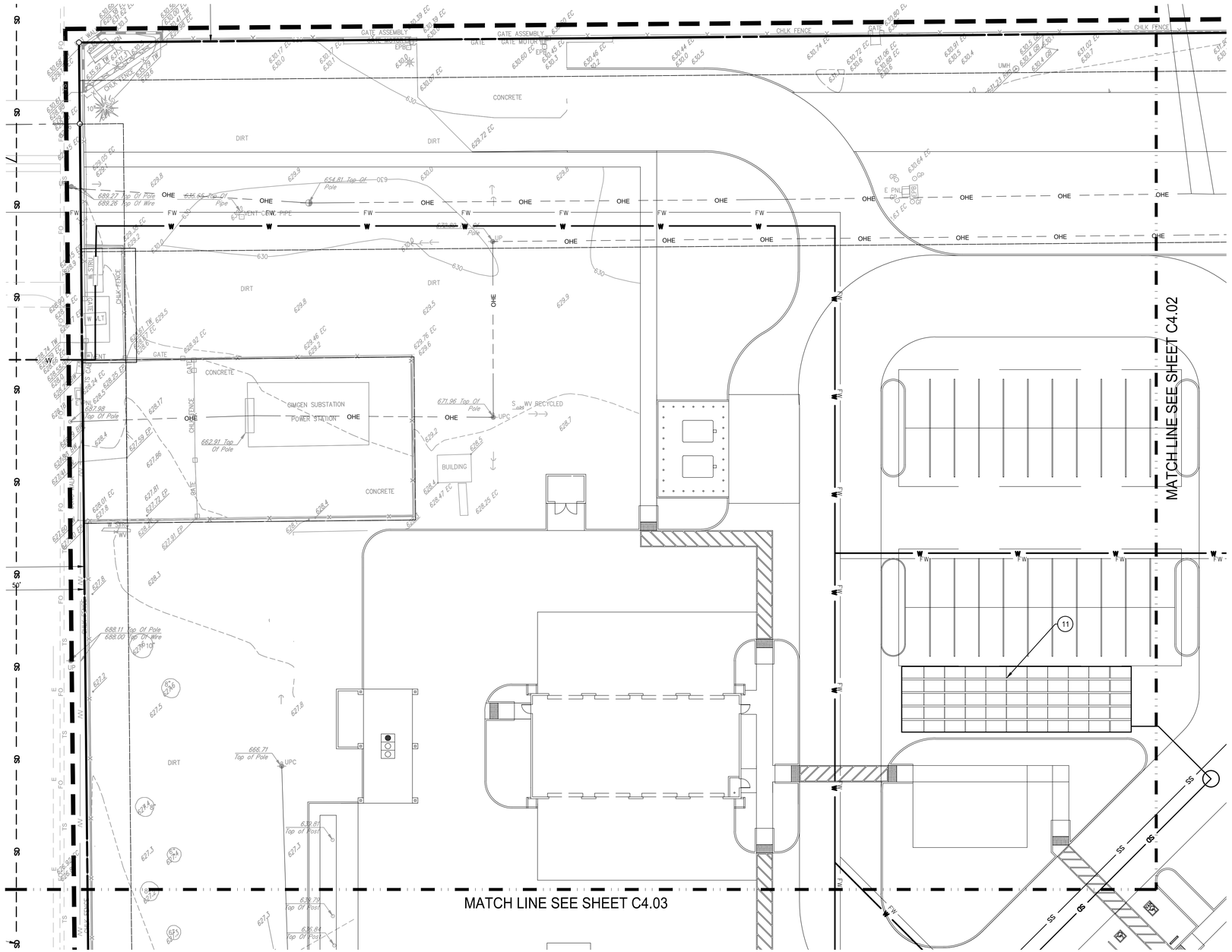
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EOR
REGISTERED PROFESSIONAL ENGINEER CECILIA S. HAMILTON No. C70585 CIVIL STATE OF CALIFORNIA

drawn by JL
checked by CSH
job no.
date 1-20-2020
cad file name
drawing no. C3.06
sheet title GRADING PLAN
sheet no. 19
of 26 sheets



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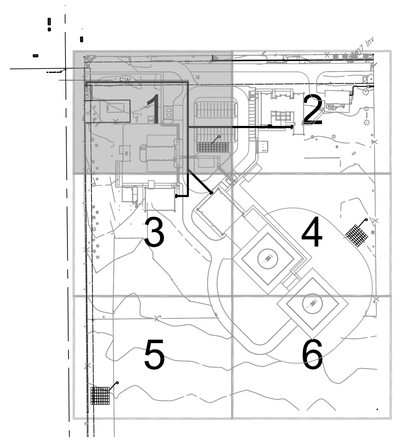
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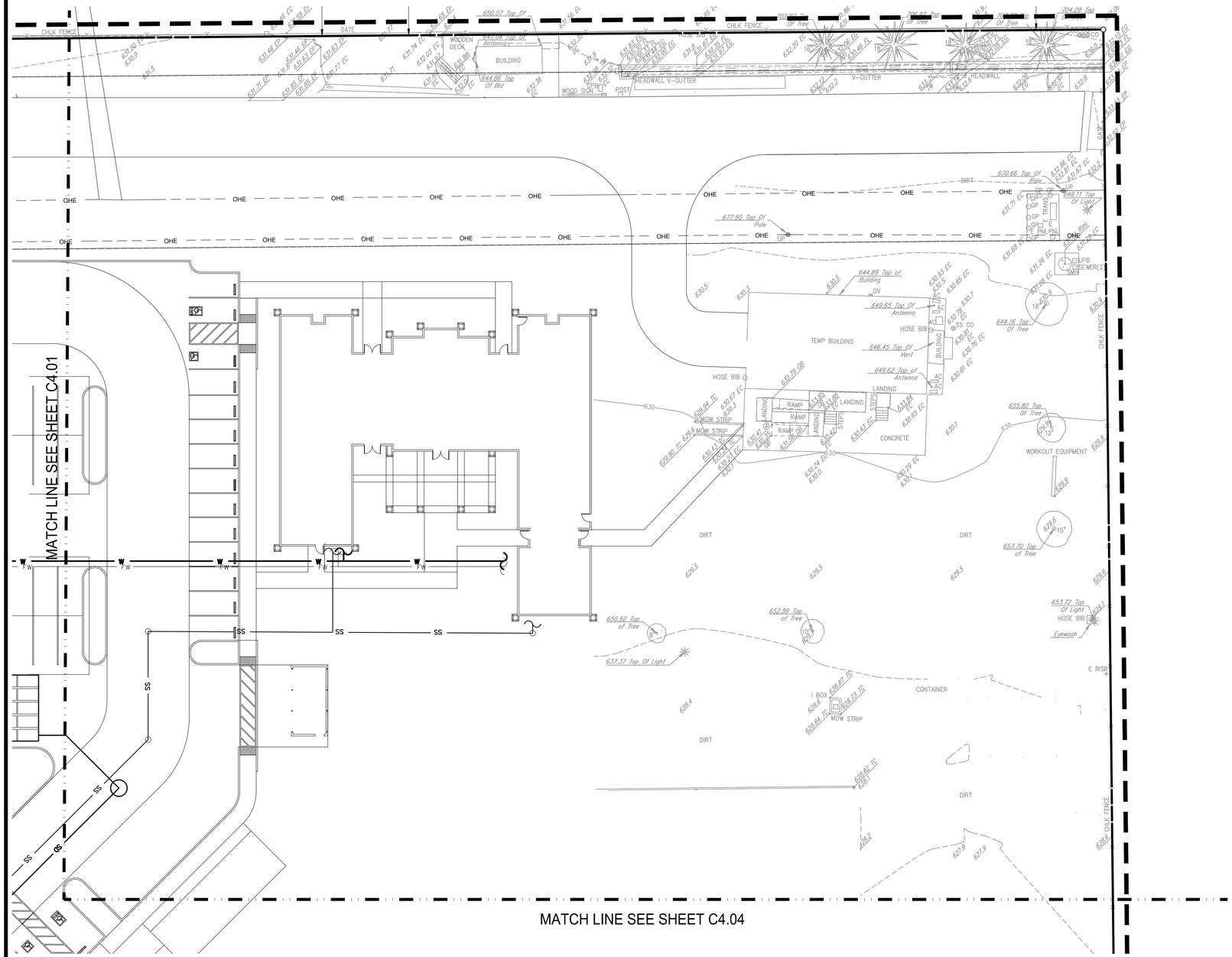
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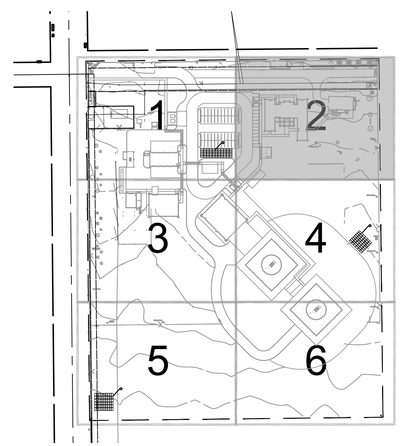
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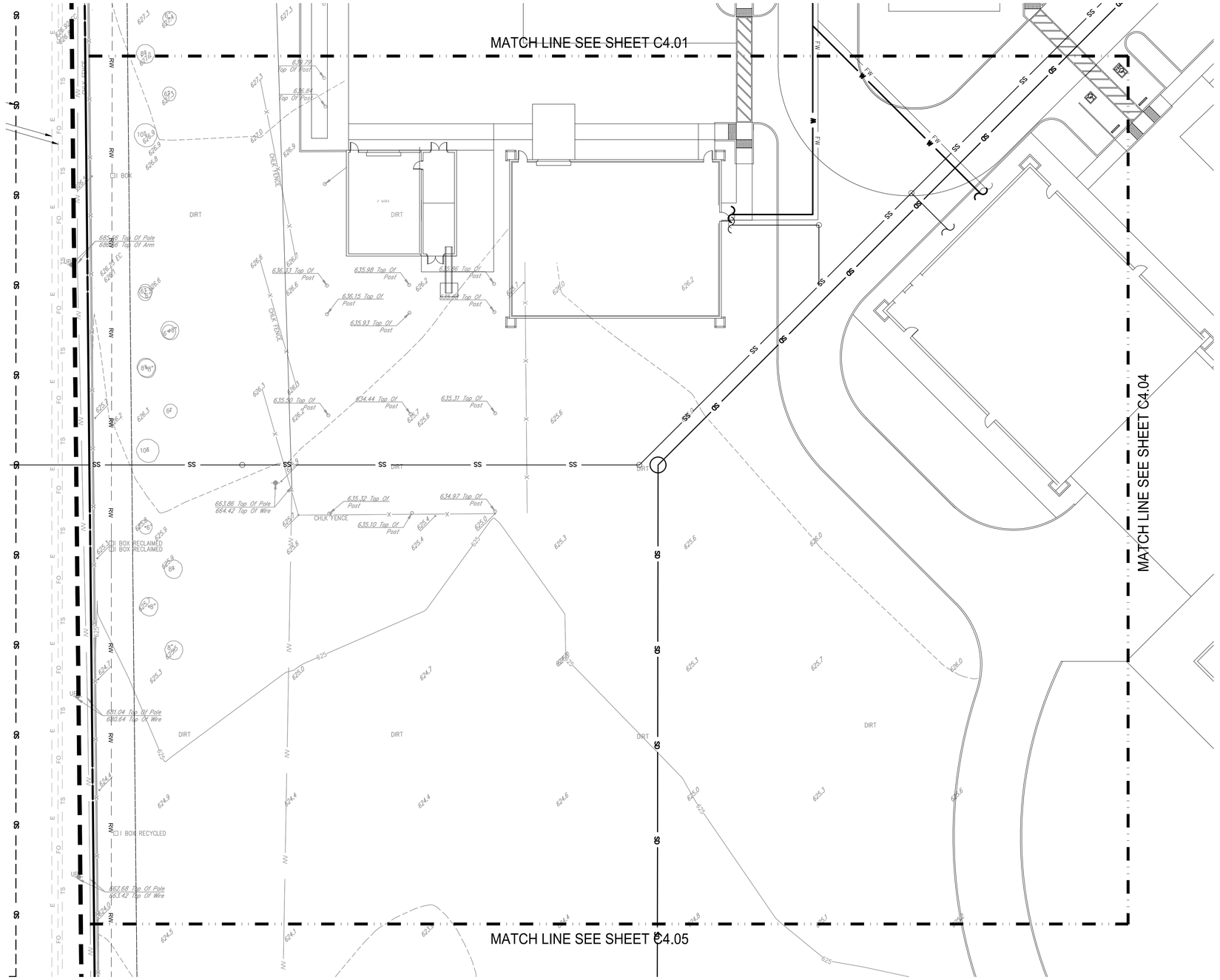
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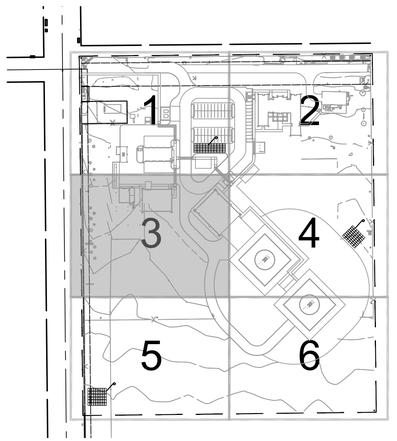
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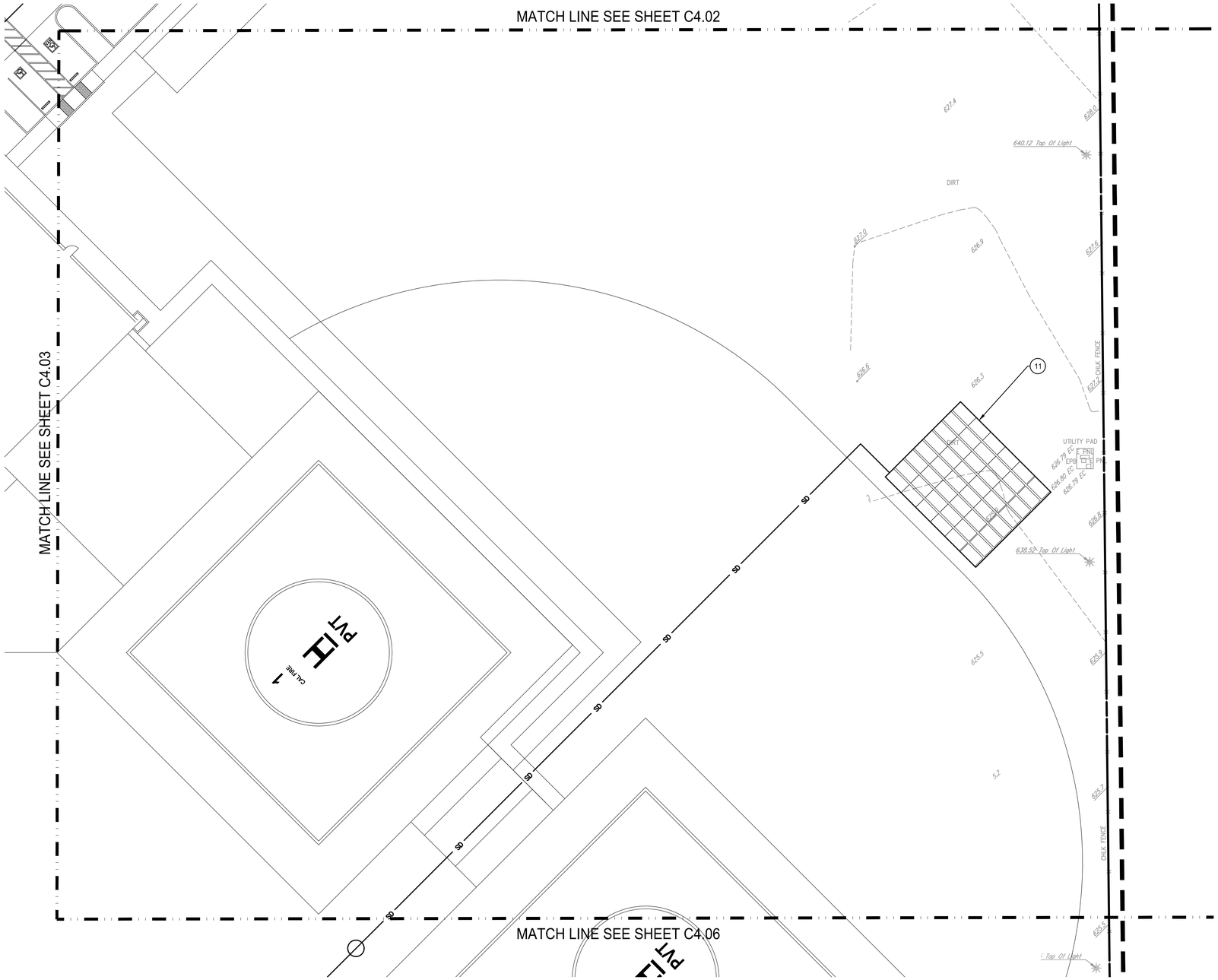
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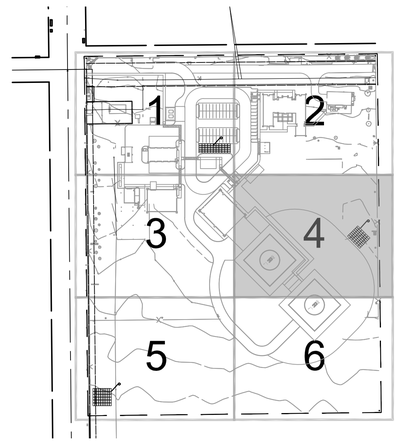
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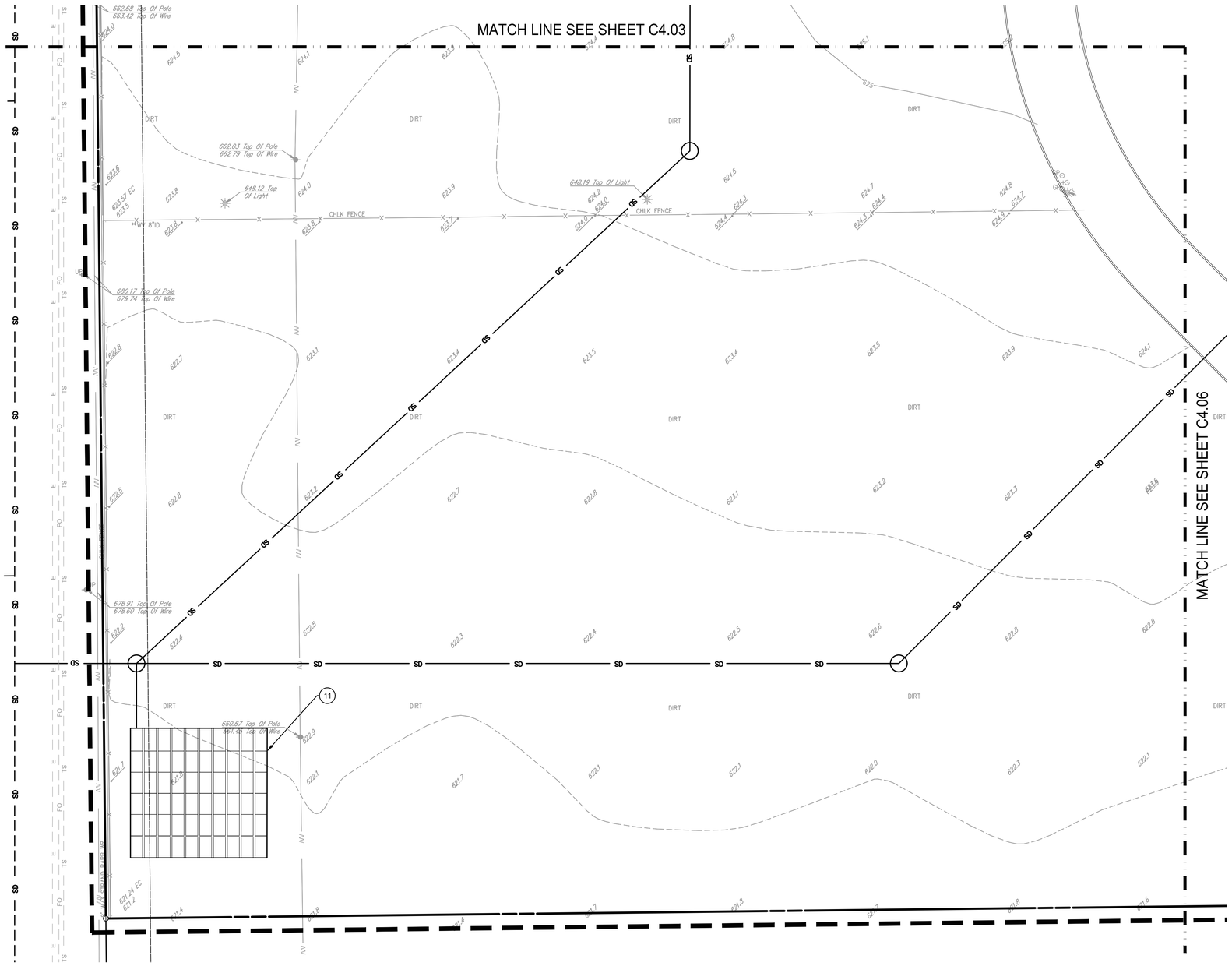
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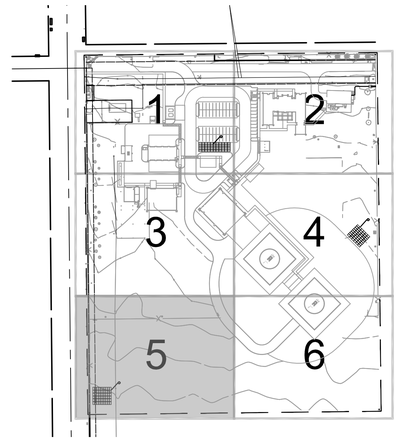
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- W EXISTING WATER LINE
- FW EXISTING FIRE WATER LINE
- E EXISTING ELECTRICAL LINE
- G EXISTING GAS LINE
- T EXISTING COMMUNICATIONS LINE
- FW FIRE WATER
- SD NEW STORM DRAIN LINE (<18")
- RW NEW RECLAIMED WATER
- SS NEW SANITARY SEWER LINE LINE
- W NEW WATER LINE
- EXISTING FIRE HYDRANT
- FDC EXISTING FIRE DEPARTMENT CONNECTION
- EXISTING CLEAN OUT
- EXISTING LIGHT POLE AND FIXTURE
- EXISTING SIGN
- PROPOSED CATCH BASIN
- RD ROOF DRAIN
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED FIRE HYDRANT
- PROPOSED POST INDICATOR VALVE

FEET
20 10 0 20 40
1 1/2 0 1 2
INCHES



KEYMAP

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Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

PSOMAS
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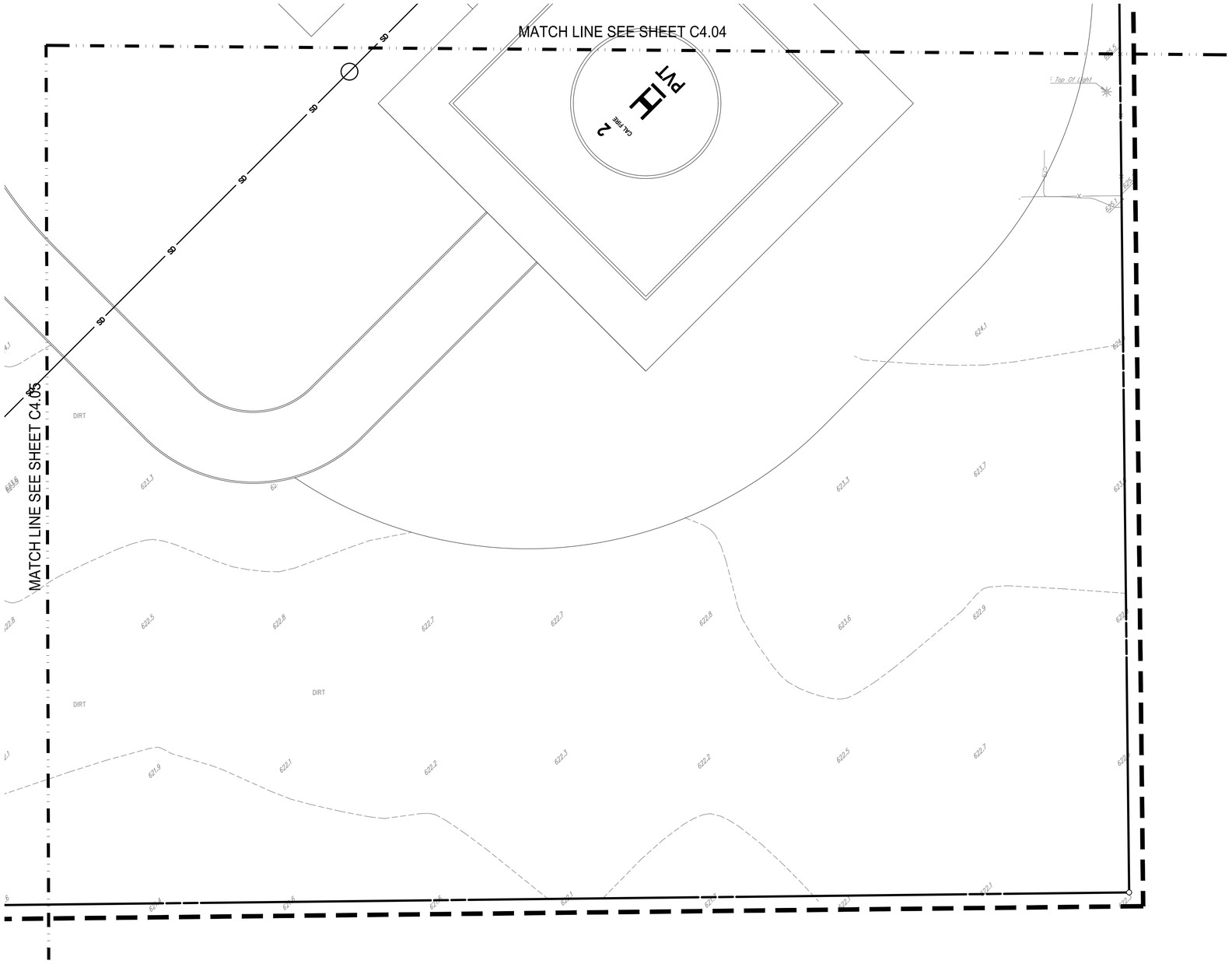
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AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
CECILIA S. HAMILTON
No. C70585
CIVIL
STATE OF CALIFORNIA

drawn by JL
checked by CSH
job no.
date 1-20-2020
cad file name
drawing no. C4.05
sheet title UTILITY PLAN
sheet no. 24
of 26 sheets



CONSTRUCTION NOTES:

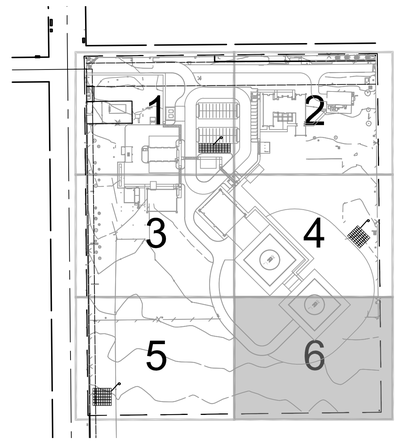
- CONSTRUCT
- EXISTING TO REMAIN -PROTECT IN PLACE
- EXISTING TO REMOVE
- REMOVE & RELOCATE
- ADJUST TO GRADE
- WORK BY OTHERS

1. WATER LINE - DUCTILE IRON PIPE. SIZE AND LENGTH PER PLAN. PIPE BEDDING AND TRENCH
2. CONNECT TO EXISTING.
3. SANITARY SEWER LINE - PVC (SDR 35). SIZE PER PLAN.
4. GATE VALVE. SIZE PER ADJOINING PIPE.
5. FIRE HYDRANT
6. STUB OUT FOR BUILDING CONNECTION.
7. SANITARY SEWER MANHOLE PER SPPWC STD. PLAN 200-3.
8. STORM DRAIN LINE - PVC (SDR 35). SIZE , LENGTH AND SLOPE PER PLAN. PIPE BEDDING AND TRENCH PER DETAIL
9. DUCTILE IRON MECHANICAL JOINT FITTING PER AWWA C-151, CLASS 350, TYPE PER PLAN. SIZE PER ADJOINING PIPE. CONSTRUCT CONCRETE THRUST BLOCK
10. UTILITY CROSSING
11. STORMWATER RETENTION BASIN. CONTECH CHAMBERMAXX (OR APPROVED EQUAL)
12. PVC FITTING (SDR 35). TYPE PER PLAN, SIZE PER ADJOINING PIPE.
13. CLEAN OUT AT GRADE PER SPPWC STD. PLAN 204-2. SIZE PER ADJOINING PIPE.
14. STORM DRAIN MANHOLE PER SPPWC STD. PLAN 321-2.
15. FIRE WATER LINE - C-900 PVC CL-305. SIZE AND LENGTH PER PLAN. PIPE BEDDING AND TRENCH PER DETAIL
16. RECLAIMED WATER LINE - C-900 PVC CL-235. SIZE AND LENGTH PER PLAN. PIPE BEDDING AND TRENCH PER DETAIL

LEGEND:

- LIMIT OF WORK
- SAWCUT LINE
- 235 PROPOSED CONTOUR LINE
- 280 EXISTING CONTOUR LINE
- EXISTING RETAINING WALL
- NEW RETAINING WALL
- BUILDING
- EXISTING UTILITY TO BE REMOVED
- EXISTING STORM DRAIN LINE (≥18")
- SD EXISTING STORM DRAIN LINE (<18")
- SS EXISTING SANITARY SEWER LINE
- W EXISTING WATER LINE
- FW EXISTING FIRE WATER LINE
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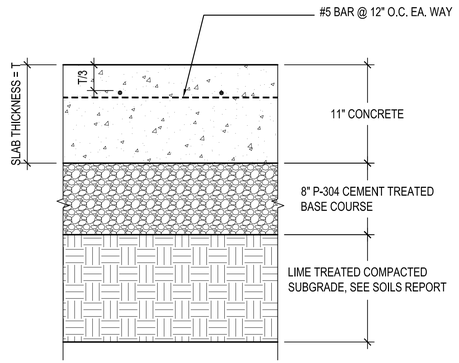
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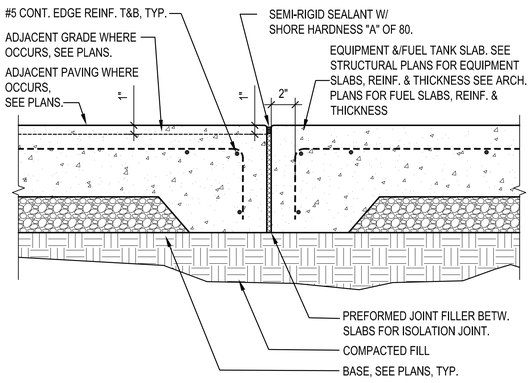
EOR
REGISTERED PROFESSIONAL ENGINEER
CECILIA S. YAMILTON
No. C70585
CIVIL
STATE OF CALIFORNIA

drawn by	JL
checked by	CSH
job no.	
date	1-20-2020
cad file name	
drawing no.	C4.06
sheet title	UTILITY PLAN
sheet no.	25
of	26 sheets



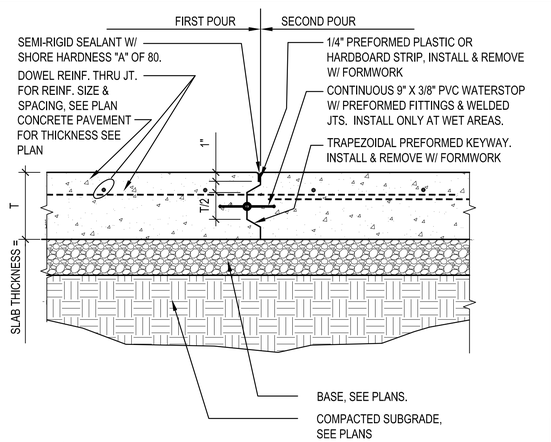
10 HELITACK CONCRETE APRON

SCALE: 1-1/2" = 1'-0"



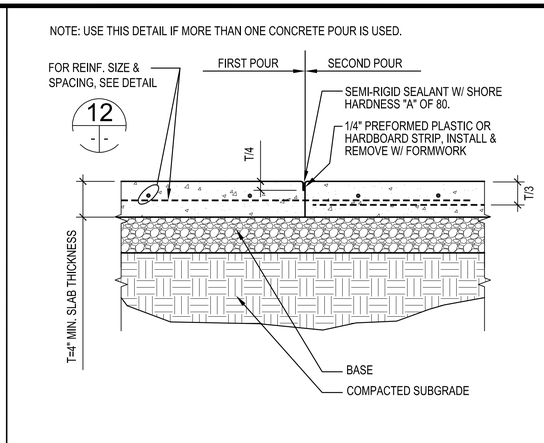
7 TYPICAL ISOLATION JOINT AT EQUIPMENT PADS & PAVEMENT

SCALE: 1-1/2" = 1'-0"



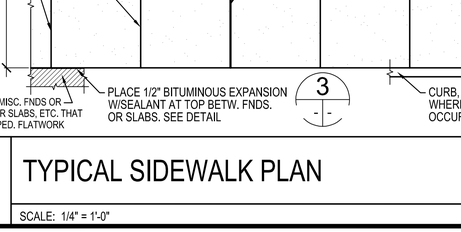
4 TYPICAL CONSTRUCTION JOINT AT STRUCTURAL SLABS

SCALE: 1-1/2" = 1'-0"



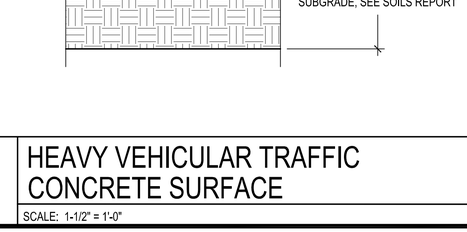
1 TYPICAL CONSTRUCTION JOINT AT PEDESTRIAN FLATWORK

SCALE: 1-1/2" = 1'-0"



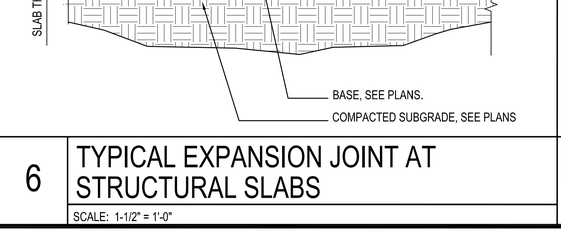
11 CONCRETE PAD AT FUEL TANKS

SCALE: 1-1/2" = 1'-0"



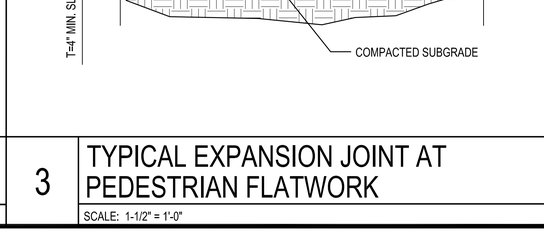
8 HEAVY VEHICULAR TRAFFIC ASPHALT CONCRETE SURFACE

SCALE: 1-1/2" = 1'-0"



5 TYPICAL CONTROL JOINT AT STRUCTURAL SLABS

SCALE: 1-1/2" = 1'-0"

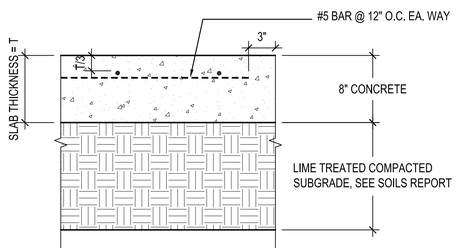


2 TYPICAL CONTROL JOINT AT PEDESTRIAN FLATWORK

SCALE: 1-1/2" = 1'-0"

12 TYPICAL SIDEWALK PLAN

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



9 HEAVY VEHICULAR TRAFFIC CONCRETE SURFACE

SCALE: 1-1/2" = 1'-0"

6 TYPICAL EXPANSION JOINT AT STRUCTURAL SLABS

SCALE: 1-1/2" = 1'-0"

3 TYPICAL EXPANSION JOINT AT PEDESTRIAN FLATWORK

SCALE: 1-1/2" = 1'-0"

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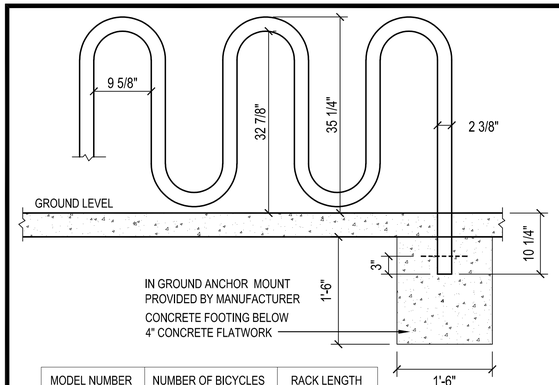
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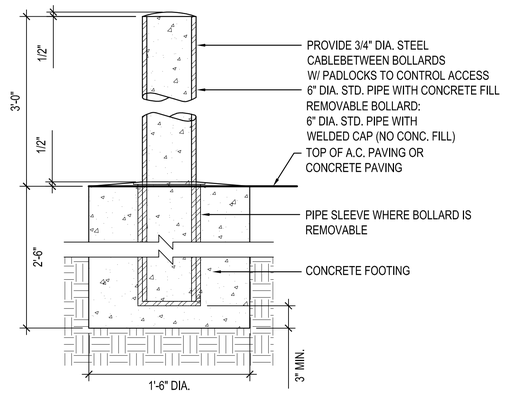
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checked by BFU
job no. 2018-23
date 5-1-2019
cad file name A0.60.dwg
drawing no. A0.60
sheet title SITE DETAILS
sheet no.
of sheets



MODEL NUMBER	NUMBER OF BICYCLES	RACK LENGTH
RB05	5	38.375"
RB09	9	86.375"

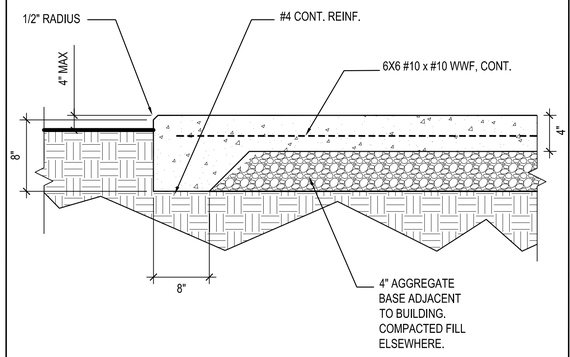
10 BIKE RACK

SCALE: 1" = 1'-0"



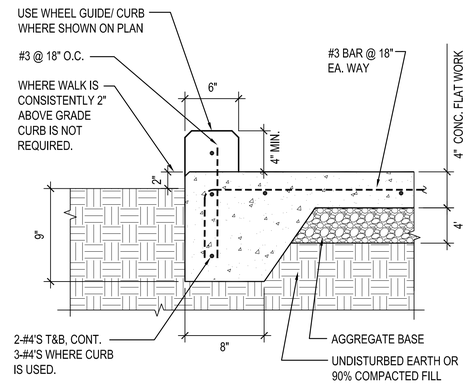
7 FIXED OR REMOVABLE BOLLARD DETAIL

SCALE: 1-1/2" = 1'-0"



4 WALK @ COMPACTED FILL

SCALE: 1-1/2" = 1'-0"

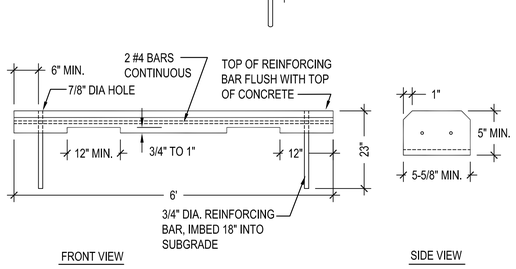


1 WALK @ LANDSCAPING

SCALE: 1-1/2" = 1'-0"

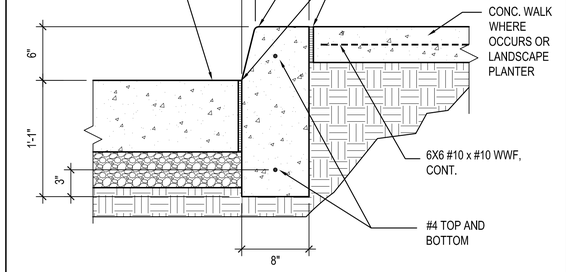
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SCALE: 1-1/2" = 1'-0"



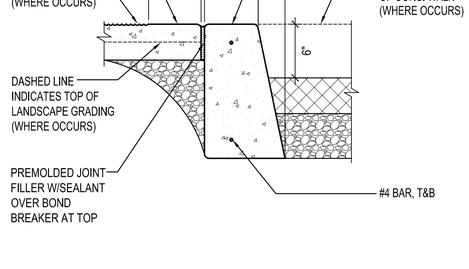
8 WHEELSTOP DETAIL

SCALE: N.T.S.



5 CONCRETE CURB AT APRONS, WHERE OCCURS

SCALE: 1-1/2" = 1'-0"

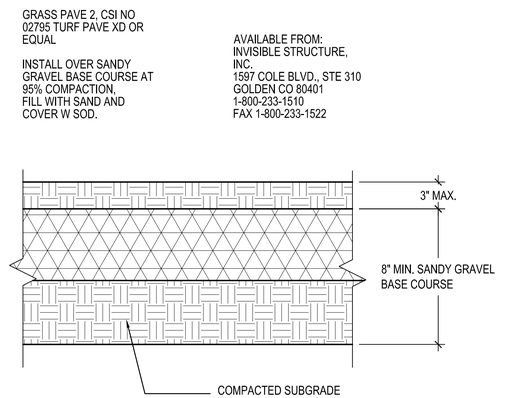


2 TYPICAL CURB DETAIL

SCALE: 1-1/2" = 1'-0"

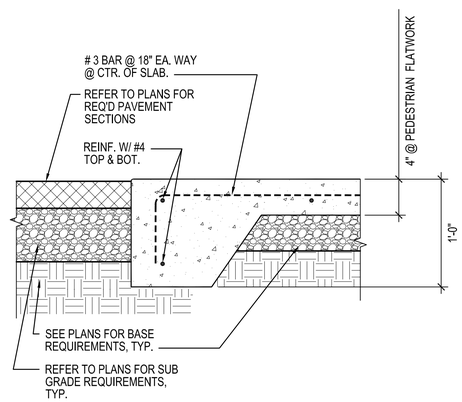
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SCALE: 1/4" = 1'-0"



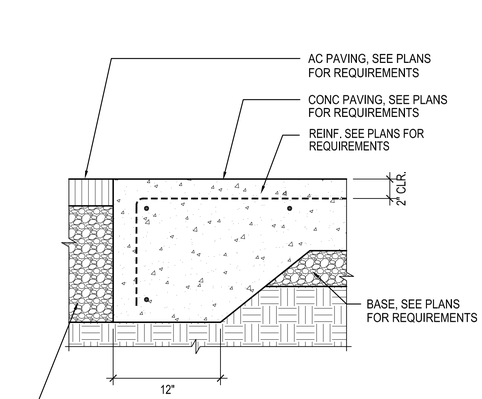
9 TURF MAT

SCALE: N.T.S.



6 EDGE OF PEDESTRIAN FLATWORK TO ASPHALT OR GRADE

SCALE: 1-1/2" = 1'-0"



3 EDGE OF STRUCTURAL SLAB TO ASPHALT OR GRADE

SCALE: 1-1/2" = 1'-0"

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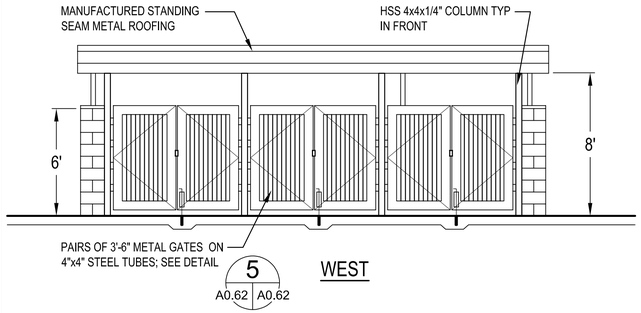
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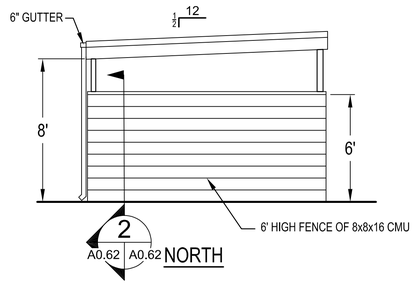
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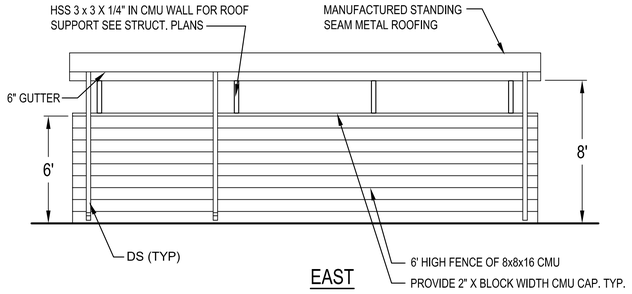
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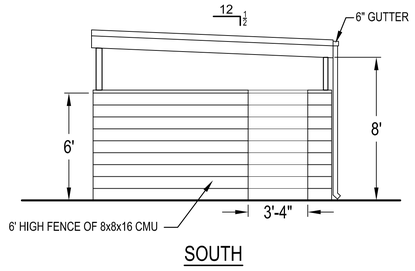
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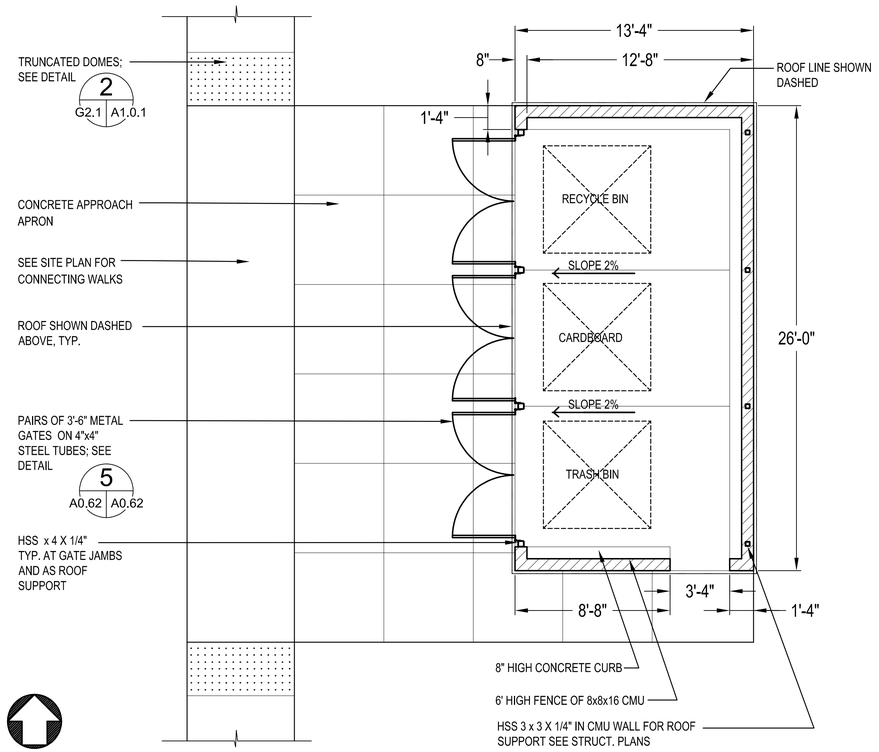
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date 5-1-2019
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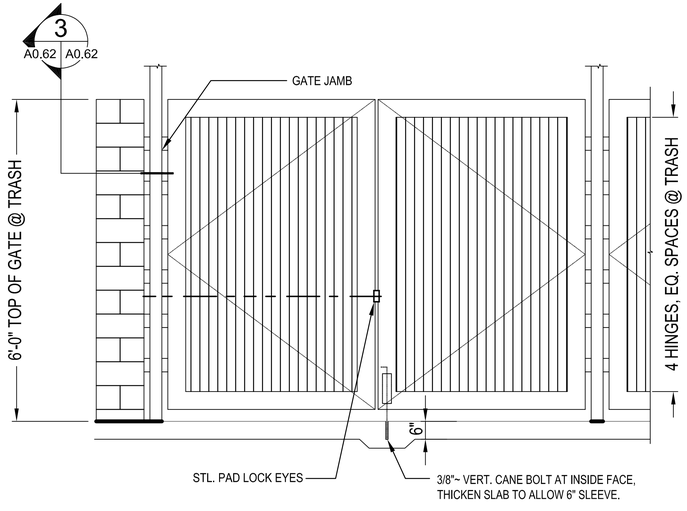


4 TRASH ENCLOSURE EXTERIOR ELEVATIONS

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

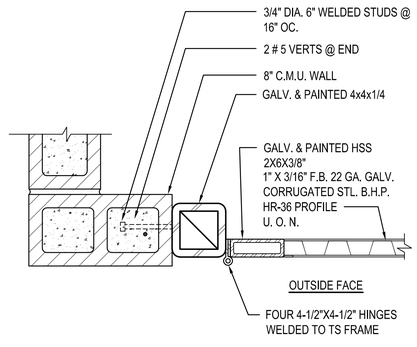
1 TRASH ENCLOSURE FLOOR PLAN

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



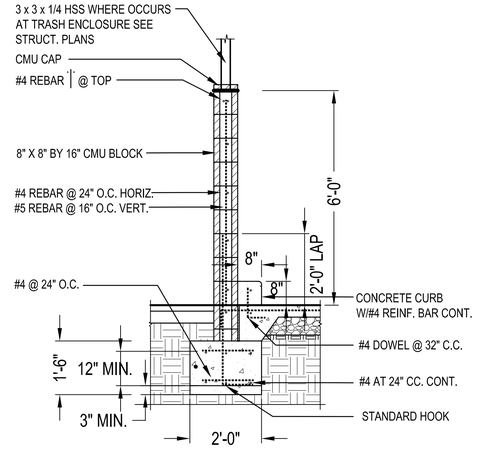
5 GATE ELEVATION - OUTSIDE FACE SIDE

SCALE: 1/2" = 1'-0"



3 GATE JAMB DETAIL

SCALE: 1 1/2" = 1'-0"



2 WALL SECTION @ TRASH ENCLOSURE

SCALE: 1/2" = 1'-0"

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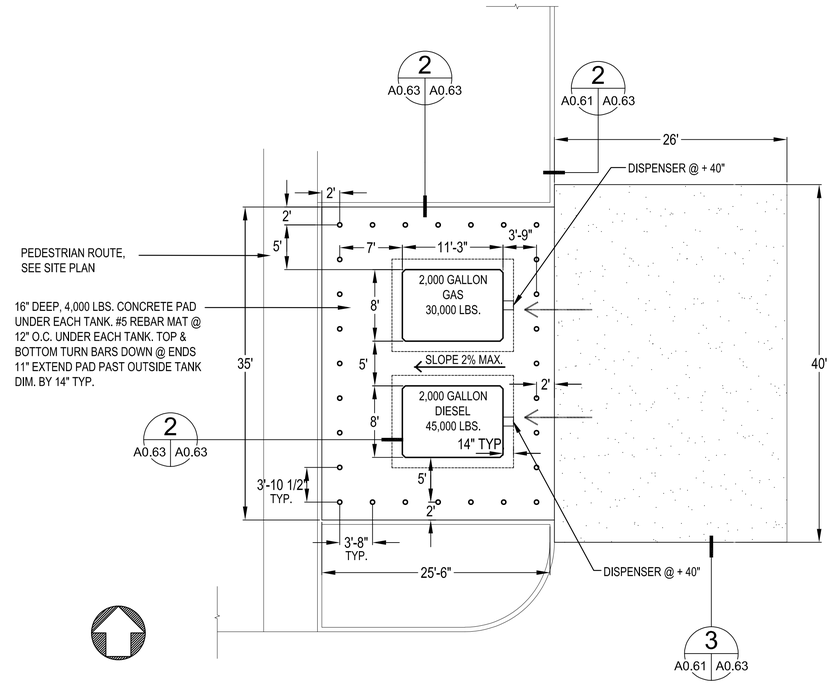
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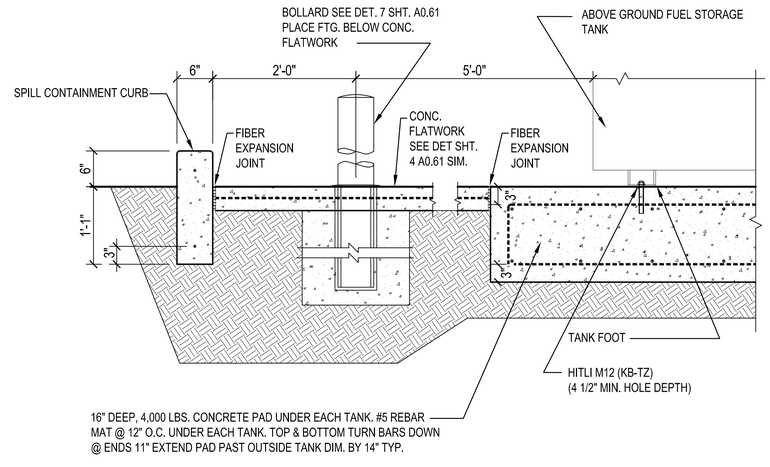
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checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	A0.62dwg
drawing no.	A0.62
sheet title	TRASH
sheet no.	ENCLOSURE
of	sheets



1 VEHICLE FUEL ISLAND FLOOR PLAN

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



2 VEHICLE FUEL TANK BASE

SCALE: 1" = 1'-0"

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GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
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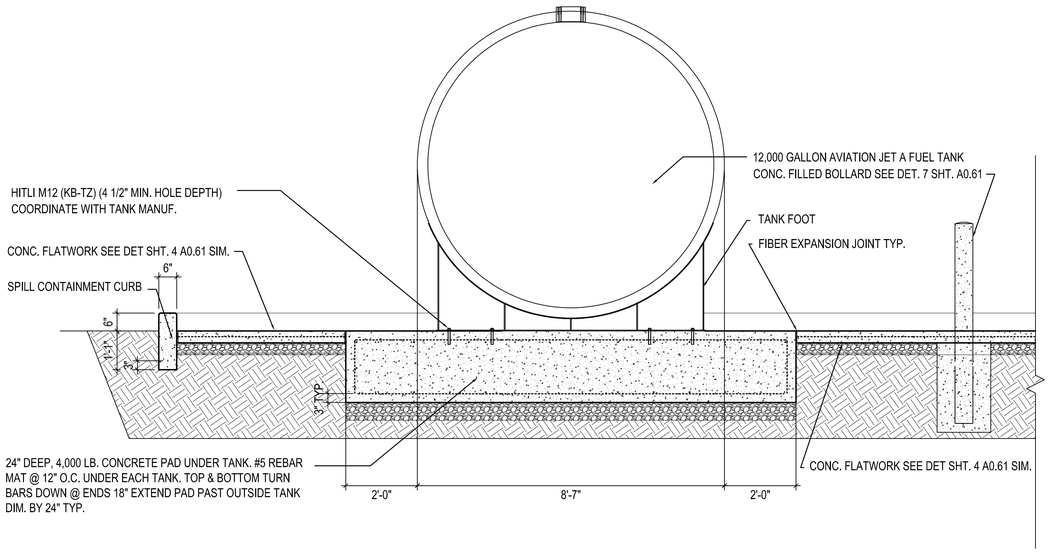
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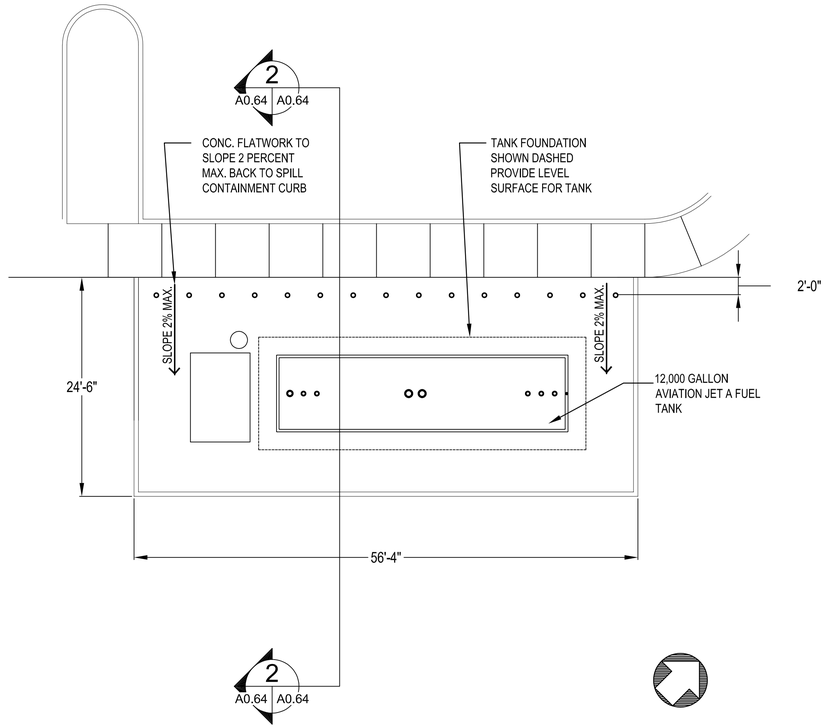
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job no.	2018-23
date	5-1-2019
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drawing no.
A0.63
sheet title FUEL ISLAND
sheet no.
of sheets



2 AVIATION JET A FUEL TANK BASE SECTION

SCALE: 1/2" = 1'-0"



1 AVIATION JET A FUEL ISLAND FLOOR PLAN

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

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judy.haavisto@dgs.ca.gov

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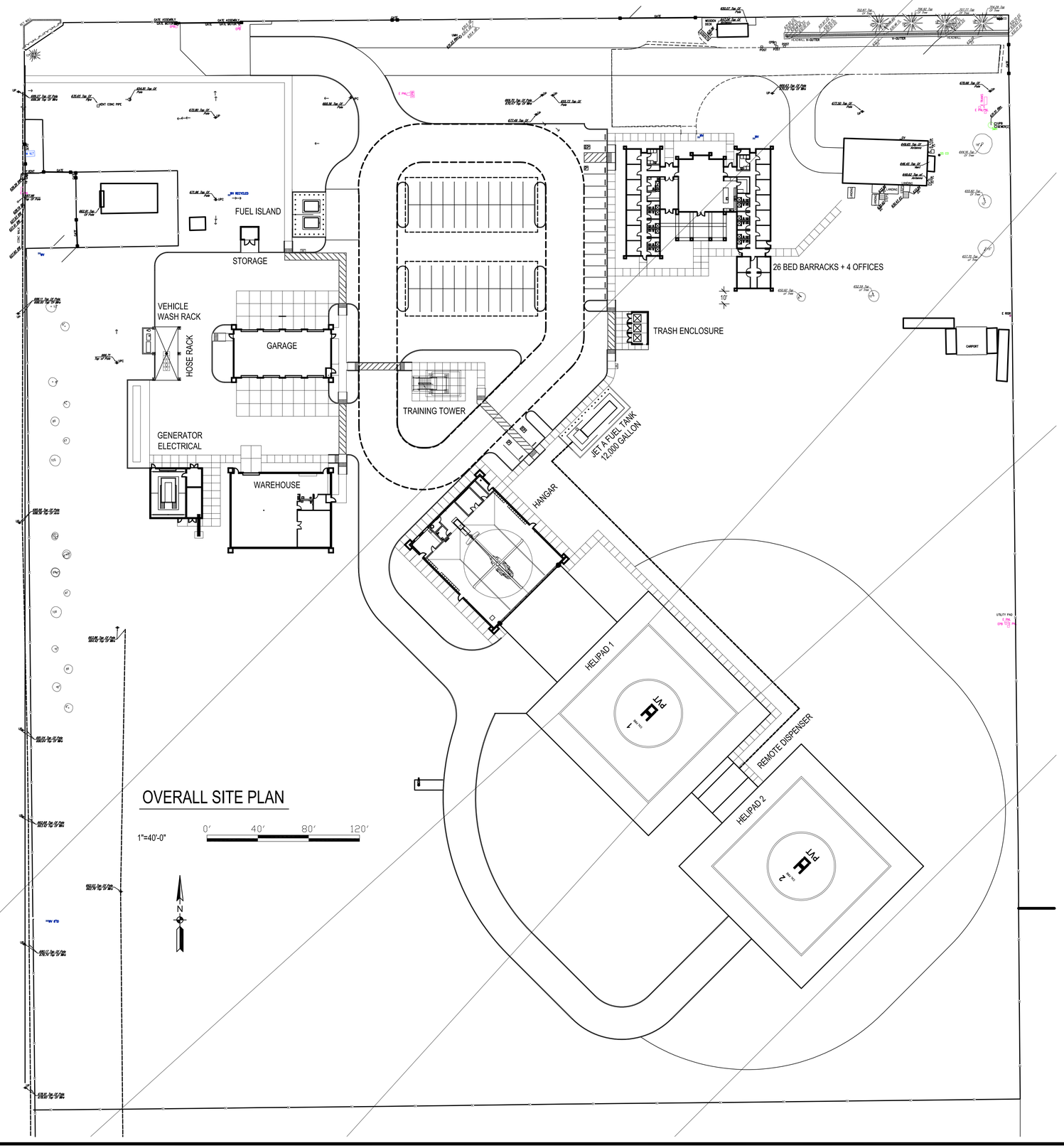
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sheet title	FUEL ISLAND
sheet no.	
of	sheets



OVERALL SITE PLAN

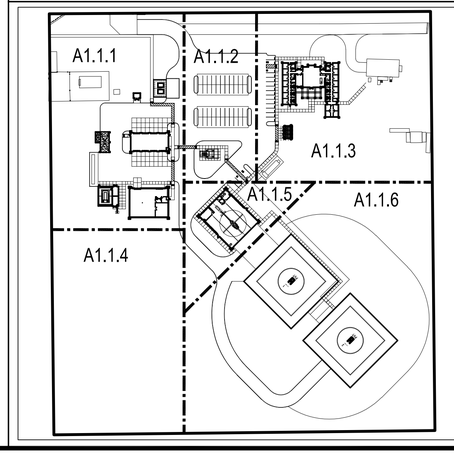
1"=40'-0"

0' 40' 80' 120'

GENERAL NOTES

KEY NOTES

SITE PLAN KEY MAP:



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707 Third Street, 4TH Floor
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916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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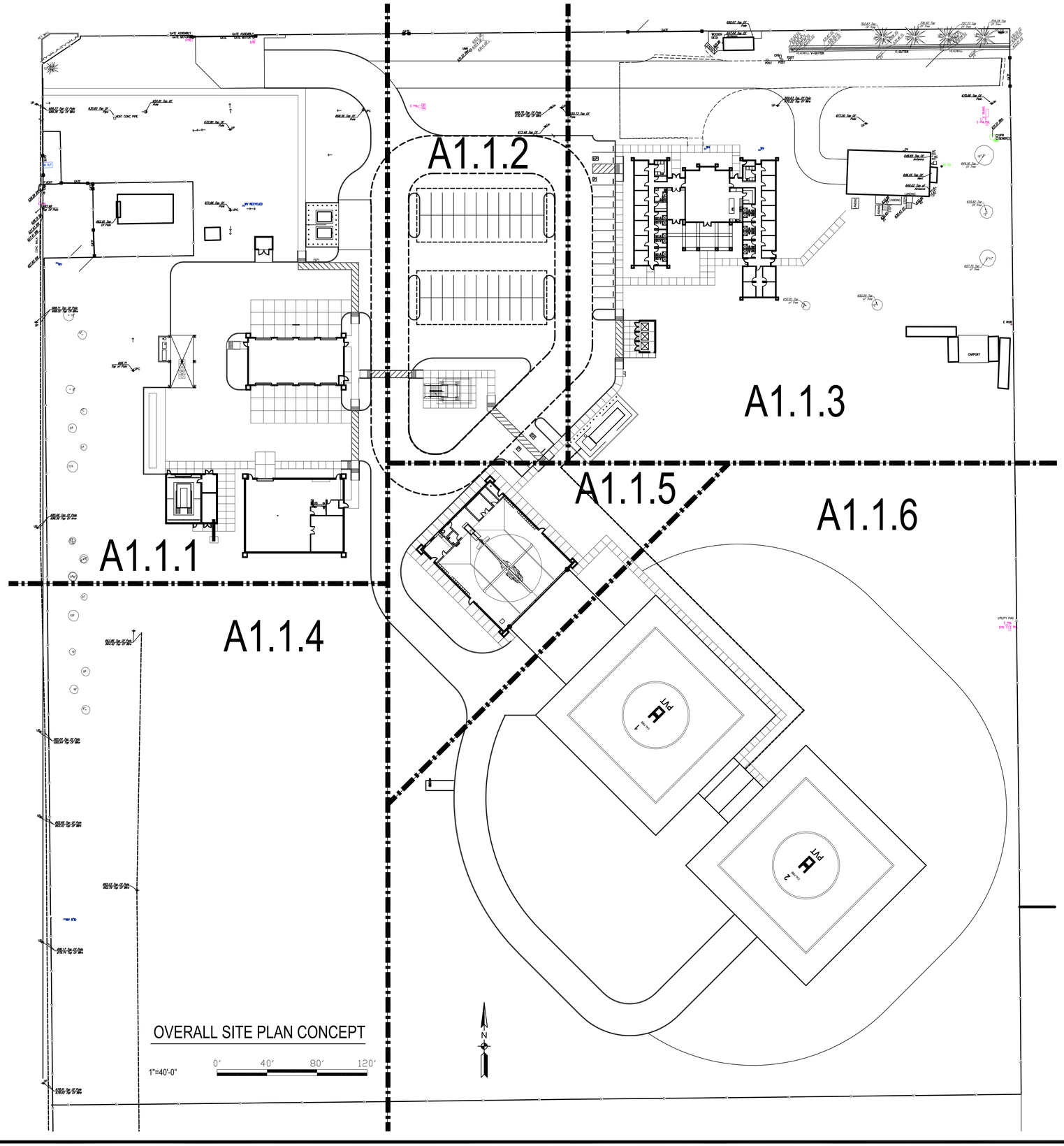
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drawing no.	A1.1
sheet title	OVERALL SITE PLAN
sheet no.	
of	sheets

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OVERALL SITE PLAN CONCEPT

1"=40'-0" 0' 40' 80' 120'

GENERAL NOTES

KEY NOTES

LEGEND:

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Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
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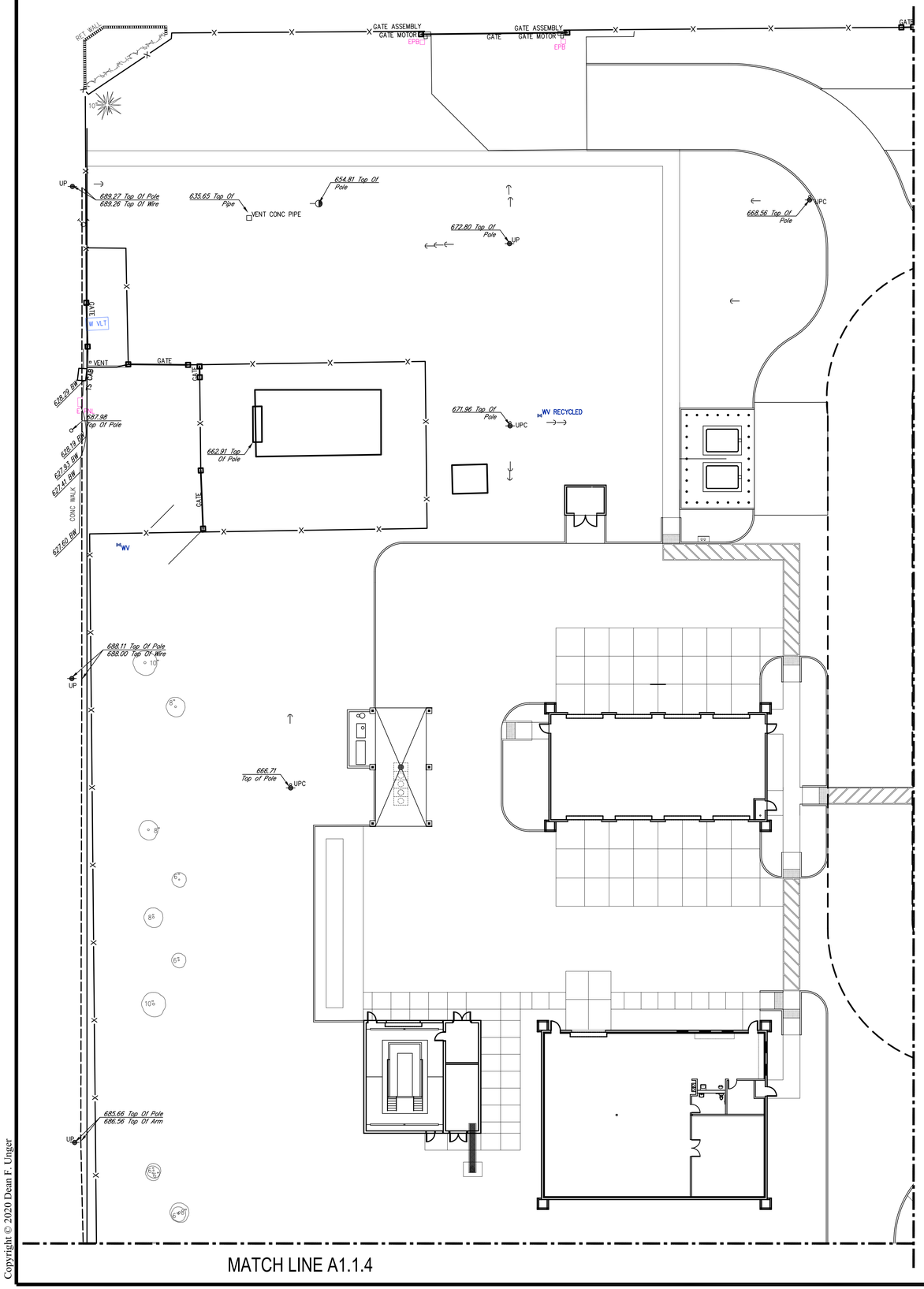
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drawing no.	A1.2
sheet title	OVERALL SITE
sheet no.	PLAN
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ENLARGED PARTIAL SITE PLAN

1"=20'-0"

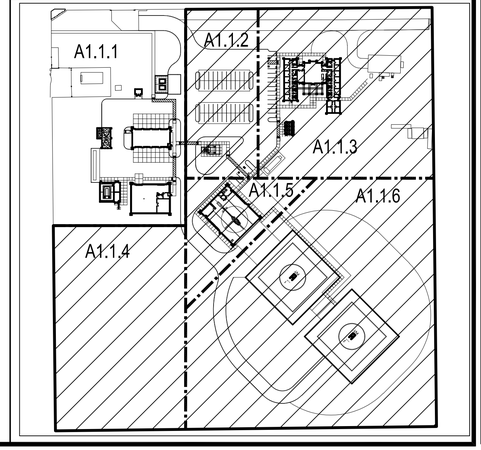
0' 20' 40' 60'

N

GENERAL NOTES

KEY NOTES

SITE PLAN KEY MAP:



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West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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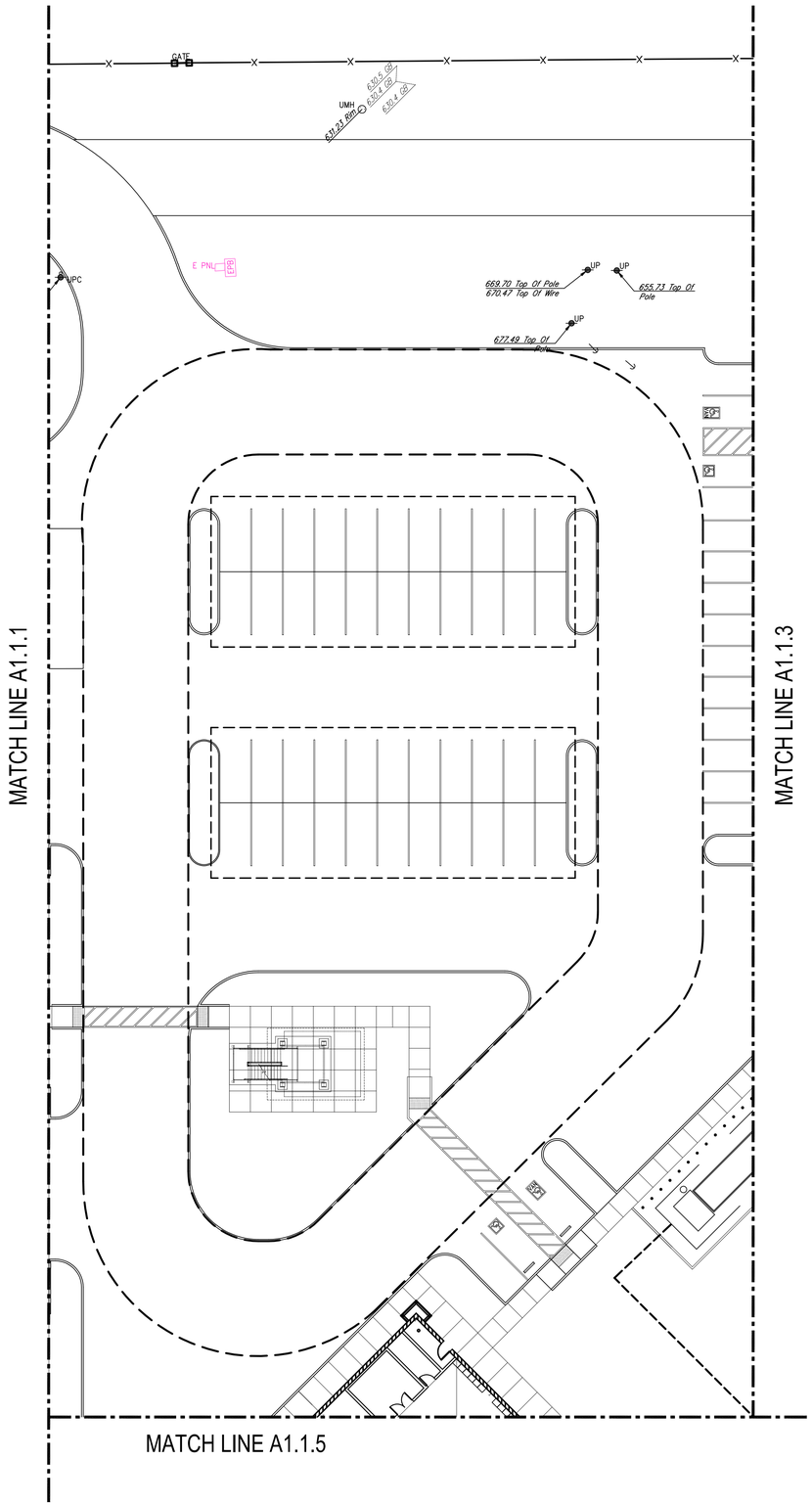
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sheet title	PARTIAL SITE
sheet no.	PLAN
of	sheets

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ENLARGED PARTIAL SITE PLAN

1"=20'-0"

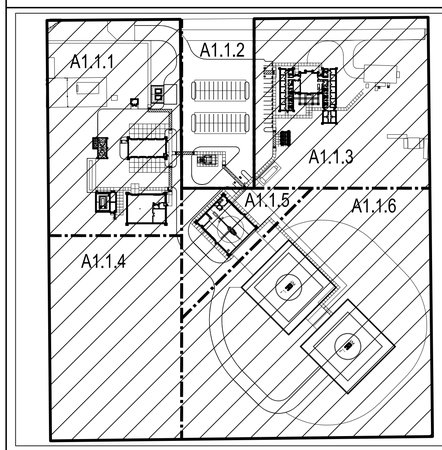
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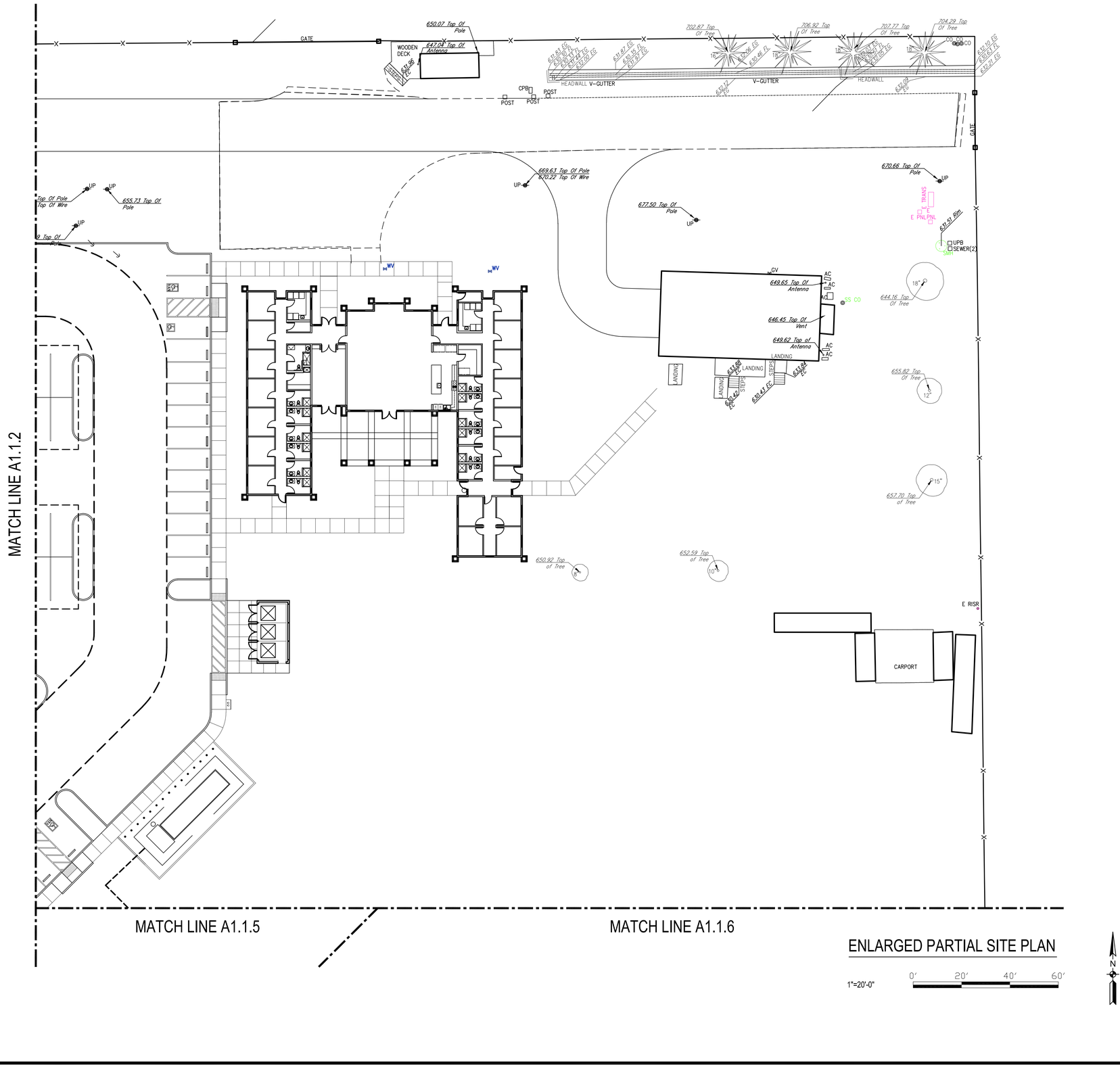
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sheet no.	PLAN
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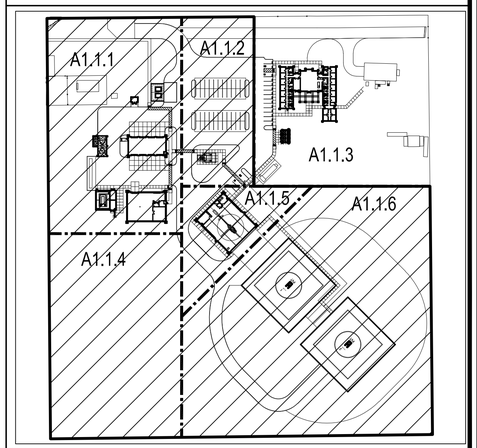
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West Sacramento, California 95605
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916 945-6117 Fax
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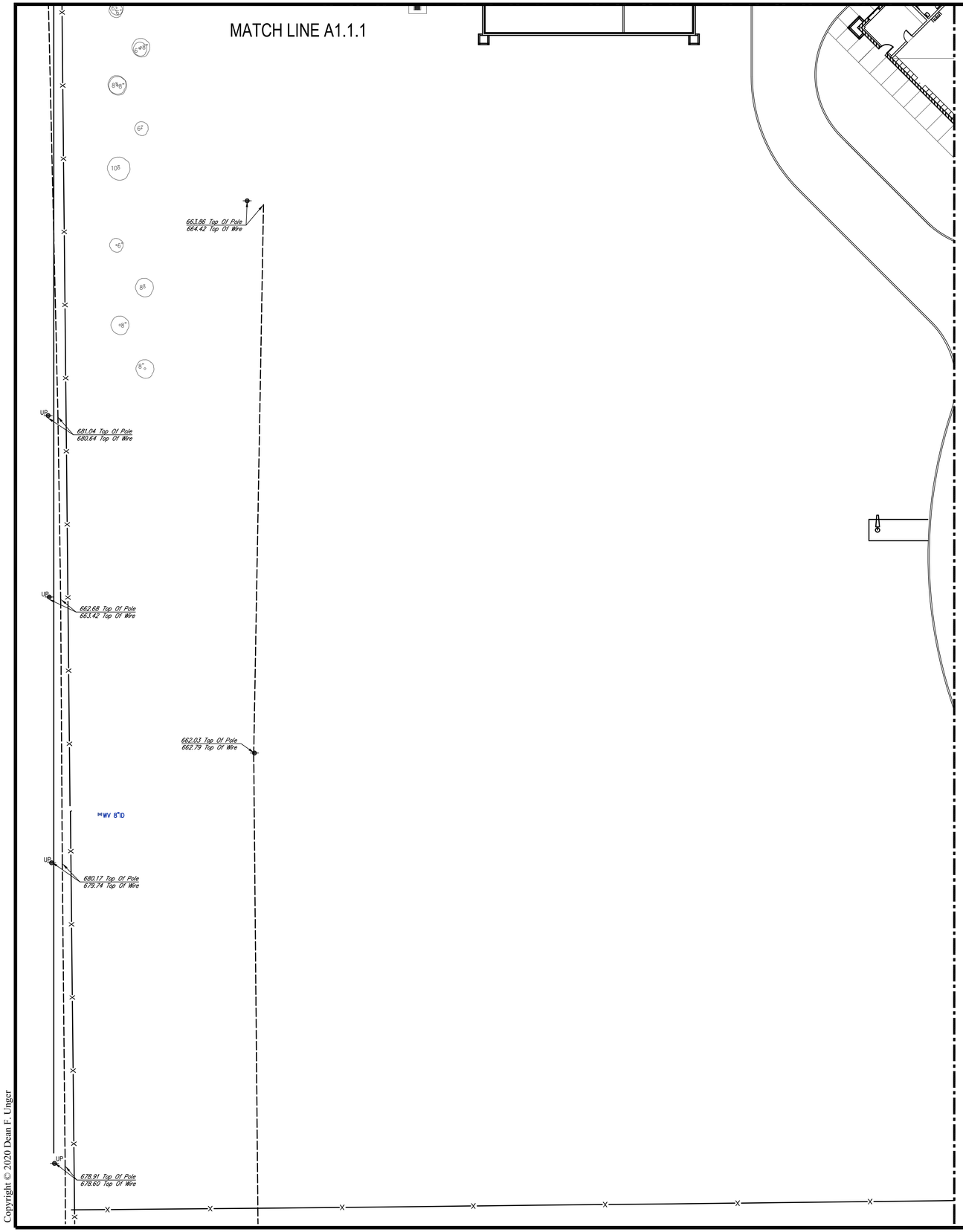
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drawing no.	A1.1.3
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sheet no.	PLAN
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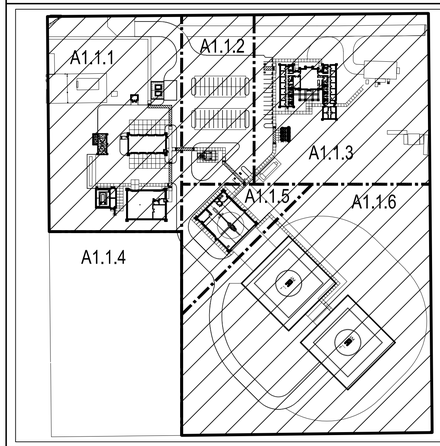
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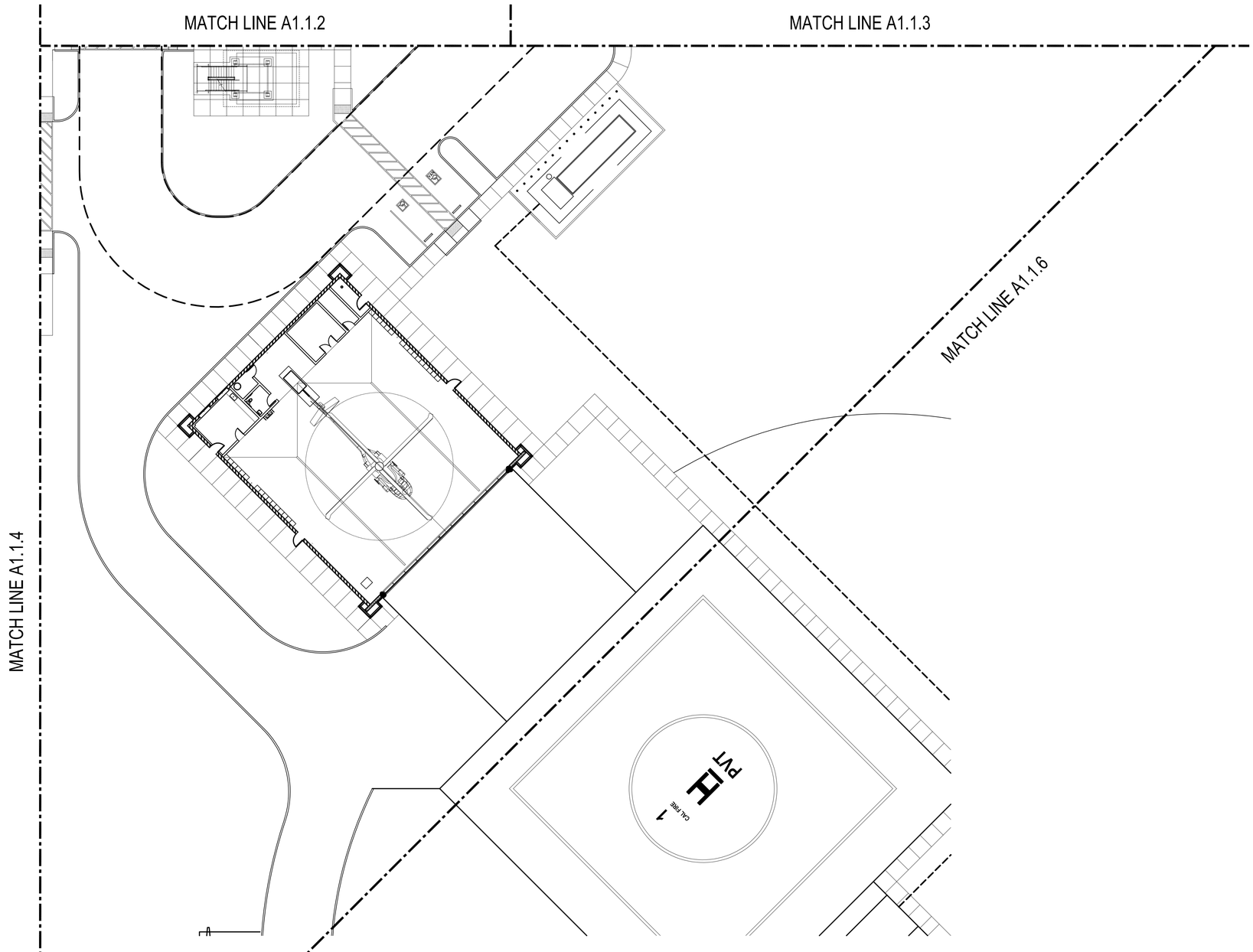
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drawing no.	A1.1.4
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sheet no.	PLAN
of	sheets

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ENLARGED PARTIAL SITE PLAN

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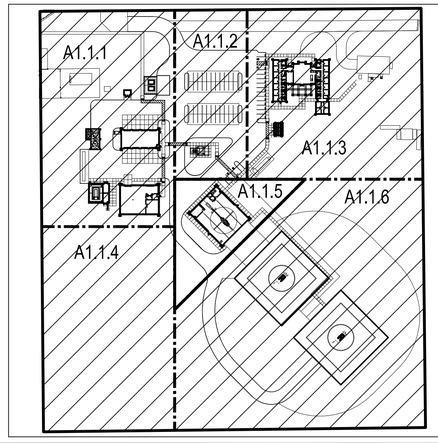
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drawing no.	A1.1.5
sheet title	PARTIAL SITE
sheet no.	PLAN
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MATCH LINE A1.1.3

MATCH LINE A1.1.5

MATCH LINE A1.1.4

UTILITY PAD
E PNL
EPB E PNL

PVT IE CAL FIRE 1

PVT IE CAL FIRE 2

ENLARGED PARTIAL SITE PLAN

1"=20'-0"

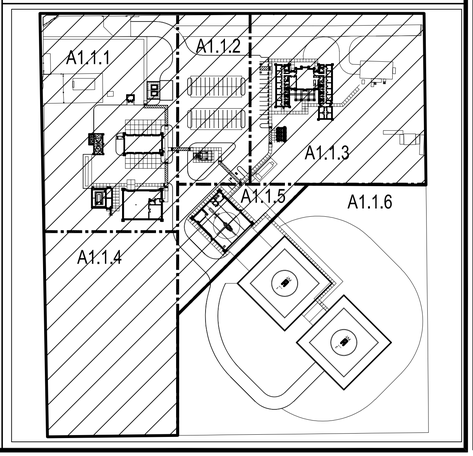
0' 20' 40' 60'

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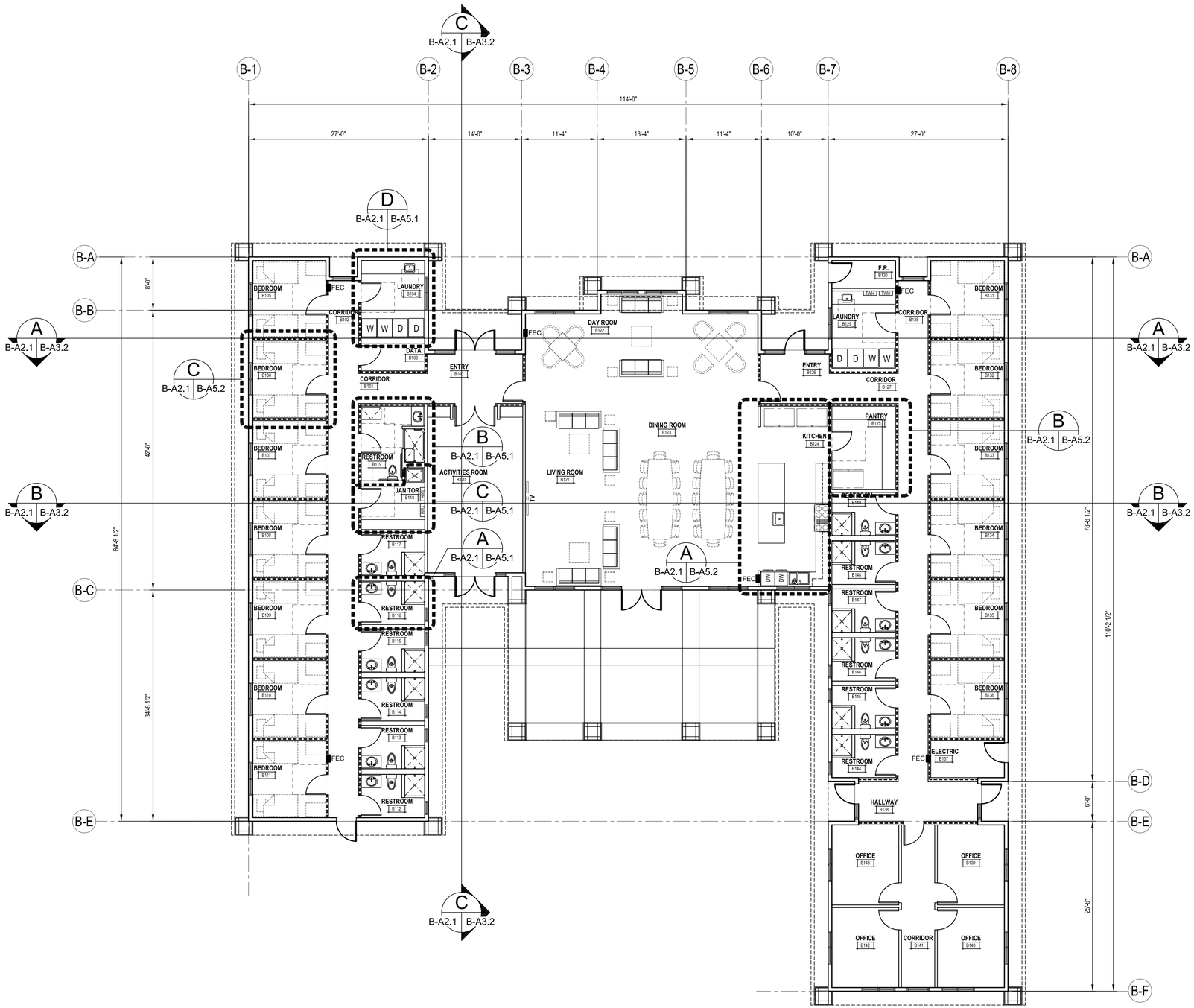
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sheet title	PARTIAL SITE
sheet no.	PLAN
of	sheets

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BARRACKS - 26 BEDS, 13 RESTROOMS FLOOR PLAN - 6,776 SF

1/8"=1'-0"

0' 5' 10' 20' 30'

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GENERAL NOTES

KEY NOTES

LEGEND:

NON- FIRE RATED WALL

1 HOUR FIRE RATED WALL

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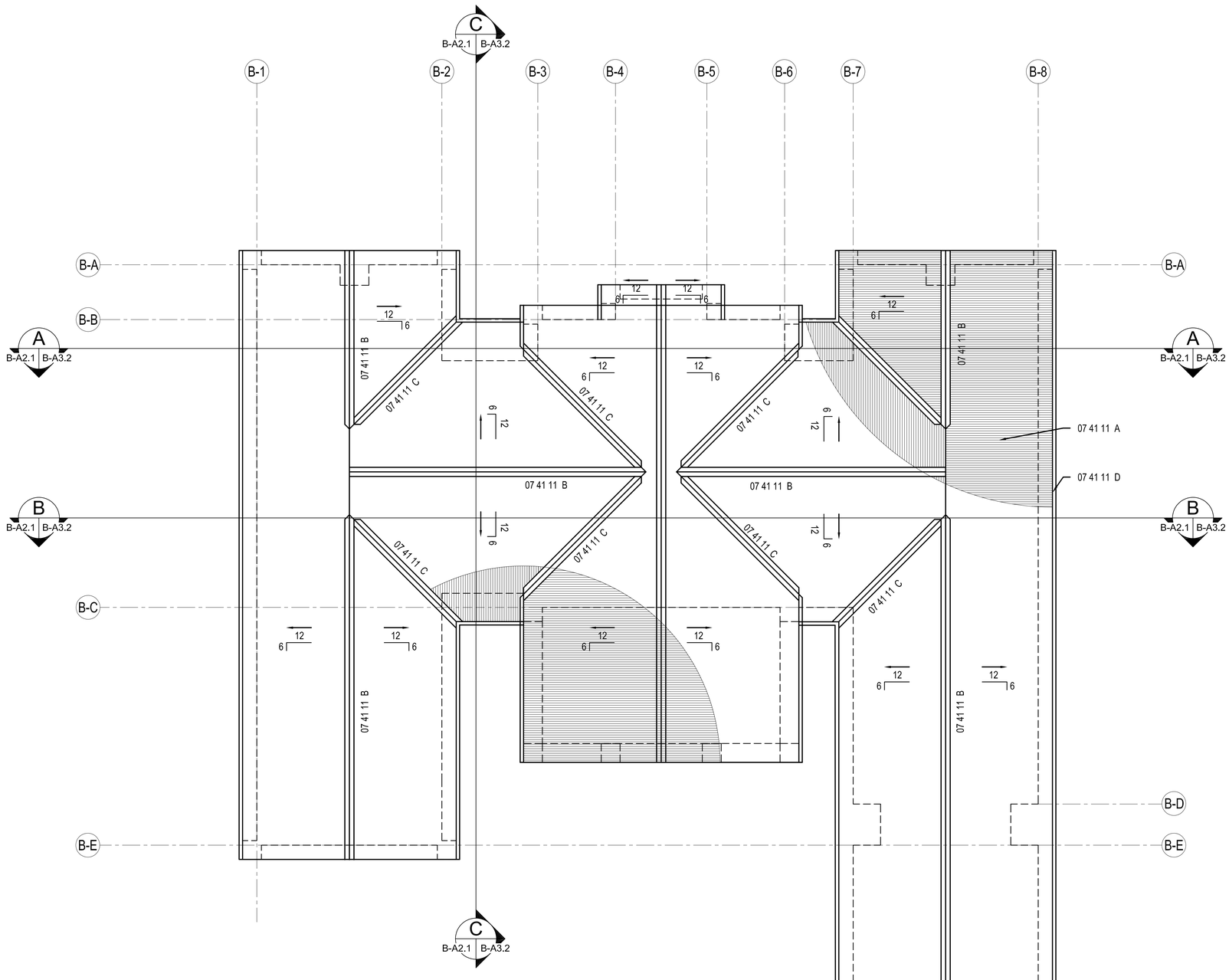
Reviewed by:_____

AOR

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BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR

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checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	B-A2.1.dwg
drawing no.	B-A2.1
sheet title	BARRACKS
sheet no.	FLOOR PLAN
of	sheets



BARRACKS ROOF PLAN

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

DIVISION 07 THERMAL AND MOISTURE PROTECTION

07 41 11 A METAL ROOF TYP.
07 41 11 B METAL ROOF RIDGE CAP
07 41 11 C METAL ROOF VALLEY
07 41 11 D METAL GUTTER TYP. AT ROOF EAVE LINES

LEGEND:

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
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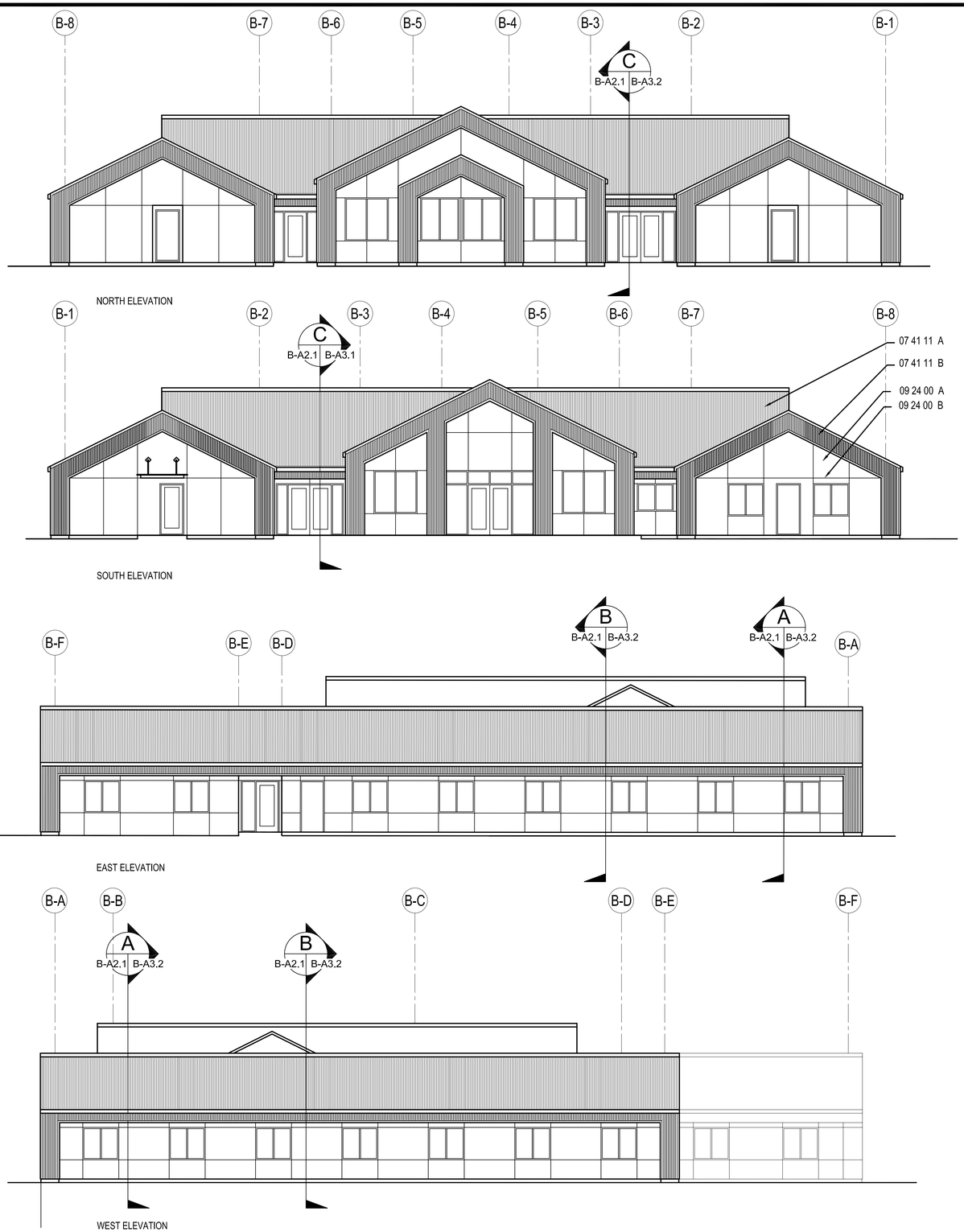
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drawing no.	B-A2.4
sheet title	BARRACKS
sheet no.	ROOF PLAN
of	sheets

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BARRACKS - 26 BEDS, 13 RESTROOMS ELEVATIONS

1/8"=1'-0"

0' 5' 10' 20' 30'

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GENERAL NOTES

KEY NOTES

DIVISION 07 THERMAL AND MOISTURE PROTECTION

SECTION 07 41 11 PREFORMED MANUFACTURED ROOF AND WALL PANELS

07 41 11 A METAL ROOF TYP.
07 41 11 B METAL WALL PANELS

DIVISION 09 FINISHES

SECTION 09 24 00 PORTLAND CEMENT PLASTER

09 24 00 A PORTLAND CEMENT PLASTER WITH REINFORCED ACRYLIC FINISH SYSTEM
09 24 00 B PORTLAND CEMENT PLASTER CONTROL JOINTS

LEGEND:

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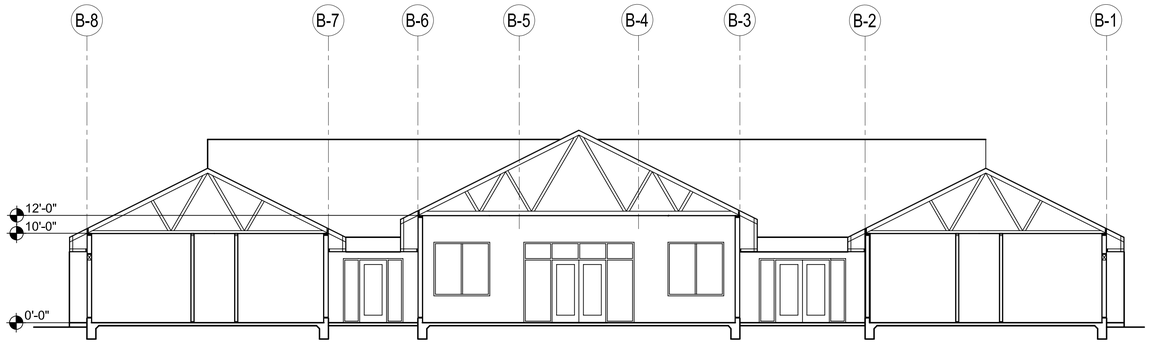
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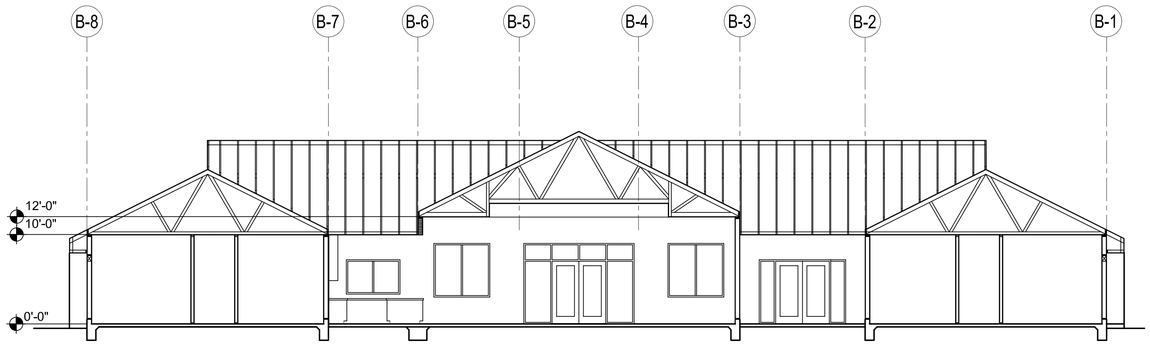
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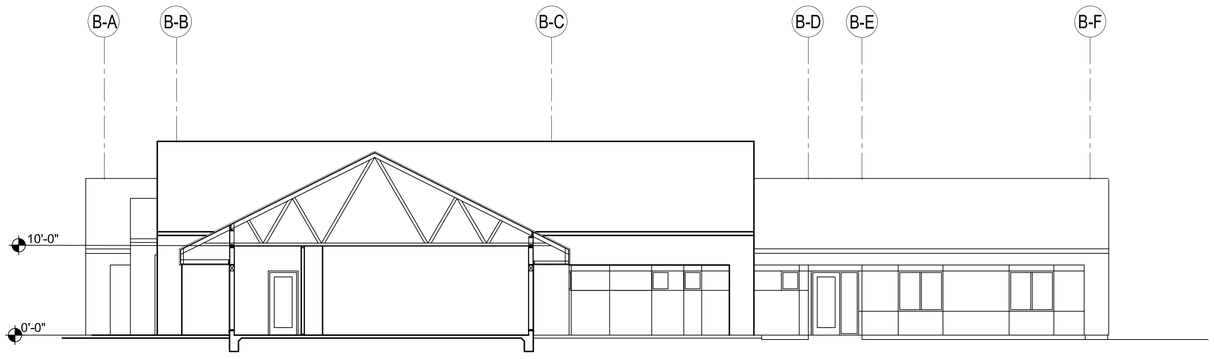
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sheet no. ELEVATIONS
of sheets



BARRACKS SECTION A-A



BARRACKS SECTION B-B



BARRACKS SECTION C-C

BARRACKS - 26 BEDS, 13 RESTROOMS SECTIONS

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

LEGEND:

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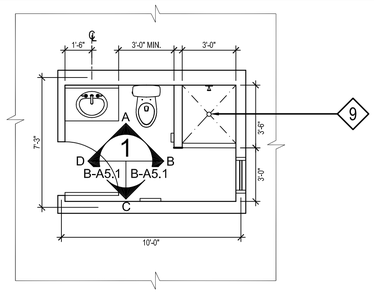
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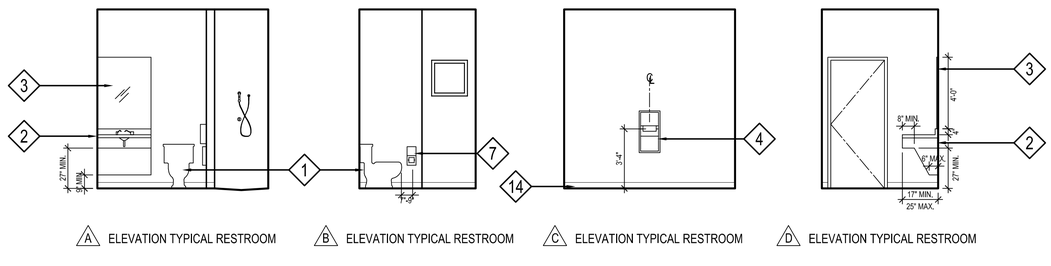
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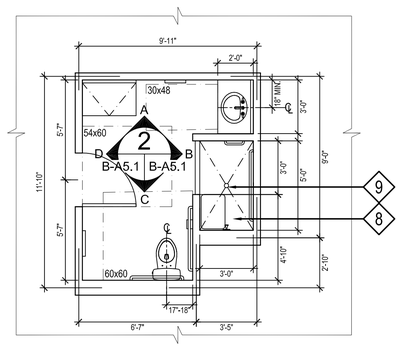


A ENLARGED TYPICAL RESTROOM FLOOR PLAN
B112, B113, B114, B115, B116, B117, B144, B145, B146, B147, B148 & B149

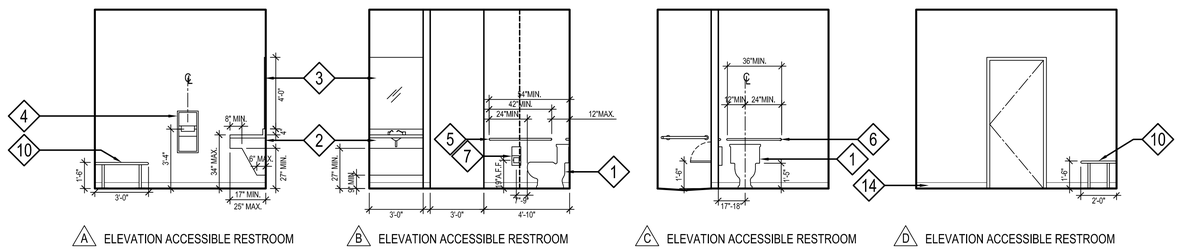


A ELEVATION TYPICAL RESTROOM
B ELEVATION TYPICAL RESTROOM
C ELEVATION TYPICAL RESTROOM
D ELEVATION TYPICAL RESTROOM

1 INTERIOR ELEVATIONS TYPICAL RESTROOM

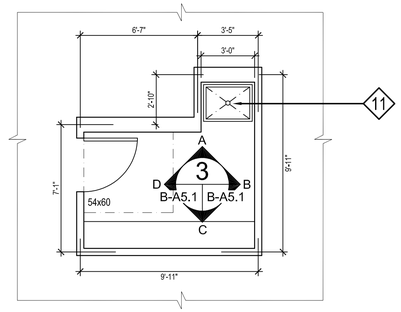


B ENLARGED ACCESSIBLE RESTROOM FLOOR PLAN
B119

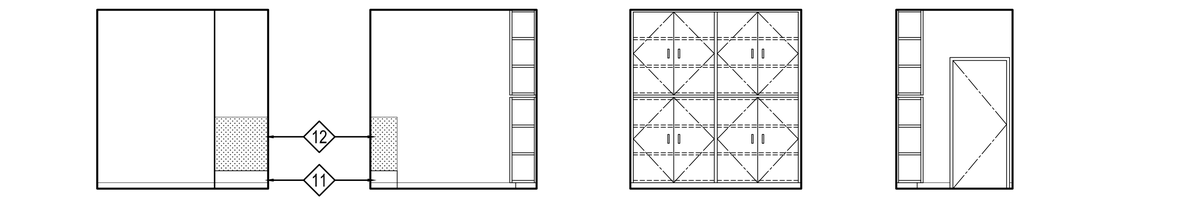


A ELEVATION ACCESSIBLE RESTROOM
B ELEVATION ACCESSIBLE RESTROOM
C ELEVATION ACCESSIBLE RESTROOM
D ELEVATION ACCESSIBLE RESTROOM

2 INTERIOR ELEVATIONS ACCESSIBLE RESTROOM

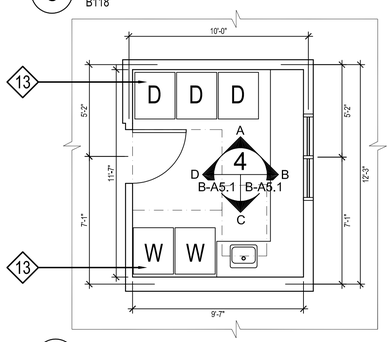


C ENLARGED JANITOR'S ROOM FLOOR PLAN
B118

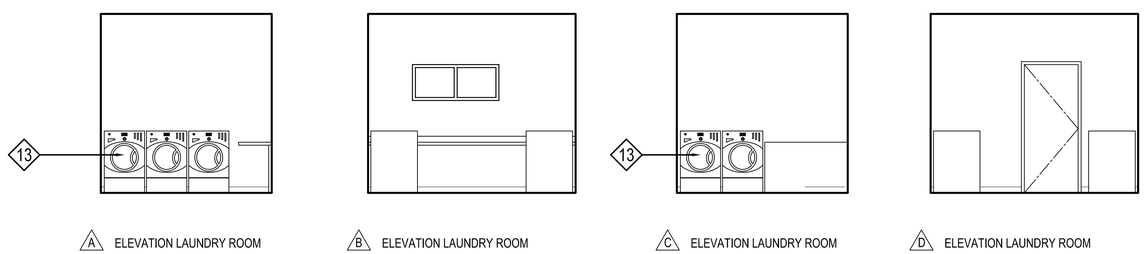


A ELEVATION JANITOR'S ROOM
B ELEVATION JANITOR'S ROOM
C ELEVATION JANITOR'S ROOM
B ELEVATION JANITOR'S ROOM

3 INTERIOR ELEVATIONS JANITOR'S ROOM



D ENLARGED LAUNDRY ROOM FLOOR PLAN
B104 & B129



A ELEVATION LAUNDRY ROOM
B ELEVATION LAUNDRY ROOM
C ELEVATION LAUNDRY ROOM
D ELEVATION LAUNDRY ROOM

4 INTERIOR ELEVATIONS LAUNDRY ROOM

BARRACKS - INTERIOR ELEVATIONS

1/4"=1'-0" 0' 5' 10' 20'

GENERAL NOTES

KEY NOTES

1. FLOOR MOUNTED WATER CLOSET TO BE INSTALLED, COORDINATE WITH PLUMBING PLANS; SEE DETAILS — 1 / B-A5.1 | B-2.1
2. ACCESSIBLE LAVATORY TO BE INSTALLED, INSULATE HOT WATER AND WASTE PIPING; SEE DETAIL — 1 / B-A5.1 | B-2.1
3. STAINLESS STEEL FRAMED GLASS MIRROR TO BE INSTALLED, SEE DETAIL — 2 / B-A5.1 | B-2.1
4. SEMI RECESSED STAINLESS STEEL COMBINATION TOWEL DISPENSER AND WASTE RECEPTACLE TO BE INSTALLED, SEE DETAIL — 2 / B-A5.1 | B-2.1
5. 42" STAINLESS STEEL GRAB BAR TO BE INSTALLED, SEE DETAILS — 1 / B-A5.1 | B-2.1 & 4 / B-A5.1 | B-2.1
6. 36" STAINLESS STEEL GRAB BAR TO BE INSTALLED, SEE DETAILS — 1 / B-A5.1 | B-2.1 & 4 / B-A5.1 | B-2.1
7. SEMI RECESSED STAINLESS STEEL TOILET PAPER DISPENSER TO BE INSTALLED, SEE DETAIL — 1 / B-A5.1 | B-2.1
8. ADA ACCESSIBLE SHOWER TO BE INSTALLED, SEE DETAIL — 5 / B-A5.1 | B-2.1
9. FLOOR DRAIN, COORDINATE WITH PLUMBING PLANS
10. ADA ACCESSIBLE BENCH TO BE INSTALLED, SEE DETAIL — 10 / A5.1 | A8.1.1
11. MOP SINK, COORDINATE WITH PLUMBING PLANS; INSTALL A RAISED CONCRETE PEDESTAL UNDER THE MOPSINK FOOTPRINT; ATTEMPT TO INSTALL IN HEIGHTS THAT WILL ACCOMODATE COVERING THE SIDES WITH 4" RUBBER BASE
12. 4'-0" RFP WAINSCOTT TO BE INSTALLED AT WALLS ADJACENT TO MOP SINK
13. WASHER AND DRYER; COORDINATE WITH ELECTRICAL, MECHANICAL AND PLUMBING PLANS
14. CERAMIC TILE COVED BASE TO BE INSTALLED, SEE FINISH SCHEDULE SHEET XXX

MANUFACTURERS SPECS :

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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ARCHITECTURE AND ENVIRONMENTAL PLANNING
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95816 916 443 5747

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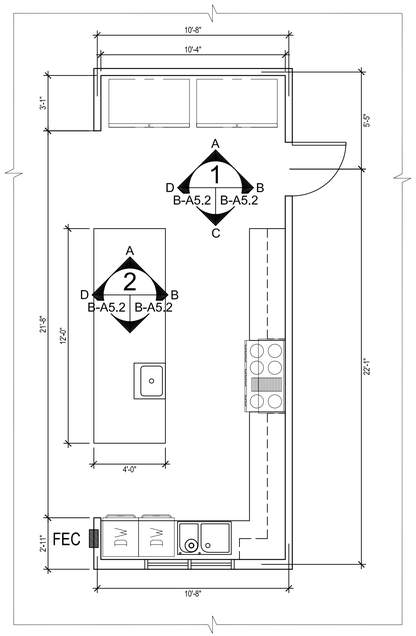
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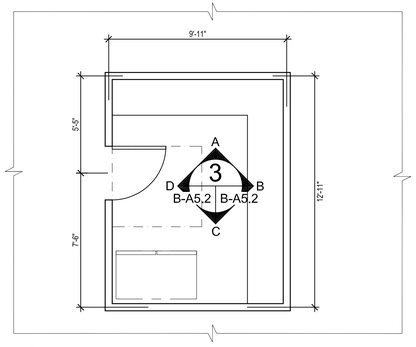
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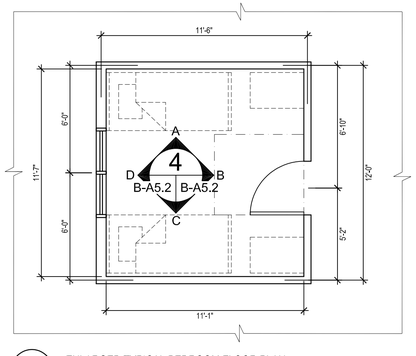
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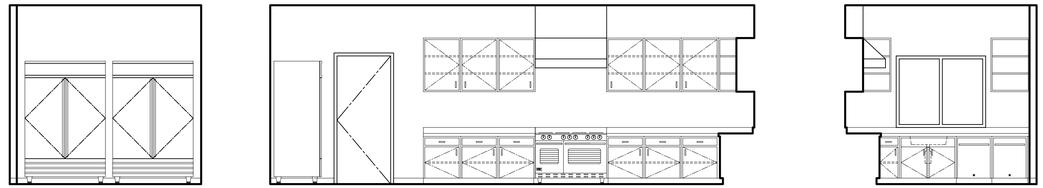
A ENLARGED KITCHEN FLOOR PLAN
B124



B ENLARGED PANTRY FLOOR PLAN
B125

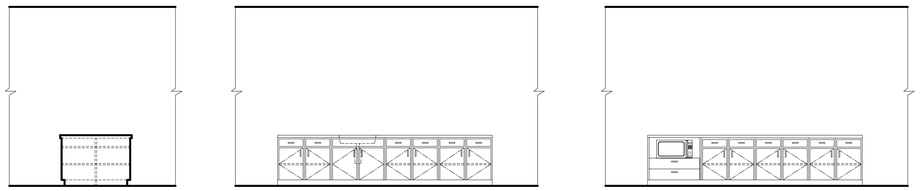


C ENLARGED TYPICAL BEDROOM FLOOR PLAN
B105, B106, B107, B108, B109, B110, B111, B131, B132, B133, B134, B135 & B136



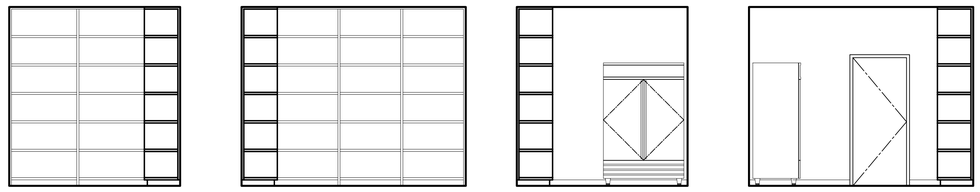
A ELEVATION KITCHEN
B ELEVATION KITCHEN
C ELEVATION KITCHEN

1 INTERIOR ELEVATIONS KITCHEN



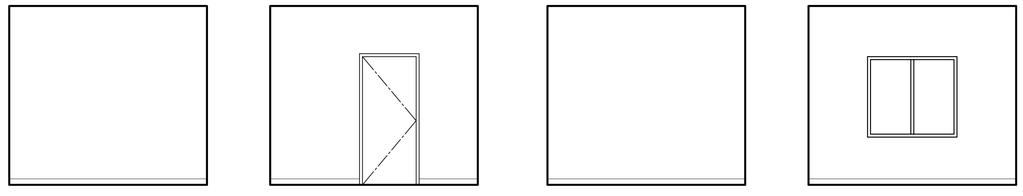
A ELEVATION ISLAND
B ELEVATION ISLAND
D ELEVATION ISLAND

2 INTERIOR ELEVATIONS KITCHEN



A ELEVATION PANTRY
B ELEVATION PANTRY
C ELEVATION PANTRY
D ELEVATION PANTRY

3 INTERIOR ELEVATIONS PANTRY



A ELEVATION BEDROOM
B ELEVATION BEDROOM
C ELEVATION BEDROOM
D ELEVATION BEDROOM

4 INTERIOR ELEVATIONS BEDROOM

BARRACKS - INTERIOR ELEVATIONS

1/4"=1'-0"

0' 5' 10' 20'

GENERAL NOTES

KEY NOTES

LEGEND:

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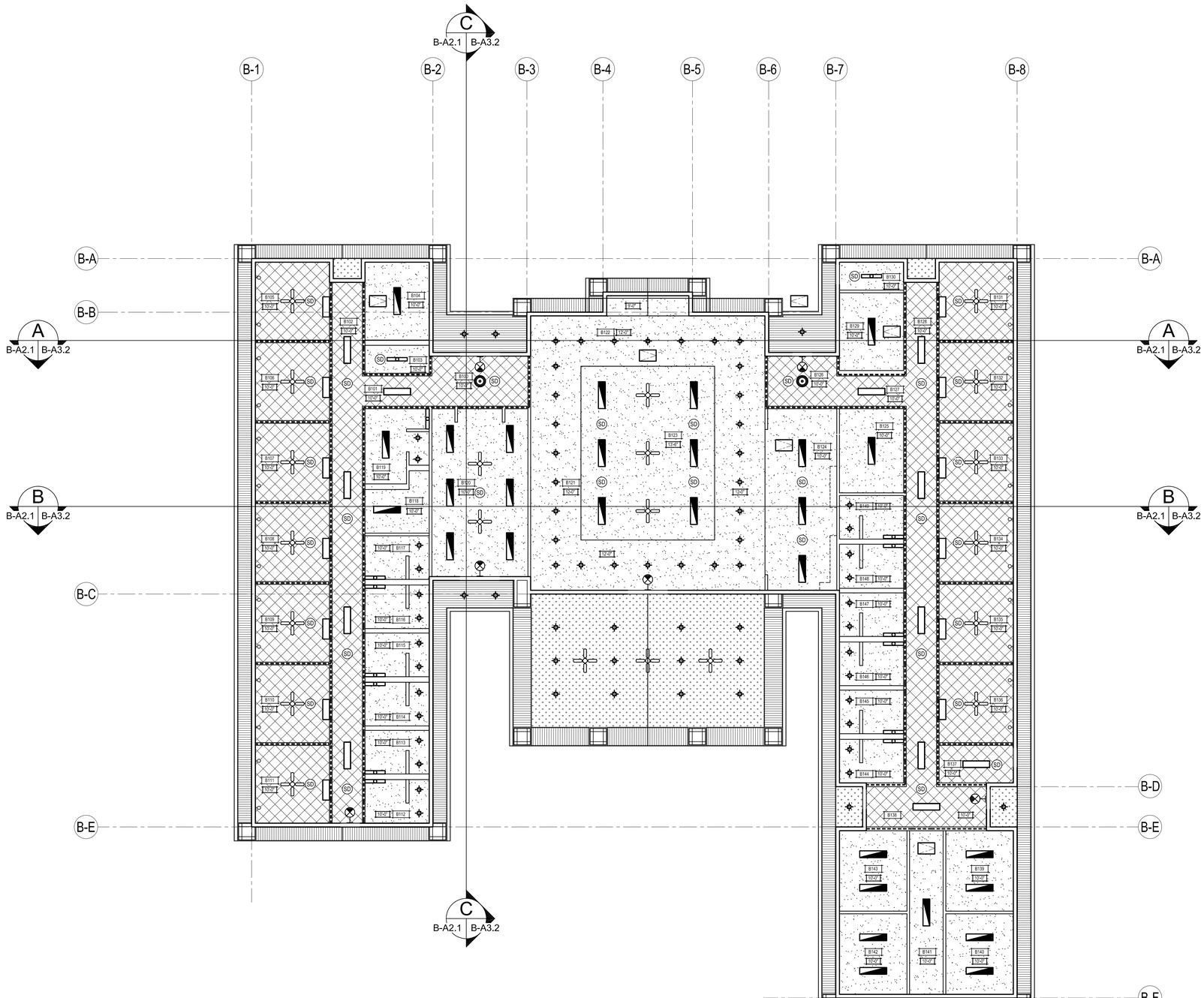
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BARRACKS REFLECTED CEILING PLAN

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

1. MAINTAIN CEILING HEIGHTS AND LIGHTING LAYOUT PATTERNS SHOWN, UNLESS OTHERWISE APPROVED BY ARCHITECT. CONFLICTS CAUSED BY DUCTWORK, SPRINKLER PIPING, CONDUIT, AND/OR OTHER ITEMS OR FEATURES OF CONSTRUCTION SHALL NOT CONSTITUTE CAUSE FOR VARIANCE FROM CEILING HEIGHTS AND/OR LIGHTING LAYOUTS INDICATED IN THESE DRAWINGS. COORDINATE ALL WORK TO ACHIEVE HEIGHTS AND LAYOUTS AS INDICATED IN THESE DRAWINGS.
2. SEE ELECTRICAL PLANS FOR LOCATIONS OF ILLUMINATED EXIT SIGNS, TYP.
3. REFER TO MECHANICAL, FIRE PROTECTION, AND ELECTRICAL PLANS FOR ADDITIONAL CONSTRUCTION FEATURES, SYSTEMS, FIXTURES, AND EQUIPMENT LOCATED IN, ON, AND ABOVE CEILINGS TO THE EXTENT THAT THESE ITEMS ARE SHOWN ON REFLECTED CEILING PLANS, THEY ARE FOR GENERAL INFORMATION AND LAYOUT PURPOSES ONLY, AND DO NOT NECESSARILY ACTUAL SCOPE OR QUANTITIES REQUIRED FOR THIS PROJECT.
4. SPRINKLER HEAD LOCATIONS SHALL RESULT IN A UNIFORM AND REPETITIVE PATTERN FOR EACH AREA, AND SHALL BE LOCATED SYMMETRICALLY WITH RESPECT TO WALLS, CEILING GRID PATTERNS, AND LIGHT FIXTURES.

KEY NOTES

LEGEND: WALL TYPES

NON- FIRE RATED WALL

1 HOUR FIRE RATED WALL

LEGEND: CEILING / SOFFIT TYPES

EXTERIOR METAL FLAT PANEL VENTED SOFFIT

1 HOUR FIRE RATED CEILING IN BEDROOMS AND CORRIDORS

PORTLAND CEMENT PLASTER WITH REINFORCED ACRYLIC FINISH SYSTEM

5/8" GYPSUM BOARD CEILING, MOISTURE RESISTANT WHERE REQUIRED PER SPECIFICATION

CEILING HEIGHT TAG

LEGEND: ELECTRICAL / MECHANICAL

NOTE: ELECTRICAL MECHANICAL DEVICES ARE SHOWN FOR COORDINATION WITH WALLS. SEE MECHANICAL ELECTRICAL PLANS FOR ALL REQUIREMENTS

PENDANT LIGHT

RECESSED 1 X 4 LIGHT

SURFACE MOUNTED 1 X 4 LIGHT

WALL MOUNTED LIGHT

RECESSED CAN LIGHT

WALL MOUNTED READING LIGHT

FLUSH MOUNTED CEILING FAN WITH LIGHT AND DOWNROD MOUNTED AT EXTERIOR PATIO

SMOKE DETECTOR

ILLUMINATED EXIT SIGN

INSULATED ATTIC ACCESS DOOR, 20" x 30"

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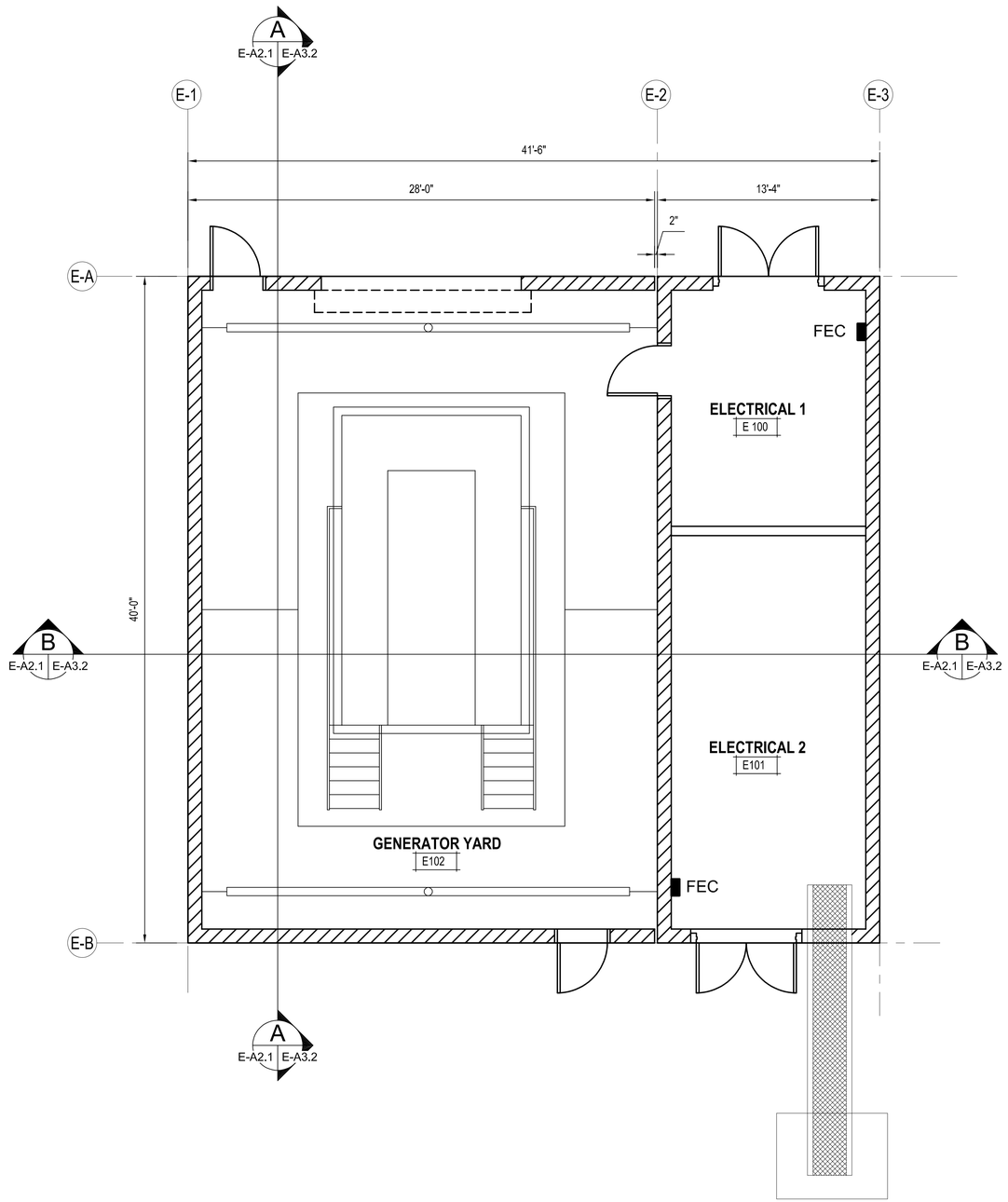
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NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR

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date	5-1-2019
cad file name	B-A6.1.dwg
drawing no.	B-A6.1
sheet title	BARRACKS
sheet no.	RCP
of	sheets

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GENERATOR WITH DIESEL BELLY TANK ELECTRICAL FLOOR PLAN - 1667 SF

1/4"=1'-0" 0' 5' 10' 20'

GENERAL NOTES

KEY NOTES

LEGEND:

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
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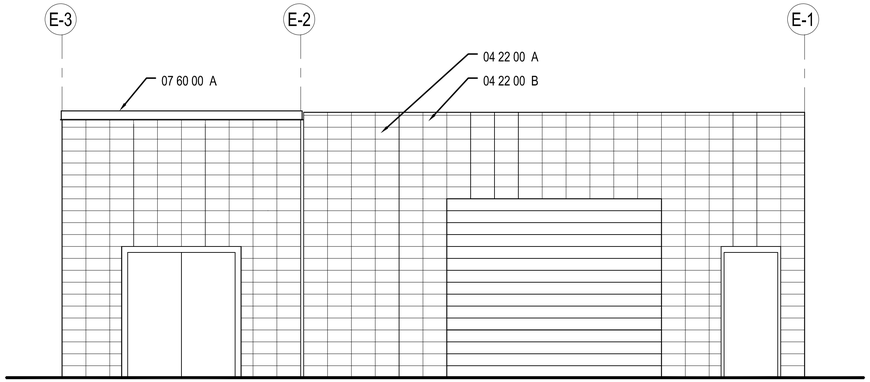
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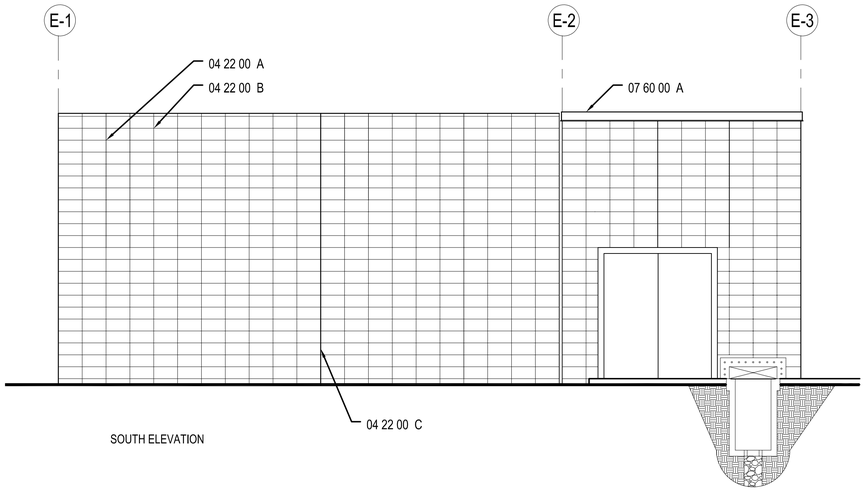
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drawing no.
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sheet title ELECTRICAL/
sheet no. GENERATOR PLAN
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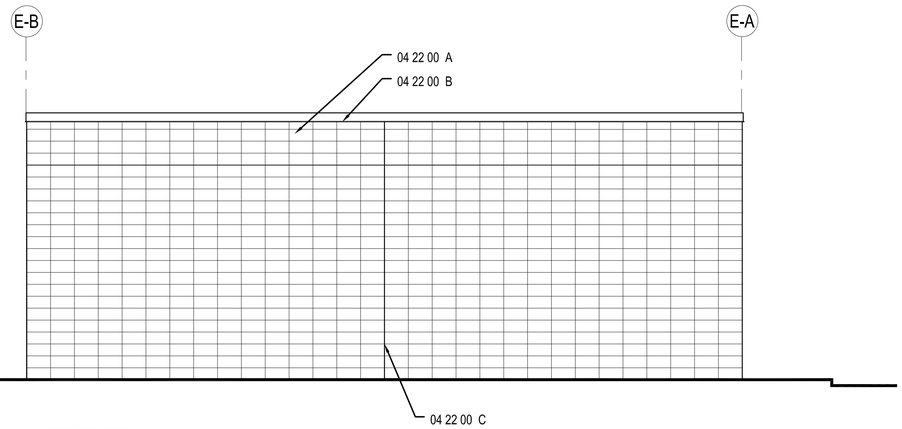
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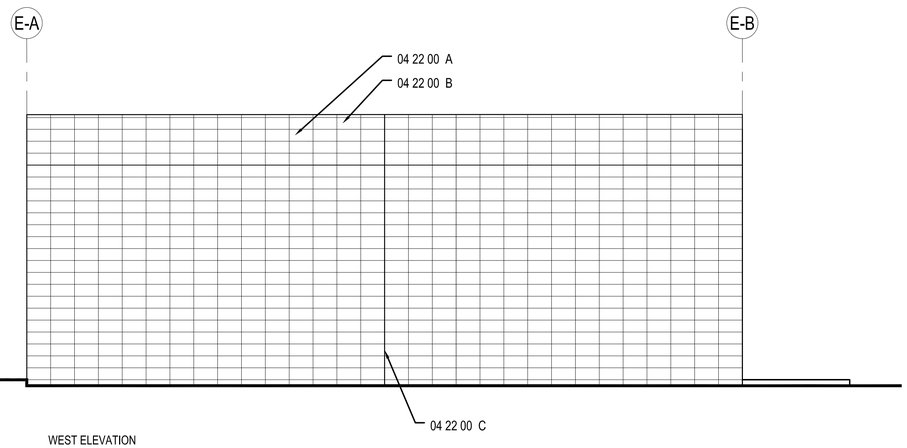
NORTH ELEVATION



SOUTH ELEVATION



EAST ELEVATION



WEST ELEVATION

GENERATOR WITH DIESEL BELLY TANK ELECTRICAL FLOOR PLAN - 1667 SF

1/4"=1'-0" 0' 5' 10' 20'

GENERAL NOTES

KEY NOTES

DIVISION 04 MASONRY

SECTION 04 22 00 CONCRETE UNIT MASONRY

04 22 00 A CONCRETE UNIT MASONRY IN STACK BOND
04 22 00 B CONCRETE UNIT MASONRY SEALER (2 COATS)
04 22 00 C CONCRETE MASONRY EXPANSION JOINT

DIVISION 07 THERMAL AND MOISTURE PROTECTION

SECTION 07 60 00 FLASHING AND SHEET METAL

07 60 00 A GALVANIZED STEEL PARAPET CAP, PAINTED FINISH

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CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
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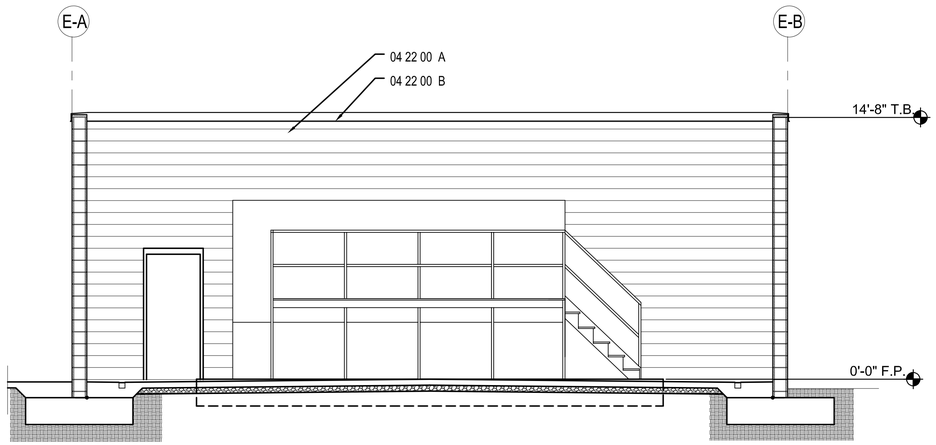
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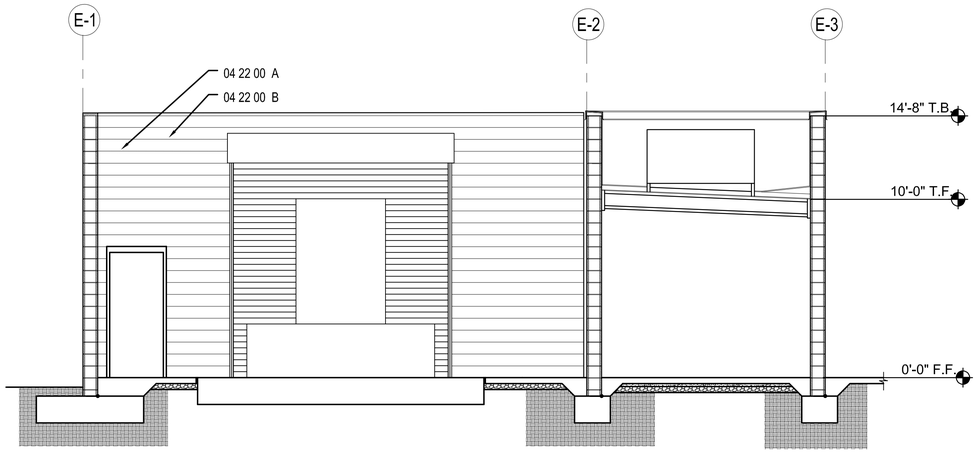
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drawing no.	E-A3.1
sheet title	ELECTRICAL/ GENERATOR ELEVATIONS
sheet no.	
of	sheets

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SECTION A-A



SECTION B-B

ELECTRICAL BUILDING SECTIONS

1/4"=1'-0"

0' 5' 10' 20'

GENERAL NOTES

KEY NOTES

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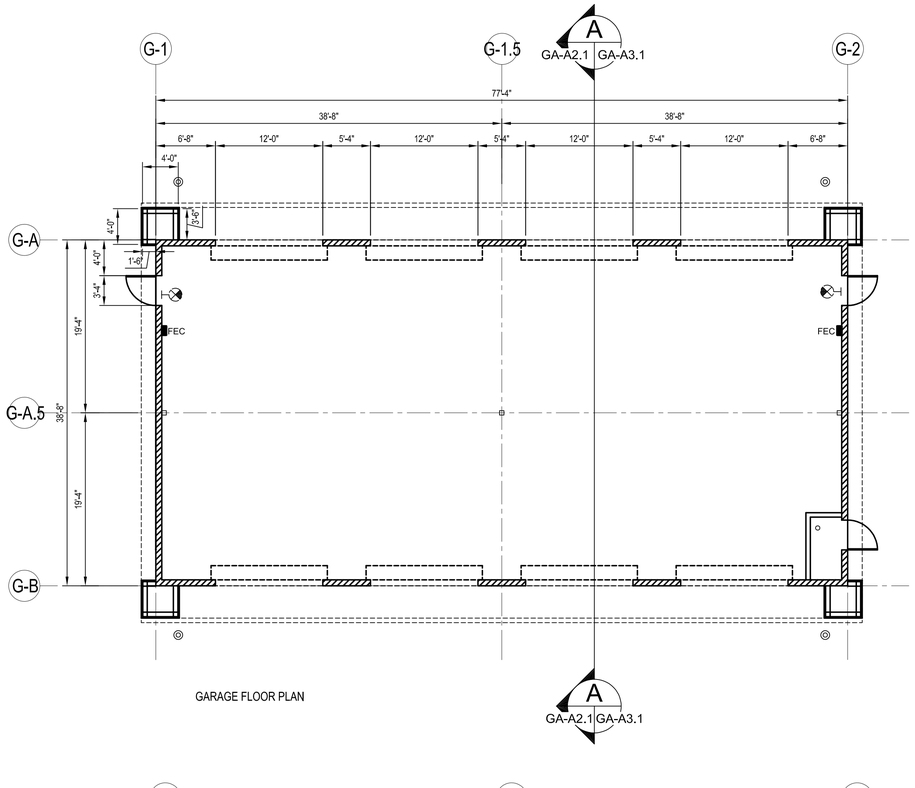
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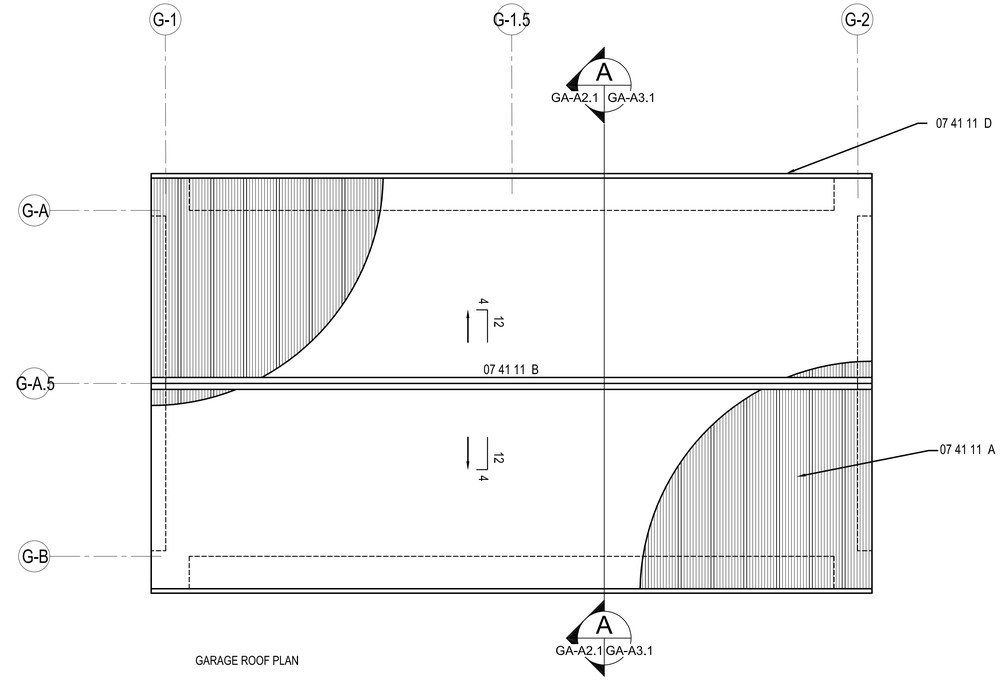
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drawing no.	E-A3.2
sheet title	ELECTRICAL/
sheet no.	SECTIONS
of	sheets

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GARAGE FLOOR PLAN



GARAGE ROOF PLAN

SUPPORT VEHICLE GARAGE - 2,990 SF

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

KEY NOTES ROOF PLAN

DIVISION 07 THERMAL AND MOISTURE PROTECTION

SECTION 07 41 11 PREFORMED MANUFACTURED ROOF AND WALL PANELS

07 41 11 A METAL ROOF TYP.
07 41 11 B METAL ROOF RIDGE CAP
07 41 11 D METAL GUTTER TYP. AT ROOF EAVE LINES

LEGEND:

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
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PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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ARCHITECTURE AND ENVIRONMENTAL PLANNING
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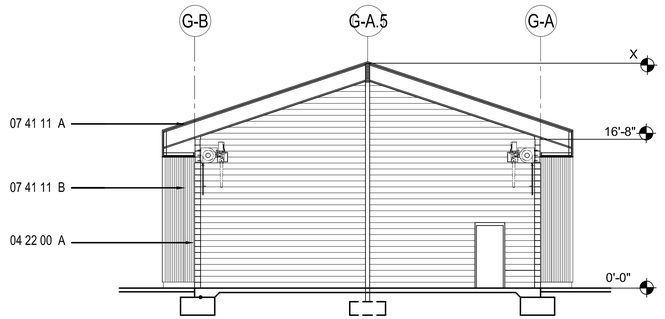
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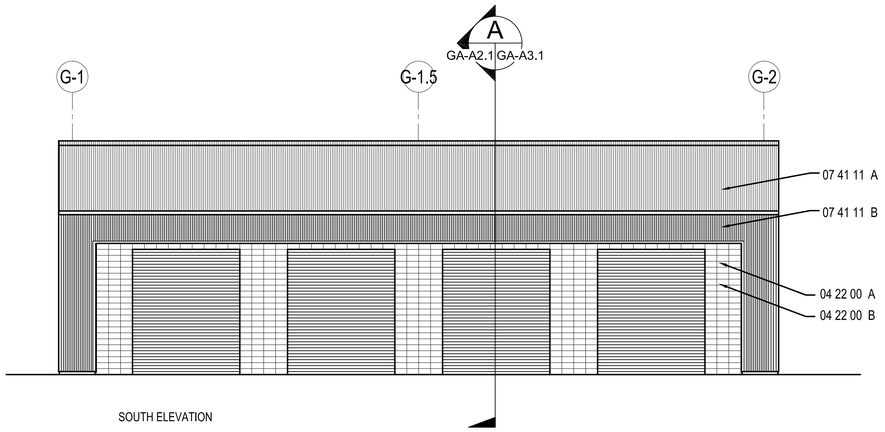
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date	5-1-2019
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drawing no.	GA-A2.1
sheet title	GARAGE FLOOR AND ROOF PLAN
sheet no.	
of	sheets

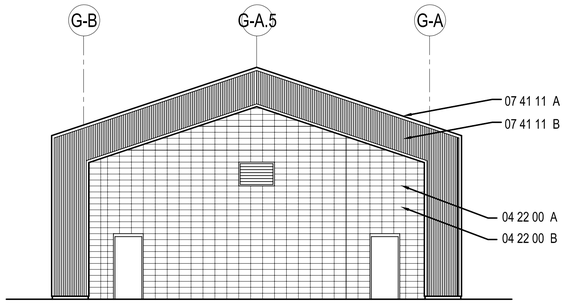
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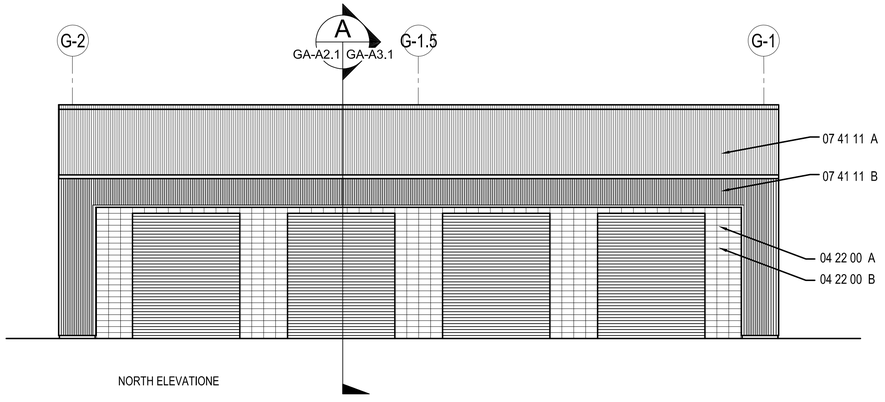
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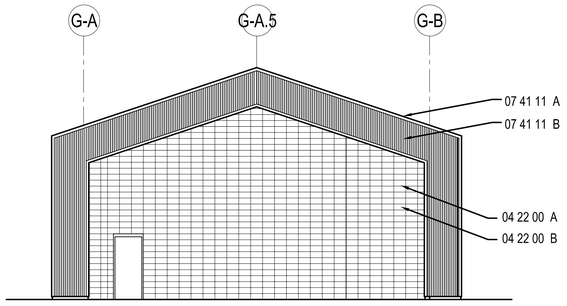
SOUTH ELEVATION



EAST ELEVATION



NORTH ELEVATIONE



WEST ELEVATION

SUPPORT VEHICLE GARAGE ELEVATIONS AND SECTION

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

DIVISION 04 MASONRY

SECTION 04 22 00 CONCRETE UNIT MASONRY

04 22 00 A CONCRETE UNIT MASONRY IN STACK BOND
04 22 00 B CONCRETE UNIT MASONRY SEALER (2 COATS)

DIVISION 07 THERMAL AND MOISTURE PROTECTION

SECTION 07 41 11 PREFORMED MANUFACTURED ROOF AND WALL PANELS

07 41 11 A METAL ROOF TYP.
07 41 11 B METAL WALL PANELS

LEGEND:

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
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Sacramento, California
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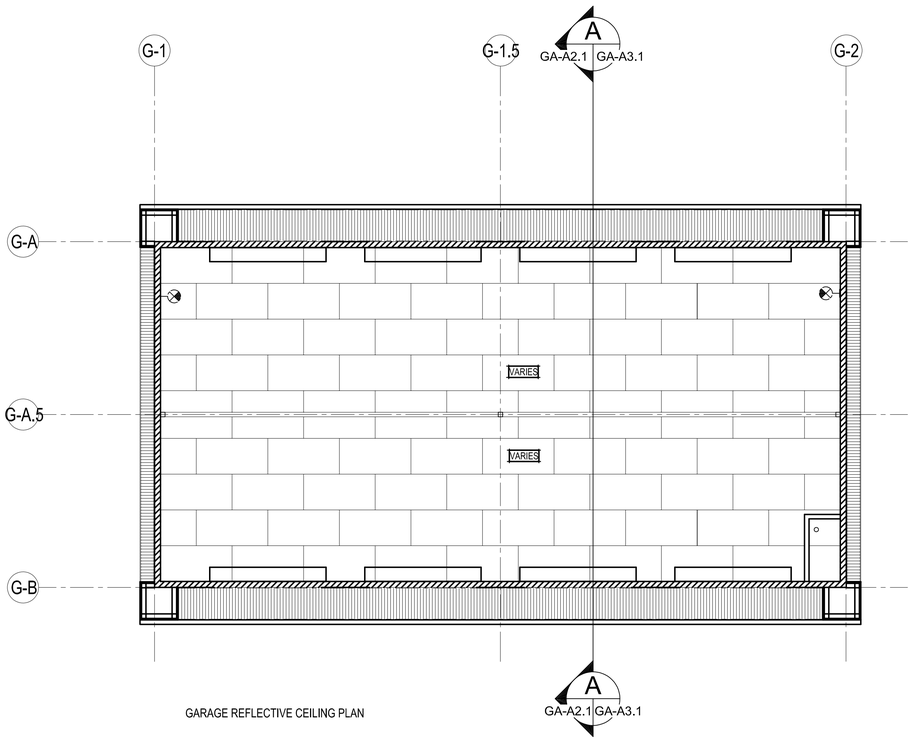
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sheet no.	ELEVATIONS SECTION
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GARAGE REFLECTIVE CEILING PLAN

SUPPORT VEHICLE GARAGE REFLECTIVE CEILING PLAN

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

LEGEND: CEILING / SOFFIT TYPES

- EXTERIOR METAL FLAT PANEL VENTED SOFFIT
- 1/2" PLYWOOD CEILING TO INSTALLED TO UNDERSIDE OF JOIST FRAMING
- 5/8" GYPSUM BOARD CEILING, MOISTURE RESISTANT WHERE REQUIRED PER SPECIFICATION
- X'-XX" CEILING HEIGHT TAG

LEGEND: ELECTRICAL / MECHANICAL

NOTE: ELECTRICAL MECHANICAL DEVICES ARE SHOWN FOR COORDINATION WITH WALLS. SEE MECHANICAL ELECTRICAL PLANS FOR ALL REQUIREMENTS

- CEILING MOUNTED LIGHT
- WALL MOUNTED LIGHT
- RECESSED CAN LIGHT
- SD SMOKE DETECTOR
- ILLUMINATED EXIT SIGN

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
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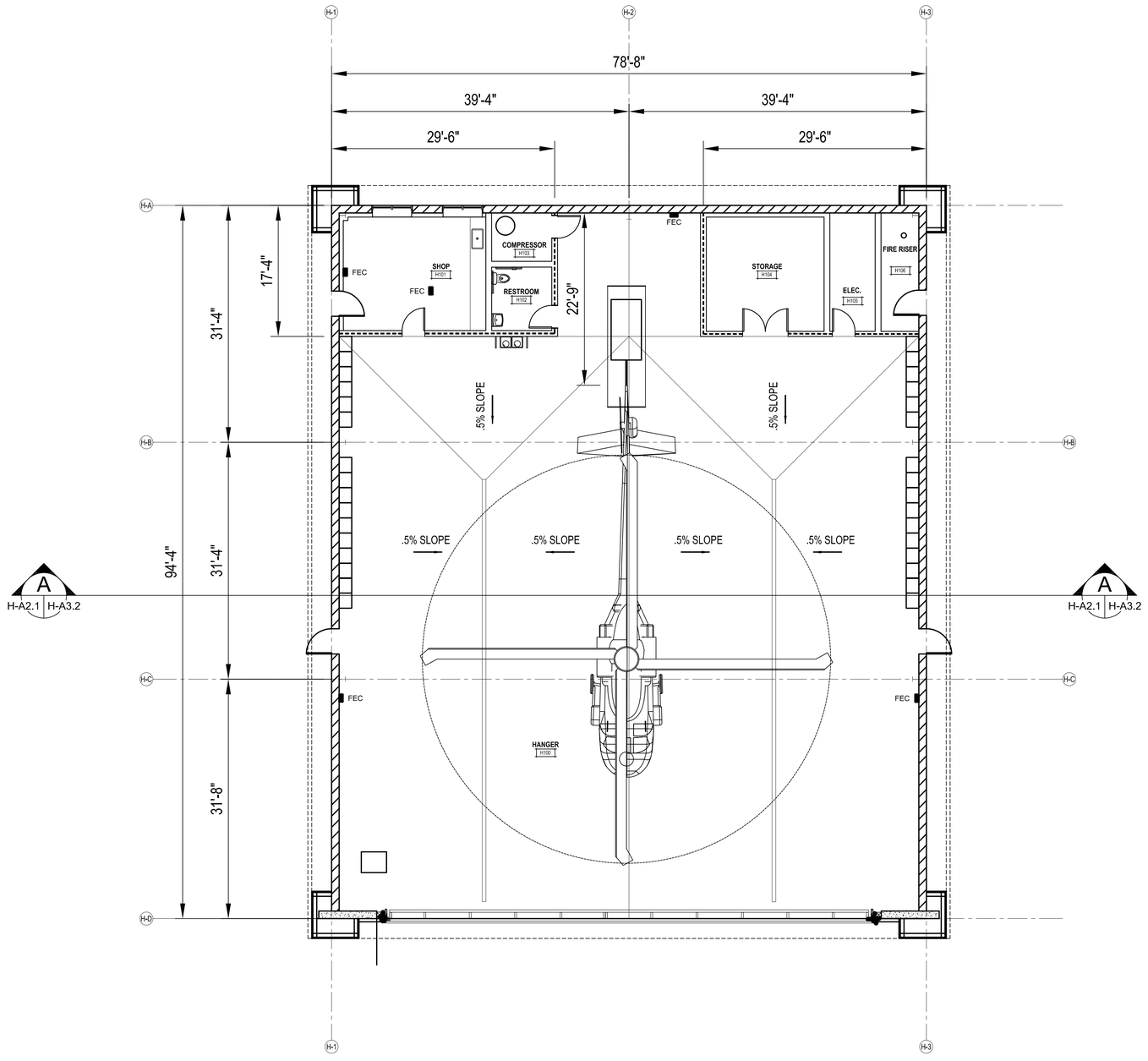
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cad file name GA-A6.1.dwg
drawing no.
GA-A6.1
sheet title GARAGE RCP
sheet no.
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HANGAR FLOOR PLAN 7,421 SF.

1/8"=1'-0"

0' 5' 10' 20'

GENERAL NOTES

KEY NOTES

LEGEND:

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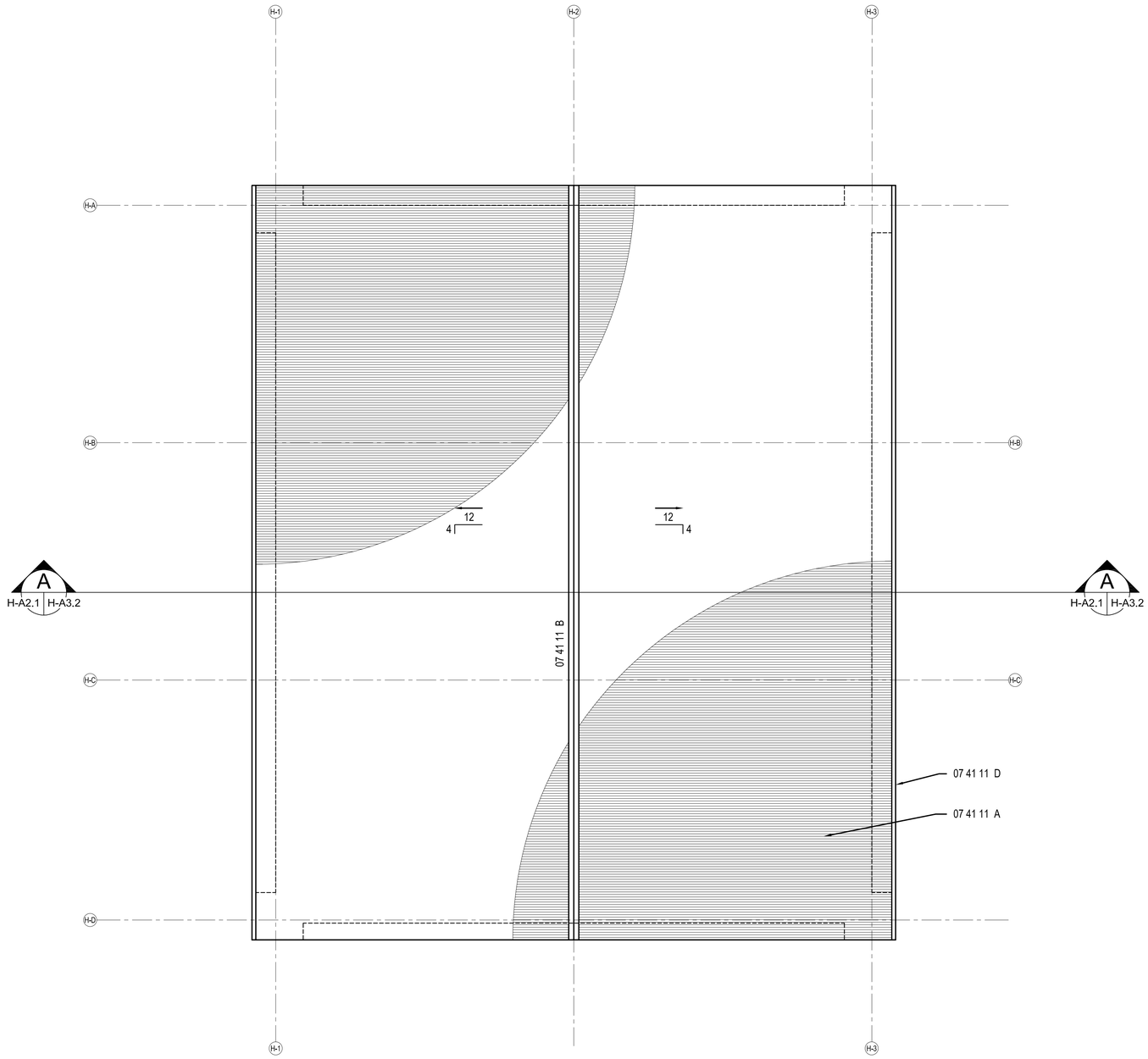
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drawing no.	H-A2.1
sheet title	HANGAR FLOOR
sheet no.	PLAN
of	sheets

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HANGAR ROOF PLAN

1/8"=1'-0"

0' 5' 10' 20' 30'

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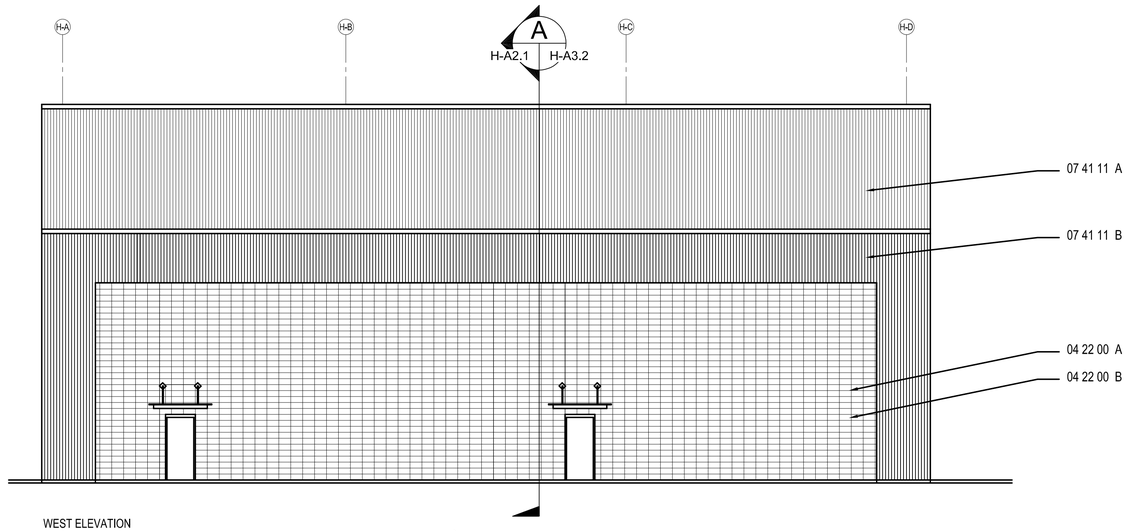
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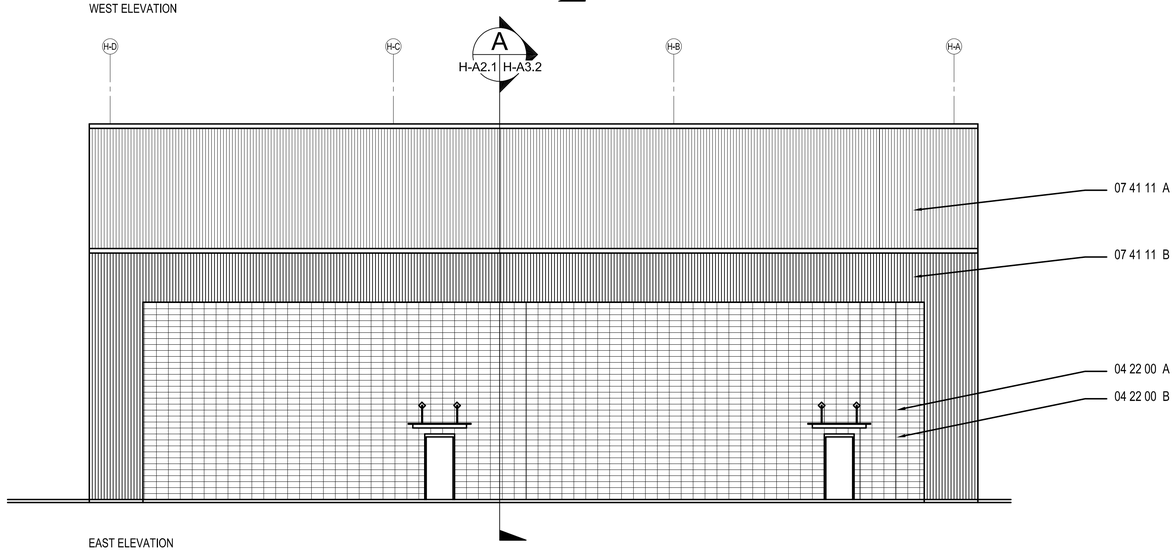
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sheet no.	PLAN
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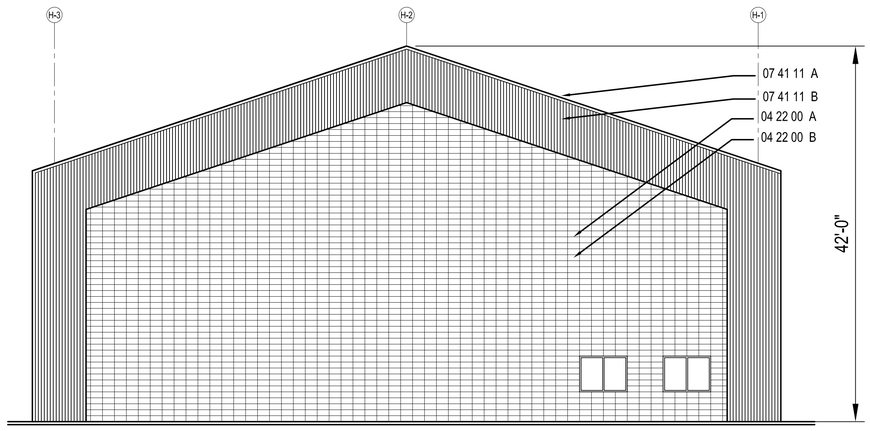
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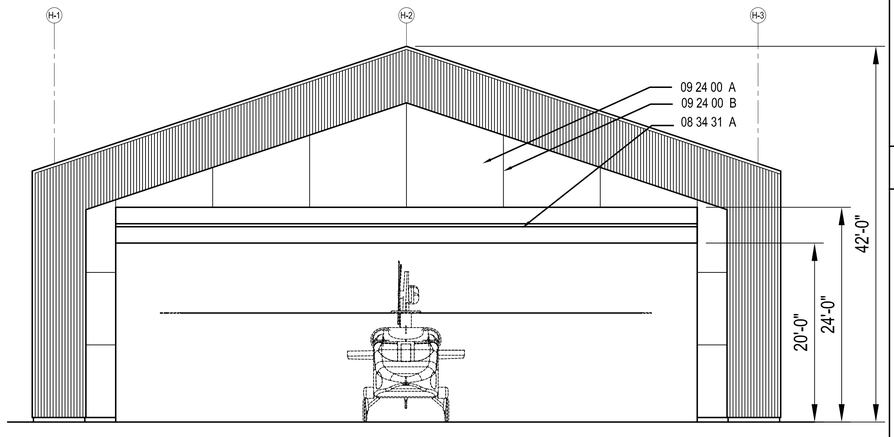
WEST ELEVATION



EAST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

HANGAR EXTERIOR ELEVATIONS

1/8"=1'-0"

0' 5' 10' 20' 30'

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DIVISION 08 OPENINGS

SECTION 08 34 31 HANGER DOOR

08 34 31 A HANGER DOOR BI FOLD

DIVISION 09 FINISHES

SECTION 09 24 00 PORTLAND CEMENT PLASTER

09 24 00 A PORTLAND CEMENT PLASTER WITH REINFORCED ACRYLIC FINISH SYSTEM
09 24 00 B PORTLAND CEMENT PLASTER CONTROL JOINTS

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Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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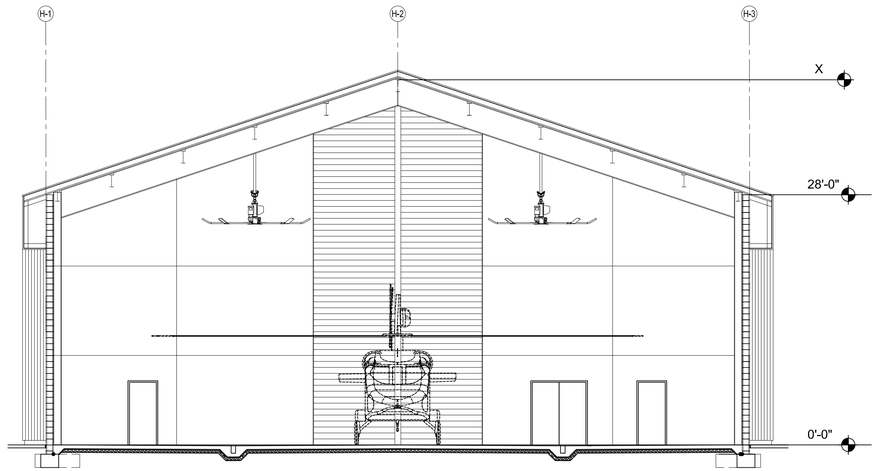
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LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR

drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	H-A3.1.dwg
drawing no.	H-A3.1
sheet title	HANGAR
sheet no.	ELEVATIONS
of	sheets



SECTION A-A

HANGAR SECTIONS

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

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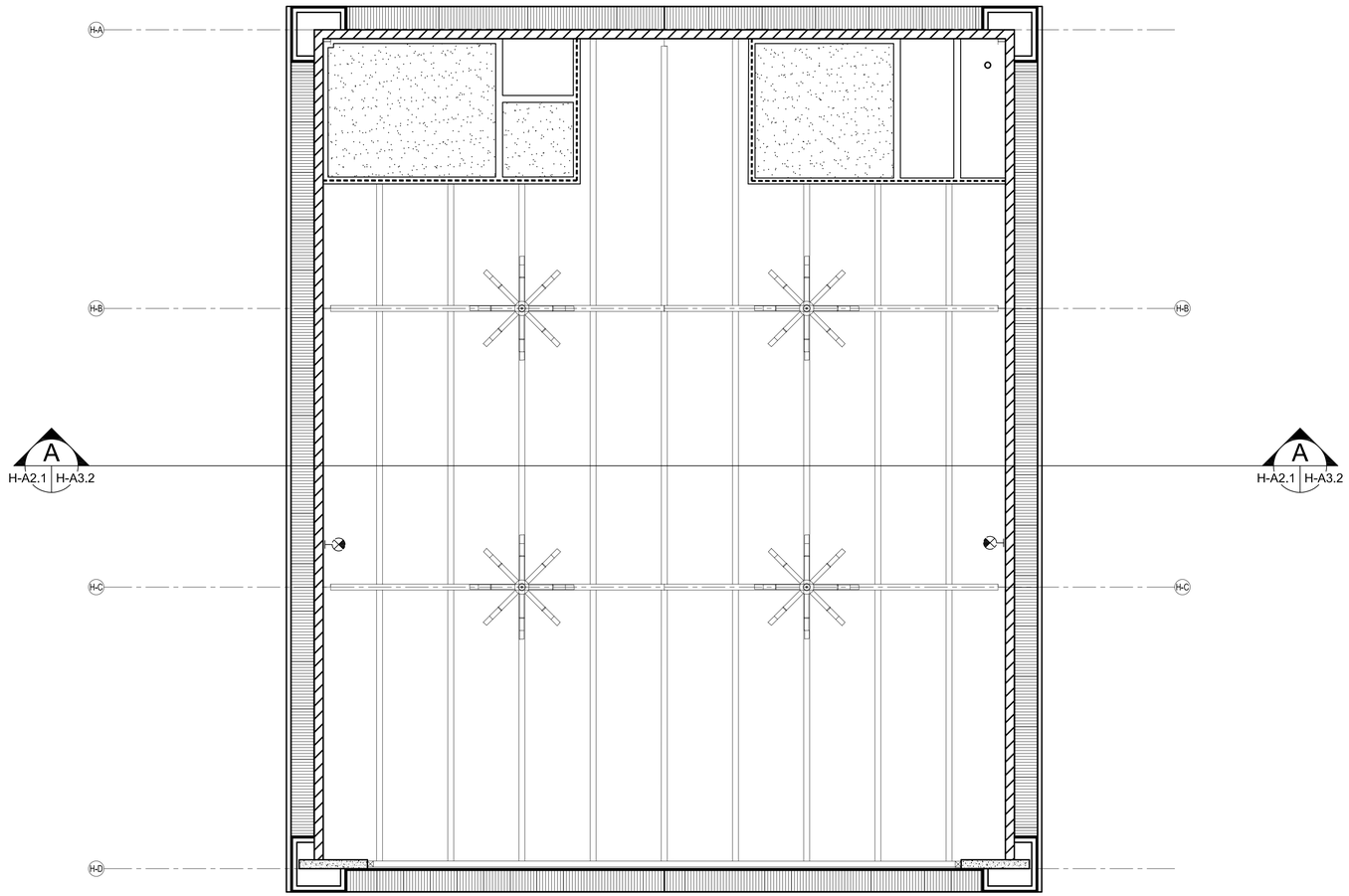
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drawing no.	H-A3.2
sheet title	HANGAR
sheet no.	SECTIONS
of	sheets

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HANGAR REFLECTED CEILING PLAN

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

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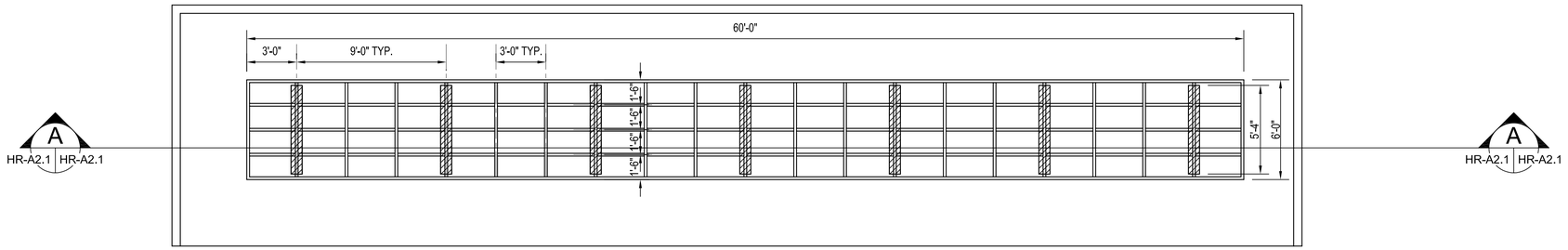
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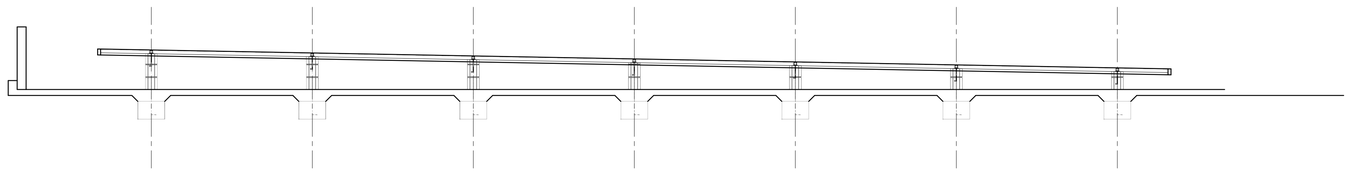
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date	5-1-2019
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sheet title	HANGER RCP
sheet no.	
of	sheets

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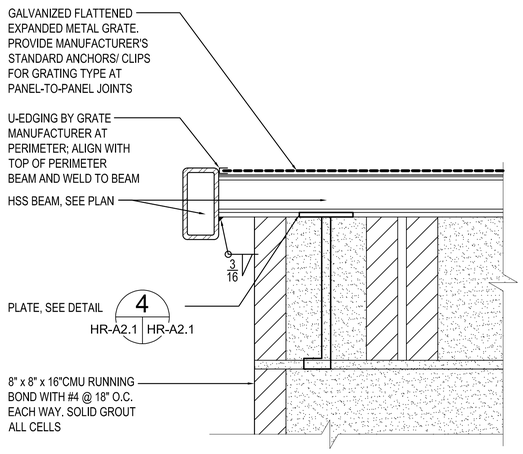
1 HOSE RACK FLOOR PLAN

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



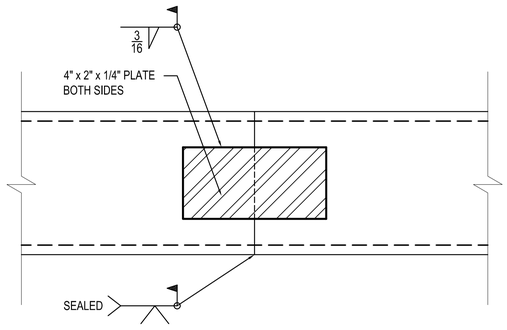
2 HOSE RACK SECTION A

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



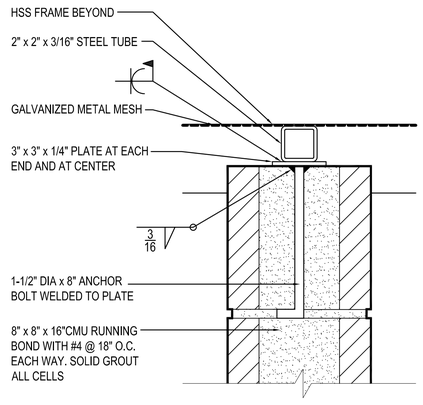
6 WASH RACK GRATING

SCALE: 3" = 1'-0"



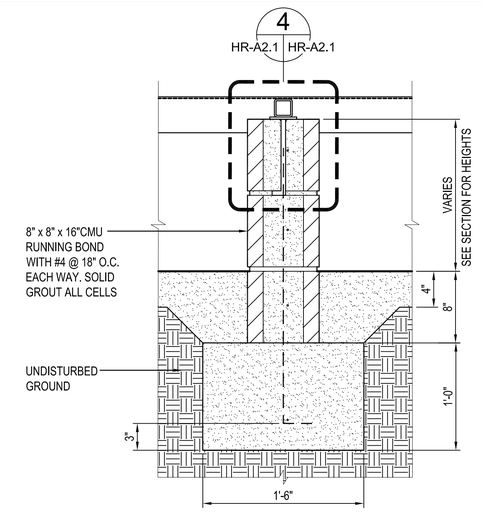
5 TUBE STEEL JOINT WELD

SCALE: 6" = 1'-0"



4 ANCHOR BOLT & PLATE

SCALE: 3" = 1'-0"



3 CMU WALL SECTION @ HOSE RACK

SCALE: 1-1/2" = 1'-0"

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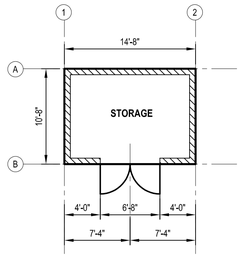
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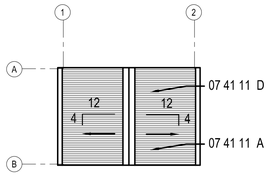
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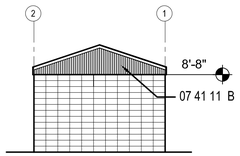
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drawing no.	HR-A2.1
sheet title	HOSE RACK
sheet no.	
of	sheets



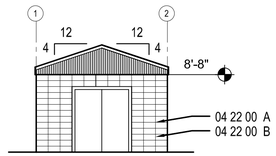
STORAGE FLOOR PLAN



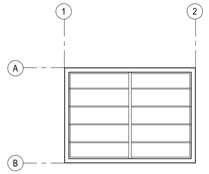
STORAGE ROOF PLAN



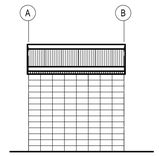
NORTH ELEVATION



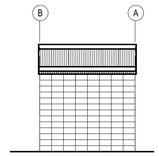
SOUTH ELEVATION



REFLECTIVE CEILING PLAN



WEST ELEVATION



EAST ELEVATION

STORAGE BUILDING - 150 SF

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

DIVISION 04 MASONRY

SECTION 04 22 00 CONCRETE UNIT MASONRY

04 22 00 A CONCRETE UNIT MASONRY IN STACK BOND
04 22 00 B CONCRETE UNIT MASONRY SEALER (2 COATS)

DIVISION 07 THERMAL AND MOISTURE PROTECTION

SECTION 07 41 11 PREFORMED MANUFACTURED ROOF AND WALL PANELS

07 41 11 A METAL ROOF TYP.
07 41 11 B METAL WALL PANELS
07 41 11 C METAL ROOF RIDGE CAP
07 41 11 D METAL GUTTER TYP. AT ROOF EAVE LINES

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707 Third Street, 4TH Floor
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916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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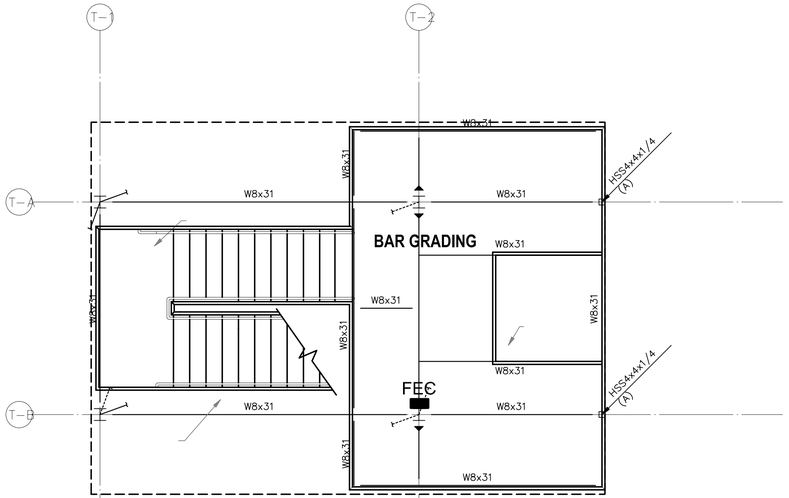
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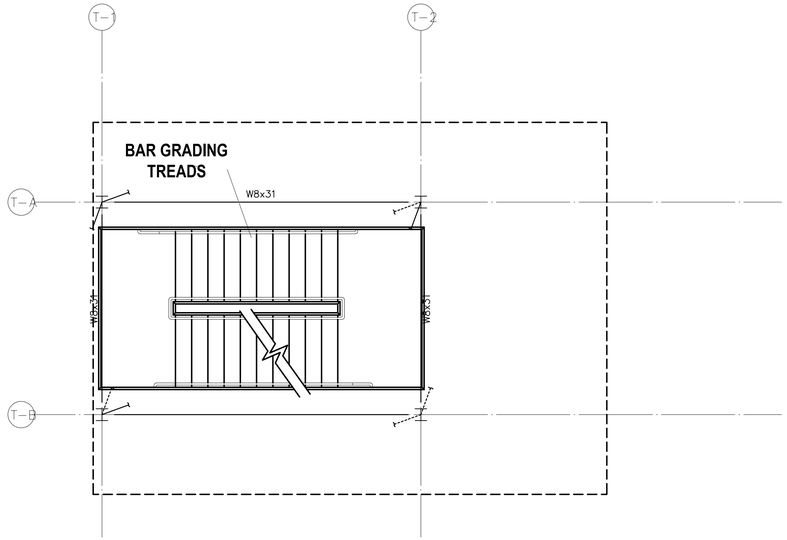
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sheet title	STORAGE BLDG.
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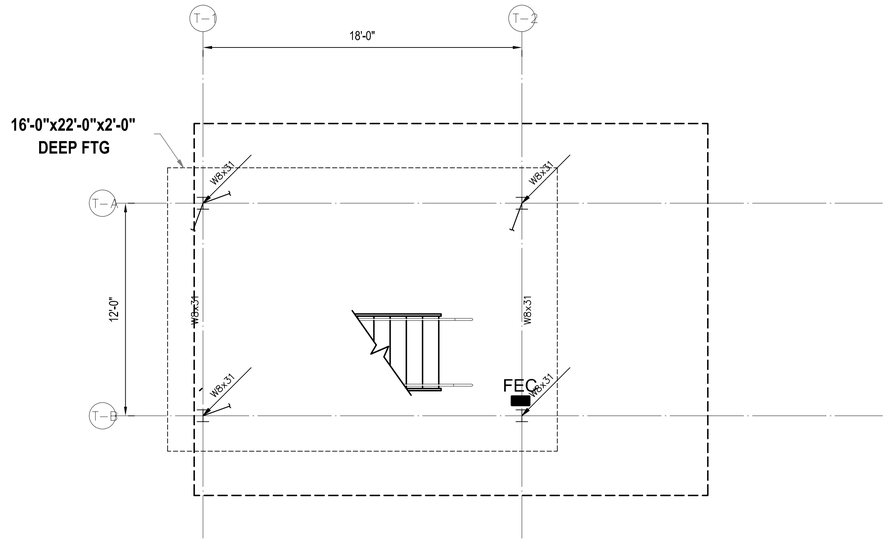
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LANDING LEVEL 5 - PLATFORM LEVEL



LANDING LEVELS 2 THROUGH 4



GROUND FLOOR-FIRST FLOOR

HELICOPTER TRAINING TOWER/ HOIST 51'-4" FLOOR PLANS

1/4"=1'-0"

0' 5' 10' 20'

GENERAL NOTES

KEY NOTES

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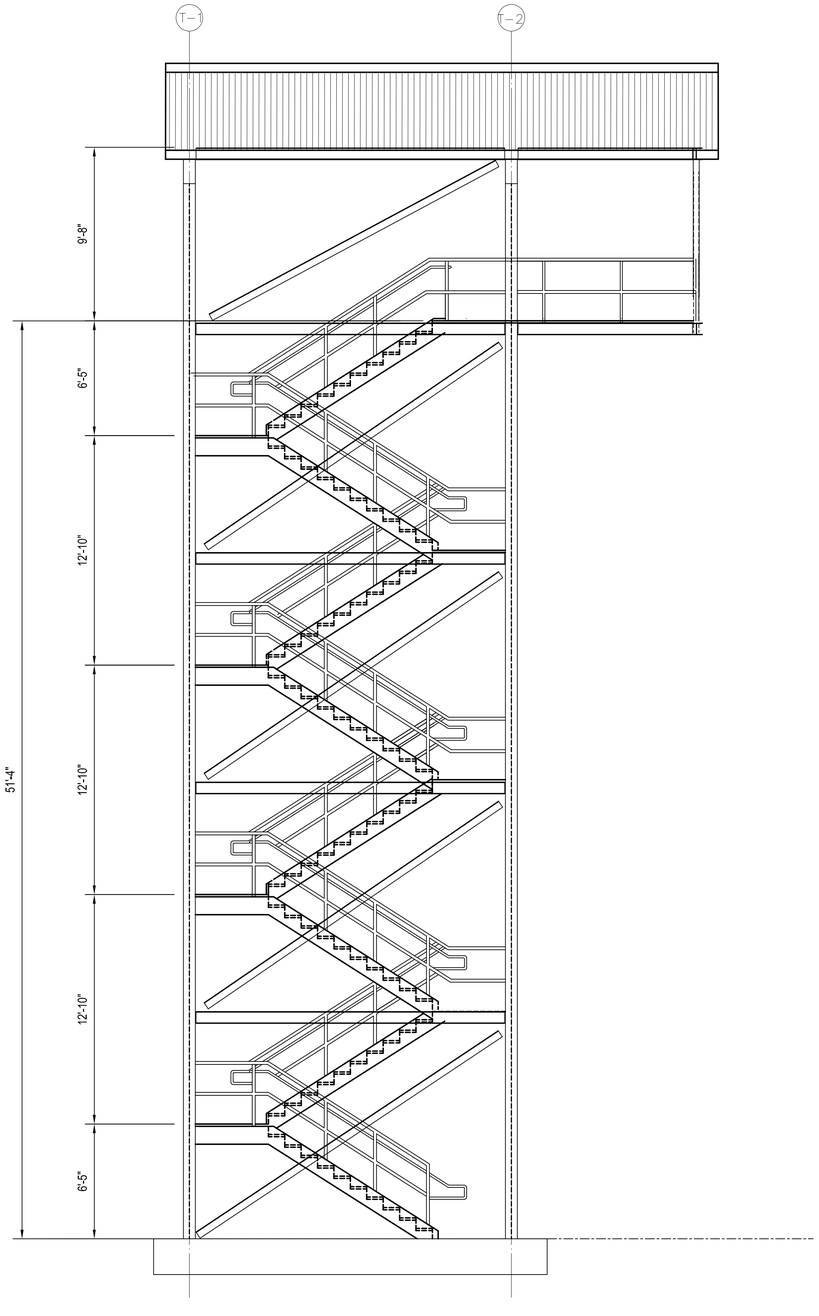
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sheet no.	
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SOUTH ELEVATION

HELICOPTER TRAINING TOWER/ HOIST 51'-4" ELEVATION

1/4"=1'-0"

0' 5' 10' 20'

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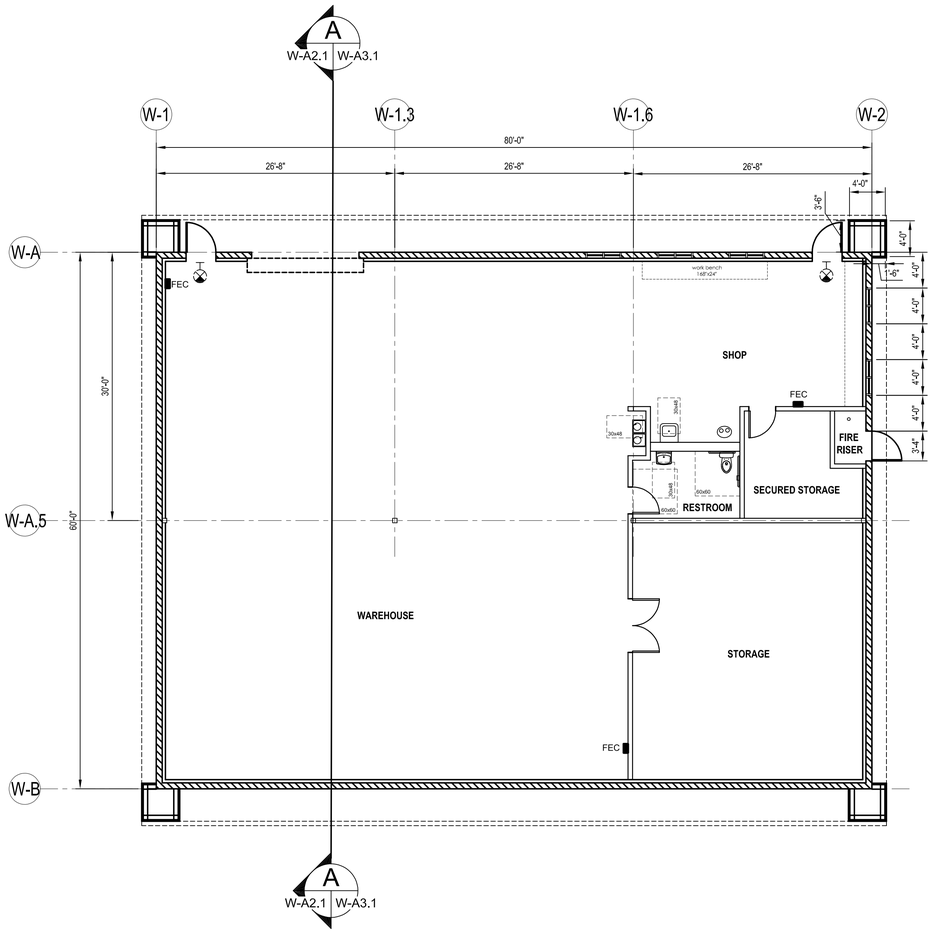
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WAREHOUSE / SHOP FLOOR PLAN 4,800 SF

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

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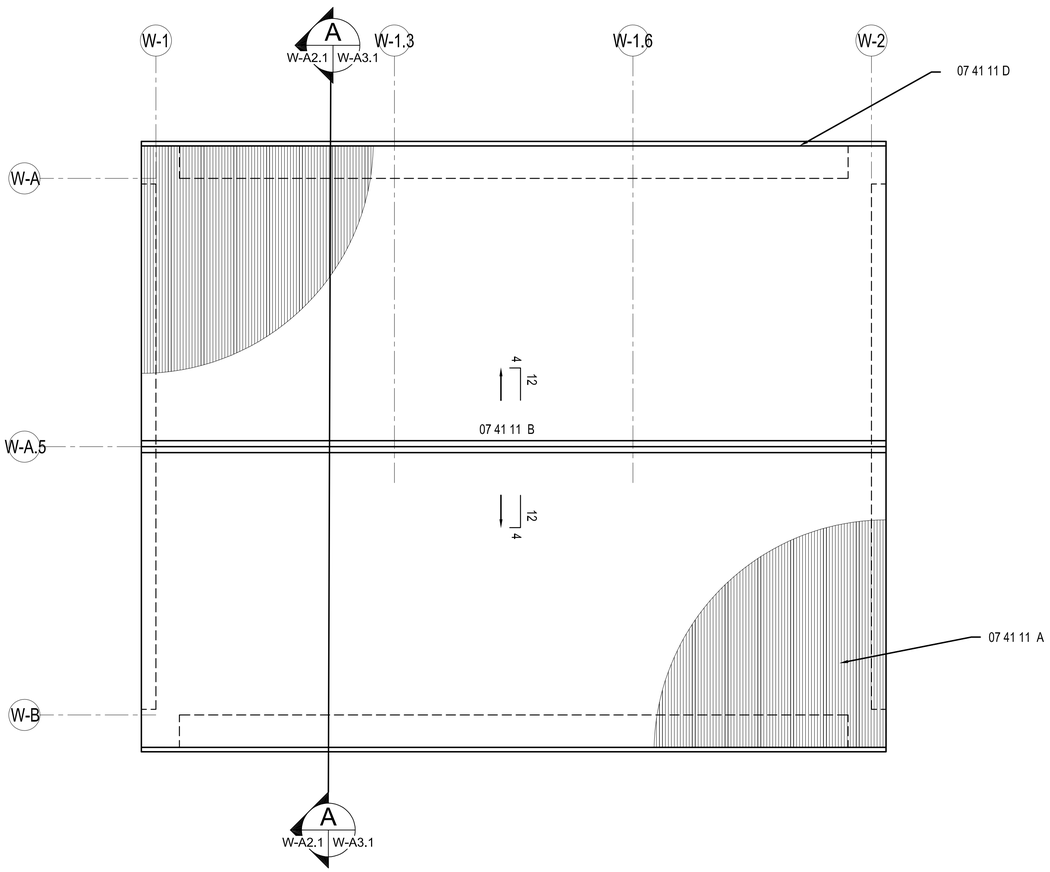
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drawing no.	W-A2.1
sheet title	WAREHOUSE
sheet no.	FLOOR PLAN
of	sheets

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WAREHOUSE / SHOP ROOF PLAN

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

KEY NOTES ROOF PLAN

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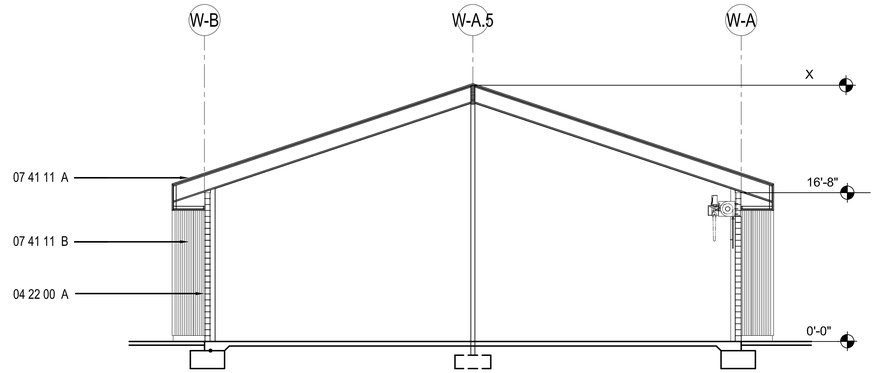
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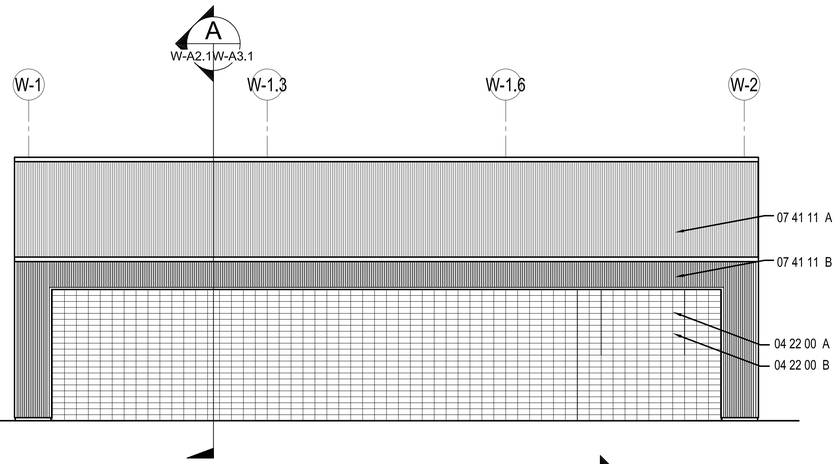
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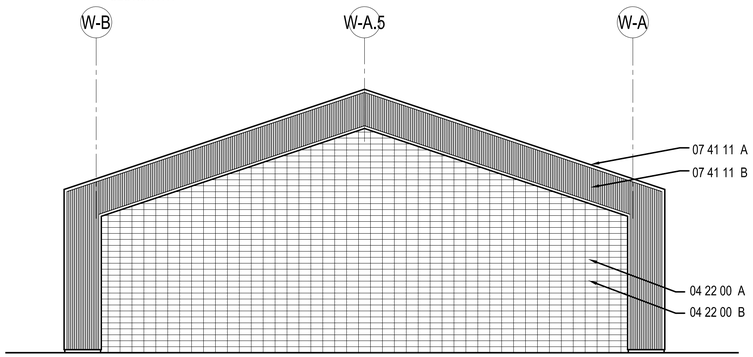
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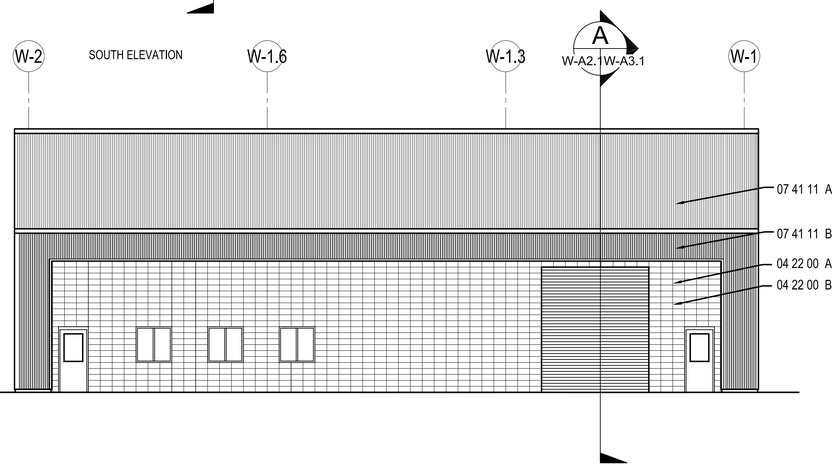
SECTION A-A



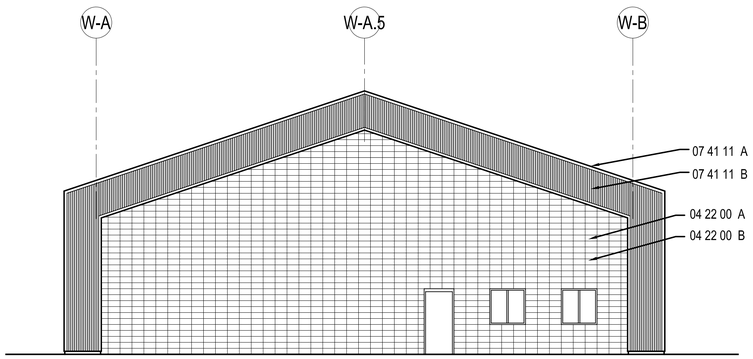
SOUTH ELEVATION



WEST ELEVATION



NORTH ELEVATION



EAST ELEVATION

WAREHOUSE / SHOP EXTERIOR ELEVATIONS AND SECTION

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

DIVISION 04 MASONRY

SECTION 04 22 00 CONCRETE UNIT MASONRY

04 22 00 A CONCRETE UNIT MASONRY IN STACK BOND
04 22 00 B CONCRETE UNIT MASONRY SEALER (2 COATS)

DIVISION 07 THERMAL AND MOISTURE PROTECTION

SECTION 07 41 11 PREFORMED MANUFACTURED ROOF AND WALL PANELS

07 41 11 A METAL ROOF TYP.
07 41 11 B METAL WALL PANELS

LEGEND:

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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CALIFORNIA STATE FIRE MARSHAL APPROVED

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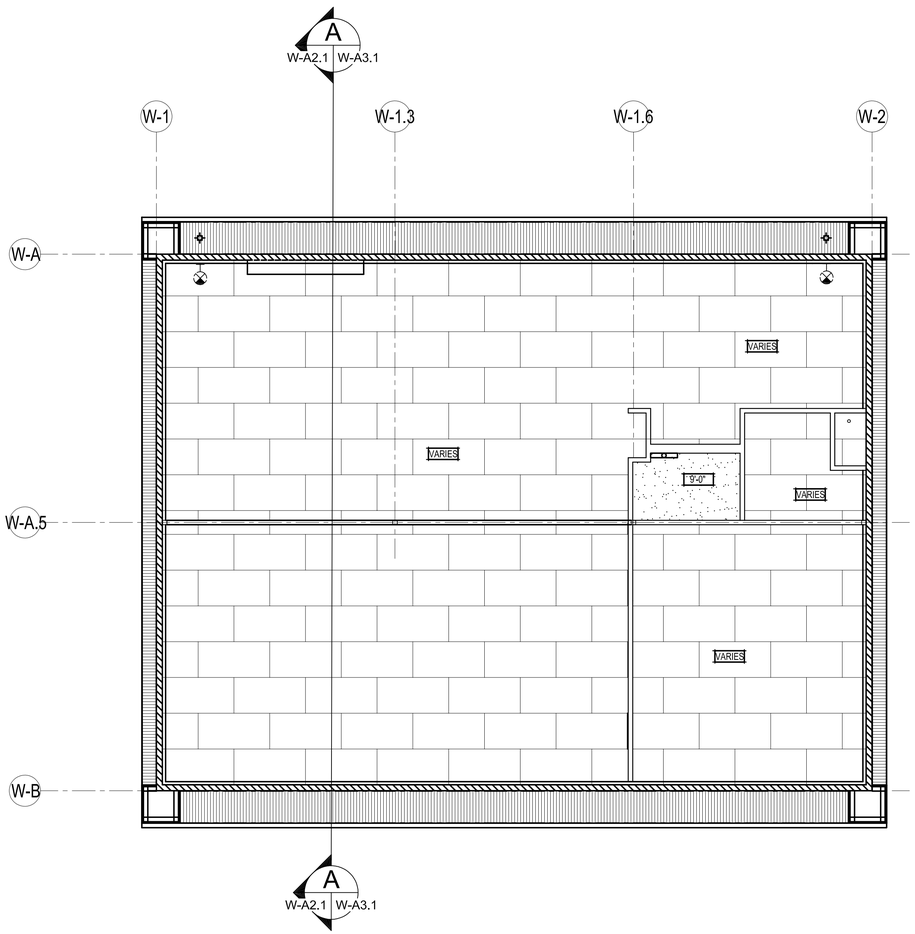
AOR

LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR

drawn by CL
checked by BFU
job no. 2018-23
date 5-1-2019
cad file name W-A2.1.dwg
drawing no. W-A3.1
sheet title WAREHOUSE
sheet no. ELEVATIONS AND SECTION
of sheets

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WAREHOUSE / SHOP REFLECTED CEILING PLAN

1/8"=1'-0"

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

LEGEND: CEILING / SOFFIT TYPES

EXTERIOR METAL FLAT PANEL VENTED SOFFIT

1/2" PLYWOOD CEILING TO INSTALLED TO UNDERSIDE OF JOIST FRAMING

5/8" GYPSUM BOARD CEILING, MOISTURE RESISTANT WHERE REQUIRED PER SPECIFICATION

X'-XX" CEILING HEIGHT TAG

LEGEND: ELECTRICAL / MECHANICAL

NOTE: ELECTRICAL MECHANICAL DEVICES ARE SHOWN FOR COORDINATION WITH WALLS. SEE MECHANICAL ELECTRICAL PLANS FOR ALL REQUIREMENTS

CEILING MOUNTED LIGHT

WALL MOUNTED LIGHT

RECESSED CAN LIGHT

SD SMOKE DETECTOR

ILLUMINATED EXIT SIGN

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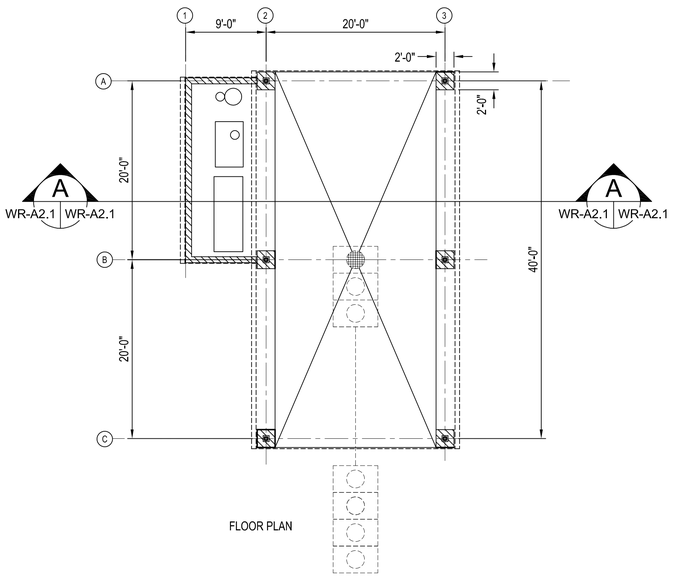
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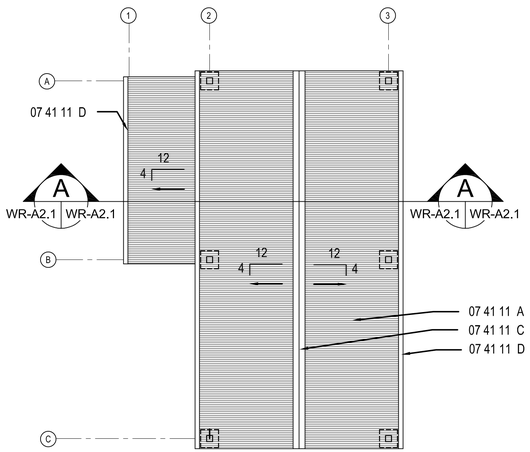
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checked by	BFU
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date	5-1-2019
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drawing no.	W-A6.1
sheet title	WAREHOUSE
sheet no.	RCP
of	sheets

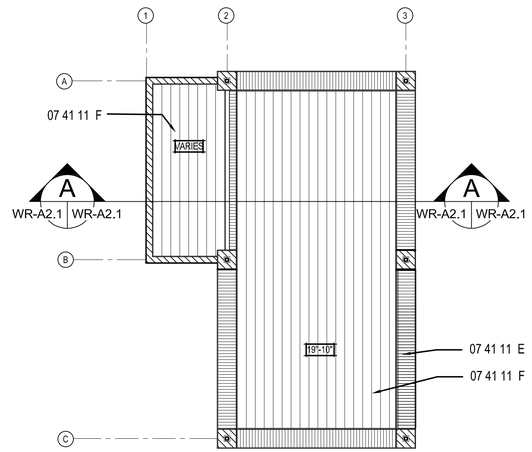
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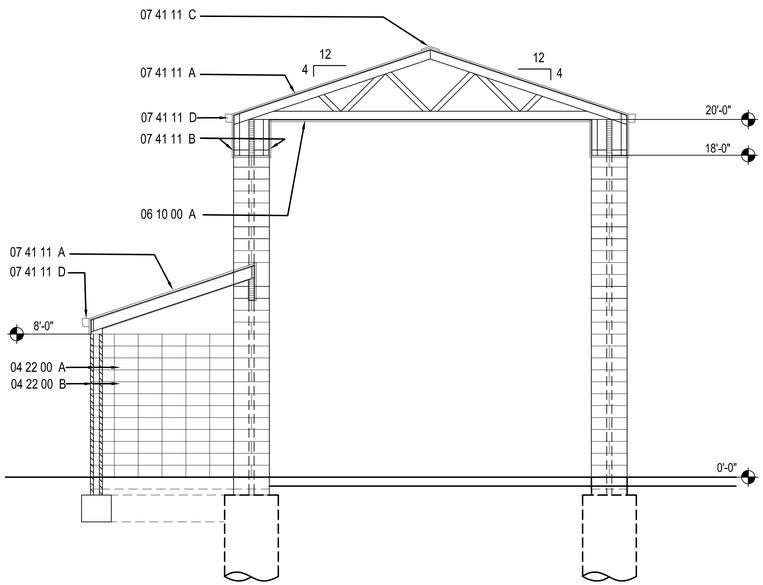
FLOOR PLAN



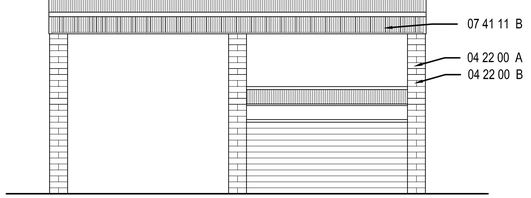
ROOF PLAN



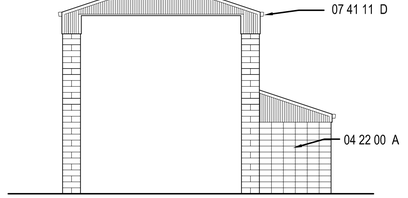
REFELECTED CEILING PLAN



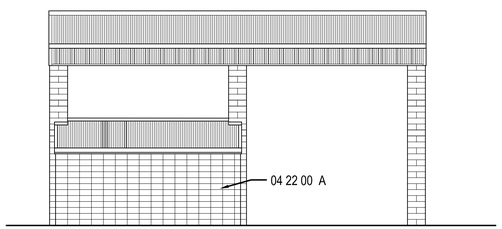
SECTION A-A 1/4"=1'-0"



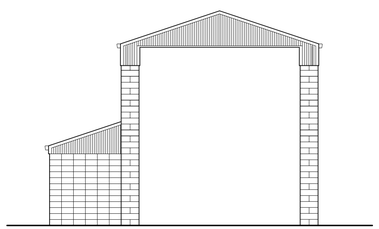
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

WASH RACK CANOPY

1/8"=1'-0"
U.O.N

0' 5' 10' 20' 30'

GENERAL NOTES

KEY NOTES

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07 41 11 B METAL WALL PANELS
07 41 11 C METAL ROOF RIDGE CAP
07 41 11 D METAL GUTTER TYP. AT ROOF EAVE LINES
07 41 11 E METAL FLAT PANEL VENTED SOFFIT
07 41 11 F METAL FLAT PANEL NON-VENTED SOFFIT

DIVISION 06 WOOD, PLASTICS AND COMPOSITES

06 10 00 A 1/2" PLYWOOD

LEGEND: REFLECTED CLG. PLAN

EXTERIOR METAL FLAT PANEL VENTED SOFFIT

EXTERIOR METAL FLAT PANEL NON-VENTED SOFFIT

X'-XX" CEILING HEIGHT TAG

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DGS
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Real Estate Services Division
Judy Haavisto, Project Director II
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West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
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14467 CENTRAL AVE.,
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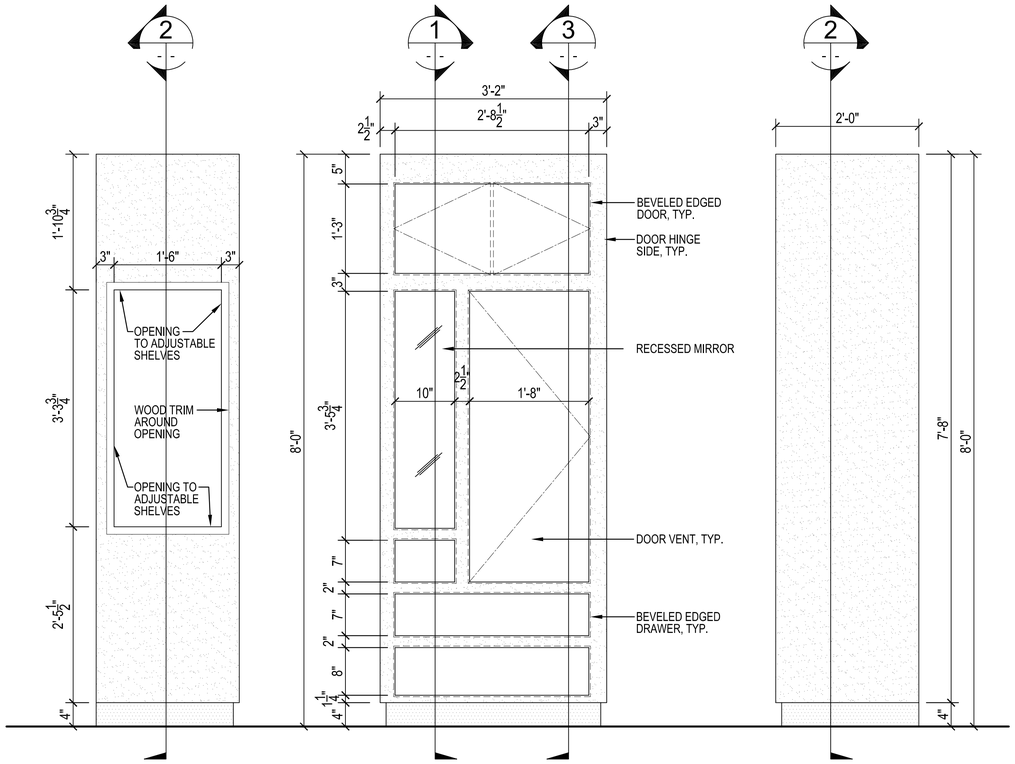
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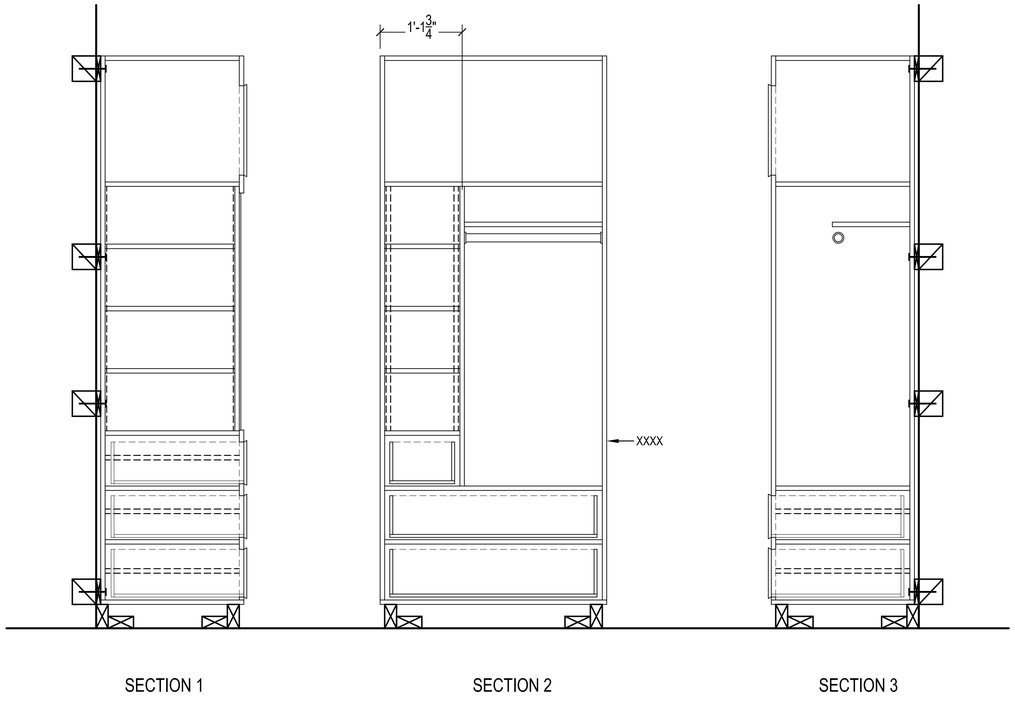
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sheet no.
of sheets

9

10

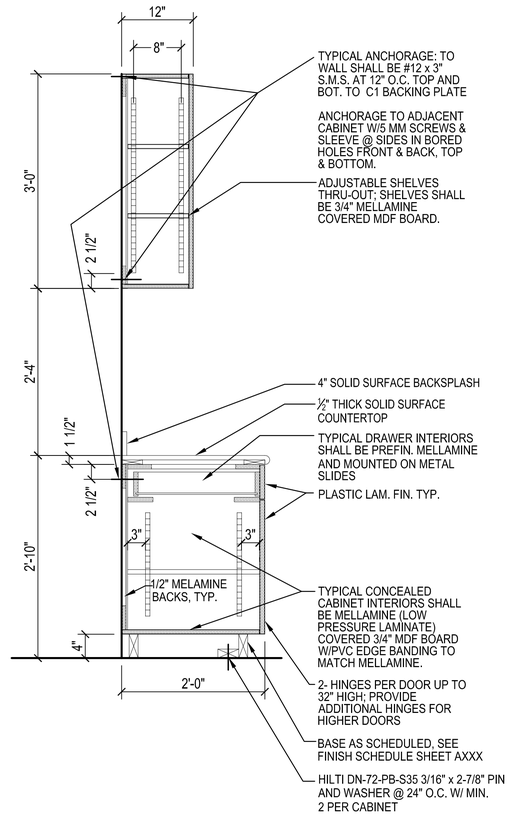
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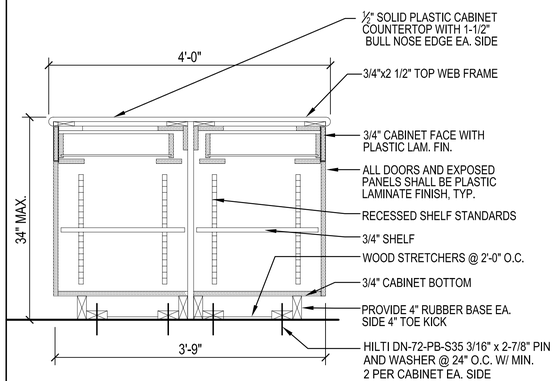
8 LOCKER AT TYPICAL BEDROOM BARRACKS BUILDING - ELEVATIONS & SECTIONS

SCALE: 1" = 1'-0"



1 TYPICAL CASEWORK SECTION

SCALE: 1" = 1'-0"



2 CASEWORK SECTION AT ISLAND

SCALE: 1" = 1'-0"

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checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	A9.4.dwg
drawing no.	A9.4
sheet title	INTERIOR DETAILS
sheet no.	
of	sheets

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GENERAL NOTES

APPLICABLE TO ALL DRAWINGS UNLESS NOTED OR SHOWN OTHERWISE

GENERAL NOTES
100TN001-1

1. INTERPRETATION OF DRAWINGS & SPECIFICATIONS
   a. WHERE SPECIFICATIONS HAVE BEEN PREPARED FOR THIS PROJECT, THEY ARE ARRANGED IN SEVERAL SECTIONS, BUT SUCH SEPARATION SHALL NOT BE CONSIDERED AS THE LIMITS OF THE WORK REQUIRED OF ANY SEPARATE TRADE. THE TERMS AND CONDITIONS OF SUCH LIMITATIONS ARE WHOLLY BETWEEN THE CONTRACTOR AND THEIR SUBCONTRACTORS.
   b. IN GENERAL, THE WORKING DETAILS WILL INDICATE DIMENSIONS, POSITION AND KIND OF CONSTRUCTION, AND THE SPECIFICATIONS, QUALITIES AND METHODS. ANY WORK INDICATED ON THE WORKING DETAILS AND NOT MENTIONED IN THE SPECIFICATIONS, OR VICE VERSA, SHALL BE FURNISHED AS THOUGH FULLY SET FORTH IN BOTH. WORK NOT PARTICULARLY DETAILED, MARKED OR SPECIFIED, SHALL IDENTICAL OR SIMILAR TO LIKE CASES OF CONSTRUCTION THAT ARE DETAILED, MARKED OR SPECIFIED. IF CONFLICTS OCCUR ON DRAWINGS AND/OR SPECIFICATIONS, THE MOST EXPENSIVE MATERIALS OR METHODS WILL PREVAIL.
   c. SHOULD AN ERROR APPEAR IN THE WORKING DETAILS OR SPECIFICATIONS OR IN WORK DONE BY OTHERS AFFECTING THIS WORK, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AT ONCE AND IN WRITING. IF THE CONTRACTOR PROCEEDS WITH THE WORK SO AFFECTED WITHOUT HAVING GIVEN SUCH WRITTEN NOTICE AND WITHOUT RECEIVING THE NECESSARY APPROVAL, DECISION OR INSTRUCTIONS IN WRITING FROM THE OWNER, THEN THE CONTRACTOR SHALL HAVE NO VALID CLAIM AGAINST THE OWNER, FOR THE COST OF SO PROCEEDING AND SHALL MAKE GOOD ANY RESULTING DAMAGE OR DEFECT. NO VERBAL APPROVAL, DECISION, OR INSTRUCTION SHALL BE VALID OR BE THE BASIS FOR ANY CLAIM AGAINST THE OWNER, ITS OFFICERS, EMPLOYEES OR AGENTS. THE FOREGOING INCLUDES TYPICAL ERRORS IN THE SPECIFICATIONS OR NOTATIONAL ERRORS IN THE WORKING DETAILS WHERE THE INTERPRETATION IS DOUBTFUL OR WHERE THE ERROR IS SUFFICIENTLY APPARENT AS TO PLACE A REASONABLY PRUDENT CONTRACTOR ON NOTICE THAT, SHOULD THE CONTRACTOR ELECT TO PROCEED, THEY ARE DOING SO AT THEIR OWN RISK.
2. CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND REGULATIONS.
3. SHOP DRAWING NOTE:
   a. WHEN NOT ADDRESSED BY DIVISION 1 OF THE SPECIFICATIONS, PAPER FORMAT STRUCTURAL SHOP DRAWINGS SHALL BE SUBMITTED IN THE FORM OF THREE COPIES MINIMUM OF EACH SHEET. WHERE SUBMITTALS ARE ELECTRONIC, FORMAT SHALL BE PDF.
   b. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE STRUCTURAL ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT BY INDICATING WHICH MATERIAL THE CONTRACTOR INTENDS TO FURNISH AND INSTALL, AND BY DETAILING THE FABRICATION AND INSTALLATION METHODS THE CONTRACTOR INTENDS TO USE ON A STAND ALONE SET OF DOCUMENTS. DUPLICATION OF DESIGN DOCUMENTS FOR THE PURPOSE OF SHOP DRAWINGS IS NOT ACCEPTABLE.
   c. PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER. SHOP DRAWING SUBMITTALS SHALL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, STRUCTURAL STEEL, REINFORCING STEEL, & GLUE-LAMINATED BEAMS.
   d. PRIOR TO SUBMISSION THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND SHALL STAMP SUBMITTALS AS BEING "REVIEWED FOR CONFORMANCE".
   e. SHOP DRAWING SUBMITTALS PROCESSED BY THE STRUCTURAL ENGINEER ARE NOT CHANGE ORDERS.
   f. ANY DETAIL ON THE SHOP DRAWINGS THAT DEVIATES FROM THE CONTRACT DOCUMENTS SHALL CLEARLY BE MARKED WITH THE NOTE "THIS IS A CHANGE".
   g. SHOP DRAWINGS OR CALCULATIONS SUBMITTED FOR REVIEW THAT REQUIRE RESUBMITTAL FOR RE-REVIEW SHALL BE BILLED HOURLY FOR SUCH TIME TO THE GENERAL CONTRACTOR. RE-REVIEW WILL NOT PROCEED WITHOUT WRITTEN APPROVAL FROM THE GENERAL CONTRACTOR FOR ADDITIONAL ENGINEERING REVIEW SERVICES.
4. SAFETY NOTE:
   a. IT IS THE CONTRACTORS RESPONSIBILITY TO COMPLY WITH THE PERTINENT SECTIONS, AS THEY APPLY TO THIS PROJECT, OF THE "CONSTRUCTION SAFETY ORDERS" ISSUED BY THE STATE OF CALIFORNIA LATEST EDITION, AND ALL OSHA REQUIREMENTS.
   b. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE DESIGN AND CONSTRUCTION OF ALL FORMS AND SHORING REQUIRED. SHORING INDICATIONS (LOCATION, DIRECTION, DURATION, ETC.) ARE ONLY SHOWN ON THE STRUCTURAL DRWGS WHEN REQUIRED TO IMPLEMENT THE DESIGN INTENT OF THE FINAL WORK PRODUCT. DETERMINATION WHETHER SHORING IS REQUIRED FOR TEMPORARY OR INTERMEDIATE CONDITIONS DURING CONSTRUCTION IS WHOLLY THE RESPONSIBILITY OF THE CONTRACTOR.
   c. THE OWNER AND THE STRUCTURAL ENGINEER DO NOT ACCEPT ANY RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO COMPLY WITH THESE REQUIREMENTS.
5. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER WHERE A CONFLICT OR DISCREPANCY OCCURS BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER PORTION OF THE CONTRACT DOCUMENTS OR EXISTING FIELD CONDITIONS. SUCH NOTIFICATION SHALL BE GIVEN IN DUE TIME SO AS NOT TO AFFECT THE CONSTRUCTION SCHEDULE. IN CASE OF A CONFLICT BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS THE MORE RESTRICTIVE CONDITION SHALL TAKE PRECEDENCE UNLESS WRITTEN APPROVAL HAS BEEN GIVEN FOR THE LEAST RESTRICTIVE. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH ARCHITECTURAL PRIOR TO COMMENCING ANY WORK.
6. WHERE NO SPECIFIC DETAIL IS SHOWN, THE CONSTRUCTION SHALL BE IDENTICAL OR SIMILAR TO THAT INDICATED FOR LIKE CASES OF CONSTRUCTION ON THIS PROJECT. SHOULD THERE BE ANY QUESTION, CONTACT THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO PROCEEDING.
7. WHEN CONSTRUCTION ATTACHES TO OR IS WITHIN AN EXISTING BUILDING, A COMPLETE SET OF DRAWINGS OF THE EXISTING BUILDING SHALL BE KEPT ON THE JOB SITE. CONTRACTOR TO OBTAIN THESE DRAWINGS FROM THE OWNER (IF THEY ARE AVAILABLE).
8. CONTRACTOR SHALL PROVIDE AN ALLOWANCE EQUAL TO 2% OF THE BID FOR STRUCTURAL STEEL, MISC. IRON AND REINFORCING STEEL TO BE USED AT THE DISCRETION OF THE STRUCTURAL ENGINEER. UNUSED AMOUNT TO REVERT TO THE OWNER UPON COMPLETION OF THE JOB.
9. ANY SUBSTITUTIONS FOR STRUCTURAL MEMBERS, HARDWARE OR DETAILS SHALL BE REVIEWED BY THE ARCHITECT AND STRUCTURAL ENGINEER. SUCH REVIEW WILL BE BILLED ON A TIME AND MATERIALS BASIS TO THE GENERAL CONTRACTOR WITH NO GUARANTEE THAT THE SUBSTITUTION WILL BE ALLOWED.
10. DO NOT SCALE DRAWINGS. CONTACT THE ARCHITECT OR STRUCTURAL ENGINEER FOR ANY DIMENSIONS NOT SHOWN.
11. THESE DRAWINGS ARE NOT COMPLETE UNTIL REVIEWED AND ACCEPTED BY THE ENFORCEMENT AGENCY AND SIGNED BY THE STRUCTURAL ENGINEER.

DESIGN CRITERIA
100TN002-19

1. CODES AND STANDARDS
   - 2019 CALIFORNIA BUILDING CODE (CBC w/ STATE OF CA AMENDMENTS)
   - ASCE 7-16
   - ACI 318-14
   - AISC 360-16, 341-16, 358-16
   - AISI S100-16, S240-15, S400-15
   - TMS 402/602-16
   - 2018 NDS, 2015 SDPWS
2. VERTICAL LOADS
   - ROOF LIVE LOAD = 20 PSF
   - FLOOR LIVE LOAD = 15 PSF
   - LIVE LOADS ARE REDUCED WHERE PERMITTED BY CODE.
3. SOILS VALUES
   - ALLOWABLE SOILS PRESSURE
     a. DL 2000 PSF
     b. DL + LL 3000 PSF
     c. DL + LL + SEISMIC 4000 PSF
   - FOOTING
     - MINIMUM DEPTH = 18"
     - MINIMUM WIDTH = 12"
4. LATERAL LOADS
   - SEISMIC:
     - SITE CLASS D C_S = 0.1193
     - S_S = 0.581 ; S_{DS} = 0.517
     - S_1 = 0.253 ; S_{D1} = 0.319
     - R = 6.5 ; I_E = 1.5
     - Ω_O = 3 ; C_D = 4
     - I_P = 1.0 TYPICAL
     - I_P = 1.5 PER ASCE 7-10 SECT 13.1.3
     - RISK CATEGORY: IV
     - SEISMIC DESIGN CATEGORY: D
     - SEISMIC BASE SHEAR
       - = 36 KIPS (NS DIR.)
       - = 36 KIPS (EW DIR.)
     - SEISMIC FORCE RESISTING SYSTEM: LIGHT PRAMED WOOD SHEAR WALLS
     - ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
   - WIND:
     - V= 104 MPH ; V_{ASD} = 81 MPH
     - RISK CATEGORY: IV
     - EXPOSURE CATEGORY: C
     - GC_{PI} = 0.18

DEFERRED APPROVALS
100TN007-1

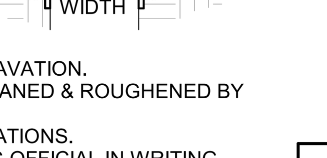
1. THE FOLLOWING ITEMS REQUIRE DEFERRED APPROVAL FROM THE ENFORCEMENT AGENCY:
   a. ELEVATOR
   b. ARCHITECTURAL PRECAST OR GFRC PANELS AND CONNECTIONS
   c. SKYLIGHTS
   d. WINDOW WALL/STORE FRONT SYSTEMS
   e. PREFABRICATED METAL STAIRS AND CONNECTIONS TO THE STRUCTURE
   f. MEDICAL EQUIPMENT STRUCTURAL ANCHORAGE
   g. VIBRATION ISOLATION FOR MEDICAL EQUIPMENT
   h. SEISMIC BRACING OF MECHANICAL, ELECTRICAL AND PLUMBING DISTRIBUTION SYSTEMS
   i. PREFABRICATED BLEACHERS AND BASKETBALL BACKBOARD ASSEMBLY
   j. EXTERIOR BUILDING MAINTENANCE OR FALL RESTRAINT/ FALL ARREST EQUIPMENT
   k. PREFABRICATED LIGHT GAGE STEEL OR WOOD TRUSSES
   l. PROPRIETARY DEEP FOUNDATION SYSTEMS
2. THE DESIGN OF THE ABOVE ITEMS IS BY THE CONTRACTOR/MANUFACTURER. CONTRACTOR/MANUFACTURER MUST PREPARE ALL NECESSARY CALCULATIONS AND DRAWINGS PER THE CALIFORNIA BUILDING CODE UNDER THE SUPERVISION OF A STRUCTURAL ENGINEER, REGISTERED IN CALIFORNIA, AND SHALL OBTAIN ALL NECESSARY PLAN CHECK APPROVALS FROM THE ENFORCEMENT AGENCY.
3. INSTALLATION OF THE ABOVE ITEMS SHALL NOT BE STARTED UNTIL DETAILED PLANS, SPECIFICATIONS, AND ENGINEERING CALCULATIONS HAVE BEEN STAMPED AND SIGNED BY THE STRUCTURAL ENGINEER WHO HAS BEEN DELEGATED RESPONSIBILITY COVERING THE WORK SHOWN ON A PARTICULAR PLAN OR SPECIFICATION REVIEWED BY THE ARCHITECT OR STRUCTURAL ENGINEER OF RECORD, AND APPROVED BY THE ENFORCEMENT AGENCY.

ABBREVIATIONS
100SN003-1

- (A) - OCCURS ABOVE
- AB - ANCHOR BOLT
- ABV - ABOVE
- ADDL - ADDITIONAL
- AHU - AIR HANDLING UNIT
- ALT - ALTERNATE
- APPROX - APPROXIMATE
- ARCH - ARCHITECTURAL
- (B) - OCCURS BELOW
- BLDG - BUILDING
- BLKG - BLOCKING
- BLW - BELOW
- BM - BEAM
- B.O. - BOTTOM OF
- BOF - BOTTOM OF FOOTING
- BOTT - BOTTOM
- BRCG - BRACING
- BRG - BEARING
- BTWN - BETWEEN
- BYND - BEYOND
- CC - CENTER TO CENTER
- CG - CENTER OF GRAVITY
- CJ - CONSTRUCTION JOINT
- CJP - COMPLETE JOINT PENETRATION
- ℄ - CENTERLINE
- CLG - CEILING
- CLR - CLEAR
- CMU - CONCRETE MASONRY UNIT
- COL - COLUMN
- CONC - CONCRETE
- CONN - CONNECTION
- CONT - CONTINUOUS
- CONTR - CONTRACTOR
- COORD - COORDINATE
- CSK - COUNTERSINK
- DBL - DOUBLE
- DF - DOUGLAS FIR
- DIAG - DIAGONAL
- DL - DEAD LOAD
- DWG - DRAWING
- (E) - EXISTING
- EA - EACH
- EF - EACH FACE OR EDGE FASTENER
- EJ - EXPANSION JOINT
- ELEV - ELEVATION
- EN - EDGE NAILING
- EOS - EDGE OF SLAB
- EQ - EQUAL
- EW - EACH WAY
- FB - FACE OF BLOCK/BRICK OR FLAT BAR
- FC - FACE OF CONCRETE
- FDN - FOUNDATION
- FF - FINISH FLOOR
- FRMG - FRAMING
- FRT - FIRE RETARDANT TREATED
- FS - FACE OF STUD OR FAR SIDE
- FTG - FOOTING
- GA - GAUGE OR GAGE
- GALV - GALVANIZED
- GLB - GLUED LAMINATED BEAM
- GR - GRADE
- GYP - GYPSUM
- HD - HOLDOWN
- HDR - HEADER
- HGR - HANGER
- HK - HOOK
- HORIZ - HORIZONTAL
- HSB - HIGH STRENGTH BOLT
- HSS - HOLLOW STRUCTURAL SECTION
- HT - HEIGHT
- JH - JOIST HANGER
- LL - LIVE LOAD
- LLH - LONG LEG HORIZONTAL
- LLV - LONG LEG VERTICAL
- LONGIT - LONGITUDINAL
- LS - LAG SCREW
- LW - LIGHTWEIGHT
- MECH - MECHANICAL
- MFR - MANUFACTURER
- MI - MALLEABLE IRON
- Mk - MARK
- MTL - METAL
- (N) - NEW
- NIC - NOT IN CONTRACT
- NS - NEAR SIDE
- NTS - NOT TO SCALE
- NW - NORMAL WEIGHT
- O/ - OVER
- OH - OPPOSITE HAND
- OPNG - OPENING
- OSB - ORIENTED STRAND BOARD
- PC - PIECE
- PERP - PERPENDICULAR
- PJP - PARTIAL JOINT PENETRATION
- ℙ - PLATE
- PT - PRESSURE TREATED
- PW - PUDDLE WELD
- REINF - REINFORCING OR REINFORCEMENT
- REQD - REQUIRED
- RWD - REDWOOD
- SC - SLIP CRITICAL
- SCH - SCHEDULE
- SEOR - STRUCTURAL ENGINEER OF RECORD
- SHTG - SHEATHING
- SIM - SIMILAR
- SJ - SLAB CONTROL JOINT
- SMS - SHEET METAL SCREW
- SOG - SLAB-ON-GRADE
- SP - STRUCTURAL PANEL
- SPCG - SPACING
- SQ - SQUARE
- STD - STANDARD
- STFNR - STIFFENER
- STGRD - STAGGERED
- STL - STEEL
- STRUCT - STRUCTURAL
- SW - SHEAR WALL
- T&B - TOP & BOTTOM
- T&G - TONGUE & GROOVE
- THRD - THREADED
- TN - TOE NAIL
- T.O. - TOP OF
- TOC - TOP OF CONCRETE (SLAB UNO)
- TOF - TOP OF FOOTING OR TOP OF FRAMING
- TOS - TOP OF STEEL
- TOW - TOP OF WALL
- TRANS - TRANSVERSE
- TYP - TYPICAL
- UNO - UNLESS NOTED OTHERWISE
- VERT - VERTICAL
- VIF - VERIFY IN FIELD
- WF - WIDE FLANGE
- WHS - WELDED HEADED STUD
- WP - WORK POINT
- WS - WOOD SCREW
- WWF - WELDED WIRE FABRIC
- XS - EXTRA STRONG
- XXS - DOUBLE EXTRA STRONG
- Ø - ROUND OR DIAMETER

FOUNDATIONS
200TN001-1

1. ALL FOUNDATION WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE SOILS REPORT # ______________________.
2. FOUNDATIONS SHALL BEAR ON ______________________. SEE NOTES AND DETAILS ON SHEET ____________.
3. ALL FILLING, BACKFILLING AND COMPACTION SHALL BE DONE UNDER THE OBSERVATION OF A REPRESENTATIVE OF THE SOILS ENGINEER AND MUST BE COMPACTED TO THE MINIMUM DENSITY SPECIFIED IN ACCORDANCE WITH THE PROCEDURE OUTLINED IN THE SOILS REPORT.
4. BUILDING PAD CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE SOILS REPORT. THE EXTENT AND DEPTH OF OVEREXCAVATION AND PLACEMENT OF ENGINEERED FILL SHALL AT A MINIMUM BE AS SHOWN ON THE PLANS. FINAL DEPTH AND EXTENT OF EXCAVATION AND FILL SHALL BE DETERMINED AT TIME OF CONSTRUCTION BY A REPRESENTATIVE OF THE SOILS ENGINEER. FOUNDATION DEPTHS INDICATED ON PLANS ARE FOR ESTIMATING PURPOSES ONLY.
5. BOTTOMS OF ALL FOUNDATIONS SHALL BE LEVEL. CHANGES IN BOTTOM OF FOUNDATION ELEVATION SHALL BE MADE ACCORDING TO STEPPED FOOTING DETAIL ON THE TYPICAL DETAIL SHEET.
6. FOUNDATION CONCRETE MAY BE PLACED DIRECTLY INTO NEAT EXCAVATIONS PROVIDED PRIOR WRITTEN APPROVAL IS OBTAINED AND A REPRESENTATIVE OF THE SOILS ENGINEER DETERMINES THAT THE EXCAVATIONS ARE STABLE. WIDTH OF ALL UNFORMED FOUNDATIONS SHALL BE INCREASED BY 2" FROM PLAN DIMENSION. OTHERWISE, FOUNDATIONS SHALL BE FULLY FORMED. USE MINIMUM PLANKING SHOWN TO PROTECT AGAINST SLOUGHING, AS REQUIRED. PLANKING DOES NOT REPLACE FORMWORK REQUIRED TO STABILIZE EXCAVATION.



7. THE SURFACE OF ALL HORIZONTAL CONSTRUCTION JOINTS SHALL BE CLEANED & ROUGHENED BY EXPOSING CLEAN AGGREGATE SOLIDLY EMBEDDED IN MORTAR MATRIX.
8. NOTIFY THE STRUCTURAL ENGINEER 48 HOURS BEFORE CASTING FOUNDATIONS.
9. A REPRESENTATIVE OF THE SOILS ENGINEER SHALL ADVISE THE BUILDING OFFICIAL IN WRITING THAT:
   a. THE BUILDING PAD WAS PREPARED USING PROPER MATERIALS IN ACCORDANCE WITH THE SOILS REPORT.
   b. THE UTILITY TRENCHES HAVE BEEN PROPERLY BACKFILLED AND COMPACTED AND;
   c. THE FOUNDATION EXCAVATION DEPTH AND MATERIAL ARE ADEQUATE TO ACHIEVE DESIGN BEARING CAPACITY; AND FORMING COMPLY WITH THE SOILS REPORT AND APPROVED PLAN.

CONCRETE
300SN001-1

1. STRUCTURAL CONCRETE SHALL ATTAIN 28 DAY COMPRESSIVE STRENGTH AS REQUIRED IN NOTE #28. MAXIMUM SLUMP SHALL NOT EXCEED 4 INCHES.
2. CONCRETE MIX DESIGNS SHALL BE PREPARED BY A REGISTERED CIVIL ENGINEER, REVIEWED BY OWNER'S TESTING LABORATORY AND SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW.
3. CEMENTITIOUS MATERIALS:
   CEMENT SHALL CONFORM TO ASTM C-150 TYPE II OR V.
   FLY ASH SHALL CONFORM TO ASTM C-618. MAX. QUANTITY OF FLY ASH SHALL BE 25% OR AS GIVEN IN SPECS.
4. CONCRETE AGGREGATES SHALL CONFORM TO ASTM C-33 FOR NORMAL WEIGHT CONCRETE AND ASTM C-330 FOR LIGHTWEIGHT CONCRETE.
5. NON-SHRINK GROUT OR DRYPACK SHALL CONSIST OF A PREMIXED NONMETALLIC FORMULA.
6. REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GRADE 60 UNO. REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A-706 GRADE 60. CONTRACTOR SHALL SUBMIT REBAR MILL CERTIFICATES. REINFORCING STEEL IN SPECIAL REINFORCED SHEAR WALLS OR MOMENT FRAMES, EXCEPT TIES AND HOOPS, SHALL CONFORM TO ASTM A-706.
7. ALL PREHEATING AND WELDING OF REINFORCING BARS SHALL BE DONE IN ACCORDANCE WITH AWS D1.4 LATEST EDITION AND SHALL BE CONTINUOUSLY INSPECTED BY A QUALIFIED LABORATORY. CONTRACTOR SHALL FURNISH WPS FOR ALL REBAR WELDING TO THE LABORATORY.
8. REINFORCING STEEL SHALL BE FABRICATED ACCORDING TO "MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION".
9. WIRE FABRIC SHALL CONFORM TO ASTM A-185.
10. DIMENSIONS SHOWN FOR LOCATION OF REINFORCING ARE TO THE FACE OF BARS LISTED AND DENOTE CLEAR COVERAGE. NON-PRESTRESSED, CAST-IN-PLACE CONCRETE COVERAGE SHALL BE AS FOLLOWS, UNO:
    - CONCRETE DEPOSITED DIRECTLY AGAINST GROUND (EXCEPT SLABS)------- 3"
    - CONCRETE EXPOSED TO GROUND OR WEATHER BUT PLACED IN FORMS:
      - #5 AND SMALLER-- 1-1/2"
      - #6 AND LARGER-- 2"
    - BEAMS & COLUMNS (TIES)------------------------------------ 1-1/2"
    - BEAMS & COLUMNS (MAIN REINFORCING)----------------------- 2"
    - CAST-IN-PLACE WALLS (EXTERIOR FACE & SOIL SIDE)--------- SEE ABOVE
    - CAST-IN-PLACE WALLS (INTERIOR FACE-#11 & SMALLER)--------- 3/4"
    - TILT-UP WALLS--- SEE DETAILS
    - SLABS (ON FORMS)-- 3/4"
    - SLABS (ON GROUND)--- 2" CLEAR FROM TOP UNO
11. SPLICES IN CONTINUOUS REINFORCEMENT SHALL BE LAPPED UNO, SEE SCHEDULE THIS SHEET. SPLICES IN ADJACENT BARS SHALL BE GREATER THAN 5'-0" APART. SPLICE CONTINUOUS BARS IN SOIL-BEARING GRADE BEAMS, STRUCTURAL SLABS ON GRADE AND MAT FOUNDATIONS AS FOLLOWS UNO: TOP BARS AT CENTERLINE OF SUPPORT; BOTTOM BARS AT MID-SPAN. SPLICE CONTINUOUS BARS IN ELEVATED SLABS AND BEAMS, ETC. AS FOLLOWS UNO: TOP BARS AT MID-SPAN; BOTTOM BARS AT CENTERLINE OF SUPPORT. ALL BARS SIZE #14 AND LARGER SHALL BE CONTINUOUS FOR FULL LENGTH SHOWN OR SPLICED WITH MECHANICAL COUPLERS AS NOTED IN DETAILS. SPLICES IN WWF SHALL BE 1-1/2 MESHES WIDE.
12. THE MINIMUM CLEAR SPACING BETWEEN PARALLEL BARS IN A LAYER SHALL NOT BE LESS THAN THE LARGER OF BAR DIAMETER, 1", OR 33% GREATER THAN THE MAXIMUM AGGREGATE SIZE (NOMINAL), WHICHEVER IS GREATEST. THIS REQUIREMENT ALSO APPLIES TO THE CLEAR SPACING BETWEEN DIFFERENT LAYERS OF PARALLEL BARS AND TO THE CLEAR DISTANCE BETWEEN A CONTACT LAP SPLICE AND ADJACENT SPLICES OR BARS.
13. ALL HOOKS SHALL BE STANDARD HOOKS UNLESS OTHERWISE SHOWN OR NOTED. AT WALLS, PROVIDE HOOKS AT ENDS OF ALL REINFORCING AT ENDS, CORNERS AND INTERSECTIONS, UNO.
14. CONSTRUCTION JOINTS SHALL BE MADE ROUGH AND ALL LAITANCE REMOVED FROM THE SURFACE. CONCRETE MAY BE ROUGHENED BY CHIPPING THE ENTIRE SURFACE, SAND BLASTING, OR RAKING THE SURFACE TO PROVIDE 1/4" DEEP DEFORMATIONS.
15. REMOVE ALL DEBRIS FROM FORMS BEFORE CASTING ANY CONCRETE.
16. REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC. TO BE EMBEDDED IN CONCRETE SHALL BE SECURELY POSITIONED BEFORE PLACING CONCRETE.
17. ANCHOR BOLTS (AB'S) CAST IN CONCRETE FOR WALL SILL AND LEDGER APPLICATIONS SHALL BE HEADED BOLTS WITH CUT THREADS CONFORMING TO ASTM A307, UNO. REFER TO "WOOD" NOTES FOR ADDITIONAL REQUIREMENTS FOR BOLTS IN CONTACT WITH PRESSURE TREATED OR FIRE RETARDANT MATERIAL. REFER TO 'STRUCTURAL STEEL' NOTE FOR REQUIREMENTS FOR ANCHOR RODS (AR'S) CAST IN CONCRETE FOR COLUMN BASE PLATE AND STEEL EMBED APPLICATIONS.
18. WALLS SHALL BE CAST IN HORIZONTAL LAYERS OF 2'-0" MAXIMUM DEPTH.
19. CONCRETE IN WALLS, PIERS OR COLUMNS SHALL SET AT LEAST 2 HOURS BEFORE PLACING CONCRETE IN BEAMS, SPANDRELS, OR SLABS SUPPORTED THEREON.
20. HORIZONTAL WALL BARS IN MULTI-CURTAIN CAST IN PLACE WALLS SHALL BE STAGGERED.
21. DOWEL ALL VERTICAL REINFORCING IN WALLS AND COLUMNS FROM FOUNDATION WITH SAME SIZE BAR.
22. CONSOLIDATE CONCRETE PLACED IN FORMS BY MECHANICAL VIBRATING EQUIPMENT SUPPLEMENTED BY HAND-SPADING, RODDING OR TAMPING. USE EQUIPMENT AND PROCEDURES FOR CONSOLIDATION OF CONCRETE IN ACCORDANCE WITH THE RECOMMENDED PRACTICES OF ACI 309 TO SUIT THE TYPE OF CONCRETE AND PROJECT CONDITIONS. CONCRETE SHALL NOT BE DROPPED THROUGH REINFORCING STEEL (AS IN WALLS) SO AS TO CAUSE SEGREGATION OF AGGREGATES. IN SUCH CASES HOPPERS AND CHUTES OR TRUNKS OF VARIABLE LENGTHS SHALL BE USED SO THAT THE FREE UNCONFINED FALL OF CONCRETE SHALL NOT EXCEED 6 FEET.
23. NO WOOD SPREADERS ALLOWED. NO WOOD STAKES ALLOWED IN AREAS TO BE CONCRETED.
24. ADDITIONAL REINFORCING IN PRECAST OR TILT-UP PANELS REQUIRED FOR LIFTING STRESSES SHALL BE SUPPLIED BY CONTRACTOR.
25. PROVIDE #5 X 4'-0" DIAGONAL REINFORCING AT TOP AND BOTTOM OF SLAB AT ALL RE-ENTRANT CORNERS TYPICAL. THIS APPLIES TO SLAB ON GRADE, CONCRETE OVER METAL DECK, AND ELEVATED STRUCTURAL SLAB CONDITIONS.
26. ALL SAW CUTTING SHALL BE DONE AFTER INITIAL SET HAS OCCURRED TO AVOID TEARING OR DAMAGE BY THE SAW BLADE, BUT BEFORE INITIAL SHRINKAGE HAS OCCURRED.
27. NOTIFY STRUCTURAL ENGINEER A MINIMUM OF 48 HOURS BEFORE PLACING ANY CONCRETE.
28. CONCRETE STRENGTHS & MIX PROPERTIES:

	ITEM	F'C @ 28 DAYS	MAX AGGR. SIZE	WEIGHT	MAX W/CM* RATIO
a.	FOUNDATIONS, ELEVATOR PITS, TIE BEAMS	3000 PSI	1-1/2"	NW	0.58
b.	SLAB ON GRADE	3500 PSI	1"	NW	0.45
c.	COLUMNS, BEAMS, WALLS, ELEVATED SLABS, PILE CAPS	4000 PSI	1"	NW	0.50
d.	NW CONC FILL OVER DECK	3500 PSI	3/4"	NW	0.52
e.	LW CONC FILL OVER DECK	3000 PSI	3/4"	LW	0.52

SITE & MISCELLANEOUS - SEE CIVIL OR ARCH'L DRAWINGS

* W/CM = WATER : CEMENTITIOUS MATERIAL RATIO

REINFORCEMENT LAP SPLICE SCHEDULE
300SN002-1

ACI 318 CBC/IBC

(ALL LENGTHS SHOWN ARE IN INCHES.)

fc' = 3000 PSI CONC

SPLICE CLASS	REINF LOCATION	#3	#4	#5	#6	#7	#8	#9	#10	#11
B	TOP	28	37	47	56	81	93	105	118	131
	OTHER	22	29	36	43	63	72	81	91	101

fc' = 3500 PSI CONC

SPLICE CLASS	REINF LOCATION	#3	#4	#5	#6	#7	#8	#9	#10	#11
B	TOP	26	35	43	52	75	86	97	109	121
	OTHER	20	27	33	40	58	66	75	84	93

NOTES:
1. SCHEDULE APPLIES TO NORMAL WEIGHT CONCRETE WITH UNCOATED, GRADE 60 REINFORCING STEEL FOR #3 BARS AND LARGER.
2. TOP REINFORCEMENT IS HORIZONTAL REINFORCEMENT LOCATED SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE SPLICE.
3. WHEN LIGHTWEIGHT CONCRETE IS USED, MULTIPLY LAP LENGTHS BY 1.30.
4. WHERE CLEAR SPACING OF BARS BEING SPLICED IS LESS THAN 2 BAR DIA. OR WHERE CLEAR COVER OF BARS BEING SPLICED IS LESS THAN 1 BAR DIA., MULTIPLY LAP LENGTHS BY 1.50, UNO.
5. WHERE NOTES #3 AND #4 OCCUR, MULTIPLY LAP LENGTHS BY 2.00, UNO.
6. WHERE CLASS A LAP SPLICE IS NOTED IN DETAIL, DIVIDE LENGTHS ABOVE BY 1.30.

CONCRETE MASONRY UNITS (CMU)
410TN001-1

1. ALL MASONRY SHALL BE MANUFACTURED AND PLACED IN ACCORDANCE WITH TMS 402, "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES", AND TMS 602 "SPECIFICATION FOR MASONRY STRUCTURES".
2. MASONRY UNITS AND COMPONENTS THAT ARE DAMAGED ARE NOT TO BE INSTALLED IN THIS PROJECT. REINFORCEMENTS AND ACCESSORIES ARE NOT TO BE STORED ON THE GROUND AND ARE TO BE PROTECTED FROM PERMANENT DISTORTIONS.
3. WHEN THE AMBIENT AIR TEMPERATURE IS BELOW 40°F, THE COLD WEATHER PROCEDURES FROM TMS 602, ARTICLE 1.8C ARE TO BE IMPLEMENTED. WHEN THE AMBIENT AIR TEMPERATURE IS ABOVE 90°F, THE HOT WEATHER PROCEDURES FROM TMS 602, ARTICLE 1.8D ARE TO BE IMPLEMENTED.
4. CONCRETE BLOCK UNITS SHALL CONFORM TO ASTM C90 . f'm = 2000 PSI. f'm SHALL BE VERIFIED IN ACCORDANCE WITH TMS 602, ARTICLE 1.4 B.2. CONCRETE BLOCK UNITS SHALL BE MEDIUM WEIGHT LIGHTWEIGHT. ALL MASONRY CONSTRUCTION IS TO BE GROUTED SOLID. INTEGRAL WATER REPELLENT/EFFLORESCE CONTROL ADMIXTURES SHALL BE PROVIDED WITHIN THE CONCRETE MASONRY UNITS. ADMIXTURE SHALL BE RAINBLOC BY ACM CHEMISTRIES, DRY-BLOCK BY W.R. GRACE & CO, OR CALIFORNIA APPROVED EQUAL.
5. MORTAR SHALL BE TYPE S PER ASTM C270. INTEGRAL WATER REPELLANT/EFFLORESCE CONTROL ADMIXTURES SHALL BE PROVIDED WITHIN THE MORTAR. RHEOPEL PLUS BY BASF CORPORATION, OR CALIFORNIA APPROVED EQUAL.
6. GROUT SHALL CONFORM TO ASTM C476. COARSE GROUT SHALL BE USED IN ALL MULTI-WYTHE GROUT SPACES OF 2 INCHES OR MORE AND IN ALL FILLED-CELL MASONRY CONSTRUCTION. GROUT SHALL BE PROPORTIONED TO ATTAIN A 28 DAY COMPRESSIVE STRENGTH EQUAL TO THE SPECIFIED f'm VALUE NOTED ABOVE. NOT MORE THAN 5% OF THE PEA GRAVEL SHALL PASS THE NO. 8 SIEVE AND 100% SHALL PASS THE 3/8" SIEVE. WHEN REQUIRED, GROUT STRENGTH SHALL BE VERIFIED IN ACCORDANCE WITH ASTM C1019. GROUT MIX SHALL HAVE APPROXIMATELY 1 LB OF SIKAGROUT AID, OR APPROVED EQUAL, PER 100 LBS OF CEMENTITIOUS MATERIAL.
7. REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60 UNO. REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A706. CONTRACTOR SHALL SUBMIT REBAR MILL CERTIFICATES.
8. VERTICAL REINFORCING SHALL CONSIST OF #5 BARS AT 16" ON CENTER, LOCATED AT EACH FACE OF MASONRY WALL, UNO. LOCATE BARS AT ALL CORNERS, WALL ENDS, INTERSECTIONS, JAMBS AND AT EACH SIDE OF A WALL JOINT. LOCATE BARS OR ADD ADDITIONAL BARS DIRECTLY UNDER FRAMING MEMBERS SUCH AS BEAMS, JOISTS, GIRDERS, AND TRUSSES WHERE CENTER TO CENTER SPACING OF FRAMING MEMBERS EXCEED 48" CC. DOWELS WITH STANDARD 90° HOOKS INTO THE FOUNDATION SHALL MATCH AND LAP VERTICAL REINFORCING, TYPICAL, UNLESS NOTED OTHERWISE.
9. INTERMEDIATE HORIZONTAL REINFORCING SHALL CONSIST OF #4 BARS AT 16" ON CENTER, LOCATED AT THE CENTER OF THE MASONRY WALL, UNO. LOCATE TWO (2) #5 HORIZONTAL BARS AT ALL ELEVATED FRAMING ASSEMBLIES, SUCH AS ROOFS, FLOORS, AND STAIRS. ALSO, LOCATE ONE #5 HORIZONTAL BAR AT TOPS OF PARAPETS, TOPS OF FREE-STANDING WALLS, AT THE BOTTOM OF ALL WALLS, AND ALIGNED WITH THE SLAB-ON-GRADE. PLACE A #5 BAR AT EACH FACE OF THE MASONRY WALL ABOVE AND BELOW ALL WALL OPENINGS, UNO. EXTEND THESE BARS A MINIMUM OF A LAP LENGTH PAST THE EDGE OF THE OPENING. WHERE EXTENSION CAN NOT BE ACHIEVED, BEND BARS UP OR DOWN FOR A DISTANCE EQUAL TO THE SPECIFIED LAP LENGTH.
10. PLACE ALL HORIZONTAL BARS IN BOND BEAM UNITS. WHEN 2 BARS ARE USED, STAGGER LAPS MINIMUM OF 5'-0".
11. MINIMUM REBAR CLEARANCE TO FACE SHELL IS ONE BAR DIAMETER OR 1/2", WHICHEVER IS GREATER. WHERE WALLS ARE EXPOSED TO EARTH OR WEATHER, A MINIMUM COVER FOR THE REINFORCING BARS OF 2" SHALL BE MAINTAINED.
12. BEFORE BLOCK IS PLACED ON CONCRETE, THOROUGHLY CLEAN CONCRETE OF ALL LAITANCE AND ALL LOOSE MATERIAL. ROUGHEN AS IN A CONCRETE CONSTRUCTION JOINT.
13. CONCRETE BLOCK MASONRY SHALL BE BUILT TO PRESERVE THE UNOBSTRUCTED VERTICAL CONTINUITY OF THE CELLS. ALL HEAD AND END JOINTS SHALL BE SOLIDLY FILLED WITH MORTAR FOR A DISTANCE IN FROM THE FACE OF THE WALL OR UNIT NOT LESS THAN THE THICKNESS OF THE LONGITUDINAL FACE SHELLS. BOND SHALL BE PROVIDED BY LAPPING SUCCESSIVE COURSES OR BY EQUIVALENT MECHANICAL ANCHORAGE.
14. VERTICAL CELLS SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR UNOBSTRUCTED CONTINUOUS VERTICAL CELL.
15. LOW-LIFT GROUTED CONSTRUCTION SHALL CONFORM TO CBC SECTION 2104A1.3.1.2.2. HIGH-LIFT GROUTED CONSTRUCTION SHALL CONFORM TO CBC SECTION 2104A.1.3.1.2.3 AND DSA IR #21-2.13.
16. CLEAN OUT OPENINGS SHALL BE PROVIDED AT THE BOTTOMS OF ALL CELLS TO BE FILLED AT EACH LIFT OR POUR OF GROUT WHERE SUCH LIFT OR POUR OF GROUT IS IN EXCESS OF 4'-0" IN HEIGHT, IN ACCORDANCE WITH CBC SECTION 2104A.1.3.1.2.3. ANY OVERHANGING MORTAR OR OTHER OBSTRUCTION OR DEBRIS SHALL BE REMOVED FROM INSIDE OF SUCH CELLS. THE CLEAN OUTS SHALL BE SEALED AFTER INSPECTION AND BEFORE GROUTING. MECHANICALLY VIBRATE ALL GROUT POURS.
17. REINFORCEMENT IS TO BE SUPPORTED IN PLACE TO PREVENT DISPLACEMENT CAUSED BY PLACEMENT OF GROUT AND MORTAR OR BY CONSTRUCTION LOADS.
18. THOROUGHLY CLEAN ALL CELLS AND BOND BEAMS OF MORTAR BEFORE GROUTING.
19. ALL CELLS SHALL BE FILLED SOLIDLY WITH GROUT. ALL GROUTING SHALL BE DONE UNDER THE OBSERVATION OF A QUALIFIED INSPECTOR. REFER TO SPECIAL STRUCTURAL INSPECTION SECTION OF THESE NOTES FOR FREQUENCY OF GROUTING INSPECTION.
20. WHEN GROUTING IS STOPPED FOR ONE HOUR OR LONGER, HORIZONTAL CONSTRUCTION JOINTS, OR KEYS, SHALL BE FORMED BY STOPPING THE POUR OF GROUT 1-1/2" BELOW THE TOP OF THE UPPERMOST UNIT.
21. EVERY VERTICAL BAR IN WALLS SHALL BE LAPPED PER THE TABLE BELOW WITH A DOWEL OF THE SAME SIZE EXTENDING FROM THE FOUNDATION. CARRY EACH DOWEL TO WITHIN 3" OF THE BOTTOM OF THE FOUNDATION AND TERMINATE WITH 90 DEGREE HOOK. DOWELS SHALL BE STRAIGHT AND PLUMB.
22. ALL EMBEDDED ITEMS (BOLTS, STRAPS, ETC.) SHALL BE SECURED IN PLACE PRIOR TO GROUTING. CUT A HOLE IN THE FACE SHELL TO ATTAIN A MINIMUM OF 1/2" GROUT ALL AROUND EMBEDDED ITEMS AT THE FACE SHELL. WITHIN THE CELL OF THE UNIT, PROVIDE A MINIMUM OF 8" OF GROUT AROUND EMBEDDED ITEMS. AT HORIZONTAL ANCHOR INSTALLATIONS, MAINTAIN A MINIMUM CLEAR DISTANCE OF 1/2" BETWEEN END OF ANCHOR AND FACE SHELL OF UNIT.
23. SINGLE CONDUITS (3/4" MAX) MAY BE PLACED IN VERTICAL CELLS NOT CONTAINING VERTICAL. REBAR. NO HORIZONTAL CONDUITS ALLOWED IN WALL CONSTRUCTION.
24. ANCHOR BOLTS CAST IN MASONRY SHALL BE HEADED BOLTS WITH CUT THREADS CONFORMING TO ASTM F1554 GRADE 36, OR ASTM A307 GRADE A, UNO. BENT BAR ANCHOR BOLTS ARE NOT PERMITTED.
25. USE OPEN END BLOCK FOR ALL CONSTRUCTION NOT LAID IN RUNNING BOND.
26. ALL REBAR SHALL BE LAP SPLICED AND DEVELOPED AS FOLLOWS (UNO). WHERE EPOXY COATED REBAR IS USED, MULTIPLY LAP LENGTHS BY 1.5. BARS LARGER THAN #8 ARE TO BE LAPPED WITH MECHANICAL SPLICES THAT DEVELOP AT LEAST 125 PERCENT OF THE YIELD STRENGTH OF THE BAR.

CMU SPLICE & DEVELOPMENT LENGTHS (f'm = 2000 PSI)

BAR SIZE	fy (KSI)	γ	6" CMU CENTER	6" CMU E.F.	8" CMU CENTER	8" CMU E.F.	10" CMU CENTER	10" CMU E.F.	12" CMU CENTER	12" CMU E.F.
#3	60	1.0	12"	-	12"	14"	12"	13"	12"	12"
#4	60	1.0	18"	-	13"	24"	13"	22"	13"	21"
#5	60	1.0	28"	-	20"	37"	20"	35"	20"	33"
#6	60	1.3	53"	-	38"	-	38"	-	38"	-
#7	60	1.3	-	-	52"	-	52"	-	52"	-

THE DASHED VALUES SHOWN THE COMBINATIONS LISTED BELOW CAN BE USED, BUT THE CALCULATED SPLICE LENGTHS DIFFER BETWEEN THE STRENGTH DESIGN PROVISIONS AND THE ALLOWABLE STRESS DESIGN PROVISIONS. CONTACT A MEMBER OF THE MASONRY TRC FOR ADDITIONAL DESIGN DIRECTION.
- 8" CMU WITH #6 E.F.
- 10" CMU WITH #6 E.F.
- 10" CMU WITH #7 E.F.
- 12" CMU WITH #6 E.F.
- 12" CMU WITH #7 E.F.

STRUCTURAL SHEET INDEX

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B-S2.22	BARRACKS ROOF FRAMING PLAN
E-S2.11	GENERATOR AND ELECTRICAL BUILDING PLAN
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WR-S2.21	WASH RACK PLANS AND DETAILS
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S5.32	TYPICAL WOOD DETAILS
S5.33	TYPICAL WOOD DETAILS
S5.34	WOOD I-JOISTS

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION CAL FIRE SINCE 1885

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

Δ	REVISION	DATE

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DIVISION OF THE STATE ARCHITECT
APPL.# 04- XXXXXX
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CALIFORNIA STATE FIRE MARSHAL APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on project site at all times.

Reviewed by:____________________

AOR
LICENSED ARCHITECT BRUCE F. UNGER NO. C15804 REN. 5-31-21 STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER WILLIAM B. RADER No. 3592 STRUCTURAL STATE OF CALIFORNIA

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GENERAL NOTES

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WOOD
600TN001-1

1. ALL STRUCTURAL WOOD SHALL CONFORM WITH THE FOLLOWING SPECIFICATIONS:
   DOUGLAS FIR - COAST REGION - WCLIB GRADING RULES #17 OR WWPA STANDARD GRADING RULES FOR WESTERN LUMBER.
   2X, 3X AND 4X MEMBERS - #1 UNO.
   6X AND LARGER MEMBERS - #1 UNO.
   2X DECKING - SELECT DEX.
   MEMBERS 3X AND LARGER SHALL BE FREE OF HEART CENTER REDWOOD - CALIFORNIA REDWOOD, RIS.
   SHEATHING - APA RATED SHEATHING W/ EXTERIOR GLUE @ WALLS, FLOORS, & ROOFS UNO PER US PRODUCT STANDARD PS 1-09 AND PS2-10. PRESSURE TREATED DOUGLAS FIR - TYPE AS APPROPRIATE FOR EXTERIOR ABOVE GROUND USE AS SPECIFIED, BY AWPA.
2. ALL WOOD IN DIRECT CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED, EXCEPT LEDGERS, WHICH DO NOT NEED TO BE PRESSURE TREATED.
3. FIELD CUTS AND BOLT HOLES IN PRESSURE TREATED WOOD SHALL BE PROTECTED IN ACCORDANCE WITH AWPA STANDARD M4.
4. BEARING AND SHEAR WALLS SHALL HAVE DOUBLE TOP PLATES, LAPPED AT WALL AND PARTITION INTERSECTION WITH 3 - 16D NAILS. SPLICE UPPER AND LOWER PLATES AS IN "TYPICAL STUD WALL & OPENING FRAMING DETAIL" ON TYPICAL DETAIL SHEET
5. PROVIDE SOLID BLOCKING BETWEEN JOISTS AND RAFTERS AT ALL SUPPORTS.
6. PROVIDE BLOCKING AT ALL CEILING LEVELS.
7. JOISTS UNDER AND PARALLEL TO PARTITIONS SHALL BE DOUBLED AND NAILED TOGETHER.
8. THE MOISTURE CONTENT OF 2X, 3X, 4X AND 6X MATERIAL AT TIME OF INITIAL USE SHALL BE LESS THAN 19%.
9. HOLES FOR BOLTS IN WOOD SHALL BE BORED WITH A BIT OF THE SAME NOMINAL DIAMETER AS THE BOLT PLUS 1/16".
10. HOLES FOR LAG SCREWS SHALL BE FIRST BORED TO THE SAME DIAMETER AND DEPTH AS THE UNTHREADED SHANK. THE THREADED PORTION SHALL BE DRILLED TO 50% OF THE SHANK DIAMETER UNLESS NOTED OTHERWISE IN THE SPECIFICATIONS.
11. LAG SCREWS AND WOOD SCREWS SHALL BE SCREWED AND NOT DRIVEN INTO PLACE. SOAP MAY BE USED TO LUBRICATE SCREWS.
12. ALL BOLTS, LAG SCREWS AND POST-INSTALLED ANCHORS SHALL BE PROVIDED WITH METAL WASHERS UNDER HEADS AND NUTS WHICH BEAR ON WOOD. STEEL WASHERS SHALL BE SIMPSON BP OR BPS TYPE (3" SQ. MIN. W/ STD CUT WASHER WHERE REQ'D BY CODE). MALLEABLE IRON (MI) WASHERS SHALL BE ROUND AND CAST. STANDARD FLAT WASHERS SHALL BE PER ANSI B18.22.1 TYPE A - WIDE PATTERN. FOR WASHERS AT SILL ANCHORS, SEE SCHEDULE:

SILL ANCHOR BOLT WASHER SCHEDULE			
WALL TYPE	2x6	2x8 & LARGER 1 SIDE SHTG	2x8 & LARGER 2 SIDES SHTG
WASHER DESIG.	BPS 5/8-6	BPS 5/8-6	3GA x 3" x STUD WIDTH - 1/2" W/ 11/16"ø @ CL

13. ALL BOLTS AND LAG SCREWS SHALL BE TIGHTENED ON INSTALLATION AND RETIGHTENED BEFORE CLOSING IN OR AT COMPLETION OF JOB.
14. ALL BOLTS SHALL BE FULL NOMINAL DIMENSION @ UNTHREADED PORTION. NO UPSET THREADED BOLTS ALLOWED.
15. ALL FASTENERS EXCEPT LAG SCREWS & BOLTS SHALL BE HOT-DIPPED GALVANIZED OR STAINLESS STEEL WHERE IN CONTACT W/ PRESSURE TREATED OR FIRE RETARDANT MATERIAL. SCREWS & ANCHOR BOLTS MAY BE ELECTRO GALVANIZED. BOLTS MAY BE UNCOATED.
16. USE OF MACHINE NAILING IS SUBJECT TO SATISFACTORY REVIEW FOR EACH PROJECT AND SUBJECT TO APPROVAL BY DSA OR OSHPD. THE APPROVAL IS SUBJECT TO CONTINUED SATISFACTORY PERFORMANCE. MACHINE NAILING WILL NOT BE APPROVED IN 5/16" SHEATHING. IF NAIL HEADS PENETRATE THE OUTER PLY BY MORE THAN WOULD BE NORMAL FOR A HAMMER OR IF MINIMUM ALLOWABLE EDGE DISTANCES ARE NOT MAINTAINED, THE PERFORMANCE WILL BE DEEMED UNSATISFACTORY.
17. BLOCK SHTG JOINTS WITH 3X4 FLAT BLOCKING WHERE NOTED ON ROOF OR FLOOR FRAMING PLANS AND WITH BLOCKING SAME SIZE AS STUDS AT WALLS. USE PLYCLIPS AT MIDSPAN OF UNSUPPORTED ROOF SHEATHING EDGES.
18. FRAMING HARDWARE SHOWN ON THE PLANS IS SIMPSON STRONG-TIE. USE FRAMING HARDWARE AS MANUFACTURED BY SIMPSON COMPANY OR EQUIVALENT. PRIOR TO INSTALLATION OF ANY NON-SIMPSON HARDWARE, THE CONTRACTOR SHALL SUBMIT A LIST OF ALL DETAIL REFERENCES WHERE A HARDWARE SUBSTITUTION IS PROPOSED, THE DESIGNATION FOR THE SIMPSON ITEM AND NON-SIMPSON PROPOSED EQUIVALENT AND AN ICC REPORT FOR EACH SUBSTITUTION ITEM.
19. LAY ALL STRUCTURAL SHEATHING ON ROOF AND FLOORS WITH LONG DIMENSION PERPENDICULAR TO SUPPORTS UNLESS NOTED OTHERWISE.
20. NOTIFY STRUCTURAL ENGINEER AFTER WALL, FLOOR, AND ROOF SHTG NAILING HAS BEEN COMPLETED AND A MINIMUM OF 48 HOURS PRIOR TO CONCEALING NAILING.

NAILING SCHEDULE
600SN002-1

ALL NAILS FOR STRUCTURAL WORK SHALL BE COMMON WIRE NAILS UNO, CONFORMING TO THE FOLLOWING MINIMUM SIZES:

8D	- 0.131" DIAMETER x 2-1/2"
10D	- 0.148" DIAMETER x 3"
10D SHEATHING	- 0.148" DIAMETER x 1-1/2" PLUS THICKNESS OF SHTG
10D SHORT	- 0.148" DIAMETER x 1-1/2"
16D	- 0.162" DIAMETER x 3-1/2"
20D	- 0.192" DIAMETER x 4"
20D BOX	- 0.148" DIAMETER x 4"
40D BOX	- 0.162" DIAMETER x 5"

HOLES SHALL BE SUB-DRILLED WHERE NECESSARY TO PREVENT SPLITTING. NAILING NOT NOTED BELOW OR ON PLANS SHALL BE A MINIMUM OF TWO NAILS AT EACH CONTACT. 8D FOR 1X MATERIAL AND 16D FOR 2X MATERIAL.

1. JOISTS OR RAFTERS------SAWN LUMBER BRG ON PLATES — TN EACH SIDE----------2-10D
   I-JOISTS BRG ON PLATES — EACH SIDE OF WEB----------2-10D
   LAPPED TO SIDES OF STUDS — 2x4, 2x6----------3-16D; 2x8 - 2x12 ----------4-16D
2. STUDS TO BEARINGS----- 2x4 STUDS — TN EACH SIDE----------2-10D; EN IN LIEU OF TN----------2-16D
   (3x, 4x SIM) 2x6 AND 2x8 STUDS — TN EACH SIDE----------3-10D; EN IN LIEU OF TN----------3-16D
   2x10 AND 2x12 STUDS — TN EACH SIDE----------4-10D; EN IN LIEU OF TN----------4-16D
3. BLOCKING---------- BETWEEN JOISTS, RAFTERS OR STUDS — TN EACH SIDE EACH END----2-10D; EN IN PLACE OF TN----------2-16D
   BETWEEN JOIST OR RAFTER BEARINGS (PLATES) — TN EA SIDE ---------- 3-10D
4. LEDGERS ----------TO STUDS — 1x LEDGER ----------2-8D; 2x LEDGER----------3-16D
5. DOUBLE TOP PLATES -----LOWER PLATE TO 2X4 STUD----------2-16D
   LOWER PLATE TO 2X6 OR 2X8 STUD----------3-16D
   UPPER PLATE TO LOWER PLATE ----------SEE "TYPICAL STUD WALL & OPENING FRAMING" DETAIL
6. SILL PLATES ----------TO PARALLEL FRAMING----------16D @ 12"CC
   TO PERPENDICULAR FRAMING -------EACH CONTACT----------2-16D
7. MULTIPLE STUDS---------- STAGGER FOR WIDTHS MORE THAN 4" ---------- 16D @ 12"CC
8. BUILT UP BEAMS ----------2-2X MEMBERS, TOP AND BOTTOM ---------- 16D @ 12"CC CLINCHED
   3 OR MORE 2X MEMBERS ----------1/2" DIAMETER BOLTS AT 12"CC STAGGERED
9. CEILING STRIPPING ----- HOLES SHALL BE PRE-DRILLED FOR NAILS AT ENDS OF STRIPPING BOARDS. — 1X ---------- 2-8D (1-SLANT)
   WHERE CEILING IS PLASTER OR 5/8" GYPSUM USE ANNULAR RING NAILS (NO SLANT). — 2X ---------- 2-16D (1-SLANT)
10. SHEAR WALL NAILING---------- SEE "SHEAR WALL NAILING" DETAIL
11. FLOOR OR ROOF NAILING----------SEE PLAN NOTES AND 620SD100.
12. NON-STRUCTURAL --------AT EDGES AND INTERIOR SIDING SUPPORTS — HDG CASING NAILS----------6D @ 6"CC
13. NON-STRUCTURAL --------AT EDGES — NAILS TO MATCH SHEAR WALLS @ 6"CC
    SHEATHING AT FIELD — NAILS TO MATCH SHEAR WALLS @ 12"CC
14. USE DEFORMED SHANK NAILS FOR ALL FLOOR SHEATHING.
15. ALL EXPOSED FASTENERS SHALL HAVE A ZINC-COATING CORROSION RESISTIVE SURFACE.
16. NAILS USED INTO PRESSURE TREATED OR FIRE RETARDANT MATERIAL SHALL BE HOT-DIPPED GALVANIZED PER ASTM A123 OR STAINLESS STEEL.

SIMPSON HARDWARE
600TN004-1

1. SIMPSON HARDWARE FOR THIS PROJECT HAS BEEN SPECIFIED BASED ON THE ALLOWABLE LOAD VALUES AND PRODUCT INFORMATION GIVEN IN THE SIMPSON CATALOG FOR THE YEAR THAT THESE DRAWINGS ARE DATED.
2. PLANS, SECTIONS AND DETAILS INDICATE GENERAL PRODUCT TYPE AND ANY REQUIRED MODIFICATIONS (I.E.: SLOPES AND SKEWS). SPECIFIC CATALOG CALL OUTS ARE DETERMINED BY INDIVIDUAL MEMBER SIZES.
   EXAMPLES:
   PLANS/SECTIONS INDICATE 2X10 MEMBERS SUPPORTED BY SIMPSON 'U' HANGERS. SIMPSON CALL-OUT: U210.
   PLANS/SECTIONS INDICATE 5-1/8"X18" GLB SUPPORTED BY 4X6 POST AND SIMPSON ECC CAP. SIMPSON CALLOUT: ECC5&1/4-4 OR OPTION WITH STRAPS ROTATED 90° ECC5&1/4-6
3. WHERE THE SIMPSON CATALOG INDICATES TWO SIZES MAY BE USED FOR THE SAME SIZE MEMBER, USE THE LARGER SIZE.
   EXAMPLE:
   PLANS/SECTIONS INDICATE 4X8 MEMBER SUPPORTED BY SIMPSON LUS HANGERS. SIMPSON CATALOG INDICATES LUS46 OR LUS48 MAY BE USED. THE LUS48 SHALL BE USED UNO.
4. USE SIMPSON 'MAX' NAILING CONFIGURATION ("FILL ALL HOLES WITH NAILS"), TYPICAL UNO.
5. WHERE MULTIPLE NAIL SIZES ARE INDICATED IN SIMPSON CATALOG, USE LARGEST NAIL SIZE LISTED, TYPICAL UNO.
6. HARDWARE SUPPLIER OTHER THAN SIMPSON SHALL SUBMIT A COMPARATIVE MATERIAL LIST ITEMIZING PRODUCT DESIGNATION, LOAD RATING, AND SUPPORTED MEMBER SIZE FOR REVIEW BY DSA AND THE STRUCTURAL ENGINEER.

STRUCTURAL STEEL
500SN001-1

1. FABRICATION, ERECTION AND MATERIALS SHALL CONFORM WITH THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, THE AISC SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS, AND THE CALIFORNIA BUILDING CODE, LATEST EDITIONS UNO IN THE DESIGN CRITERIA NOTES.
2. STRUCTURAL STEEL WIDE FLANGE SHAPES SHALL CONFORM WITH ASTM A992. ALL OTHER STRUCTURAL STEEL ROLLED SHAPES (CHANNELS, ANGLES, ETC) AND PLATES SHALL CONFORM WITH ASTM A36, UNO.
3. STEEL PIPE SHALL CONFORM TO ASTM A53, TYPES E OR S, GRADE B.
4. ALL HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500, GRADE C.
5. ALL STRUCTURAL STEEL SHALL RECEIVE A MINIMUM OF ONE SHOP COAT OF RED PRIMER PAINT. DO NOT PAINT AREAS TO BE FIELD WELDED, FIREPROOFED, GALVANIZED, TO RECEIVE SLIP-CRITICAL HIGH STRENGTH BOLTS, OR TO BE EMBEDDED IN CONCRETE. PROVIDE ADDITIONAL PAINTING AS NOTED IN THE SPECIFICATIONS.
6. ALL STRUCTURAL STEEL SHALL BE ERECTED PLUMB AND TRUE TO LINE. TEMPORARY BRACING SHALL BE INSTALLED AND SHALL BE LEFT IN PLACE UNTIL OTHER MEANS ARE PROVIDED TO ADEQUATELY BRACE THE STRUCTURE. CONTRACTOR RESPONSIBLE FOR REVIEWING ALL BASE PLATE AND SUPPORT CONDITIONS DURING ERECTION AND BRACING AS REQUIRED. SEE AISC AND OSHA REQUIREMENTS.
7. PLACE NON-SHRINK GROUT UNDER ALL BASE PLATES BEFORE ADDING VERTICAL LOAD.
8. STRUCTURAL STEEL BELOW GRADE SHALL HAVE 3 INCHES MINIMUM OF CONCRETE COVER.
9. BOLTED CONNECTIONS:
   a. BOLTED CONNECTIONS SHALL CONSIST OF UNFINISHED BOLTS CONFORMING TO ASTM A325 UNO. WHERE HIGH STRENGTH BOLTS ARE INDICATED, BOLTS CONFORMING TO ASTM A325 OR ASTM A490 AS SPECIFIED SHALL BE PROVIDED. ANCHOR RODS CAST IN CONCRETE OR MASONRY SHALL BE HEADED BOLTS WITH CUT THREAD, FULL DIAMETER BODY STYLE CONFORMING TO ASTM F1554 GR. 36, 55 (WELDABLE PER S1 SUPPLEMENTARY REQUIREMENTS), OR 105 AS INDICATED ON DRAWINGS. IN LIEU OF HEADED ANCHOR BOLTS, THREADED ROD CONFORMING TO THE ABOVE SPECIFICATION MAY BE USED WITH A SINGLE NUT WELDED TO THE ROD OR DOUBLE NUTS TIGHTENED TO PREVENT ROTATION. ANCHOR ROD PROJECTION ABOVE TOP OF FOUNDATION SHALL BE AS NOTED ON THE DRAWINGS.
   b. BOLTED CONNECTIONS SHALL HAVE WASHERS CONFORMING TO ASTM F436 UNO. WASHERS MAY BE OMITTED AT SNUG-TIGHTENED AND SLIP-CRITICAL CONNECTIONS, EXCEPT WHERE REQUIRED BY THE RCSC SPECIFICATION FOR STRUCTURAL JOINTS, LATEST EDITION.
   c. BASE PLATES SHALL HAVE NUTS AND WASHERS AT TOP AND BOTTOM OF PLATE. WASHERS FOR BASE PLATES SHALL BE A36 SQUARE OR CIRCULAR PLATE UNLESS ASTM F844 WASHERS ARE PERMITTED. SEE BASE PLATE DETAILS FOR PLATE SIZE AND PERMISSIBLE WASHER TYPE.
10. ADDITIONAL REQUIREMENTS FOR "SLIP-CRITICAL" BOLTED CONNECTIONS:
    a. "SLIP-CRITICAL" CONNECTIONS (A325SC DESIGN VALUES WITH SPECIAL INSPECTION) ARE REQUIRED AT ALL BRACED FRAME CONNECTIONS, AT ALL CONNECTIONS ALONG CHORD LINES AND DRAG LINES (AS NOTED ON PLANS), AND UNO, AT ALL BOLTS IN OVERSIZED OR SLOTTED HOLES.
    b. THE SPECIAL INSPECTOR MUST BE PRESENT DURING INSTALLATION AND TIGHTENING OPERATION OF "SLIP-CRITICAL" CONNECTIONS.
11. PROVIDE 3/4" DIAMETER STITCH BOLTS AND RING FILLS, SPACED AT NOT MORE THAN 2'-0" ON CENTER FOR ALL DOUBLE ANGLE MEMBERS UNO.
12. AT WOOD TO STEEL PARALLEL CONTACT, BOLT WITH 1/2" DIAMETER BOLTS AT MAXIMUM 24"CC.
13. HOLES FOR UNFINISHED BOLTS SHALL BE OF THE SAME NOMINAL DIAMETER OF THE BOLT PLUS 1/16". USE STANDARD AISC GAGE AND PITCH FOR BOLTS EXCEPT AS NOTED OTHERWISE.
14. WELDING SHALL BE DONE BY THE ELECTRIC ARC PROCESS IN ACCORDANCE WITH AMERICAN WELDING SOCIETY STANDARDS, USING ONLY CERTIFIED WELDERS. ALL GROOVE WELDS SHALL HAVE COMPLETE PENETRATION UNLESS NOTED OTHERWISE. ALL EXPOSED WELDS SHALL BE GROUND SMOOTH. ALL ELECTRODES FOR WELDING SHALL COMPLY WITH AWS CODE, E70 SERIES MINIMUM.
15. WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTHS REQUIRED.
16. MINIMUM FILLET WELDS: 3/16" @ T < 1/2"; 1/4" @ T < 3/4"; 5/16" @ T > 3/4"
17. WELDING PROCEDURE SPECIFICATIONS (WPS) FOR SHOP AND FIELD PREQUALIFIED WELD JOINTS AND WELD JOINTS QUALIFIED BY TEST SHALL BE PREPARED FOR REVIEW PRIOR TO FABRICATION. ALL WELDING PROCEDURE ITEMS SUCH AS BASE METALS, WELDING PROCESSES, FILLER METALS AND JOINT DETAILS THAT MEET THE REQUIREMENTS OF AWS D1.1 SECTION 3 SHALL BE CONSIDERED AS PREQUALIFIED. ANY CHANGE OR SUBSTITUTION THAT IS BEYOND THE RANGE OR TOLERANCE OR REQUIREMENTS FOR PREQUALIFICATION SHALL BE QUALIFIED BY TEST PER AWS D1.1 SECTION 4 PART B. QUALIFICATION TESTING IS REQUIRED FOR PARTIAL PENETRATION AND COMPLETE PENETRATION WELDS.
18. FOR NONDESTRUCTIVE TESTING OF WELDED CONNECTIONS EXCLUDING PRIMARY MEMBERS OF MOMENT RESISTING FRAMES:
    a. WELDED CONNECTIONS SHALL BE TESTED BY NONDESTRUCTIVE METHODS FOR COMPLIANCE WITH AISC N5.5, AND JOB SPECIFICATIONS. ULTRASONIC TESTING SHALL BE IN ACCORDANCE WITH AWS D1.1, ASTM E164 AND ASME SECTION V. RADIOGRAPHY SHALL BE IN ACCORDANCE WITH AWS D1.1, ASTM E94 AND E99, AND ASME SECTION V. THIS TESTING SHALL BE PART OF THE SPECIAL INSPECTION REQUIREMENTS OF CBC SECTION 1705 PERFORMED BY AN APPROVED INDEPENDENT TESTING LABORATORY AS FOLLOWS:
       1. BASE METAL THICKER THAN 1-1/2 INCH WHEN SUBJECT TO THROUGH THICKNESS WELD SHRINKAGE STRAINS.
       2. ALL COMPLETE JOINT PENETRATION GROOVE OR BUTT WELDS.
       3. ALL PARTIAL JOINT PENETRATION GROOVE WELDS WHEN USED IN COLUMN SPLICES.
    b. ANY MATERIAL DISCONTINUITIES SHALL BE ACCEPTED OR REJECTED ON THE BASIS OF DEFECT RATING IN ACCORDANCE WITH THE (LARGER REFLECTOR) CRITERIA OF AISC N5.5.

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

CAL FIRE SINCE 1885

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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CALIFORNIA STATE FIRE MARSHAL APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on project site at all times.
Reviewed by:_____

AOR
LICENSED ARCHITECT — BRUCE F. UNGER — NO. C15804 — REN. 5-31-21 — STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER — WILLIAM B. RADER — No. 3592 — STRUCTURAL — STATE OF CALIFORNIA

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STRUCTURAL SPECIAL INSPECTIONS AND TESTING

APPLICABLE TO ALL DRAWINGS UNLESS NOTED OR SHOWN OTHERWISE

STATEMENT OF STRUCTURAL SPECIAL INSPECTIONS AND TESTING
110TN001-1

1. SPECIAL INSPECTIONS AND TESTING SHALL BE PROVIDED BY A TESTING AND INSPECTION AGENCY, EMPLOYED BY THE OWNER (OR OWNER'S AUTHORIZED AGENT), AND APPROVED BY THE BUILDING OFFICIAL TO PROVIDE SPECIAL INSPECTIONS AND TESTING FOR THE PARTICULAR TYPE OF CONSTRUCTION.
2. TABLES OF SPECIAL INSPECTIONS AND TESTING ARE DERIVED FROM THE STRUCTURAL PROVISIONS OF THE CBC AND REFERENCED STANDARDS AND ARE FOR REFERENCE ONLY. THE INCLUDED TABLES ARE PROVIDED FOR THE CONVENIENCE OF THE OWNER, TESTING AGENCY AND CONTRACTOR IN DEVELOPING THE SCOPE OF WORK FOR REQUIRED TESTING AND INSPECTION OF STRUCTURAL MATERIALS AND COMPONENTS. FINAL DEFINITION OF THIS SCOPE OF WORK IS TO BE DETERMINED BY THE TESTING AGENCY AND THE OWNER (OR OWNER'S AUTHORIZED AGENT).
3. FREQUENCY OF SPECIAL INSPECTIONS AND TESTING SHALL BE, AT A MINIMUM, AS NOTED FOR THE INDIVIDUAL ELEMENTS WITHIN THE TABLES BELOW. THE CONTRACTOR SHALL COORDINATE TIMING OF SPECIAL INSPECTIONS AND TESTING WITH THE SPECIAL INSPECTION AND TESTING AGENCY.
4. PRIOR TO THE START OF CONSTRUCTION, THE TESTING AND INSPECTION AGENCY SHALL PROVIDE DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING OF THE SPECIAL INSPECTORS WHO WILL PERFORM THE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION, IN ACCORDANCE WITH CBC SECTION 1704A.2.1.
5. THE TESTING AND INSPECTION AGENCY SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TESTS TO THE BUILDING OFFICIAL, STRUCTURAL ENGINEER OF RECORD AND THE CONTRACTOR, PER CBC SECTION 1704A.2.4. THE REPORTS SHALL INDICATE WHETHER WORK INSPECTED OR TESTED CONFORMED TO THE APPROVED CONSTRUCTION DOCUMENTS. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF DISCREPANCIES ARE NOT CORRECTED, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND THE STRUCTURAL ENGINEER OF RECORD.
6. SPECIAL INSPECTION AND TESTING RECORDS SHALL BE RETAINED BY THE CONTRACTOR ON SITE UNTIL COMPLETION OF CONSTRUCTION.
7. THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT TO THE BUILDING OFFICIAL ACKNOWLEDGING RESPONSIBILITY FOR CONSTRUCTION OF THE MAIN LATERAL-FORCE RESISTING SYSTEM PRIOR TO COMMENCEMENT OF THAT WORK AS REQUIRED BY CBC SECTION 1704A.4.
8. THE OWNER OR THE OWNER'S AUTHORIZED AGENT SHALL SUBMIT TO THE BUILDING OFFICIAL, A FINAL REPORT DOCUMENTING SPECIAL INSPECTIONS AND TESTS PER CBC SECTION 1704A.2.4, AND REPORTS AND CERTIFICATES PER CBC SECTION 1704A.5.
9. ALL SOILS AND FOUNDATION EXCAVATION INSPECTIONS SHALL BE BY THE GEOTECHNICAL ENGINEER OF RECORD, OR A GEOTECHNICAL FIRM HIRED BY THE OWNER PER CBC SECTION 1705A.6.
10. SPECIAL INSPECTION IS REQUIRED FOR ALL SHOP FABRICATED MEMBERS OR ASSEMBLIES UNLESS WAIVED PER THE EXCEPTIONS IN CBC SECTION 1704A.2.5.
11. DEFINITIONS:
    a. CONTINUOUS - SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS CONTINUOUSLY PRESENT WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED.
    b. PERIODIC - SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED.
    c. QUALITY ASSURANCE (QA) - MONITORING AND INSPECTION TASKS PERFORMED BY AN AGENCY OR FIRM OTHER THAN THE FABRICATOR OR ERECTOR TO ENSURE THAT THE MATERIAL PROVIDED AND WORK PERFORMED BY THE FABRICATOR AND ERECTOR MEET THE REQUIREMENTS OF THE APPROVED CONSTRUCTION DOCUMENTS AND REFERENCED STANDARDS. QUALITY ASSURANCE INCLUDES THOSE TASKS DESIGNATED 'SPECIAL INSPECTION' BY THE APPLICABLE CODE.
    d. QUALITY CONTROL (QC) - CONTROLS AND INSPECTIONS IMPLEMENTED BY THE FABRICATOR OR ERECTOR, AS APPLICABLE, TO ENSURE THAT THE MATERIAL PROVIDED AND WORK PERFORMED MEET THE REQUIREMENTS OF THE APPROVED CONSTRUCTION DOCUMENTS AND REFERENCED STANDARDS.
    e. OBSERVE (O) - OBSERVE THESE ITEMS ON A RANDOM BASIS (DAILY FOR LFRS). OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.
    f. PERFORM (P) - PERFORM THOSE TASKS PRIOR TO FINAL ACCEPTANCE FOR EACH ITEM OR ELEMENT.
    g. DOCUMENT (D) - THE INSPECTOR SHALL PREPARE REPORTS INDICATING THAT THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE REPORT NEED NOT PROVIDE DETAILED MEASUREMENTS FOR JOINT FIT-UP, WPS SETTINGS, COMPLETED WELDS, OR OTHER INDIVIDUAL ITEMS LISTED IN THE TABLES. FOR SHOP FABRICATION, THE REPORT SHALL INDICATE THE PIECE MARK OF THE PIECE INSPECTED. FOR FIELD WORK, THE REPORT SHALL INDICATE THE REFERENCE GRID LINES AND FLOOR OR ELEVATION INSPECTED. WORK NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS AND WHETHER THE NONCOMPLIANCE HAS BEEN SATISFACTORILY REPAIRED SHALL BE NOTED IN THE INSPECTION REPORT.
12. SPECIAL INSPECTIONS AND TESTING SHALL BE PERFORMED DURING CONSTRUCTION ON THE WORK SHOWN IN THE CONSTRUCTION DOCUMENTS AS REQUIRED BY CBC CHAPTER 17A, THE TABLES LISTED BELOW, AND THE JURISDICTION'S SPECIAL INSPECTION AND TESTING FORM. IF DISCREPANCIES ARE NOTED, CONTACT THE SEOR. ALL EXCEPTIONS INCLUDED IN CBC CHAPTER 17A ARE PERMITTED TO BE USED.
    - SOILS
    - DRIVEN DEEP FOUNDATIONS
    - CAST-IN-PLACE DEEP FOUNDATIONS
    - HELICAL PILE FOUNDATIONS
    - CONCRETE CONSTRUCTION
    - CONCRETE CONSTRUCTION (POST-INSTALLED ANCHORS)
    - MASONRY CONSTRUCTION - LEVEL 1
    - MASONRY CONSTRUCTION - LEVEL 2
    - MASONRY CONSTRUCTION - LEVEL 3
    - STEEL CONSTRUCTION - WELDING TESTING
    - STEEL CONSTRUCTION - BOLTING
    - COLD-FORMED STEEL DECK
    - OPEN-WEB STEEL JOISTS & JOIST GIRDERS
    - COLD-FORMED STEEL TRUSSES SPANNING 60FT OR GREATER
    - STEEL CONSTRUCTION
    - STEEL WELDING INSPECTIONS
    - STEEL CONSTRUCTION - BOLTING TESTING
    - WOOD CONSTRUCTION - HIGH LOAD DIAPHRAGMS
    - WOOD CONSTRUCTION - METAL-PLATE-CONNECTED WOOD TRUSSES
    - WOOD CONSTRUCTION - STRUCTURAL ELEMENTS AND ASSEMBLIES INSPECTIONS
    - WOOD CONSTRUCTION - STRUCTURAL GLUED LAMINATED TIMBER
    - WOOD CONSTRUCTION - MANUFACTURED OPEN WEB TRUSSES INSPECTIONS
    - WOOD CONSTRUCTION - TIMBER CONNECTORS

    LFRS (SEE NOTE #13)
    - COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION LFRS
    - STRUCTURAL STEEL LFRS - WELDING INSPECTIONS
    - STRUCTURAL STEEL LFRS - WELDING TESTING
    - STRUCTURAL STEEL LFRS BOLTING
    - STRUCTURAL STEEL LFRS MISC
    - STRUCTURAL STEEL LFRS COMPOSITE CONSTRUCTION
    - STRUCTURAL STEEL LFRS H-PILES
    - STRUCTURAL WOOD LFRS
13. SPECIAL INSPECTIONS AND TESTING ARE REQUIRED FOR THE LATERAL FORCE-RESISTING SYSTEM (LFRS) AND SHALL BE PROVIDED FOR ALL COMPONENTS AND CONNECTIONS ASSOCIATED WITH THE DESCRIPTION BELOW. SPECIAL INSPECTIONS AND TESTING FOR THE LFRS SHALL BE PER THE LFRS TABLES ABOVE, AND ARE IN ADDITION TO ALL OTHER REQUIRED INSPECTIONS AND TESTING. IF NO LFRS TABLES ARE INCLUDED, INSPECTIONS AND TESTING FOR THE LFRS ITEMS NOTED SHALL BE PER THE TYPICAL MATERIAL TABLES.

LFRS DESCRIPTION:
- ADD LFRS DESCRIPTION FROM SAMPLE DESCRIPTIONS.
-
-

SOILS - REQUIRED SPECIAL INSPECTIONS AND TESTS [1]
CBC TABLE 1705A.6
110TN201-1

TYPE	CONTINUOUS	PERIODIC
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	-	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	-	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	-
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X
6. EARTH-RETAINING SHORING - SPECIAL INSPECTIONS AND TESTS SHALL BE IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 1812A.	-	-
7. VIBRO STONE COLUMNS - SPECIAL INSPECTIONS AND TESTS SHALL BE IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF SECTION 1813A.	-	-

[1] GEOTECHNICAL ENGINEER SHALL PROVIDE INSPECTION AND VERIFIED REPORT PER CBC SECTION 1705A.6.1

CONCRETE CONSTRUCTION - REQUIRED SPECIAL INSPECTIONS AND TESTS
CBC TABLE 1705A.3
110TN301-1

TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]
1. INSPECT AND TEST REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	-	X	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1-26.6.3
2. REINFORCING BAR WELDING:			AWS D1.4 ACI 318: 26.6.4
a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	-	X	
b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"	-	X	
c. INSPECT ALL OTHER WELDS	X	-	
3. INSPECT ANCHORS CAST IN CONCRETE.	-	X	ACI 318: 17.8.2, 26.7.2, 26.8.2
4. INSPECT AND TEST ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS. [b&c]			ACI 318: 17.8.2.4, 17.8.2
a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	-	
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.	-	X	
5. VERIFY USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: CH. 19, 26.4
6. PRIOR TO AND DURING CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C172 ASTM C31 ACI 318: 26.4, 26.12
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 26.5 ACI 506: 3.4
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.5.3-26.5.5
9. INSPECT PRESTRESSED CONCRETE FOR:			ACI 318: 26.10.2
a. APPLICATION OF PRESTRESSING FORCES	X	-	
b. GROUTING OF BONDED PRESTRESSING TENDONS.	X	-	
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	-	X	ACI 318: Ch. 26.9.2
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	-	X	ACI 318: 26.11.2
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	X	ACI 318: 26.11.1.2(b)
13. BATCH PLANT - QUALITY AND QUANTITY OF MATERIALS USED IN TRANSIT-MIXED CONCRETE AND BATCHED AGGREGATES, AT LOCATION WHERE MATERIALS ARE MEASURED. [d]	X	-	
14. CONCRETE PREPLACEMENT INSPECTION - CONCRETE SHALL NOT BE PLACED UNTIL THE FORMS AND REINFORCEMENT HAVE BEEN INSPECTED, ALL PREPARATIONS FOR THE PLACEMENT HAVE BEEN COMPLETED, AND THE PREPARATIONS HAVE BEEN CHECKED BY THE INSPECTOR OF RECORD.			
15. PLACING RECORD - A RECORD SHALL BE KEPT ON THE SITE OF THE TIME AND DATE OF PLACING THE CONCRETE IN EACH PORTION OF THE STRUCTURE. SUCH RECORD SHALL BE KEPT UNTIL THE COMPLETION OF THE STRUCTURE AND SHALL BE OPEN TO THE INSPECTION OF THE ENFORCEMENT AGENCY.			
16. COMPOSITE CONSTRUCTION CORES - COMPOSITE CONSTRUCTION CORES SHALL BE TAKEN AND TESTED IN ACCORDANCE WITH CBC SECTION 1910A.4			

[a] WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.

[b] SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO COMMENCEMENT OF THE WORK.

[c] INSTALLATION OF ALL ADHESIVE ANCHORS IN HORIZONTAL AND UPWARDLY INCLINED POSITIONS SHALL BE PERFORMED BY AN ACI/CRSI CERTIFIED ADHESIVE ANCHOR INSTALLER, EXCEPT WHERE THE FACTORED DESIGN TENSION ON THE ANCHORS IS LESS THAN 100 LBS AND THOSE ANCHORS ARE CLEARLY NOTED ON THE APPROVED CONSTRUCTION DOCUMENTS OR WHERE THE ANCHORS ARE SHEAR DOWELS ACROSS COLD JOINTS IN SLABS ON GRADE WHERE THE SLAB IS NOT PART OF THE LATERAL FORCE-RESISTING SYSTEM.

[d] SEE 1705A.3.3 FOR WAIVER/EXCEPTIONS.

MASONRY CONSTRUCTION - LEVEL 3 - REQUIRED SPECIAL INSPECTIONS AND TESTS
TMS602 TABLE 3 AND 4
110TN403-1

MINIMUM VERIFICATION REQUIREMENTS

MINIMUM VERIFICATION	REFERENCE FOR CRITERIA
PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE SUBMITTALS	TMS 602 ART. 1.5
PRIOR TO CONSTRUCTION, VERIFICATION OF F'M AND F'AAC, EXCEPT WHERE SPECIFICALLY EXEMPTED BY CODE.	TMS 602 ART. 1.4B
DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE	TMS 602 ART. 1.5 & 1.6.3
DURING CONSTRUCTION, VERIFICATION OF F'M AND F'AAC FOR EVERY 5,000 SQ. FT. (465 SQ. M)	TMS 602 ART. 1.4B
DURING CONSTRUCTION, VERIFICATION OF PROPORTIONS OF MATERIALS AS DELIVERED TO THE PROJECT SITE FOR PREMIXED OR PREBLENDED MORTAR, PRESTRESSING GROUT, AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT.	TMS 602 ART. 1.4B

MINIMUM SPECIAL INSPECTION

INSPECTION TASK	FREQUENCY: CONTINUOUS	FREQUENCY: PERIODIC	REFERENCE FOR CRITERIA: TMS 402	REFERENCE FOR CRITERIA: TMS 602
1. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE				
a. PROPORTIONS OF SITE-PREPARED MORTAR	-	X		ART. 2.1, 2.6A & 2.6C
b. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES	-	X		ART. 2.4 B, 2.4 H
c. GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES	-	X		ART. 3.4 , 3.6 A
d. PRESTRESSING TECHNIQUE	-	X		ART. 3.6 B
e. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	X	-		ART. 2.1 C
f. SAMPLE PANEL CONSTRUCTION	X	-		ART. 1.6D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
a. GROUT SPACE	X	-		ART. 3.2 D, 3.2 F
b. PLACEMENT OF PRESTRESSING TENDONS AND ANCHORAGES	-	X	SEC. 10.8 & 10.9	ART. 2.4, 3.6
c. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	X	-	SEC. 6.1, 6.3.1, 6.3.6, 6.3.7	ART. 3.2 E, 3.4
d. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	-	X		ART. 2.6 B, 2.4 G.1.b
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:	X	-		
a. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	-	X		ART. 1.5
b. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	-	X		ART. 3.3 B
c. SIZE & LOCATION OF STRUCTURAL MEMBERS	-	X		ART. 3.3 F
d. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION (INCLUDES POST-INSTALLED ANCHORS)	X	-	SEC. 1.2.1(e), 6.2.1, 6.3.1	ICC/IAPMO REPORT (POST-INSTALLED ANCHORS)
e. WELDING OF REINFORCEMENT	X	-	SEC. 6.1.6.1.2	
f. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F (4.4°C)) OR HOT WEATHER (TEMPERATURE ABOVE 90°F (32.2°C))	-	X		ART. 1.8 C, 1.8D
g. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	X	-		ART. 3.6 B
h. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE	X	-		ART. 3.5, 3.6 C
i. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	X	-		ART. 3.3 B.9, 3.3 F.1.b
4. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	-	X		ART. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4B.3, 1.4 B.4

STEEL CONSTRUCTION - WELDING - SPECIAL INSPECTIONS AND TESTS OF STRUCTURAL WELDING
CBC SECTION 1705A.2.5
110TN509

INSPECTION AND TESTING (INCLUDING NON-DESTRUCTIVE TESTING) OF ALL SHOP AND FIELD WELDING OPERATIONS SHALL BE MADE BY A QUALIFIED WELDING INSPECTOR APPROVED BY THE ENFORCEMENT AGENCY. THE MINIMUM REQUIREMENTS FOR A QUALIFIED WELDING INSPECTOR SHALL BE AS THOSE FOR AN AWS CERTIFIED WELDING INSPECTOR (CWI), AS DEFINED IN THE PROVISIONS OF THE AWS QC1.

THE WELDING INSPECTOR SHALL MAKE A SYSTEMATIC DAILY RECORD OF ALL WELDS. IN ADDITION TO OTHER REQUIRED RECORDS, THIS RECORD SHALL INCLUDE:
1. IDENTIFICATION MARKS OF WELDERS
2. LIST OF DEFECTIVE WELDS
3. MANNER OF CORRECTION OF DEFECTS

THE WELDING INSPECTOR SHALL CHECK THE MATERIAL, DETAILS OF CONSTRUCTION AND PROCEDURE, AS WELL AS WORKMANSHIP OF THE WELDS. THE INSPECTOR SHALL VERIFY THAT THE INSTALLATION OF END-WELDED STUD SHEAR CONNECTORS RECEIVES SAMPLING AND TESTING IN ACCORDANCE WITH THE REQUIREMENTS OF AWS D1.1 AND THE APPROVED PLANS AND SPECIFICATIONS. THE APPROVED AGENCY SHALL FURNISH THE ARCHITECT, STRUCTURAL ENGINEER, AND THE ENFORCEMENT AGENCY WITH A VERIFIED REPORT THAT THE WELDING HAS BEEN DONE IN CONFORMANCE WITH AWS D1.1, D1.3, D1.4, D1.8, AND THE APPROVED CONSTRUCTION DOCUMENTS.

STEEL CONSTRUCTION - REQUIRED SPECIAL INSPECTIONS & TESTS
CBC TABLE 1705A.2.1
110TN508-1

TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD
1. MATERIAL IDENTIFICATION AND TESTING OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:			
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	-	X	RCSC: 1.5, AISC 360: SECTION A3.3, J3.1 AND APPLICABLE ASTM MATERIAL STANDARDS
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	-	X	RCSC: 1.5 & 2.1, AISC 360: A3.3 & N3.2
c. TESTING OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS	-	-	RCSC: 7.2, APPLICABLE ASTM MATERIAL STANDARDS
2. INSPECTION OF HIGH-STRENGTH BOLTING			
a. SNUG-TIGHT JOINTS	-	X	RCSC: 7-9, AISC 360: J3.1, J3.2, M2.5 & N5.6
b. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION	-	X	
c. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITHOUT MATCHMARKING, OR CALIBRATED WRENCH METHODS OF INSTALLATION	X	-	
3. MATERIAL IDENTIFICATION AND TESTING OF STRUCTURAL STEEL AND COLD-FORMED STEEL DECK			
a. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360	-	X	AISC 360, SECTION A3.1
b. FOR OTHER STEEL, IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENT	-	X	APPLICABLE ASTM MATERIAL STANDARDS
c. MANUFACTURER'S CERTIFIED TEST REPORTS	-	X	AISC 360: A3.1 & N3.2
d. TESTING OF UNIDENTIFIED STEEL	-	-	APPLICABLE ASTM MATERIAL STANDARDS
4. MATERIAL IDENTIFICATION OF WELDING CONSUMABLES AND TESTING OF WELDED ELEMENTS:			
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS	-	X	AISC 360, A3.5 & N3.2 AND APPLICABLE AWS A5 DOCUMENTS
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	-	X	AISC 360: N3.2
c. NONDESTRUCTIVE TESTING OF WELDED JOINTS	-	-	AISC 360: N5.5
5. INSPECTION OF WELDING			
a. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:			
1. COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS	X	-	AISC 360: J2, M2.4, & M4.5 AWS D1.1 AWS D1.8
2. MULTIPASS FILLET WELDS	X	-	
3. SINGLE-PASS FILLET WELDS > 5/16"	X	-	
4. PLUG AND SLOT WELDS	X	-	
5. SINGLE-PASS FILLET WELDS ≤ 5/16"	-	X	
6. FLOOR AND ROOF DECK WELDS	-	X	AWS D1.3, SDI QA/QC
7. END-WELDED STUDS	-	X	AWS D1.1
8. WELDED SHEET STEEL FOR COLD-FORMED FRAMING MEMBERS	-	X	AWS D1.3
b. REINFORCING STEEL:			
1. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A706	-	X	AWS D1.4 ACI 318: SECTIONS 26.6.4.1, 18.2.8, 25.5.7.4
2. REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT.	X	-	
3. SHEAR REINFORCEMENT	X	-	
4. OTHER REINFORCING STEEL	-	X	
5. TESTS OF REINFORCING BARS	-	-	-
6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE:			
a. DETAILS SUCH AS BRACING AND STIFFENING	-	X	AISC 360: N5.8
b. MEMBER LOCATIONS	-	X	
c. APPLICATION OF JOINT DETAILS AT EACH CONNECTION	-	X	

a. WHERE APPLICABLE, SEE ALSO SECTION 1705A.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE

WOOD CONSTRUCTION - STRUCTURAL ELEMENTS AND ASSEMBLIES REQUIRED SPECIAL INSPECTIONS
CBC SECTION 1705A.5.3
110TN604

MINIMUM VERIFICATION

THE APPROVED AGENCY SHALL FURNISH A VERIFIED REPORT TO THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OF CONSTRUCTION OBSERVATION, THE STRUCTURAL ENGINEER, AND THE ENFORCEMENT AGENCY, IN ACCORDANCE WITH THE CALIFORNIA ADMINISTRATIVE CODE AND THIS CHAPTER. THE VERIFIED REPORT SHALL LIST ALL INSPECTED MEMBERS OR TRUSSES, AND SHALL INDICATE WHETHER OR NOT THE INSPECTED MEMBERS OR TRUSSES CONFORM WITH APPLICABLE STANDARDS AND THE APPROVED DRAWINGS AND SPECIFICATIONS. ANY NONCONFORMING ITEMS SHALL BE INDICATED ON THE VERIFIED REPORT.

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

Δ	REVISION	DATE

revisions

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL.# 04- XXXXXX
APPL.# 04- XXXXXX

AC _____ FLS _____ SS _____
DATE _____

CALIFORNIA STATE FIRE MARSHAL APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on project site at all times.
Reviewed by:_____

AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

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of	sheets

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STRUCTURAL SPECIAL INSPECTIONS AND TESTING

APPLICABLE TO ALL DRAWINGS UNLESS NOTED OR SHOWN OTHERWISE

REFER TO SHEET S1.03 FOR STATEMENT OF STRUCTURAL SPECIAL INSPECTIONS AND TESTING NOTES

STEEL CONSTRUCTION - WELDING - REQUIRED TESTING
AISC 360 - SECTION N5.5 NONDESTRUCTIVE TESTING (NDT) OF WELDED JOINTS
110TN502

a. PROCEDURES
ULTRASONIC TESTING (UT), MAGNETIC PARTICLE TESTING (MT), PENETRANT TESTING (PT) AND RADIOGRAPHIC TESTING (RT), WHERE REQUIRED, SHALL BE PERFORMED BY QA IN ACCORDANCE WITH AWS D1.1/D1.1M.

b. CJP GROOVE WELD NDT
FOR STRUCTURES IN RISK CATEGORY II (DSA ONLY), III OR IV, UT SHALL BE PERFORMED BY QA ON ALL CJP GROOVE WELDS SUBJECT TO TRANSVERSELY APPLIED TENSION LOADING IN BUTT, T- AND CORNER JOINTS, IN MATERIALS 5/16" THICK OR GREATER. FOR STRUCTURES IN RISK CATEGORY II, UT SHALL BE PERFORMED BY QA ON 10% OF CJP GROOVE WELDS IN BUTT, T- AND CORNER JOINTS SUBJECT TO TRANSVERSELY APPLIED TENSION LOADING, IN MATERIALS 5/16" THICK OR GREATER.

c. WELDED JOINTS SUBJECTED TO FATIGUE
WHEN REQUIRED BY APPENDIX 3, TABLE A-3.1, WELDED JOINTS REQUIRING WELD SOUNDNESS TO BE ESTABLISHED BY RADIOGRAPHIC OR ULTRASONIC INSPECTION SHALL BE TESTED BY QA AS PRESCRIBED. REDUCTION IN THE RATE OF UT IS PROHIBITED.

d. ULTRASONIC TESTING REJECTION RATE
THE ULTRASONIC TESTING REJECTION RATE SHALL BE DETERMINED AS THE NUMBER OF WELDS CONTAINING DEFECTS DIVIDED BY THE NUMBER OF WELDS COMPLETED. WELDS THAT CONTAIN ACCEPTABLE DISCONTINUITIES SHALL NOT BE CONSIDERED AS HAVING DEFECTS WHEN THE REJECTION RATE IS DETERMINED. FOR EVALUATING THE REJECTION RATE OF CONTINUOUS WELDS OVER 3 FEET IN LENGTH WHERE THE EFFECTIVE THROAT IS 1 INCH OR LESS, EA 12 INCH INCREMENT OR FRACTION THEREOF SHALL BE CONSIDERED AS ONE WELD. FOR EVALUATING THE REJECTION RATE ON CONTINUOUS WELDS OVER 3 FEET IN LENGTH WHERE THE EFFECTIVE THROAT IS GREATER THAN 1 INCH, EA 6 INCH OF LENGTH, OR FRACTION THEREOF, SHALL BE CONSIDERED ONE WELD.

e. REDUCTION OF ULTRASONIC TESTING RATE
FOR PROJECTS THAT CONTAIN 40 OR FEWER WELDS, THERE SHALL BE NO REDUCTION IN THE ULTRASONIC TESTING RATE. THE RATE OF UT IS PERMITTED TO BE REDUCED IF APPROVED BY THE EOR AND THE AHJ. WHERE THE INITIAL RATE OF UT IS 100%, THE NDT RATE FOR AN INDIVIDUAL WELDER OR WELDING OPERATOR IS PERMITTED TO BE REDUCED TO 25%, PROVIDED THE REJECTION RATE, THE NUMBER OF WELDS CONTAINING UNACCEPTABLE DEFECTS DIVIDED BY THE NUMBER OF WELDS COMPLETED, IS DEMONSTRATED TO BE 5% OR LESS OF THE WELDS TESTED FOR THE WELDER OR WELDING OPERATOR. A SAMPLING OF AT LEAST 40 COMPLETED WELDS SHALL BE MADE FOR SUCH REDUCED EVALUATION ON EA PROJECT.

f. INCREASE IN ULTRASONIC TESTING RATE
FOR STRUCTURES IN RISK CATEGORY II AND HIGHER, (WHERE THE INITIAL RATE FOR UT IS 10%) THE NDT RATE FOR AN INDIVIDUAL WELDER OR WELDING OPERATOR SHALL BE INCREASED TO 100% SHOULD THE REJECTION RATE (THE NUMBER OF WELDS CONTAINING UNACCEPTABLE DEFECTS DIVIDED BY THE NUMBER OF WELDS COMPLETED) EXCEEDS 5% OF THE WELDS TESTED FOR THE WELDER OR WELDING OPERATOR. SEE AISC 360, SECTION N5.5F FOR ADDITIONAL INFORMATION.

g. DOCUMENTATION
ALL NDT PERFORMED SHALL BE DOCUMENTED. FOR SHOP FABRICATION, THE NDT REPORT SHALL IDENTIFY THE TESTED WELD BY PIECE MARK AND LOCATION IN THE PIECE. FOR FIELD WORK, THE NDT REPORT SHALL IDENTIFY THE TESTED WELD BY LOCATION IN THE STRUCTURE, PIECE MARK, AND LOCATION IN THE PIECE. WHEN A WELD IS REJECTED ON THE BASIS OF NDT, THE NDT RECORD SHALL INDICATE THE LOCATION OF THE DEFECT AND THE BASIS OF REJECTION.

STEEL CONSTRUCTION - BOLTING - REQUIRED SPECIAL INSPECTIONS
AISC360 TABLE N5.6-1, N5.6-2, N5.6-3
110TN503

INSPECTION TASKS PRIOR TO BOLTING	QC	QA
MANUFACTURER CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	O	P
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	O	O
CORRECT FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM THE SHEAR PLANE)	O	O
CORRECT BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	O
CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	O
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	P	O
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	O
INSPECTION TASKS DURING BOLTING	**QC**	**QA**
FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS AND NUTS ARE POSITIONED AS REQUIRED	O	O
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	O
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	O	O
INSPECTION TASKS AFTER BOLTING	**QC**	**QA**
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	P	P

COLD-FORMED STEEL DECK - REQUIRED SPECIAL INSPECTIONS AND TESTS
CBC SECTION 1705A.2.2/SDI QA/QC STANDARD TABLES 1.1-1.8
110TN505

INSPECTION OR EXECUTION TASKS PRIOR TO DECK PLACEMENT	QC	QA
A. VERIFY COMPLIANCE OF MATERIALS (DECK AND ALL ACCESSORIES) WITH CONSTRUCTION DOCUMENTS, INCLUDING PROFILES, MATERIAL PROPERTIES, AND BASE METAL THICKNESS	P	P
B. DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES	P	P
INSPECTION OR EXECUTION TASKS AFTER DECK PLACEMENT	**QC**	**QA**
A. VERIFY COMPLIANCE OF DECK AND ALL DECK ACCESSORIES INSTALLATION WITH CONSTRUCTION DOCUMENTS	P	P
B. VERIFY DECK MATERIALS ARE REPRESENTED BY THE MILL CERTIFICATIONS THAT COMPLY WITH THE CONSTRUCTION DOCUMENTS	N/A	P
C. DOCUMENT ACCEPTANCE OR REJECTION OF INSTALLATION OF DECK AND DECK ACCESSORIES	P	P
INSPECTION OR EXECUTION TASKS PRIOR TO WELDING	**QC**	**QA**
A. WELDING PROCEDURE SPECIFICATIONS (WPS) AVAILABLE	O	O
B. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	O	O
C. MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
D. CHECK WELDING EQUIPMENT	O	O
INSPECTION OR EXECUTION TASKS DURING WELDING	**QC**	**QA**
A. USE OF QUALIFIED WELDERS	O	O
B. CONTROL AND HANDLING OF WELDING CONSUMABLES	O	O
C. ENVIRONMENTAL CONDITIONS (WIND SPEED, MOISTURE, TEMPERATURE)	O	O
D. WPS FOLLOWED	O	O
INSPECTION OR EXECUTION TASKS AFTER WELDING	**QC**	**QA**
A. VERIFY SIZE AND LOCATION OF WELDS, INCLUDING SUPPORT, SIDELAP, AND PERIMETER WELDS	P	P
B. WELDS MEET VISUAL ACCEPTANCE CRITERIA	P	P
C. VERIFY REPAIR ACTIVITIES	P	P
D. DOCUMENT ACCEPTANCE OR REJECTION OF WELDS	P	P
INSPECTION OR EXECUTION TASKS PRIOR TO MECHANICAL FASTENING	**QC**	**QA**
A. MANUFACTURER INSTALLATION INSTRUCTIONS AVAILABLE FOR MECHANICAL FASTENERS	O	O
B. PROPER TOOLS AVAILABLE FOR FASTENER INSTALLATION	O	O
C. PROPER STORAGE FOR MECHANICAL FASTENERS	O	O
INSPECTION OR EXECUTION TASKS DURING MECHANICAL FASTENING	**QC**	**QA**
A. FASTENERS ARE POSITIONED AS REQUIRED	O	O
B. FASTENERS ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS	O	O
INSPECTION OR EXECUTION TASKS AFTER MECHANICAL FASTENING	**QC**	**QA**
A. CHECK SPACING, TYPE, AND INSTALLATION OF SUPPORT FASTENERS	P	P
B. CHECK SPACING, TYPE, AND INSTALLATION OF SIDELAP FASTENERS	P	P
C. CHECK SPACING, TYPE, AND INSTALLATION OF PERIMETER FASTENERS	P	P
D. VERIFY REPAIR ACTIVITIES	P	P
E. DOCUMENT ACCEPTANCE OR REJECTION OF MECHANICAL FASTENERS	P	P

ADDITIONAL INSPECTIONS:
SEE REQUIREMENTS IN 'STEEL CONSTRUCTION - REQUIRED VERIFICATION AND SPECIAL INSPECTIONS' TABLE, AND 'STEEL CONSTRUCTION - WELDING - REQUIRED SPECIAL INSPECTIONS' TABLE

STEEL CONSTRUCTION - BOLTING - REQUIRED TESTING OF HIGH STRENGTH BOLTS
CBC SECTION 1705A.2.6
110TN510

HIGH-STRENGTH BOLTS, NUTS AND WASHERS SHALL BE SAMPLED AND TESTED BY AN APPROVED AGENCY FOR CONFORMANCE WITH THE REQUIREMENTS OF APPLICABLE ASTM STANDARDS.

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

Δ	REVISION	DATE

revisions

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DIVISION OF THE STATE ARCHITECT
APPL.# 04- XXXXXX
APPL.# 04- XXXXXX

AC _____ FLS _____ SS _____
DATE _____

CALIFORNIA STATE FIRE MARSHAL
APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on project site at all times.

Reviewed by:_____

AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

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GENERAL NOTES

APPLICABLE TO ALL DRAWINGS UNLESS NOTED OR SHOWN OTHERWISE

I-JOIST NOTES

640TN001

ROOF DESIGN LOAD 19 PSF DL 20 PSF LL

NET WIND UPLIFT LOAD (0.6D+0.6W) PSF ZONE 1 30 PSF

NET WIND UPLIFT LOAD FOR ZONE 2 & 3 39.5 PSF

WIND LOAD ZONES DEFINED IN ASCE 7-16 FIG 30.3

1. I-JOISTS AS INDICATED ON DRAWINGS ARE RED-BUILT DESIGNATIONS AND ARE FOR REFERENCE TO INDICATE REQUIRED DEPTH, SPACING AND CAPACITY ONLY. SUBMIT ALLOWABLE LOAD TABLES AND CERTIFICATION THAT PRODUCT CONFORMS W/ THE REQUIREMENTS OF IR23-9 FOR EQUIVALENT I-JOIST AND HARDWARE REVIEW BY DIRECT COMPARISON. SEE DETAIL 640TN100. SUBSTITUTE JOISTS MUST BE SUBMITTED TO AND APPROVED BY DSA AS A CHANGE ORDER PRIOR TO FABRICATION. CONTRACTOR SHALL BEAR ALL COSTS FOR THE ADDITIONAL ENGINEERING AND APPROVAL OF THE SUBSTITUTION.
2. EACH JOIST SHALL BE STAMPED WITH THE JOIST TYPE, MFR'S NAME, PLANT NUMBER, ICC-ESR NUMBER AND THE INDEPENDENT INSPECTION AGENCY LOGO.
3. CHORD MATERIAL SHALL BE LAMINATED VENEER LUMBER (LVL) OR MACHINE STRESS RATED LUMBER.
4. WEB MATERIAL SHALL BE OSB.
5. DESIGN AND FABRICATION SHALL CONFORM TO THE 2007 CBC W/ AMENDMENTS AND DSA "ACCEPTANCE CRITERIA FOR WOOD I-JOISTS"
6. ALLOWABLE STRESS INCREASE FOR LOAD DURATION SHALL BE:
   WIND/ SEISMIC - 60% ROOF - 25% SNOW - 15% FLOOR - 0%
7. REPETITIVE MEMBER STRESS INCREASE SHALL NOT BE ALLOWED.
8. I-JOIST SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED TO THE ARCHITECT AND/OR STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. DRAWINGS SHALL BE "STAND ALONE" WITH NO REFERENCES TO STRUCTURAL PLANS OR DETAILS. DETAILING FOR INSTALLATION SHALL BE COMPLETE AND SHALL INCLUDE COMP BOTTOM CHORD BRACING DESIGN AND DETAILING PER 1R23-9 WHERE REQUIRED. DUPLICATION (I.E. PHOTOCOPYING) OF DESIGN DRAWINGS IS NOT ACCEPTABLE.
9. I-JOIST SHOP DRAWINGS SHALL DETAIL THE REQUIRED BRIDGING @ ANY UNBRACED CHORD IN COMPRESSION UNDER ANY APPLICABLE LOAD COMBINATION. SPACING OF BRIDGING SHALL BE AS REQUIRED BY MANUFACTURER'S ICC REPORT OR ENGINEERING ANALYSIS.
10. CALCULATIONS SHALL BE SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN CALIFORNIA.
11. I-JOIST DESIGNER SHALL INCORPORATE ONE 400# (150#DL, 250#LL NON-CONCURRENT) VERTICAL LOAD ON THE BOTTOM CHORD OF ALL JOISTS FROM ONE SPRINKLER LINE. JOIST MUST BE DESIGNED TO CARRY THE LOAD AT ANY POINT.
12. I-JOISTS SHALL BE DESIGNED FOR ALL CONCENTRATED LOADS SHOWN ON DRAWINGS IN ADDITION TO THE UNIFORM LOADINGS SHOWN ABOVE.
13. SEE FRAMING PLANS AND MECHANICAL PLANS FOR LOCATIONS AND WEIGHTS OF MECHANICAL UNITS. COORDINATE ADDITIONAL EQUIPMENT LOADS WITH THE MECHANICAL CONTRACTOR PRIOR TO FABRICATION.
14. FLOOR JOISTS SHALL BE DESIGNED FOR A MAXIMUM LIVE LOAD DEFLECTION OF L/360 AND TOTAL LOAD DEFLECTION OF L/240. ROOF JOISTS SHALL BE DESIGNED FOR A MAXIMUM LIVE LOAD DEFLECTION OF L/360. REFER TO CBC SECTION 1604A.3 FOR LONG TERM DEFLECTION CRITERIA FOR I-JOISTS.
15. PROVIDE I-JOIST MIDSPAN BLOCKING TYPICAL BETWEEN ALL FLOOR JOISTS, UNO.
16. MANUFACTURER TO PROVIDE WEB STIFFENERS EACH SIDE OF WEB AT ALL BEARING LOCATIONS.
17. PROVIDE FULL HEIGHT BLOCKING AND/OR RIM JOIST AT ALL BOTTOM CHORD BEARING CONDITIONS AND WHERE NOTED ON DRAWINGS.
18. GENERAL CONTRACTOR TO PROVIDE TEMPORARY ERECTION BRACING AND WEB BRACING AS REQUIRED BY MANUFACTURER.
19. MANUFACTURER TO VERIFY AND GENERAL CONTRACTOR TO APPROVE ALL DIMENSIONS REQUIRING COORDINATION BETWEEN STRUCTURAL DRAWINGS WITH ARCHITECTURAL DRAWINGS. ADDITIONALLY, GENERAL CONTRACTOR SHALL VERIFY SUPPORT DIMENSIONS AND WALL LAYOUT IN FIELD PRIOR TO FABRICATION.
20. WHERE DOUBLE I-JOISTS ARE REQUIRED OR INDICATED ON DESIGN DRAWINGS PROVIDE LOAD TRANSFER PER DOUBLE I-JOIST ATTACHMENT DETAIL.
21. FIRE SPRINKLER INSTALLER SHALL USE CONNECTORS WITH ICC APPROVAL.
22. CONTRACTOR TO PROVIDE BEVELED WOOD PLATES, BEAMS, NAILERS ETC. AT ALL SLOPED BEARING CONDITIONS 1/4:12 OR GREATER.

GLUED LAMINATED BEAMS

640TN003-1

1. TYPICAL GLUED LAMINATED BEAMS SHALL BE MANUFACTURED FROM VISUALLY GRADED WESTERN SPECIES AND SHALL CONFORM TO THE FOLLOWING COMBINATIONS:

MEMBER USE	COMBINATION	F_b TOP (PSI)	F_b BOTT (PSI)	F_v (PSI)	F_c (PSI)	E (PSI)
SIMPLE SPAN	24F-V4	1200	2400	265	650	1800000
CANTILEVER OR CONTINUOUS	24F-V8	2400	2400	265	650	1800000

EXTERIOR MEMBERS NOT PROTECTED FROM WEATHER SHALL BE ALASKAN YELLOW CEDAR (AYC) OR AS INDICATED ABOVE WITH AN APPROVED PRESERVATIVE TREATMENT.

2. CAMBER ALL BEAMS ON AS INDICATED ON PLANS. WHERE CANTILEVER MEMBERS ARE CAMBERED, THE MEMBER SHALL ONLY BE CAMBERED AT THE INTERIOR SPAN. NO CAMBER AT CANTILEVERS, TYPICAL UNLESS NOTED OTHERWISE.
3. ALL GLULAM TIMBER FABRICATION INSPECTION PER SECTION 1705A.5.4 OF THE CBC SHALL BE CONTINUOUS. INSPECTOR SHALL BE APPROVED BY THE ENFORCEMENT AGENCY. AN AITC/ANSI CERTIFICATE OR STAMP IS NOT ACCEPTABLE. THE EXCEPTION OF CBC SECTION 1704A.6.2.1 IS ACCEPTABLE.
4. ALL GLUED LAMINATED BEAMS SHALL BE FABRICATED USING WET-USE ADHESIVES COMPLYING WITH ANSI/AITC A190.1. FABRICATION SHALL BE IN ACCORDANCE WITH CBC SECTION 1705A.5.4.
5. ALL EXTERIOR GLUED LAMINATED BEAMS SHALL BE FABRICATED FOR WET CONDITIONS OF USE.
6. ALL MEMBERS SHALL HAVE APPROPRIATE PROTECTION DURING TRANSIT, STORAGE, AND ERECTION (LOAD WRAPPED MIN FOR TRANSIT).
7. MAXIMUM MOISTURE CONTENT AT THE TIME OF GLUING SHALL NOT EXCEED 12% (10% FOR MEMBERS PERMANENTLY EXPOSED TO DIRECT SUNLIGHT).
8. THE RANGE OF MOISTURE CONTENT OF LAMINATIONS ASSEMBLED INTO A SINGLE MEMBER SHALL NOT EXCEED 5% AT THE TIME OF GLUING.
9. FOR GLULAM LAMINATING REQUIREMENTS, SEE DETAIL .

PARALLEL STRAND LUMBER (PSL)

640TN005-1

1. ALL PSL TO BE PROVIDED ACCORDING TO THE MANUFACTURER'S ICC-ESR. SEE PLANS FOR SIZES.

PSL MINIMUM PROPERTIES						
MATERIAL TYPE	E (PSI)	F_b (BEAM) (PSI)	F_b (PLANK) (PSI)	F_v (PSI)	F_c PERP (PSI)	F_c PAR (PSI)
2.0E	2000000	2900	2650	625	750	2900

2. ALLOWABLE STRESS INCREASE FOR LOAD DURATION SHALL BE:
   WIND/SEISMIC LOAD - 60% ROOF LIVE LOAD - 25%
   SNOW LOAD - 15% NORMAL LOAD - 0%
3. PSL DRAWINGS AND PRODUCT DATA SHALL BE SUBMITTED TO THE ARCHITECT AND/OR STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION.
4. NO HOLES OR NOTCHES OF ANY KIND ARE ALLOWED IN PSL UNLESS SPECIFICALLY NOTED ON THE STRUCTURAL DRAWINGS.
5. MANUFACTURER TO VERIFY AND GENERAL CONTRACTOR TO APPROVE ALL DIMENSIONS REQUIRING COORDINATION BETWEEN STRUCTURAL DRAWINGS AND ARCHITECTURAL DRAWINGS. ADDITIONALLY, GENERAL CONTRACTOR SHALL VERIFY SUPPORT DIMENSIONS AND WALL LAYOUT IN FIELD PRIOR TO FABRICATION.

LAMINATED VENEER LUMBER (LVL)

640TN006-1

1. ALL LVL TO BE PROVIDED ACCORDING TO THE MANUFACTURER'S ICC-ESR. SEE PLANS FOR SIZES. LVL SHALL MEET THE MINIMUM PROPERTIES AS SET OUT BELOW:

LVL Minimum Properties					
MATERIAL TYPE	E (PSI)	F_b (PSI)	F_v (PSI)	F_c PERP (PSI)	F_c PAR (PSI)
1.9E	1900000	2600	285	750	2510

2. ALLOWABLE STRESS INCREASE FOR LOAD DURATION SHALL BE:
   WIND/SEISMIC LOAD - 60% ROOF LIVE LOAD - 25%
   SNOW LOAD - 15% NORMAL LOAD - 0%
3. LVL DRAWINGS AND PRODUCT DATA SHALL BE SUBMITTED TO THE ARCHITECT AND/OR STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION.
4. NO HOLES OR NOTCHES OF ANY KIND ARE ALLOWED IN LVL UNLESS SPECIFICALLY NOTED ON THE STRUCTURAL DRAWINGS.
5. MANUFACTURER TO VERIFY AND GENERAL CONTRACTOR TO APPROVE ALL DIMENSIONS REQUIRING COORDINATION BETWEEN STRUCTURAL DRAWINGS AND ARCHITECTURAL DRAWINGS. ADDITIONALLY, GENERAL CONTRACTOR SHALL VERIFY SUPPORT DIMENSIONS AND WALL LAYOUT IN FIELD PRIOR TO FABRICATION.

LAMINATED STRAND LUMBER (LSL)

640TN007-1

1. ALL LSL TO BE PROVIDED ACCORDING TO THE MANUFACTURER'S ICC-ESR. SEE PLANS FOR SIZES. LSL SHALL MEET THE MINIMUM PROPERTIES AS SET OUT BELOW:

LSL MINIMUM PROPERTIES					
MATERIAL TYPE	E (PSI)	F_b (PSI)	F_v (PSI)	F_c PERP (PSI)	F_c PAR (PSI)
1.3E	1300000	1700	425	710	1835
1.55E	1550000	2325	525	900	2170

2. ALLOWABLE STRESS INCREASE FOR LOAD DURATION SHALL BE:
   WIND/SEISMIC LOAD - 60% ROOF LIVE LOAD - 25%
   SNOW LOAD - 15% NORMAL LOAD - 0%
3. LSL DRAWINGS AND PRODUCT DATA SHALL BE SUBMITTED TO THE ARCHITECT AND/OR STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION.
4. NO HOLES OR NOTCHES OF ANY KIND ARE ALLOWED IN LSL UNLESS SPECIFICALLY NOTED ON THE STRUCTURAL DRAWINGS.
5. MANUFACTURER TO VERIFY AND GENERAL CONTRACTOR TO APPROVE ALL DIMENSIONS REQUIRING COORDINATION BETWEEN STRUCTURAL DRAWINGS AND ARCHITECTURAL DRAWINGS. ADDITIONALLY, GENERAL CONTRACTOR SHALL VERIFY SUPPORT DIMENSIONS AND WALL LAYOUT IN FIELD PRIOR TO FABRICATION.

ALASKAN YELLOW CEDAR (AYC) GLUED LAMINATED BEAMS

640TN004-1

1. EXTERIOR MEMBERS NOT PROTECTED FROM WEATHER SHALL BE ALASKAN YELLOW CEDAR (AYC) OR AS INDICATED AT TYPICAL GLUED LAMINATED BEAM NOTES WITH AN APPROVED PRESERVATIVE TREATMENT. AYC GLUED LAMINATED BEAMS SHALL BE MANUFACTURED FROM VISUALLY GRADED ALL HEARTWOOD WESTERN SPECIES AND SHALL CONFORM TO THE FOLLOWING COMBINATIONS:

MEMBER USE	COMBINATION	F_b TOP (PSI)	F_b BOTT (PSI)	F_v (PSI)	F_c (PSI)	E (PSI)
SIMPLE SPAN	20F-V12	1400	2000	265	560	1500000
CANTILEVER OR CONTINUOUS	20F-V13	2000	2000	265	560	1500000

2. CAMBER ALL BEAMS ON AS INDICATED ON PLANS. WHERE CANTILEVER MEMBERS ARE CAMBERED, THE MEMBER SHALL ONLY BE CAMBERED AT THE INTERIOR SPAN. NO CAMBER AT CANTILEVERS, TYPICAL UNLESS NOTED OTHERWISE.
3. ALL GLULAM TIMBER FABRICATION INSPECTION PER SECTION 2304A.4 OF THE CBC SHALL BE CONTINUOUS. INSPECTOR SHALL BE APPROVED BY DSA REPRESENTATIVE. AN AITC/ANSI CERTIFICATE OR STAMP IS NOT ACCEPTABLE.
4. ALL GLUED LAMINATED BEAMS SHALL BE FABRICATED USING WET-USE ADHESIVES COMPLYING WITH ANSI/AITC A190.1. FABRICATION SHALL BE IN ACCORDANCE WITH CBC SECTION 2304A.4.
5. ALL AYC GLUED LAMINATED BEAMS SHALL BE FABRICATED FOR WET CONDITIONS OF USE.
6. ALL MEMBERS SHALL HAVE APPROPRIATE PROTECTION DURING TRANSIT, STORAGE, AND ERECTION (LOAD WRAPPED MIN FOR TRANSIT).
7. MAXIMUM MOISTURE CONTENT AT THE TIME OF GLUING SHALL NOT EXCEED 12% (10% FOR MEMBERS PERMANENTLY EXPOSED TO DIRECT SUNLIGHT).
8. THE RANGE OF MOISTURE CONTENT OF LAMINATIONS ASSEMBLED INTO A SINGLE MEMBER SHALL NOT EXCEED 5% AT THE TIME OF GLUING.
9. FOR GLULAM LAMINATING REQUIREMENTS, SEE DETAIL .

WOOD ROOF TRUSS

650SN002-1

ROOF DESIGN LOADS

TYPICAL TOP CHORD _____ PSF DL
_____ PSF LL (_____ PSF REDUCED FOR SLOPE)

TYPICAL BOTTOM CHORD _____ PSF DL
10 PSF LL (NONCONCURRENT W/ TOP CHORD LL)

MECHANICAL WELL _____ PSF DL (SUPERCEDES TYP. TOP CHORD DL)

NET WIND UPLIFT LOAD (0.6D+0.6W) FOR ZONE 1 - PSF

NET WIND UPLIFT LOAD FOR ZONES 2, 3 - PSF

NET WIND UPLIFT LOAD FOR ZONES 3 - PSF

WIND LOAD ZONES DEFINED IN ASCE 7-16 FIG 30.3

DISCONTINUITY DISTANCE 'A' = - FT.

1. ALL MEMBERS SHALL BE 2X4 MIN (UNO).
2. ALL TOP CHORD MEMBERS SHALL BE OF MATERIAL W/ A MINIMUM SPECIFIC GRAVITY OF 0.50.
3. PLATE MATERIAL SHALL BE ASTM A-446 GRADE A OR BETTER.
4. DESIGN AND FABRICATION SHALL CONFORM TO THE CODE AS DESIGNATED IN THE DESIGN CRITERIA NOTES AND ANSI/TPI 1-2014.
5. DESIGN AND CONSTRUCTION OF CONNECTIONS SHALL BE IN ACCORDANCE WITH PUBLISHED APPROVALS OF MANUFACTURER'S ICC-ESR. HEEL JOINT DESIGN SHALL CONSIDER THE EFFECTS OF ECCENTRIC LOADING IN ACCORDANCE WITH TRUSS PLATE INSTITUTE (TPI).
6. TRUSS DESIGNER SHALL OVERSIZE PLATES FOR CHORD MEMBERS TO ACCOUNT FOR WOOD DEFECTS LIKE KNOTS, KNOT HOLES AND GREATLY DISTORTED GRAINS. MAXIMUM ALLOWABLE DEFECT SIZE PER MEMBER SHALL BE 2 SQUARE INCHES. NO DEFECTS ALLOWED UNDER PLATES FOR WEB MEMBERS.
7. TRUSS LAYOUT & PROFILE DRAWINGS, CALCULATIONS AND THE LATEST ICC APPROVED TEST DATA FOR TRUSS METAL PLATE CONNECTORS SHALL BE SUBMITTED TO THE ARCHITECT AND/OR ENGINEER FOR REVIEW AND SHALL ADDRESS ALL COMMENTS FROM THAT REVIEW PRIOR TO SUBMITTAL TO THE BLDG DEPT.
8. TRUSS LAYOUT, PROFILE DRAWINGS AND CALCULATIONS FOR TRUSS DESIGNS AND ANY BEARING DETAILING PER NOTE 20 SHALL BE SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED. IT SHALL BE THE RESPONSIBILITY OF THE MANUFACTURER TO OBTAIN BUILDING DEPARTMENT APPROVAL PRIOR TO FABRICATION.
9. GENERAL CONTRACTOR TO DETERMINE AND PROVIDE TEMPORARY ERECTION BRACING AS REQUIRED.
10. BUILT UP GIRDER TRUSSES SHALL BE LAMINATED USING 1/2"ø BOLTS AT 24"CC MAXIMUM THROUGH ALL MEMBERS (OR OTHER METHOD BY WRITTEN REQUEST).
11. GABLE END TRUSSES SHALL HAVE 2X VERTICALS AT 16"CC TYPICAL UNLESS NOTED OTHERWISE. WHERE GABLE END TRUSSES ARE REQUIRED TO SPAN OVER OPENINGS VERTICALS SHALL BE INFILLED AROUND TYPICAL WEB MEMBERS.
12. ALL HARDWARE REQUIRED FOR CONNECTING TRUSSES (JACK TO HIP, HIP TO GIRDER OR GIRDER TO GIRDER, ETC.) SHALL BE DESIGNED, DETAILED AND PROVIDED BY TRUSS DESIGNER/MANUFACTURER.
13. TRUSS MANUFACTURER TO VERIFY ALL DIMENSIONS SHOWN ON STRUCTURAL DRAWINGS WITH ARCHITECTURAL DRAWINGS AND IN FIELD WITH WALL LAYOUT PRIOR TO FABRICATION. PROVIDE SHOP DRAWINGS WHICH SHALL INCLUDE PLAN DRAWING SHOWING TRUSS LOCATIONS AND TRUSS PROFILES, WITH DIMENSIONS REVIEWED AND APPROVED BY GENERAL CONTRACTOR, PRIOR TO FABRICATION.
14. TRUSS DESIGNER TO ACCOUNT FOR THE WEIGHT AND LATERAL RESTRAINT FORCES OF ALL EQUIPMENT IN THE DESIGN OF ALL TRUSSES WHICH SUPPORT SUCH EQUIPMENT. SEE OTHER DISCIPLINE'S DRAWINGS FOR WEIGHTS AND DETAILING. ADDITIONALLY, TRUSS DESIGNER SHALL INCORPORATE WEIGHT AND SEISMIC RESTRAINT FORCES OF ALL PIPING AND CONDUIT IN TRUSS DESIGN. SEE OTHER DISCIPLINES DWGS FOR TYPE AND LOCATION.
15. TRUSS DESIGNER SHALL INCORPORATE ONE 400# (150#DL, 250#LL NON-CONCURRENT) VERTICAL LOAD ON THE BOTTOM CHORD OF ALL TRUSSES FROM ONE SPRINKLER LINE. TRUSS MUST BE DESIGNED TO CARRY THE LOAD AT ANY POINT ALONG THE TOP AND BOTTOM CHORDS.
16. TRUSS DESIGNER/MANUFACTURER SHALL CLEARLY DESIGNATE TRUSS MEMBER BRACING LOCATIONS IN THE SHOP DRAWINGS.
17. FIRE SPRINKLER INSTALLER SHALL USE CONNECTORS WITH ICC APPROVAL.
18. STRUCTURAL DESIGN OF BEAMS, POSTS & FOUNDATIONS SUPPORTING ROOF TRUSSES HAS BEEN BASED ON FRAMING CONFIGURATIONS SHOWN ON PLANS. DEVIATIONS TO THE FRAMING CONFIGURATIONS SHOWN WILL REQUIRE ADDITIONAL DESIGN COORDINATION AND POTENTIAL REVISIONS TO FRAMING AND FOUNDATIONS. ANY REQUIRED REVISIONS TO THE STRUCTURAL DRAWINGS WILL BE PREFORMED ON A TIME AND MATERIAL BASIS AND WILL BE CHARGED TO THE GENERAL CONTRACTOR.
19. THE STRUCTURAL DRAWINGS GENERALLY INDICATE THE WIND UPLIFT CONNECTION DETAILING @ THE TRUSS SUPPORTS. TRUSS MANUFACTURER SHALL REVIEW THE STRUCTURAL DRAWINGS FOR UPLIFT DESIGN AND SHALL MAKE A STATEMENT ON THE SHOP DRAWING SUBMITTAL STATING SUCH. ANY CONNECTIONS THAT ARE INCOMPATIBLE WITH THE TRUSS SYSTEM SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER FOR REVIEW AND INPUT DURING THE SHOP DRAWING SUBMITTAL PROCESS.
20. TRUSS MANUFACTURER SHALL PROVIDE DESIGNS THAT DO NOT EXCEED A BEARING STRESS OF 600 PSI @ THE REACTION POINTS. AT TRUSS MANUFACTURER'S OPTION, BEARING PLATES OR OTHER CONNECTORS AS REQUIRED TO REDUCE BEARING STRESS @ SUPPORTING MEMBER TO 600 PSI MAX MAY BE DESIGNED, DETAILED, AND SUBMITTED FOR REVIEW TO THE ARCHITECT/STRUCTURAL ENGINEER.
21. ROOF JOISTS SHALL BE DESIGNED FOR A MAXIMUM TOTAL LOAD DEFLECTION OF L/180. IF ROOF JOISTS SUPPORT PLASTER CEILINGS A MAXIMUM TOTAL LOAD DEFLECTION OF L/240 IS REQUIRED.

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

CAL FIRE SINCE 1885

PROJECT:

CAL FIRE

PRADO HELITACK BASE

14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR

REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

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STRUCTURAL SPECIAL INSPECTIONS AND TESTING

APPLICABLE TO ALL DRAWINGS UNLESS NOTED OR SHOWN OTHERWISE

REFER TO SHEET S1.03 FOR STATEMENT OF STRUCTURAL SPECIAL INSPECTIONS AND TESTING NOTES

WOOD CONSTRUCTION - METAL-PLATE-CONNECTED WOOD TRUSSES - REQUIRED SPECIAL INSPECTIONS
CBC SECTION 1705A.5.2
110TN602

TYPE	CONTINUOUS	PERIODIC
1. SPECIAL INSPECTIONS OF WOOD TRUSSES w/ OVERALL HEIGHTS OF 60 INCHES OR GREATER SHALL BE PERFORMED TO VERIFY THAT THE INSTALLATION OF THE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING HAS BEEN INSTALLED IN ACCORDANCE w/ THE APPROVED TRUSS SUBMITTAL PACKAGE. FOR WOOD TRUSSES w/ A CLEAR SPAN OF 60 FEET OR GREATER, THE SPECIAL INSPECTOR SHALL VERIFY DURING CONSTRUCTION THAT THE TEMPORARY INSTALLATION RESTRAINT/BRACING IS INSTALLED IN ACCORDANCE w/ THE APPROVED TRUSS SUBMITTAL PACKAGE.	-	-

WOOD CONSTRUCTION - STRUCTURAL GLUED LAMINATED TIMBER REQUIRED SPECIAL INSPECTIONS
CBC SECTION 1705A.5.4
110TN605

MINIMUM VERIFICATION
MANUFACTURE OF ALL STRUCTURAL GLUED LAMINATED TIMBER SHALL BE CONTINUOUSLY INSPECTED BY AN APPROVED AGENCY. THE APPROVED AGENCY SHALL VERIFY THAT PROPER QUALITY CONTROL PROCEDURES AND TESTS HAVE BEEN EMPLOYED FOR ALL MATERIALS AND THE MANUFACTURING PROCESS, AND SHALL PERFORM VISUAL INSPECTION OF THE FINISHED PRODUCT. EACH INSPECTED MEMBER SHALL BE STAMPED BY THE APPROVED AGENCY WITH AN IDENTIFICATION MARK.

STRUCTURAL STEEL LFRS - WELDING - REQUIRED SPECIAL INSPECTIONS
AISC341 TABLE J6-1, J6-2, J6-3
110TN512-1

VISUAL INSPECTION TASKS PRIOR TO WELDING	QC		QA	
	TASK	DOC	TASK	DOC
MATERIAL IDENTIFICATION (TYPE/GRADE)	O	-	O	-
WELDER IDENTIFICATION SYSTEM	O	-	O	-
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) • JOINT PREPARATION • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION) • BACKING TYPE AND FIT (IF APPLICABLE)	P/O**	-	O	-
CONFIGURATION AND FINISH OF ACCESS HOLES	O	-	O	-
FIT-UP OF FILLET WELDS • DIMENSIONS (ALIGNMENT, GAPS AT ROOT) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION)	P/O**	-	O	-
VISUAL INSPECTION TASKS DURING WELDING	**QC**		**QA**	
	TASK	DOC	TASK	DOC
WPS FOLLOWED • SETTINGS ON WELDING EQUIPMENT • TRAVEL SPEED • SELECTED WELDING MATERIALS • SHIELDING GAS TYPE/FLOW RATE • PREHEAT APPLIED • INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.) • PROPER POSITION (F, V, H, OH) • INTERMIX OF FILLER METALS AVOIDED UNLESS APPROVED	O	-	O	-
USE OF QUALIFIED WELDERS	O	-	O	-
CONTROL AND HANDLING OF WELDED CONSUMABLES • PACKAGING • EXPOSURE CONTROL	O	-	O	-
ENVIRONMENTAL CONDITIONS • WIND SPEED WITHIN LIMITS • PRECIPITATION AND TEMPERATURE	O	-	O	-
WELDING TECHNIQUES • INTERPASS AND FINAL CLEANING • EACH PASS WITHIN PROFILE LIMITATIONS • EACH PASS MEETS QUALITY REQUIREMENTS	O	-	O	-
NO WELDING OVER CRACKED TACKS	O	-	O	-
VISUAL INSPECTION TASKS AFTER WELDING	**QC**		**QA**	
	TASK	DOC	TASK	DOC
WELDS CLEANED	O	-	O	-
SIZE, LENGTH AND LOCATION OF WELDS	P	-	P	-
WELDS MEET VISUAL ACCEPTANCE CRITERIA • CRACK PROHIBITION • WELD/BASE-METAL FUSION • CRATER CROSS SECTION • WELD PROFILES AND SIZE • UNDERCUT • POROSITY	P	D	P	D
K-AREA[1]	P	D	P	D
PLACEMENT OF REINFORCING OR CONTOURING FILLET WELDS (IF REQD)	P	D	P	D
BACKING REMOVED, WELD TABS REMOVED AND FINISHED, AND FILLET WELDS ADDED (IF REQD)	P	D	P	D
REPAIR ACTIVITIES	P	-	P	D

** FOLLOWING PERFORMANCE OF THIS INSPECTION TASK FOR TEN WELDS TO BE MADE BY A GIVEN WELDER, WITH THE WELDER DEMONSTRATING UNDERSTANDING OF REQUIREMENTS AND POSSESSION OF SKILLS AND TOOLS TO VERIFY THESE ITEMS, THE PERFORM DESIGNATION OF THIS TASK SHALL BE REDUCED TO OBSERVE, AND THE WELDER SHALL PERFORM THIS TASK. SHOULD THE INSPECTOR DETERMINE THAT THE WELDER HAS DISCONTINUED PERFORMANCE OF THIS TASK, THE TASK SHALL BE RETURNED TO PERFORM UNTIL SUCH TIME AS THE INSPECTOR HAS RE-ESTABLISHED ADEQUATE ASSURANCE THAT THE WELDER WILL PERFORM THE INSPECTION TASKS LISTED.

[1] WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 INCHES (75MM) OF THE WELD. THE VISUAL INSPECTION SHALL BE PERFORMED NO SOONER THAN 48 HOURS FOLLOWING COMPLETION OF THE WELDING.

STRUCTURAL STEEL LFRS - WELDING - REQUIRED TESTING
AISC 341 - SECTION J6.2 NONDESTRUCTIVE TESTING (NDT) OF WELDED JOINTS
110TN513

ALL REQUIREMENTS OF THE 'STEEL CONSTRUCTION - WELDING - REQUIRED TESTING' TABLE SHALL APPLY IN ADDITION TO THE TESTING NOTED BELOW.

a. CJP GROOVE WELD NDT
ULTRASONIC TESTING (UT) SHALL BE PERFORMED ON 100% OF CJP GROOVE WELDS IN MATERIALS 5/16" THICK OR GREATER. UT IN MATERIALS LESS THAN 5/16" THICK IS NOT REQUIRED. WELD DISCONTINUITIES SHALL BE ACCEPTED OR REJECTED ON THE BASIS OF AWS D1.1/D1.1M TABLE 6.2. MAGNETIC PARTICLE TESTING (MT) SHALL BE PERFORMED ON 25% OF ALL BEAM-TO-COLUMN CJP GROOVE WELDS. THE RATE OF UT AND MT IS PERMITTED TO BE REDUCED IN ACCORDANCE WITH SECTIONS J6.2G AND J6.2H, RESPECTIVELY.

b. COLUMN SPLICE AND COLUMN TO BASE PLATE PJP GROVE WELD NTD
UT SHALL BE PERFORMED BY QA ON 100% OF PARTIAL-JOINT-PENETRATION (PJP) GROOVE WELDS IN COLUMN SPLICES AND COLUMN TO BASE PLATE WELDS. THE RATE OF UT IS PERMITTED TO BE REDUCED IN ACCORDANCE WITH SECTION J6.2G. SEE AISC 341 SECTION J6.2B FOR ADDITIONAL INFO ON PROCEDURES, MOCK-UPS AND ACCEPTANCE/REJECTION.

c. BASE METAL NDT FOR LAMELLAR TEARING AND LAMINATIONS
AFTER JOINT COMPLETION, BASE METAL THICKER THAN 1 1/2" LOADED IN TENSION IN THE THROUGH-THICKNESS DIRECTION IN T- AND CORNER-JOINTS, WHERE THE CONNECTED MATERIAL IS GREATER THAN 3/4" AND CONTAINS CJP GROOVE WELDS, SHALL BE ULTRASONICALLY TESTED FOR DISCONTINUITIES BEHIND AND ADJACENT TO THE FUSION LINE OF SUCH WELDS. ANY BASE METAL DISCONTINUITIES FOUND WITHIN T/4 OF THE STEEL SURFACE SHALL BE ACCEPTED OR REJECTED ON THE BASIS OF CRITERIA OF AWS D1.1/D1.1M TABLE 6.2, WHERE "T" IS THE THICKNESS OF THE PART SUBJECTED TO THE THROUGH-THICKNESS STRAIN.

d. BEAM COPE AND ACCESS HOLE NDT
AT WELDED SPLICES AND CONNECTIONS, THERMALLY CUT SURFACES OF BEAM COPES AND ACCESS HOLES SHALL BE TESTED USING MAGNETIC PARTICLE TESTING OR PENETRANT TESTING, WHEN THE FLANGE THICKNESS EXCEEDS 1 1/2" FOR ROLLED SHAPES, OR WHEN THE WEB THICKNESS EXCEEDS 1 1/2" FOR BUILT-UP SHAPES.

e. REDUCED BEAM SECTION REPAIR NDT
MAGNETIC PARTICLE TESTING SHALL BE PERFORMED ON ANY WELD AND ADJACENT AREA OF THE REDUCED BEAM SECTION (RBS) CUT SURFACE THAT HAS BEEN REPAIRED BY WELDING, OR ON THE BASE METAL OF THE RBS CUT SURFACE IF A SHARP NOTCH HAS BEEN REMOVED BY GRINDING.

f. WELD TAB REMOVAL SITES
AT THE END OF WELDS WHERE WELD TABS HAVE BEEN REMOVED, MAGNETIC PARTICLE TESTING SHALL BE PERFORMED ON THE SAME BEAM-TO-COLUMN JOINTS RECEIVING UT AS REQUIRED UNDER SECTION J6.2A. THE RATE OF MT IS PERMITTED TO BE REDUCED IN ACCORDANCE WITH SECTION J6.2H. MT OF CONTINUITY PLATE WELD TABS REMOVAL SITES IS NOT REQUIRED.

g. REDUCTION OF PERCENTAGE OF ULTRASONIC TESTING
THE REDUCTION OF PERCENTAGE OF UT IS PERMITTED TO BE REDUCED, SEE 'STEEL CONSTRUCTION - WELDING - REQUIRED TESTING' TABLE ITEM (E). EXCEPT NO REDUCTION IS PERMITTED FOR DEMAND CRITICAL WELDS.

h. REDUCTION OF PERCENTAGE OF MAGNETIC PARTICLE TESTING
THE AMOUNT OF MT ON CJP GROOVE WELDS IS PERMITTED TO BE REDUCED IF APPROVED BY THE ENGINEER OF RECORD AND THE AUTHORITY HAVING JURISDICTION, PER AISC 341 SECTION J6.2H.

STRUCTURAL STEEL LFRS BOLTING - REQUIRED SPECIAL INSPECTIONS
AISC341 TABLE J7-1, J7-2, J7-3
110TN514-1

INSPECTION TASKS PRIOR TO BOLTING	QC		QA	
	TASK	DOC	TASK	DOC
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL	O	-	O	-
PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	-	O	-
CONNECTING ELEMENTS, INCLUDING THE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	-	O	-
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED FOR FASTENER ASSEMBLIES AND METHODS USED	P	D	O	D
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	-	O	-
INSPECTION TASKS DURING BOLTING	**QC**		**QA**	
	TASK	DOC	TASK	DOC
FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	O	-	O	-
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	-	O	-
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	-	O	-
BOLTS ARE PRETENSIONED PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	O	-	O	-
INSPECTION TASKS AFTER BOLTING	**QC**		**QA**	
	TASK	DOC	TASK	DOC
DOCUMENT ACCEPTED OR REJECTED CONNECTIONS	P	D	P	D

STRUCTURAL WOOD LFRS - REQUIRED SPECIAL INSPECTIONS
CBC SECTION 1705A.11.1, 1705A.12.2
110TN611-1

TYPE	CONTINUOUS	PERIODIC
1. FIELD GLUING OPERATIONS OF ELEMENTS OF THE LFRS.	X	-
2. NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF ELEMENTS OF THE LFRS, INCLUDING WOOD SHEAR WALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES, SHEAR PANELS AND HOLD-DOWNS.	-	X

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

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Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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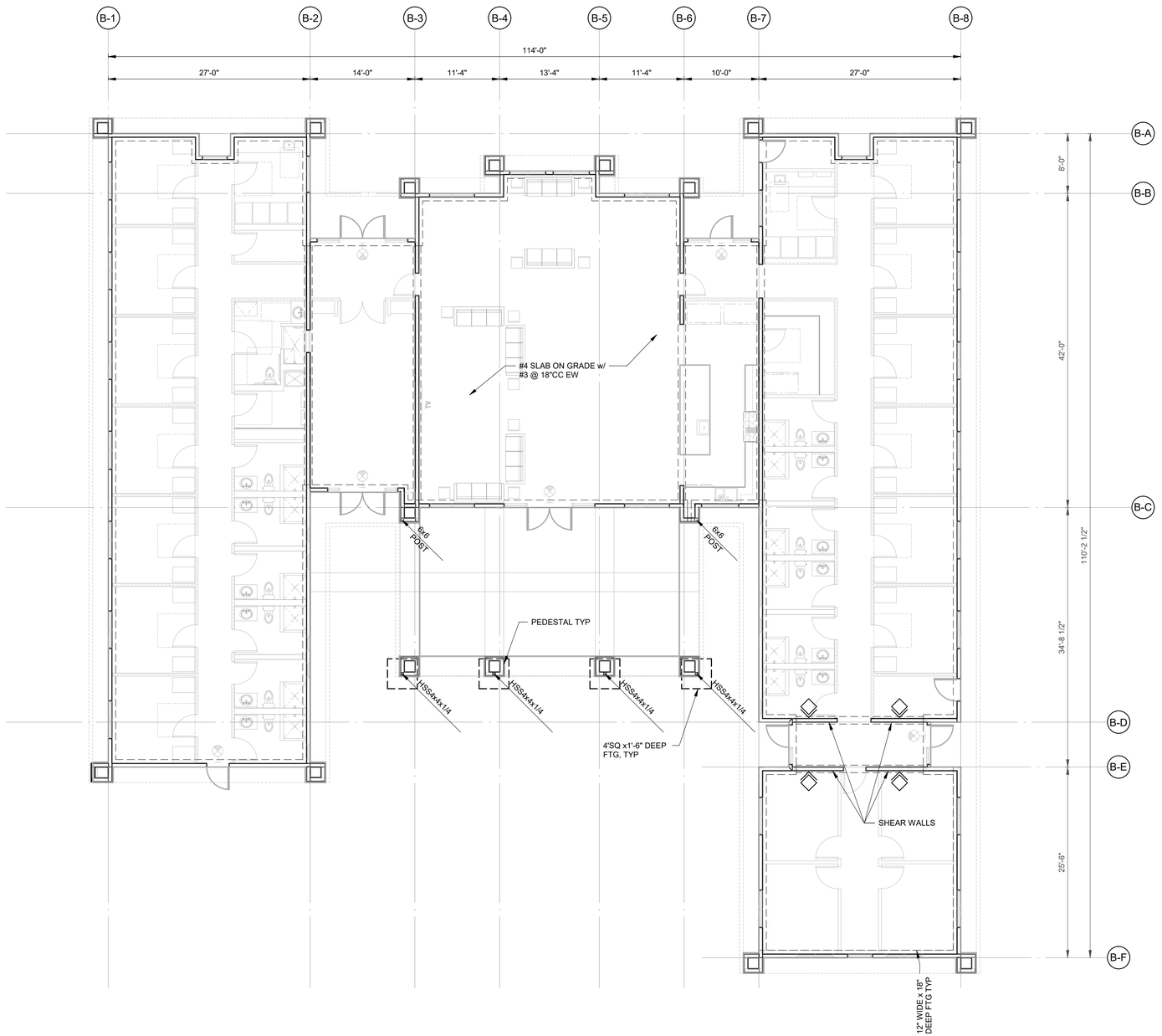
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AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
STRUCTURAL PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

drawn by CL
checked by BFU
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BARRACKS BLDG FOUNDATION PLAN 1/8" = 1'-0"

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SACRAMENTO, CA 95811
916 443 0303

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CALIFORNIA DEPARTMENT OF
GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE
AND ENVIRONMENTAL
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700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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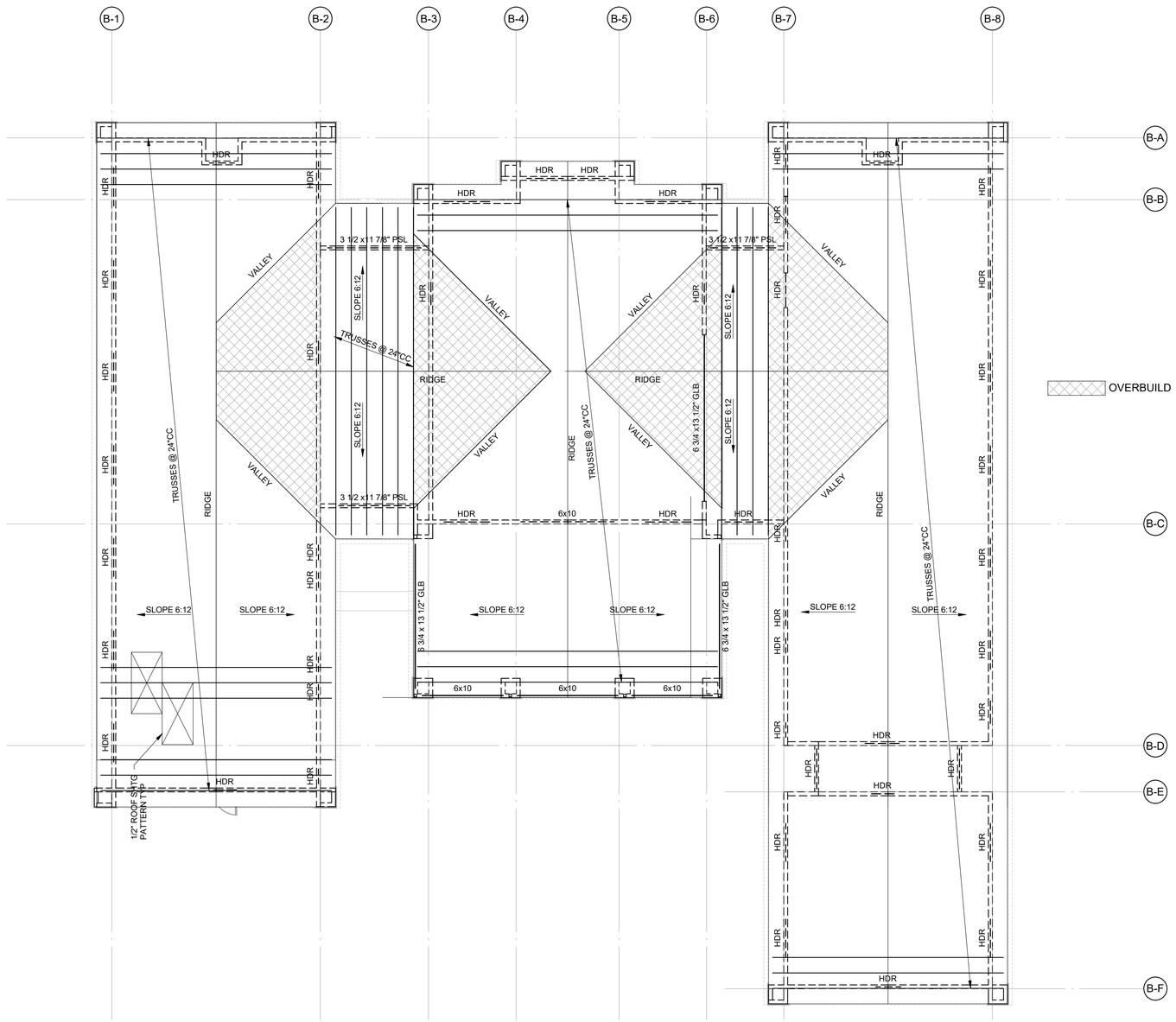
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REN. 5-31-21
STATE OF CALIFORNIA

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REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

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BARRACKS BLDG ROOF FRAMING PLAN

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CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
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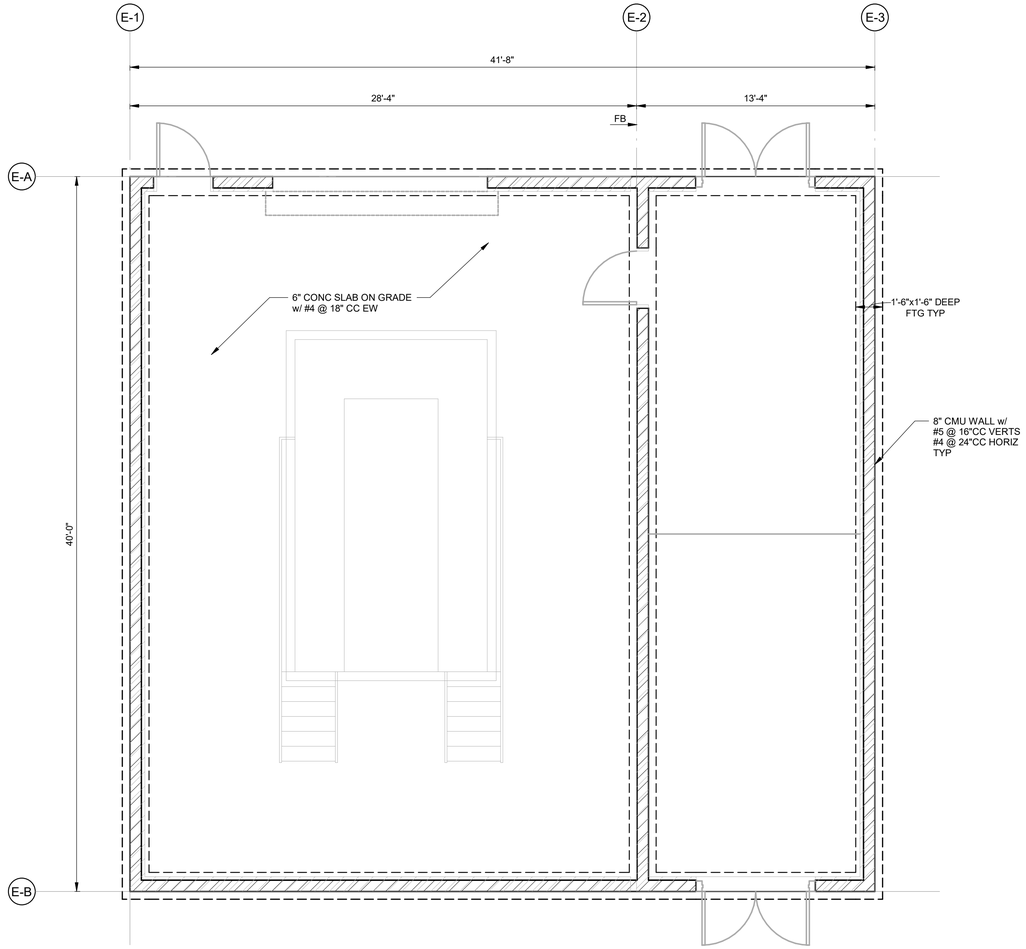
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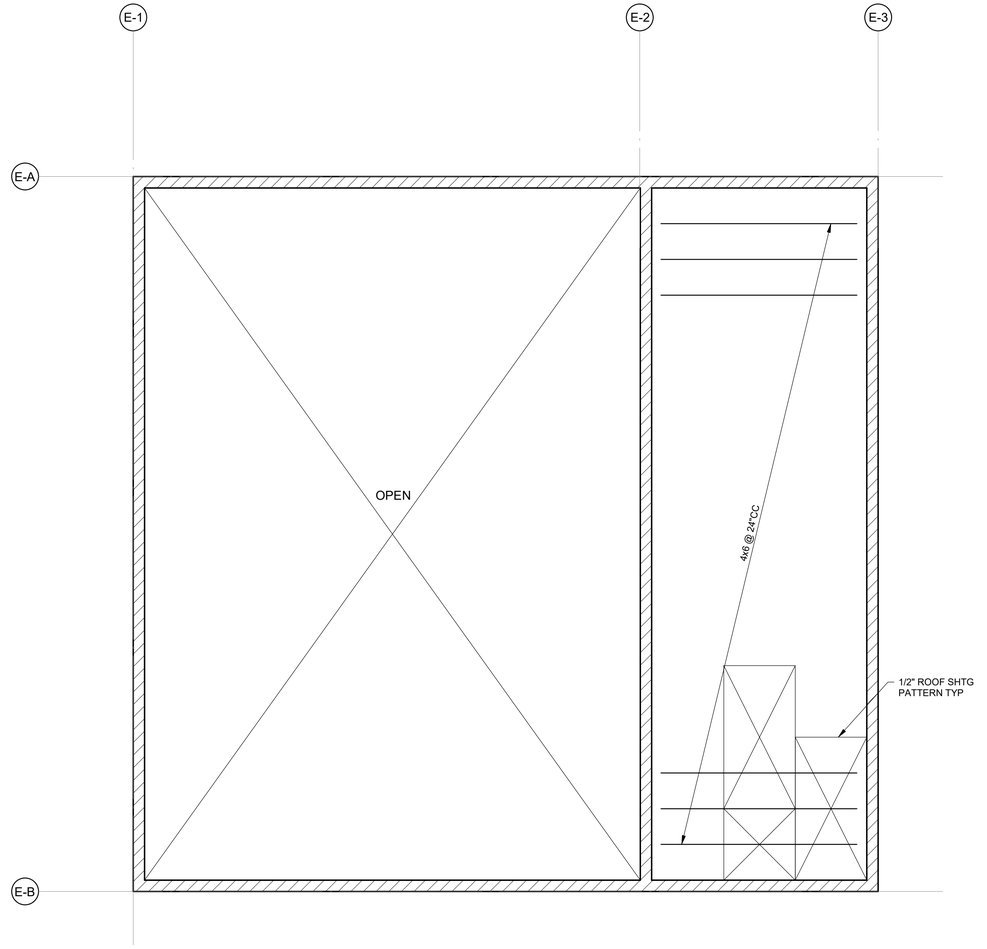
EOR
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WILLIAM B. RADER
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GENERATOR BLDG FOUNDATION PLAN

1/4" = 1'-0"



GENERATOR BLDG ROOF FRAMING PLAN

1/4" = 1'-0"

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916 443 0303

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707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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CAL FIRE

PRADO HELITACK BASE

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CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
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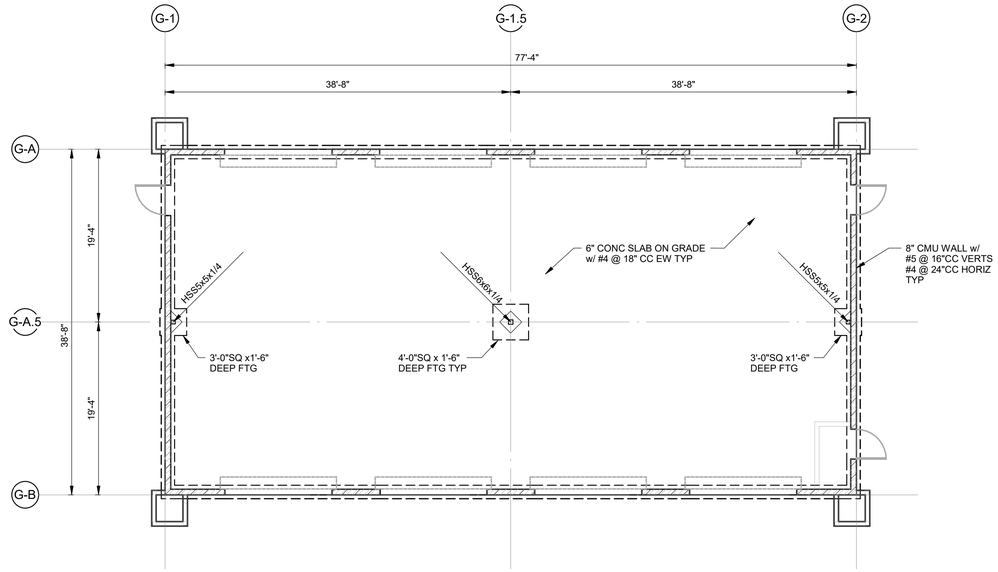
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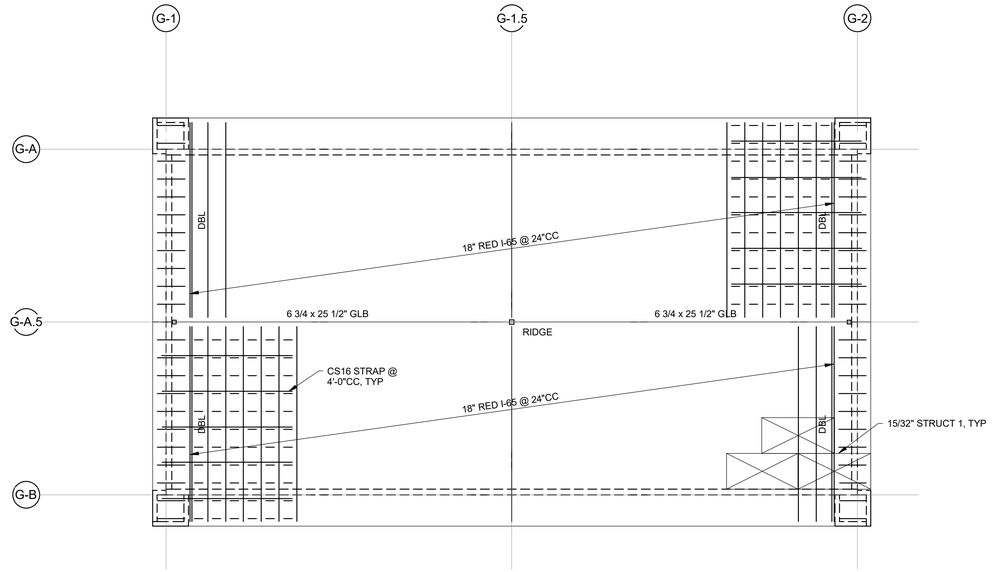
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GARAGE BLDG FOUNDATION PLAN 1/8" = 1'-0"



GARAGE BLDG ROOF FRAMING PLAN 1/8" = 1'-0"

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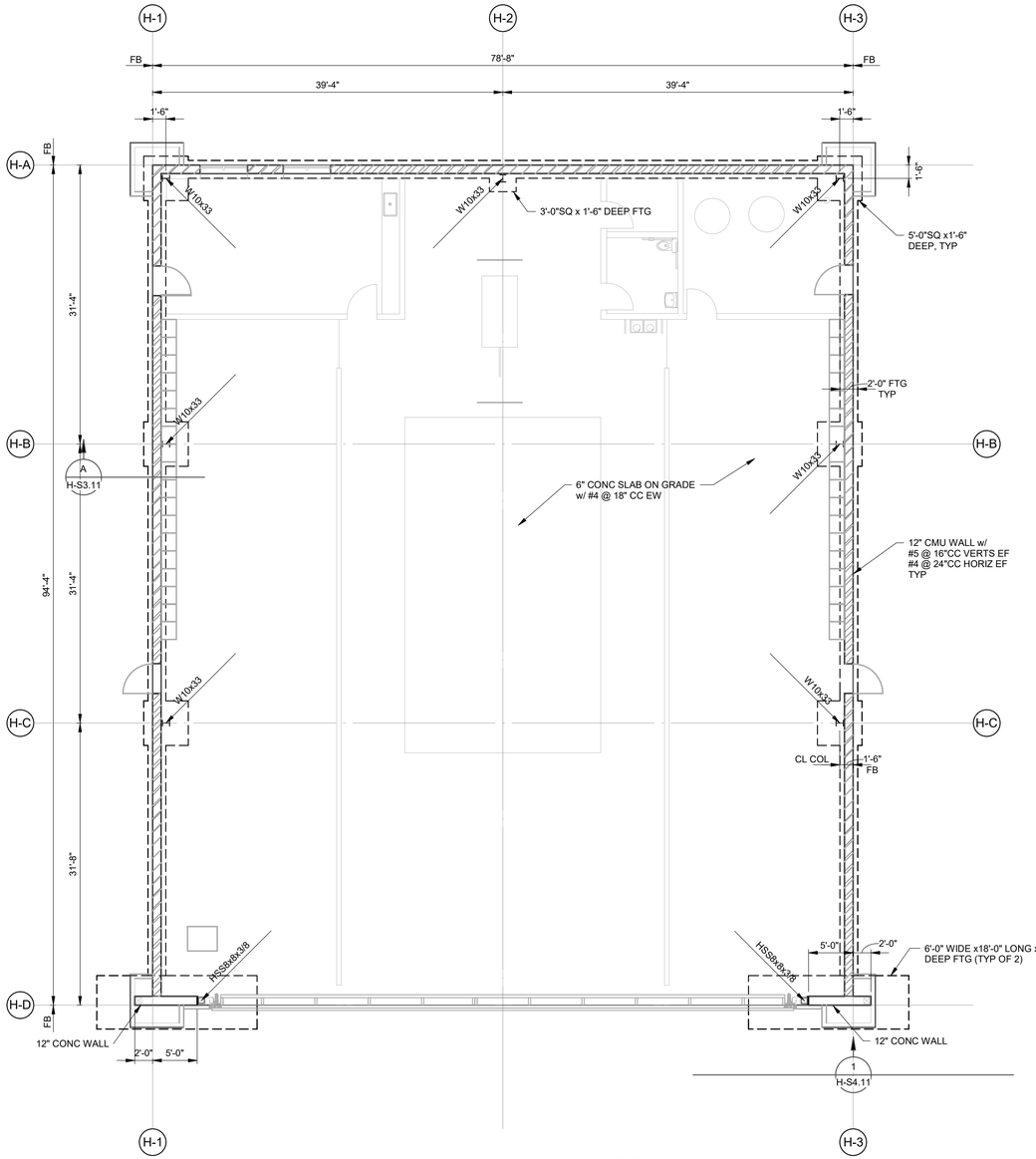
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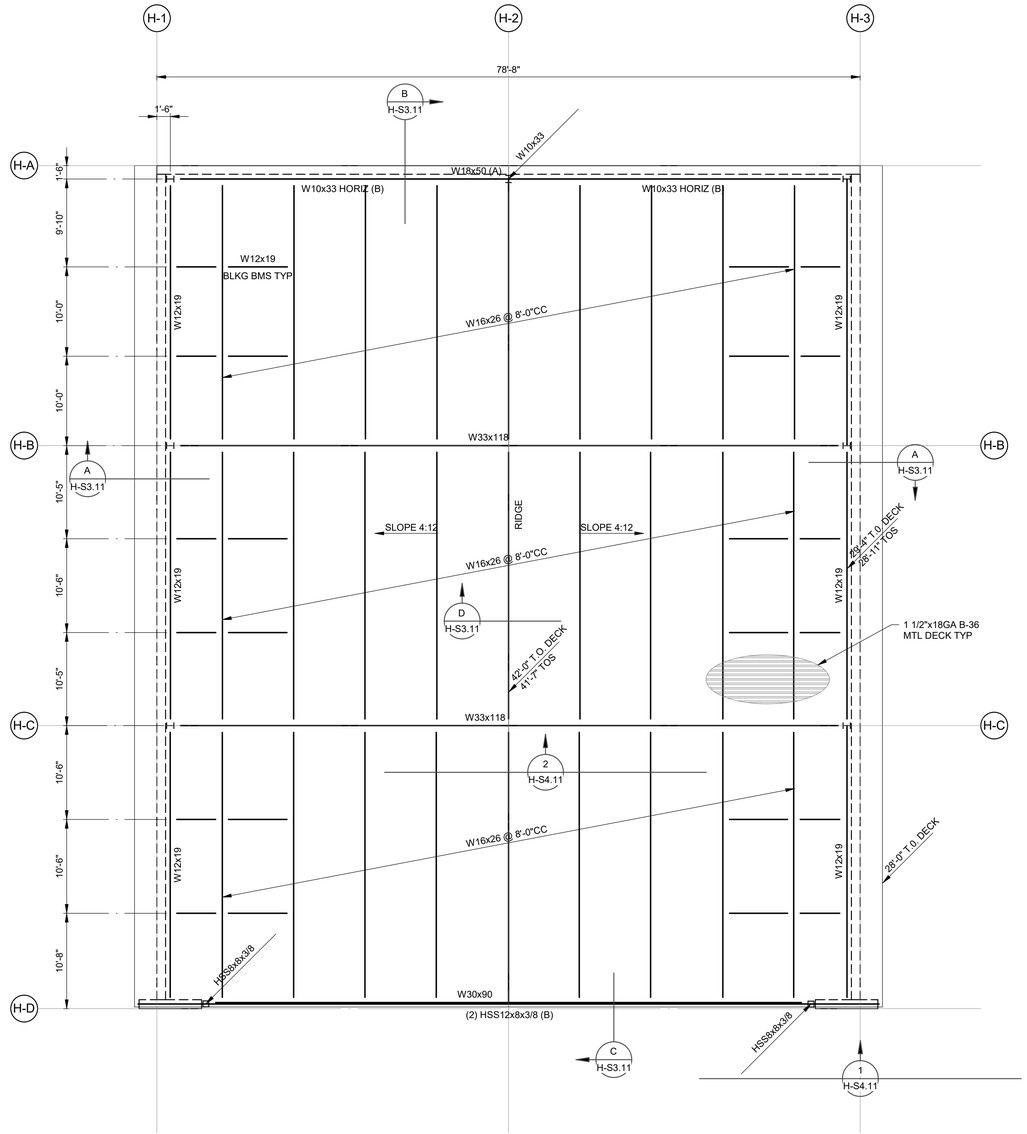
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HANGAR BLDG FOUNDATION PLAN 1/8" = 1'-0"



HANGAR BLDG ROOF FRAMING PLAN 1/8" = 1'-0"

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CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

CAL FIRE SINCE 1885

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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DIVISION OF THE STATE ARCHITECT
APPL.# 04- XXXXXX
APPL.# 04- XXXXXX

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DATE _____

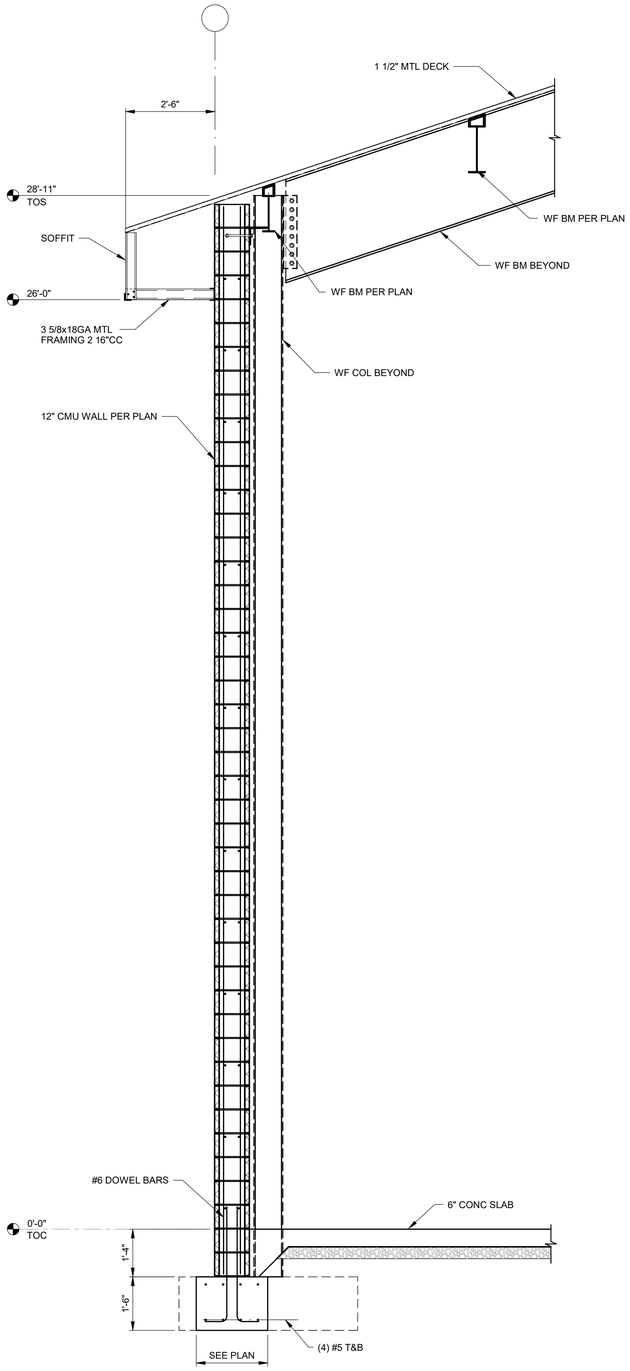
CALIFORNIA STATE FIRE MARSHAL APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on project site at all times.
Reviewed by:_____

AOR
LICENSED ARCHITECT BRUCE F. UNGER NO. C15804 REN. 5-31-21 STATE OF CALIFORNIA

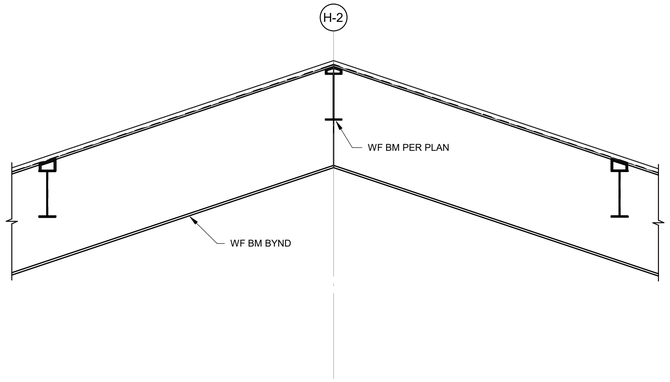
EOR
REGISTERED PROFESSIONAL ENGINEER WILLIAM B. RADER No. 3592 STRUCTURAL STATE OF CALIFORNIA

drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	
drawing no.	HANGER FOUNDATION AND ROOF FRAMING PLAN
sheet title	
sheet no.	H-S2.11
of	sheets

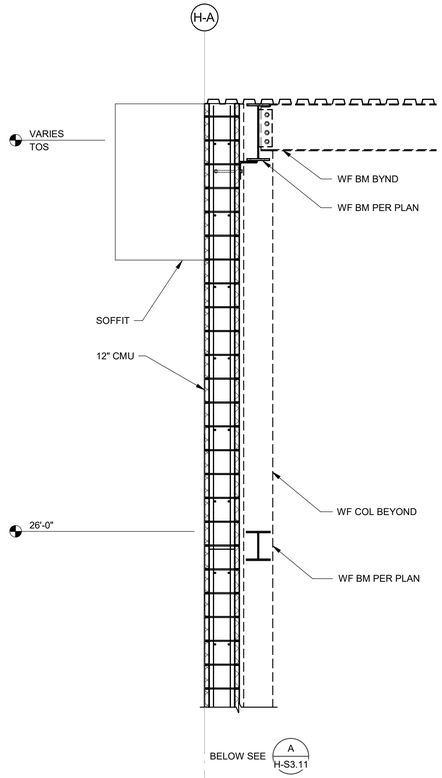
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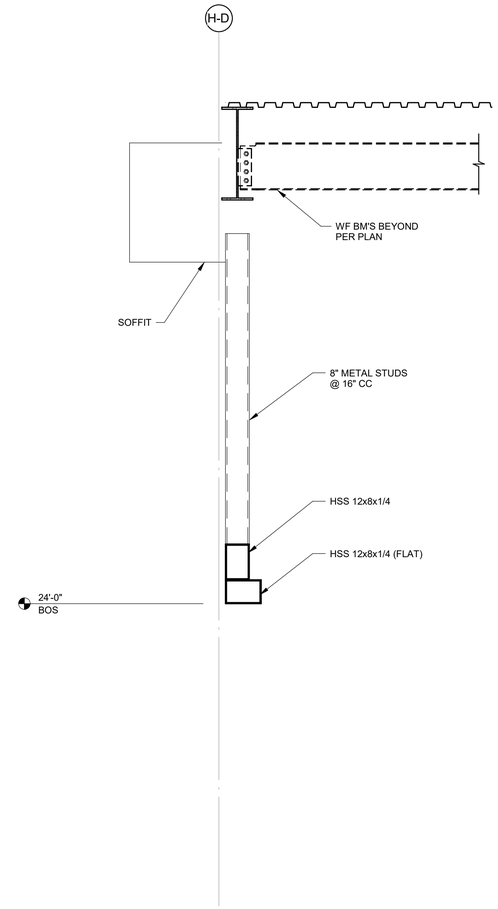
SECTION A H-S3.11 1/2" = 1'-0"



SECTION D H-S3.11 1/2" = 1'-0"



SECTION B H-S3.11 1/2" = 1'-0"



SECTION C H-S3.11 1/2" = 1'-0"

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

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GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE
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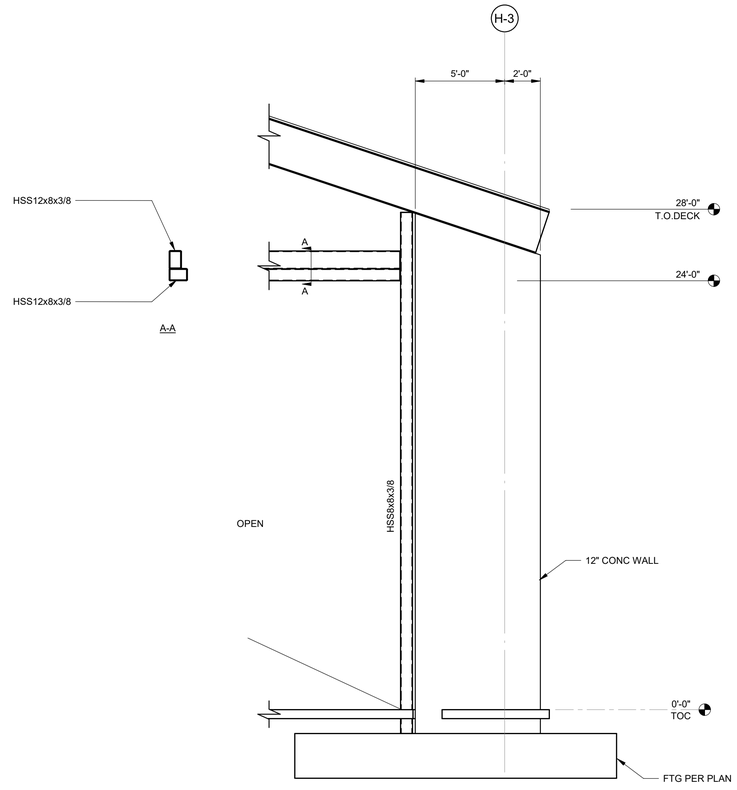
Reviewed by:_____

AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

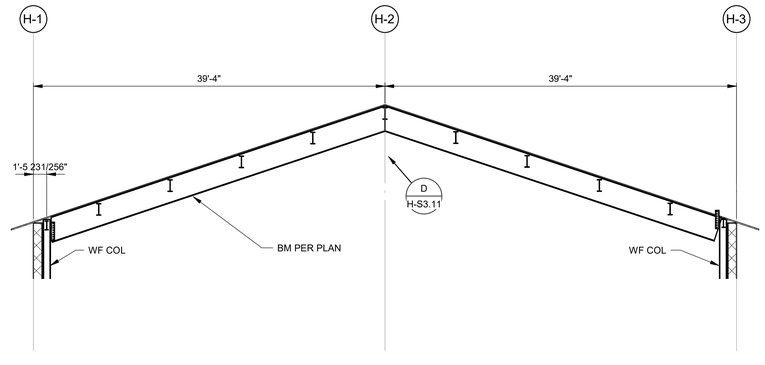
EOR
REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	
drawing no.	BUILDING SECTIONS
sheet title	
sheet no.	H-S3.11
of	sheets

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ELEVATION 1 H-S4.11 1/4" = 1'-0"



ELEVATION 2 H-S4.11 1/8" = 1'-0"

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916 443 0303

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West Sacramento, California 95605
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916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
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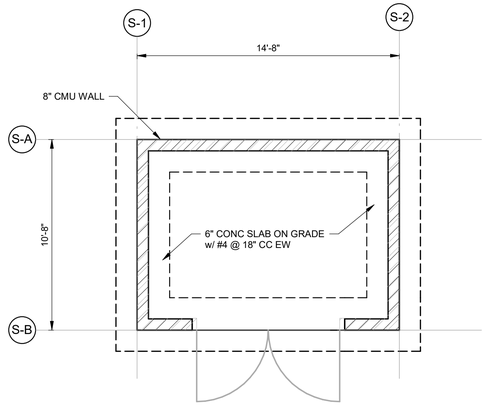
CALIFORNIA STATE FIRE MARSHAL APPROVED
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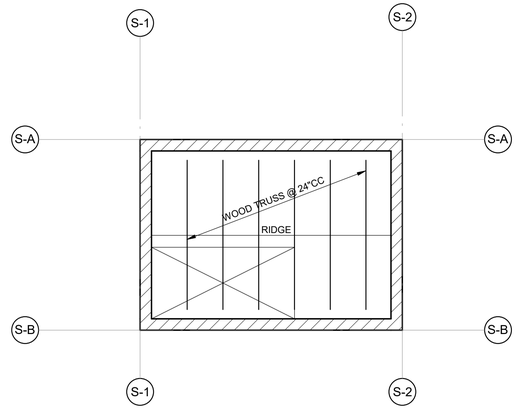
EOR
REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

drawn by CL
checked by BFU
job no. 2018-23
date 5-1-2019
cad file name
drawing no.
WALL ELVATIONS
sheet title
sheet no. H-S4.11
of sheets

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STORAGE BLDG FOUNDATION PLAN 1/4" = 1'-0"



STORAGE BLDG ROOF FRAMING PLAN 1/4" = 1'-0"

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Judy Haavisto, Project Director II
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West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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BRUCE F. UNGER
NO. C15804
REN. 5-31-21
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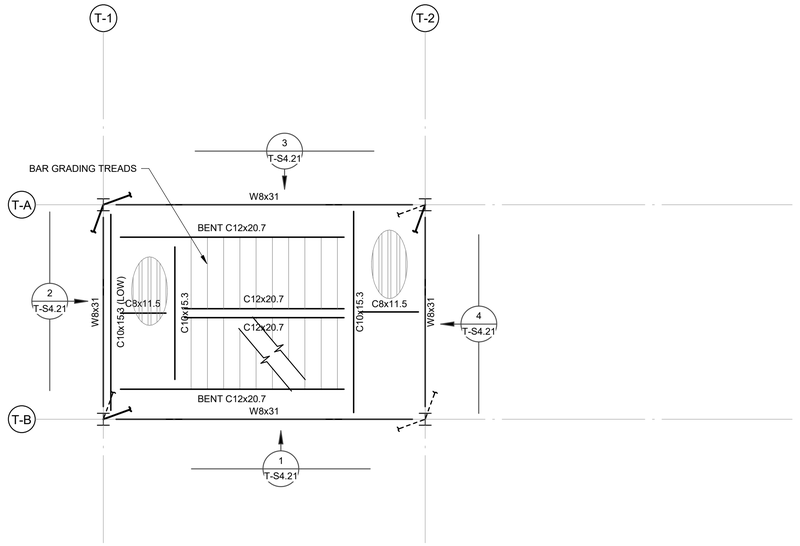
EOR
REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	
drawing no.	

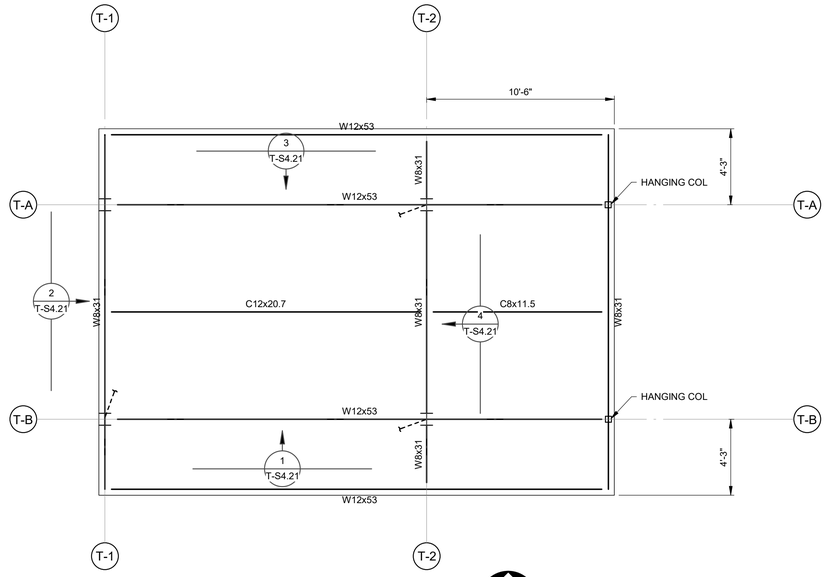
STORAGE FOUNDATION
AND ROOF FRAMING PLAN
sheet title

sheet no.
S-S2.21
of sheets

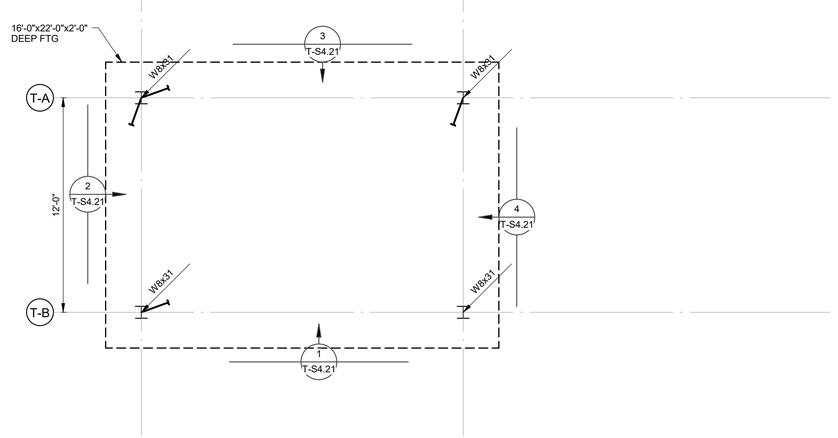
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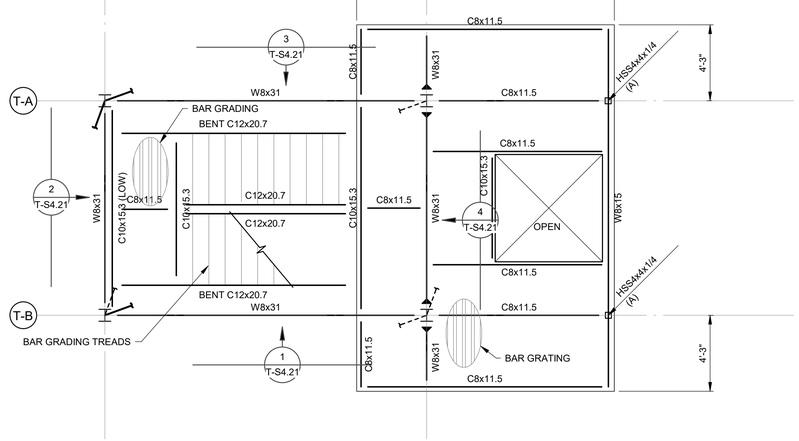
TYPICAL TOWER FLOOR FRAMING PLAN 1/4" = 1'-0"



TOWER ROOF FRAMING PLAN 1/4" = 1'-0"



TOWER FOUNDATION PLAN 1/4" = 1'-0"



TOWER 5TH FLOOR FRAMING PLAN 1/4" = 1'-0"

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

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CALIFORNIA DEPARTMENT OF
GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE

PRADO HELITACK BASE

14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE
AND ENVIRONMENTAL
PLANNING
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Sacramento, California
95816 916 443 5747

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APPL.# 04- XXXXXX
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LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR

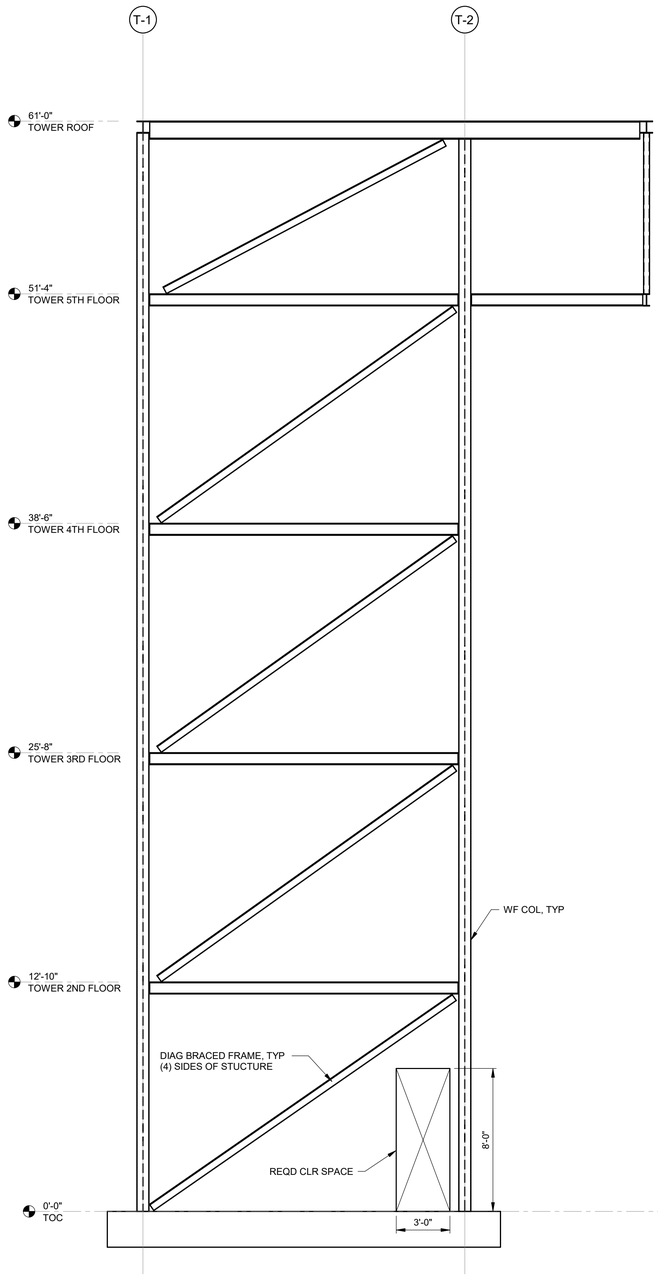
REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	
drawing no.	TOWER PLANS
sheet title	
sheet no.	T-S2.21
of	sheets

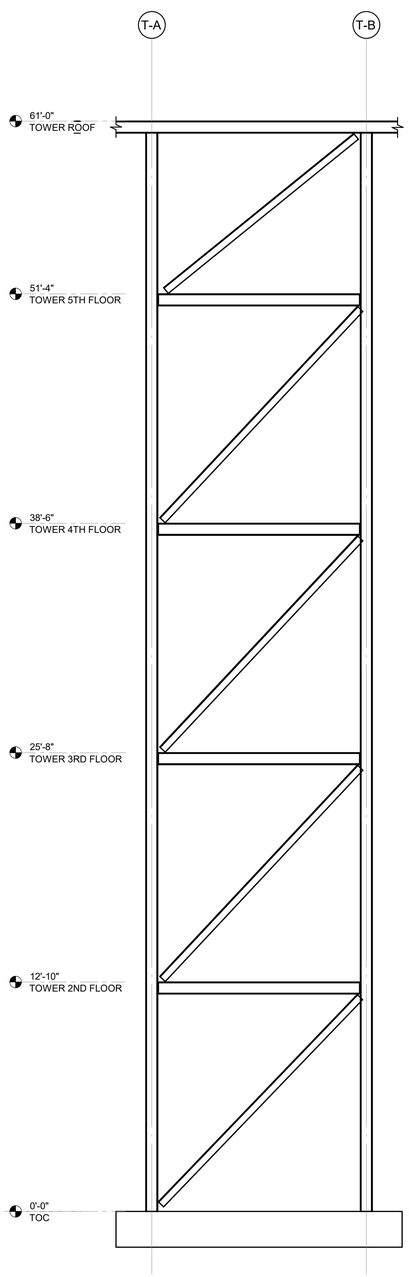
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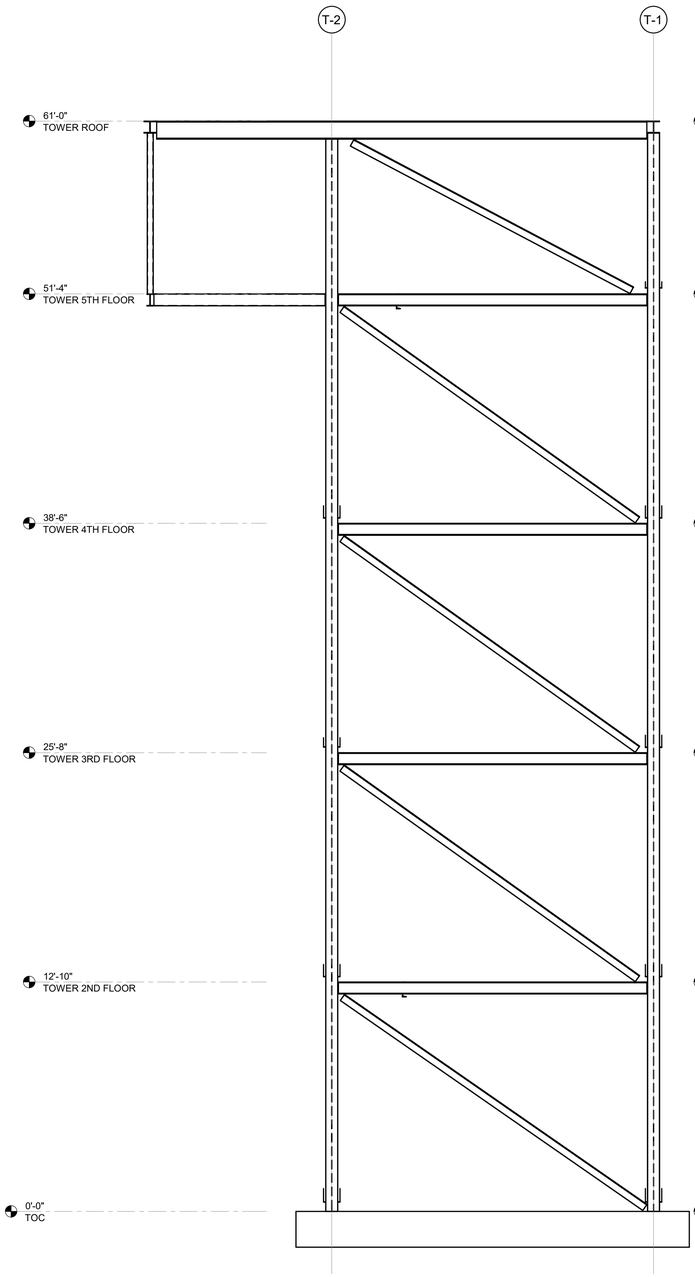
BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303



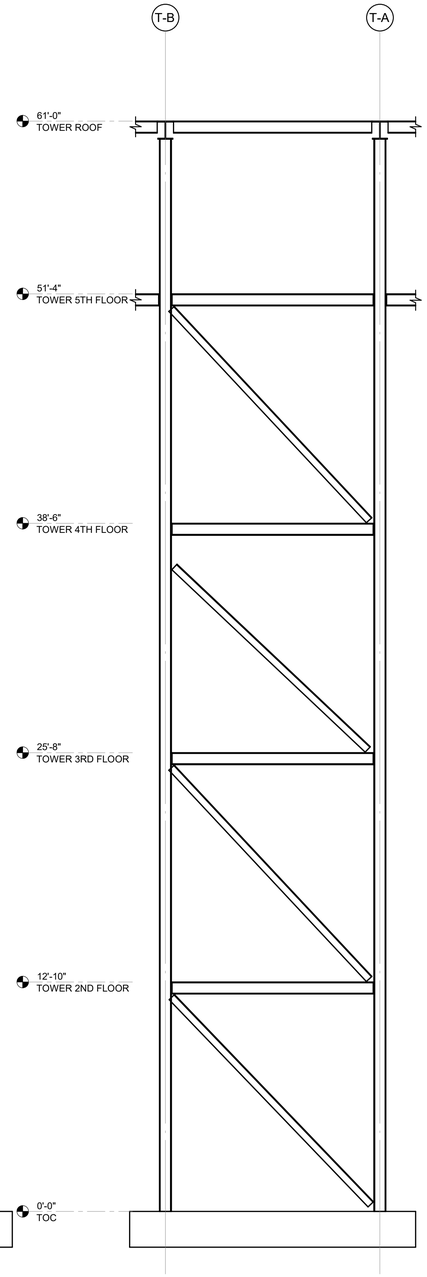
ELEVATION 1 T-S4.21 1/4" = 1'-0"
Elevation 3 - a



ELEVATION 2 T-S4.21 1/4" = 1'-0"
Elevation 4 - a



ELEVATION 3 T-S4.21 1/4" = 1'-0"
Elevation 5 - a



ELEVATION 4 T-S4.21 1/4" = 1'-0"
Elevation 6 - a

DGS
CALIFORNIA DEPARTMENT OF
GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE
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95816 916 443 5747

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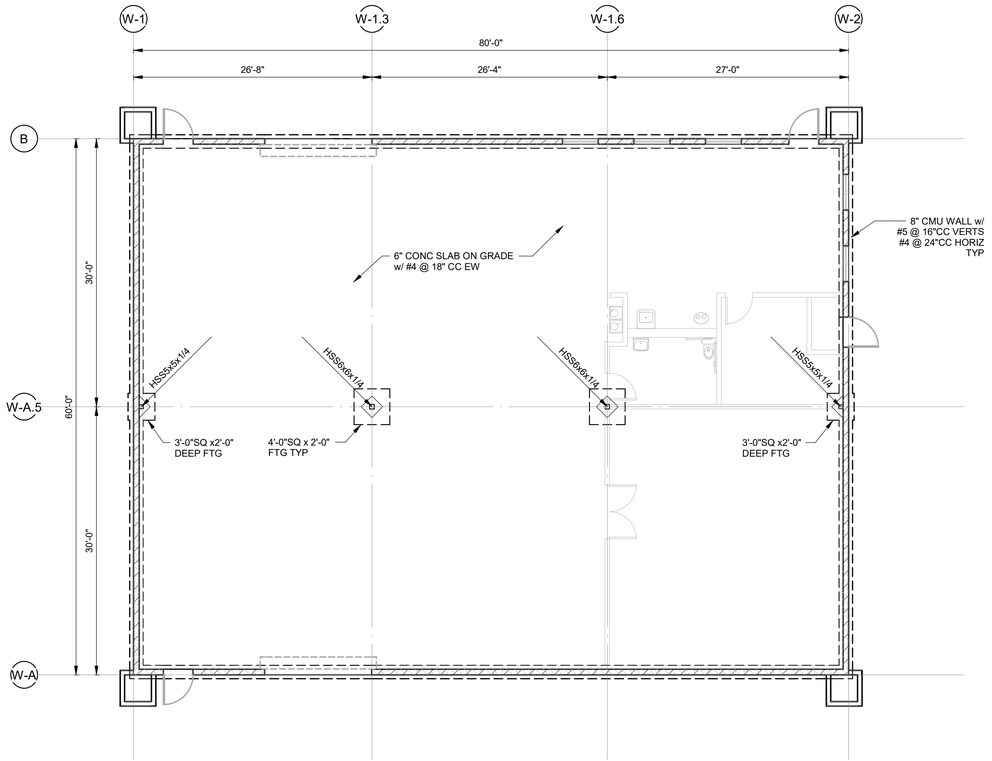
Reviewed by:_____

AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

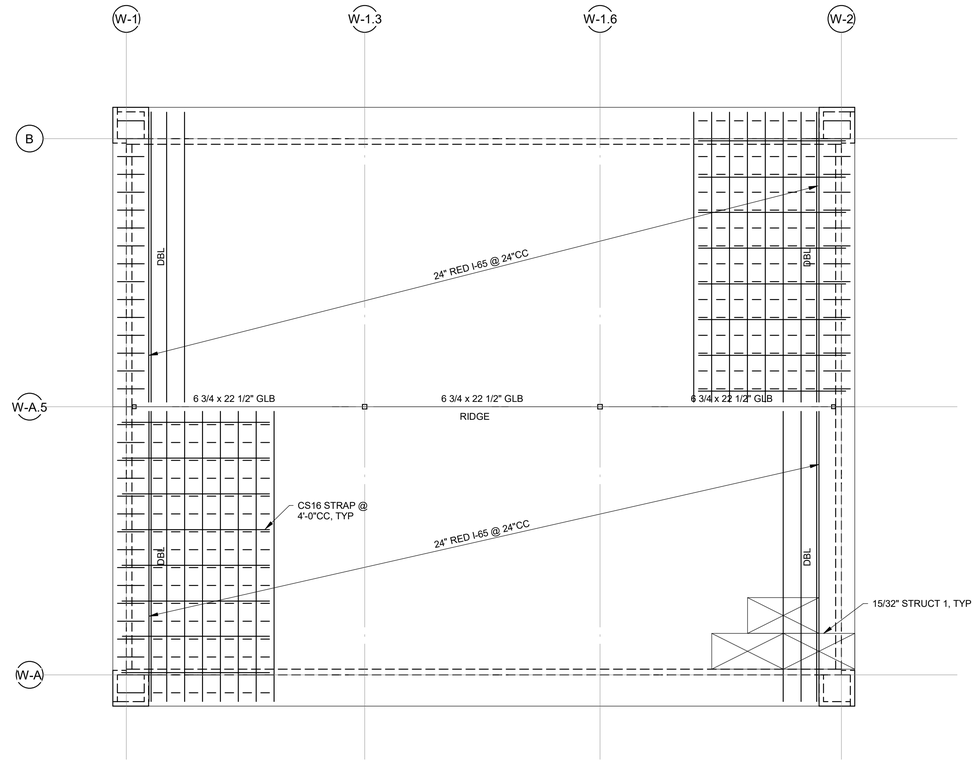
EOR
REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

drawn by CL
checked by BFU
job no. 2018-23
date 5-1-2019
cad file name
drawing no.
ELEVATIONS
sheet title
sheet no. T-S4.21
of sheets

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WAREHOUSE BLDG FOUNDATION PLAN 1/8" = 1'-0"



WAREHOUSE BLDG ROOF FRAMING PLAN 1/8" = 1'-0"

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

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West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE

PRADO HELITACK BASE

14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
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700 Alhambra Blvd.
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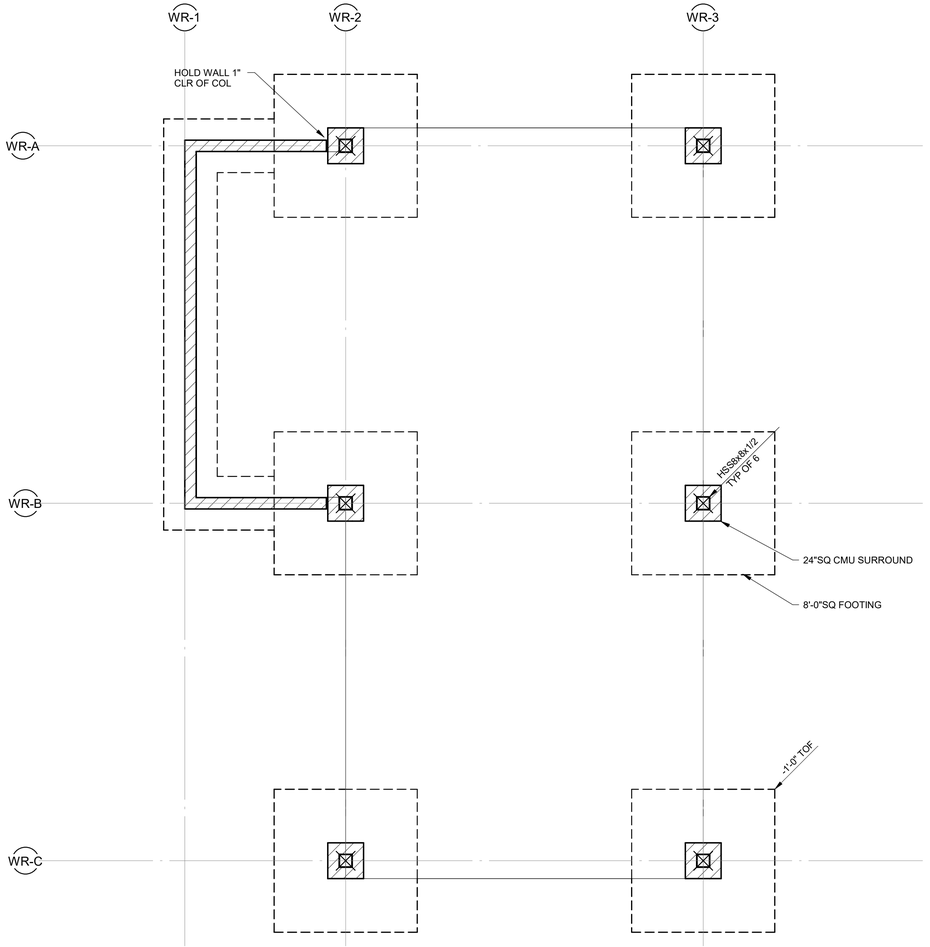
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BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

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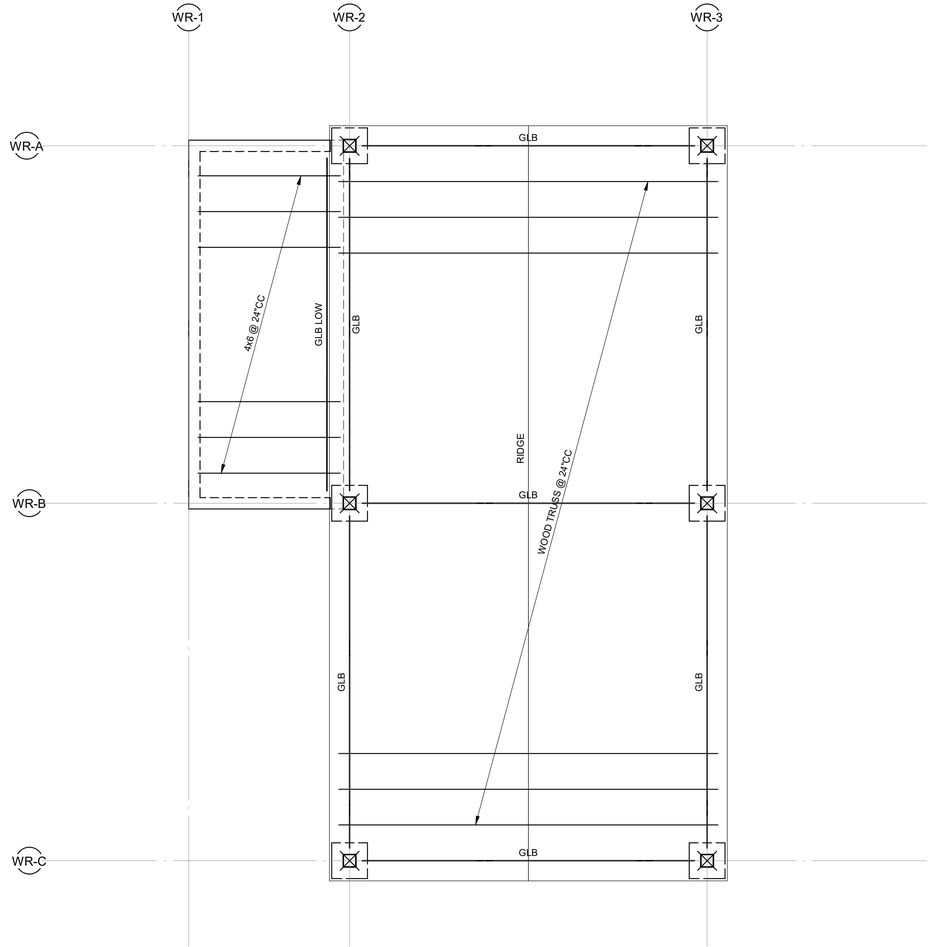
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	
drawing no.	WAREHOUSE FOUNDATION AND ROOF FRAMING PLANS
sheet title	
sheet no.	W-S2.21
of	sheets

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WR BLDG FOUNDATION PLAN 1/4" = 1'-0"



WR BLDG ROOF FRAMING PLAN 1/4" = 1'-0"

BUEHLER
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916 443 0303

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judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
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REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

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checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	
drawing no.	WASH RACK PLANS AND DETAILS
sheet title	
sheet no.	WR-S2.21
of	sheets

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TYPICAL DETAILS

APPLICABLE TO ALL DRAWINGS UNLESS NOTED OR SHOWN OTHERWISE

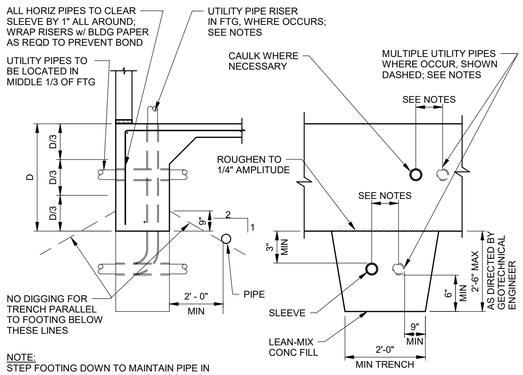
BUEHLER
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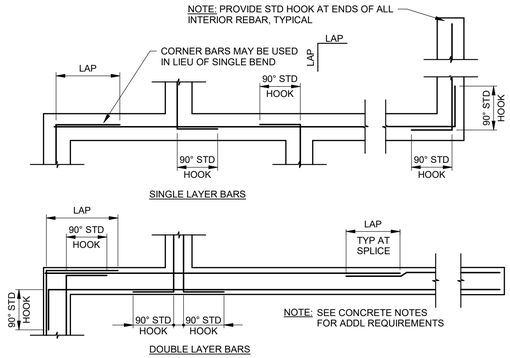
Δ	REVISION	DATE



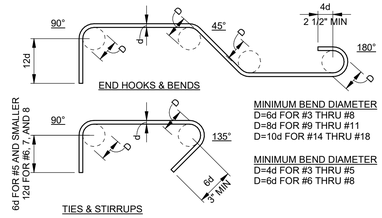
NOTE:
STEP FOOTING DOWN TO MAINTAIN PIPE IN MIDDLE 1/3 OF TOTAL DEPTH OF FOOTING.

NOTES:
1. THE PROVISIONS HEREIN ARE APPLICABLE TO CONTINUOUS FOOTINGS AND GRADE BEAMS.
2. NO PIPES SHALL BE PLACED BELOW ISOLATED SPREAD FOOTINGS OR WITHIN 2 TO 1 BEARING ZONE AROUND SPREAD FOOTINGS.
3. REINFORCING SHALL NOT BE INTERRUPTED, CUT OR DISPLACED BY PLACEMENT OF UTILITY PIPE.
4. LEAN MIX CONCRETE FILL TO BE PLACED BEFORE FOOTING IS CAST (MONO-POUR FOOTING CONC OPTIONAL.) MAKE SAME WIDTH AS FOOTING AND FULL WIDTH OF PIPE TRENCH.
5. STEP FOOTING IF PIPE OCCURS IN LOWER THIRD OF ORIGINAL FOOTING DEPTH.
6. IF PIPE IS IN PLACE PRIOR TO CASTING CONCRETE, WRAP PIPE w/ 1" STYROFOAM INSULATION IN LIEU OF SLEEVE.
7. UTILITY PIPES ARE NOT ALLOWED PARALLEL IN FOOTING.
8. MULTIPLE UTILITY PIPES (TWO OR MORE) MAY BE INSTALLED AS SHOWN, PROVIDED THEY ARE SPACED A MINIMUM OF (4) PIPE/CONDUIT DIAMETERS ON CENTER WITH A MINIMUM OF 3" OF CONCRETE BETWEEN. PIPE DIAMETER INDICATED IS THE ROUGH HOLE SIZE THRU FOOTING.
9. UTILITY PIPE RISERS MAY OCCUR IN CONTINUOUS FOOTINGS PROVIDED THEY ARE NO LARGER THAN (FOOTING WIDTH/6) AND OCCUR WITHIN THE MIDDLE 1/2 OF THE FOOTING WIDTH. MULTIPLE RISERS MAY OCCUR IF SPACED AS NOTED ABOVE.
10. UTILITY PIPES PERPENDICULAR TO FOOTINGS AND MORE THAN 2'-0" BELOW BOTTOM OF FOOTINGS DO NOT REQUIRE LEAN-MIX CONCRETE ENCASEMENT, SUBJECT TO ACCEPTANCE BY THE GEOTECHNICAL ENGINEER.
11. CONDITIONS NOT CONFORMING TO THE PARAMETERS NOTED ABOVE SHALL BE REVIEWED ON A CASE-BY-CASE BASIS.

DETAIL 1/S5.01 — FOOTINGS AT UTILITY PIPES
NO SCALE
31050003

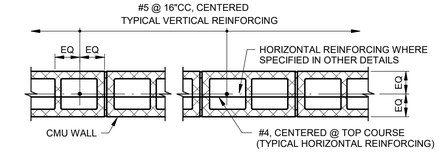


DETAIL 2/S5.01 — CORNER REINFORCING
NO SCALE
31050001



NOTE: ALL HOOKS SHALL BE 90° OR 180° STANDARD HOOKS UNLESS OTHERWISE SHOWN OR NOTED.

DETAIL 3/S5.01 — STANDARD REBAR HOOKS & BENDS
NO SCALE
30050001

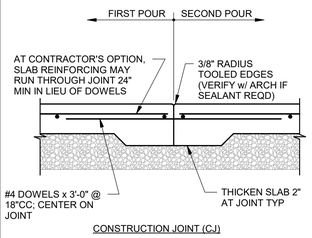


CENTERED: TYPICAL CMU WALL REINFORCING

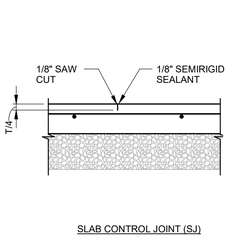
VERTICAL REINFORCING:
- TYPICAL VERTICAL WALL REINFORCING SHALL BE PER THE SECTIONS ABOVE, UNO.
- DOWELS WITH STANDARD 90° HOOKS INTO THE FOUNDATION SHALL MATCH AND LAP VERTICAL REINFORCING.
- WHERE VERTICAL REINFORCING IS LOCATED AT EACH FACE, THE BARS DO NOT NEED TO BE PLACED IN THE SAME CELL, BUT THE SPACING NOTED NEEDS TO BE MAINTAINED FOR EACH SIDE OF THE WALL.

HORIZONTAL REINFORCING:
- INSTALL STD 180° HOOK AROUND VERTS AT WALL ENDS AND JOINTS IN ALL HORIZONTAL REINFORCING BARS.
- TYPICAL INTERMEDIATE HORIZONTAL WALL REINFORCING SHALL BE PER THE SECTIONS ABOVE, UNO.
- WHERE THE VERTICAL BARS ARE CENTERED IN THE WALL, HORIZONTAL REINFORCING BARS SHALL BE LOCATED ON ONE SIDE (OR BOTH SIDES) OF THE VERTICAL BARS, ALLOWING THE VERTICAL BARS TO BE CENTERED.
- WHERE THE VERTICAL BARS ARE AT EACH FACE IN THE WALL, HORIZONTAL REINFORCING BARS SHALL BE LOCATED TOWARD THE CENTER OF THE CELL, ALLOWING THE VERTICAL BARS TO BE LOCATED BETWEEN THE HORIZONTAL REINFORCING AND THE NEAREST FACE OF THE WALL.

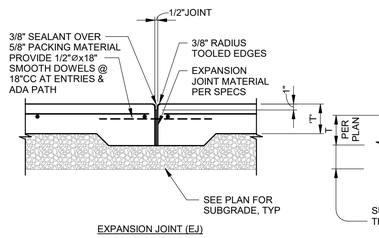
DETAIL 4/S5.01 — CMU WALL REINFORCING
1" = 1'-0"
41SS0003REV - Typical CMU Wall Reinforcing



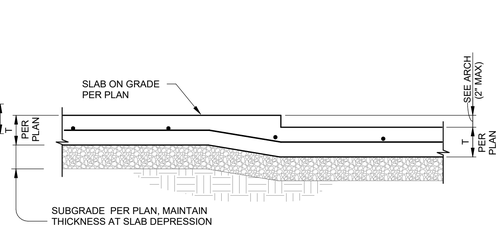
CONSTRUCTION JOINT (CJ)



SLAB CONTROL JOINT (SJ)



EXPANSION JOINT (EJ)

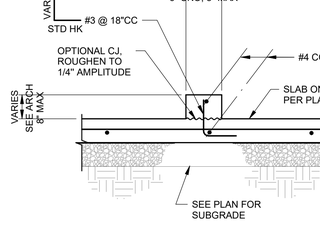


NOTE:
1. CONSTRUCTION JOINTS AND CONTROL JOINTS SHALL DIVIDE SLAB INTO AREAS NOT EXCEEDING 225 SQ FT WITHOUT REENTRANT CORNERS AND WITH LENGTH TO WIDTH RATIOS NOT EXCEEDING 1 1/2 TO 1. JOINT SPACING SHALL NOT EXCEED 15 FEET IN EITHER DIRECTION.
2. CONTRACTOR SHALL SUBMIT LAYOUT PLAN SHOWING PROPOSED CONTROL AND CONSTRUCTION JOINT LOCATIONS TO ARCHITECT & STRUCTURAL ENGINEER FOR REVIEW & APPROVAL.
3. SEMIRIGID SEALANT TO BE EUCLID EUCO #700 OR EQUAL.

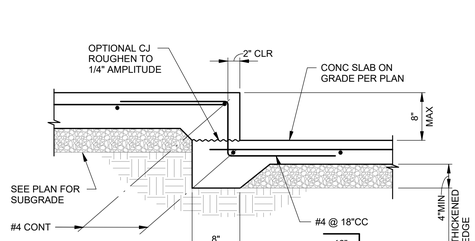
DETAIL 5/S5.01 — SLAB ON GRADE JOINTS
NO SCALE
31050001

NOTE:
DETAIL APPLIES TO DEPRESSION / STEPS ≤ 2". FOR LARGER DEPRESSION / STEPS, SEE 8/S5.01

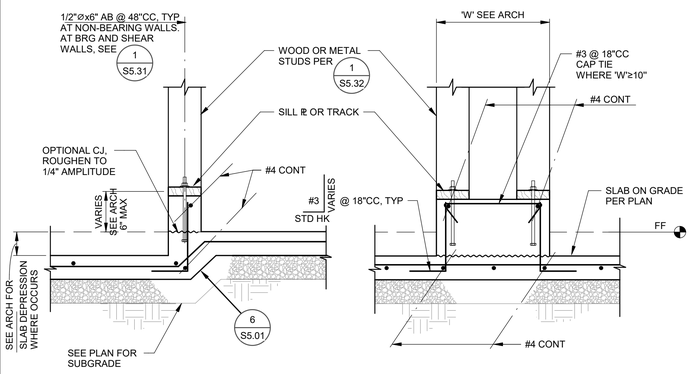
DETAIL 6/S5.01 — SLAB DEPRESSION
NO SCALE
31050004



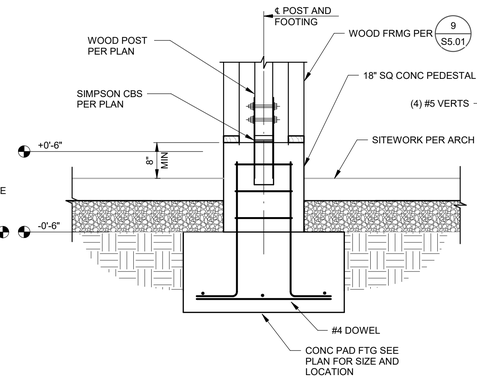
DETAIL 7/S5.01 — CURB AT SOG
NO SCALE
31050006



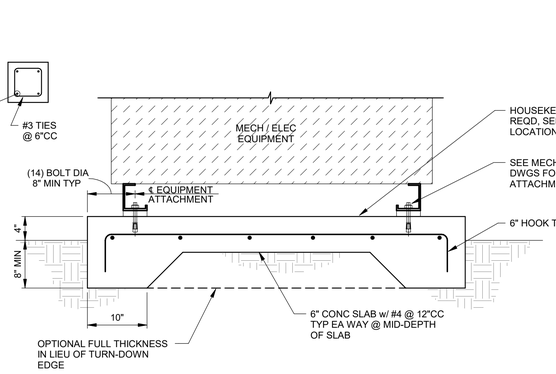
DETAIL 8/S5.01 — STEP IN SLAB
1" = 1'-0"
31050003 - Step In Slab



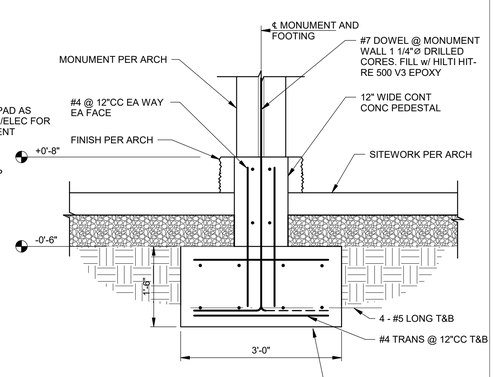
DETAIL 9/S5.01 — CURB AT SLAB DEPRESSION
NO SCALE
31050007



DETAIL 10/S5.01 — TYPICAL POST BASE
NO SCALE
66350500



DETAIL 11/S5.01 — HOUSEKEEPING PAD AT GRADE
NO SCALE
31050008



DETAIL 12/S5.01 — FOUNDATION AT MONUMENT
3/4" = 1'-0"
66350500-16 Typical Post Base

revisions

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL.# 04- XXXXXX
APPL.# 04- XXXXXX

AC _____ FLS _____ SS _____
DATE _____

CALIFORNIA STATE FIRE MARSHAL APPROVED

Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on project site at all times.

Reviewed by:_____

AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

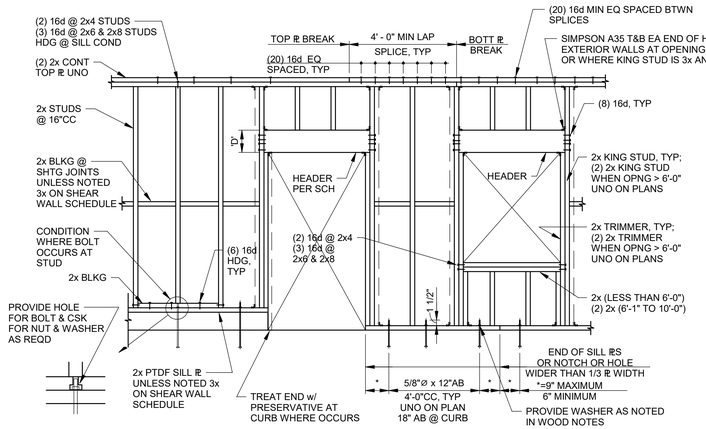
EOR
REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	
drawing no.	TYPICAL CONCRETE DETAILS
sheet title	
sheet no.	S5.01
of	sheets

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TYPICAL DETAILS

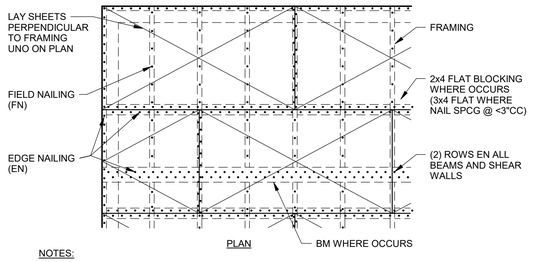
APPLICABLE TO ALL DRAWINGS UNLESS NOTED OR SHOWN OTHERWISE



HEADER SCHEDULE	
WIDTH OF OPENING	NOMINAL HEADER DEPTH 'D'
0 TO 4'-0"	8"
4'-1" TO 6'-0"	10"
6'-1" TO 8'-0"	12"
> 8'-0"	SEE PLAN
TYP UNO ON PLAN OR IN PLAN NOTES	

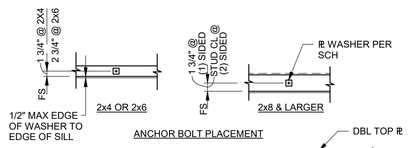
NOTES:

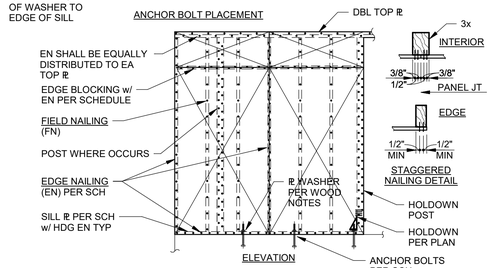
1. HEADER SHALL BE FULL WIDTH OF STUD WALL
2. PROVIDE POSTS & ANCHORS AT HOLDOWNS WHERE OCCUR PER PLAN, SEE 8 / S5.31
3. AT OPENINGS FOR MECH DUCTS, SEE 1 / S5.33
4. FOR SHEAR WALL NAILING, SEE SCH AND 3 / S5.31



NOTES:

1. SEE PLAN FOR SHEATHING TYPE AND NAIL SIZE AND SPACING.
2. PROVIDE EN AT ALL SHEET EDGES, BEAMS, SHEAR WALLS, BLOCKING, AND MECHANICAL UNITS.
3. EN SHALL BE 8d @ 6"CC MIN UNO ON PLAN.
   FN SHALL BE @ 12"CC. NAIL SIZE TO MATCH EN.
4. PROVIDE FLAT BLOCKING AND EN AT ALL UNSUPPORTED EDGES WHERE BLOCKING AND NAILING ARE INDICATED ON PLAN.
5. STAGGER SP JOINTS AS SHOWN. MINIMUM PANEL WIDTH IS 24".
6. 10d NAILS SPACED 3"CC SHALL BE "SHEATHING NAILS". SEE NAILING SCHEDULE.
7. FRAMING AT PANEL EDGES, INCLUDING BLOCKING, SHALL BE 3x WHERE NAILS ARE SPACED < 3"CC.
8. ALL 3x AND GREATER MATERIAL IN DIAPHRAGMS SHALL BE LESS THAN 19% MOISTURE CONTENT UNLESS SPECIFICALLY ALLOWED BY SEOR IN WRITING.





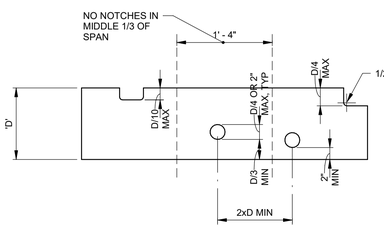
NOTES:

1. SEE PLAN FOR SHEATHING TYPE AND NAIL SIZE AND SPACING.
2. PROVIDE EN AT ALL SHEET EDGES, SILL ℄S, TOP ℄S, BLOCKING, AND POSTS. AT ALL SHTG SHOWN ON THE STRUCTURAL DRAWINGS, EN SHALL BE 6"CC MIN. NAIL SIZE SHALL BE PER SHEAR WALL SCHEDULE.
3. FN SHALL BE @ 12"CC. NAIL SIZE TO MATCH EN.
4. MINIMUM PANEL DIMENSION IN EITHER DIRECTION IS 12".
5. SEE SHEAR WALL SCHEDULE FOR INFORMATION NOT NOTED.
6. 10d NAILS SPACED 3"CC OR LESS SHALL BE 'SHEATHING' NAILS, SEE WOOD NOTES.
7. EDGE NAILING INTO ALL PRESSURE TREATED LUMBER SHALL BE HOT DIPPED GALVANIZED. STAINLESS STEEL MAY BE USED AS AN OPTION.

DETAIL 1 / S5.31 — STRUCTURAL WALL FRAMING — NO SCALE — 600S0001

DETAIL 2 / S5.31 — FLOOR AND ROOF NAILING — NO SCALE — 620S0100

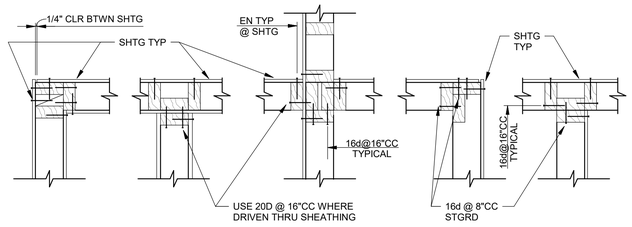
DETAIL 3 / S5.31 — SHEAR WALL NAILING — NO SCALE — 610S0025



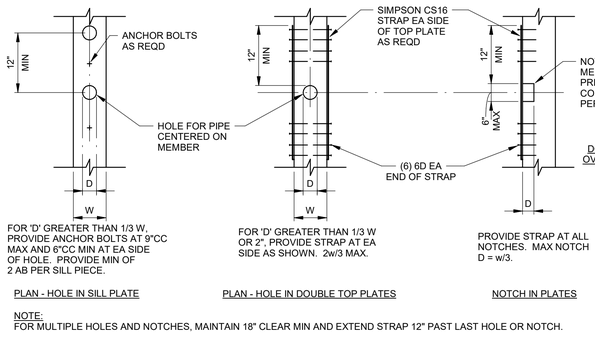
NOTES:

1. PREDRILL CORNERS OF NOTCHES SO AS NOT TO OVER CUT.
2. NOTCHES IN THE BOTTOM OF JOISTS ALLOWED ONLY WHERE SPECIFICALLY SHOWN ON DRAWINGS.
3. APPLIES TO SAWN LUMBER MEMBERS ONLY. NO NOTCHES ALLOWED IN OTHER TYPES OF MEMBER UNLESS SPECIFICALLY DETAILED IN THE DRAWINGS.

DETAIL 4 / S5.31 — NOTCHES IN JOISTS AND HEADERS — NO SCALE — 600S0101

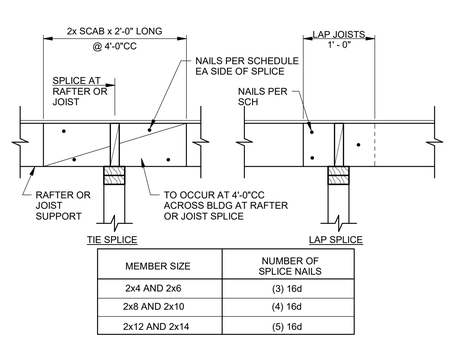


DETAIL 5 / S5.31 — STRUCTURAL STUD FRAMING CONDITIONS — NO SCALE — 600S0014



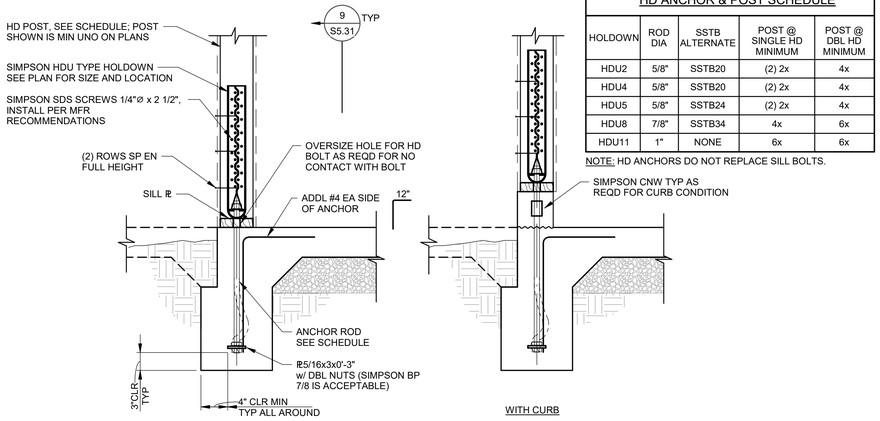
NOTE:
FOR MULTIPLE HOLES AND NOTCHES, MAINTAIN 18" CLEAR MIN AND EXTEND STRAP 12" PAST LAST HOLE OR NOTCH.

DETAIL 6 / S5.31 — HOLE OR NOTCH THRU PLATES — NO SCALE — 600S0012



MEMBER SIZE	NUMBER OF SPLICE NAILS
2x4 AND 2x6	(3) 16d
2x8 AND 2x10	(4) 16d
2x12 AND 2x14	(5) 16d

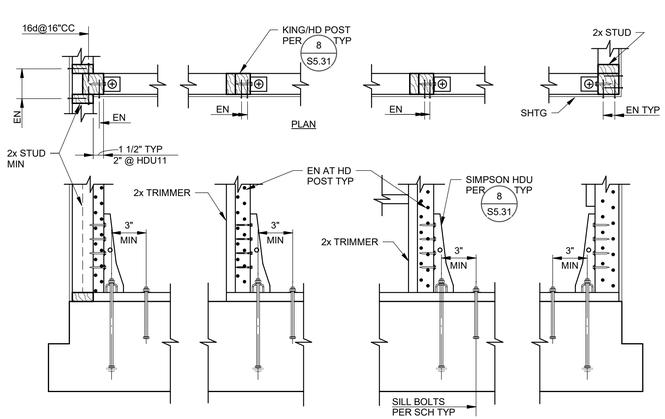
DETAIL 7 / S5.31 — JOIST AND RAFTER SPLICE — NO SCALE — 600S0102



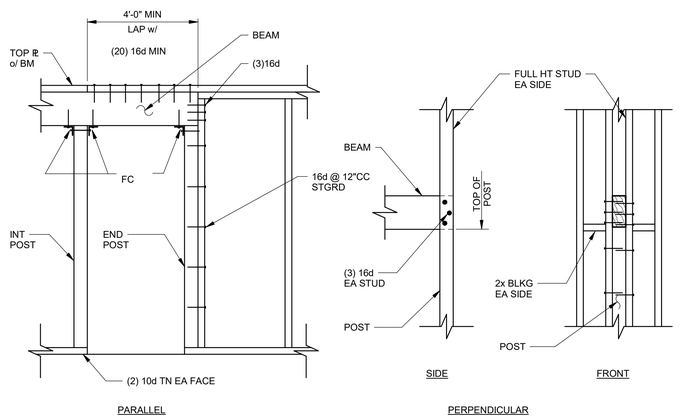
HD ANCHOR & POST SCHEDULE				
HOLDOWN	ROD DIA	SSTB ALTERNATE	POST @ SINGLE HD MINIMUM	POST @ DBL HD MINIMUM
HDU2	5/8"	SSTB20	(2) 2x	4x
HDU4	5/8"	SSTB20	(2) 2x	4x
HDU5	5/8"	SSTB24	(2) 2x	4x
HDU8	7/8"	SSTB34	4x	6x
HDU11	1"	NONE	6x	6x

NOTE: HD ANCHORS DO NOT REPLACE SILL BOLTS.

DETAIL 8 / S5.31 — HOLDOWN AT FOUNDATION — NO SCALE — 610S0201



DETAIL 9 / S5.31 — HOLDOWN PLACEMENT AT FOUNDATION — NO SCALE — 610S0205



DETAIL 10 / S5.31 — POST AND BEAM CONNECTION — NO SCALE — 600S0200

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

DGS
CALIFORNIA DEPARTMENT OF
GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE
AND ENVIRONMENTAL
PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

Δ	REVISION	DATE

revisions

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL.# 04- XXXXXX
APPL.# 04- XXXXXX

AC _____ FLS _____ SS _____
DATE _____

CALIFORNIA STATE FIRE MARSHAL
APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on project site at all times.
Reviewed by:_____

AOR
LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
STRUCTURAL PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
STATE OF CALIFORNIA

drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	
drawing no.	TYPICAL WOOD DETAILS
sheet title	
sheet no.	S5.31
of	sheets

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TYPICAL DETAILS

APPLICABLE TO ALL DRAWINGS UNLESS NOTED OR SHOWN OTHERWISE

630SD011

A / S5.32 INTERIOR NON-BEARING WOOD STUD MAX HEIGHT SCHEDULE

STUD SIZE	SPACING		
	@ 12"CC	@ 16"CC	@ 24"CC
2x4	15'-6"	14'-0"	12'-4"
2x6	22'-0"	20'-0"	18'-6"

NOTE: ALL STUDS SHALL BE DF #2 OR BETTER.

630SD016

B / S5.32 INTERIOR NON-BEARING HEADER AND JAMB FRAMING SCHEDULE

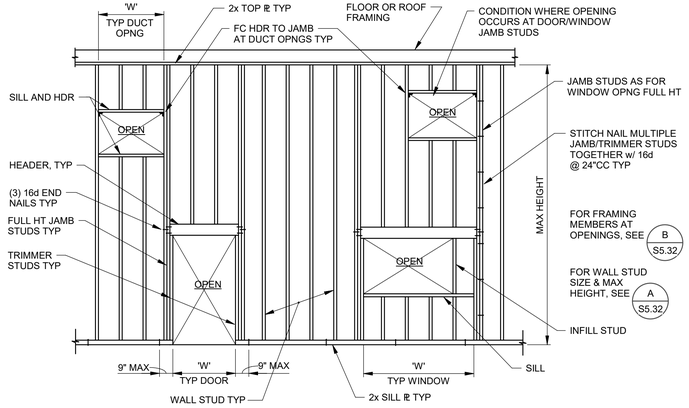
OPNG TYPE	"W" WIDTH	HEADER SIZE	SILL SIZE	JAMB STUDS	TRIMMER STUDS
1	1'-4" TO 4'-8"	STUD WIDTH x 6" D	2x FLAT	2x	2x
2	4'-9" TO 9'-10"	STUD WIDTH x 8" D	2x FLAT	2x	2x
3	9'-11" TO 14'-4"	STUD WIDTH x 10" D	2x FLAT	(2) 2x	(2) 2x
4	14'-5" TO 18'-0"	STUD WIDTH x 12" D	(3) 2x FLAT	(3) 2x	(2) 2x

630SD104

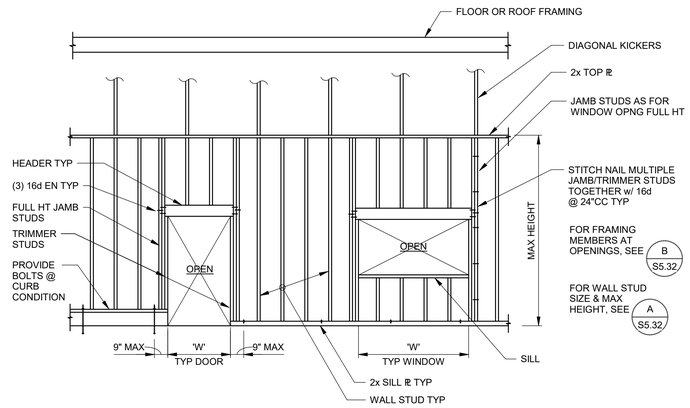
C / S5.32 SOFFIT FRAMING SCHEDULE

	H	V	B		LEDGER
MAX MEMBER SPACING	2'-0"	2'-0"	8'-0"		-
MAX ALLOW AREA SUPP	16 FT²	18 FT²	64 FT²		-
	20 FT² *				
MAX LENGTH OF MEMBER	8'-0"	8'-0"	<6'-0"	6'-1" TO 14'-0" DBL 2x4 "T" SHAPE BRACE **	-
	10'-0"*				
CONNECTION	(3) 16d, A35 OR 'U' HGR @ LEDGER	(4) 16d	(4) 16d		(2) 16d @ 16"CC IN WOOD STUDS, 5/8"Ø AB @ 48"CC IN MASONRY OR CONCRETE

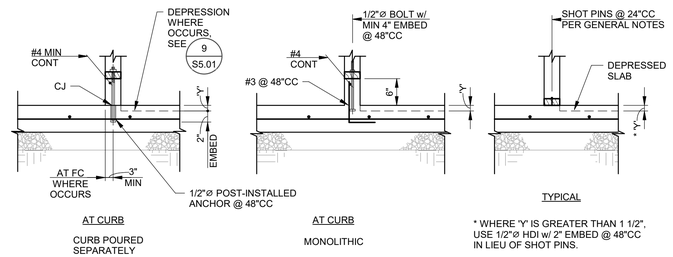
NOTE:
BRACES REQUIRED IN ALL VERTICAL OFFSETS. ALTERNATE DIRECTION OF BRACE WHERE POSSIBLE.
SCHEDULE ASSUMES - 2x4 DF #2 MEMBERS UNO
- 13.0 PSF DL + 10 PSF LL
- MAX DL DEFLECTION = L/360
- * 2x6 DF #2
- ** REQUIRES DBL 2x4 w/ 16d @ 12"CC STITCH NAILING IN "T" SHAPE THUS:



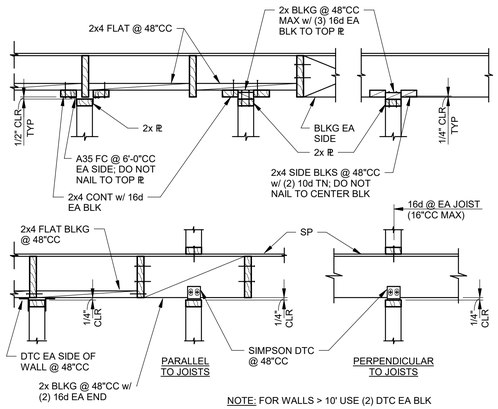
DETAIL 1 / S5.32 — NO SCALE (630SD001)
FULL HEIGHT INTERIOR WALL FRAMING



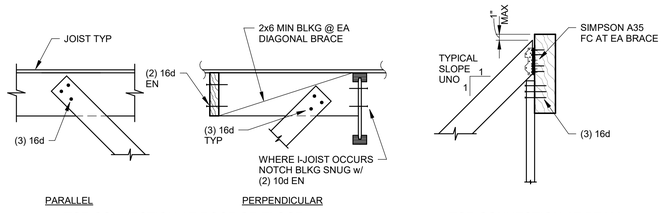
DETAIL 2 / S5.32 — NO SCALE (630SD006)
PARTIAL HEIGHT INTERIOR WALL FRAMING

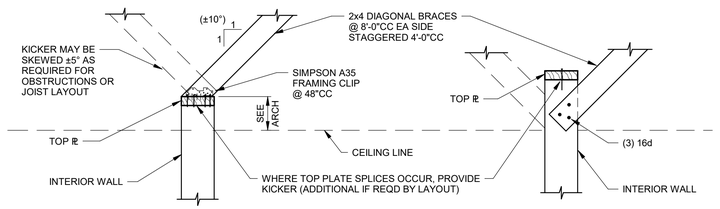


DETAIL 3 / S5.32 — NO SCALE (630SD021)
INTERIOR NON-BEARING PARTITION AT SILL PLATE

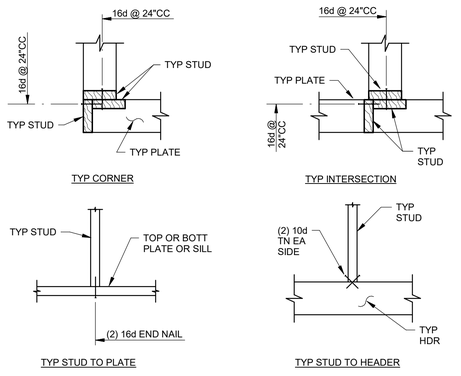


DETAIL 4 / S5.32 — NO SCALE (630SD020)
INTERIOR NON-BEARING PARTITION AT TOP PLATE

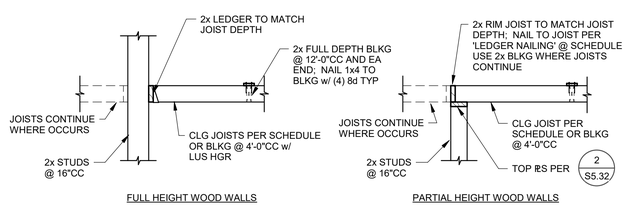




DETAIL 5 / S5.32 — NO SCALE (630SD023)
INTERIOR PARTIAL HEIGHT WALL BRACING



DETAIL 6 / S5.32 — NO SCALE (630SD030)
NON-STRUCTURAL FRAMING CONDITIONS



CEILING JOIST SCHEDULE			
MAXIMUM SPAN	SIZE & SPACING	LEDGER NAILING	LEDGER BOLTING
UP TO 7'-6"	2x4 @ 16"CC	(2) 16d / CONTACT	5/8"ø @ 4'-0"CC
7'-7" TO 14'-0"	2x6 @ 16"CC	(2) 16d / CONTACT	5/8"ø @ 4'-0"CC
14'-1" TO 18'-0"	2x8 @ 16"CC	(3) 16d / CONTACT	5/8"ø @ 2'-8"CC

DETAIL 7 / S5.32 — NO SCALE (630SD102)
CEILING FRAMING

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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AOR
LICENSED ARCHITECT BRUCE F. UNGER NO. C15804 REN. 5-31-21 STATE OF CALIFORNIA

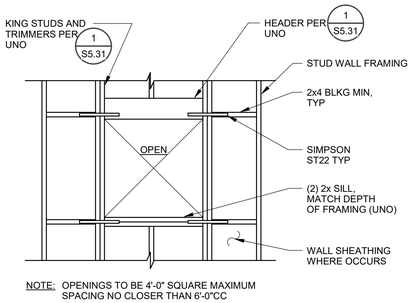
EOR
REGISTERED PROFESSIONAL ENGINEER WILLIAM B. RADER No. 3592 STRUCTURAL STATE OF CALIFORNIA

drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	
drawing no.	TYPICAL WOOD DETAILS
sheet title	
sheet no.	S5.32
of	sheets

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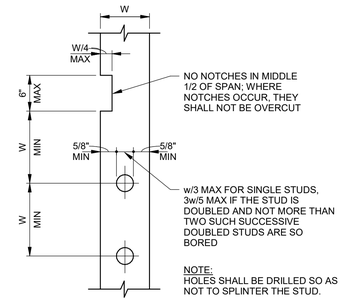
TYPICAL DETAILS

APPLICABLE TO ALL DRAWINGS UNLESS NOTED OR SHOWN OTHERWISE

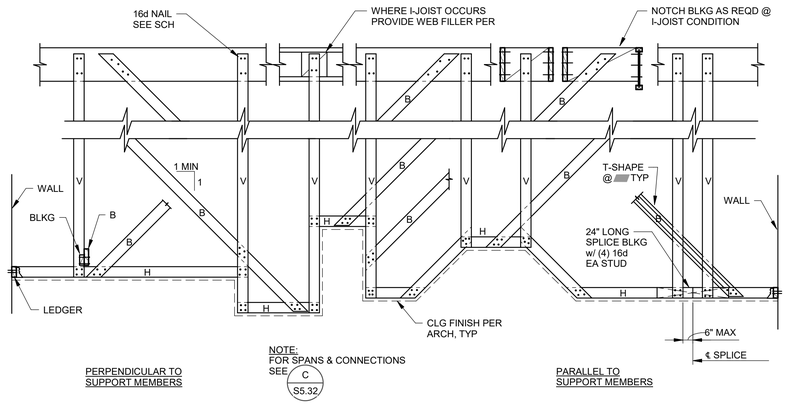


NOTE: OPENINGS TO BE 4'-0" SQUARE MAXIMUM SPACING NO CLOSER THAN 6'-0"CC

DETAIL 1/S5.33 NO SCALE
OPENING IN WALL SHEATHING



DETAIL 2/S5.33 NO SCALE
HOLE OR NOTCH AT STUD



DETAIL 3/S5.33 NO SCALE
SOFFIT FRAMING

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
916 443 0303

DGS
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EOR
REGISTERED PROFESSIONAL ENGINEER
WILLIAM B. RADER
No. 3592
STRUCTURAL
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TYPICAL DETAILS

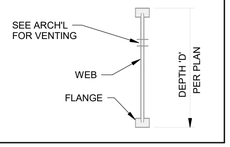
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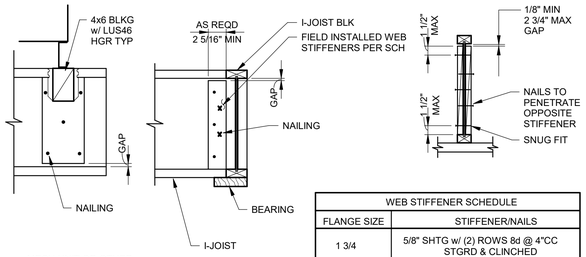
640TN100-1

A S5.34 I-JOIST SCHEDULE

JOIST	D	FLANGE	FLANGE GRADE	WEB	RESIST MOMENT	RESIST SHEAR	EIx10^6
11 7/8" RED I-65	11 7/8"	2 1/2"	2.0DF	7/16"	11229'#	3041#	450#IN ²

1. REFER TO I-JOIST NOTES FOR ADDITIONAL INFORMATION REGARDING SUBSTITUTIONS GRADE
2. SEE RIGHT FOR REPRESENTATION OF TYPICAL SECTION.





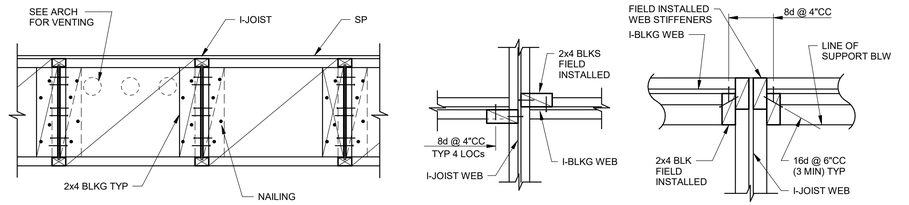
MECH UNIT OR OTHER CONCENTRATED LOAD

BEARING

WEB STIFFENER SCHEDULE	
FLANGE SIZE	STIFFENER/NAILS
1 3/4	5/8" SHTG w/ (2) ROWS 8d @ 4"CC STGRD & CLINCHED
2 1/16	3/4" SHTG w/ (2) ROWS 8d @ 4"CC STGRD & CLINCHED
2 5/16	7/8" SHTG w/ (2) ROWS 8d @ 8"CC STGRD EA SIDE
2 1/2	1" SHTG w/ (2) ROWS 8d @ 8"CC STGRD EA SIDE
3 1/2	2x4 DF#2 w/ (2) ROWS 16d @ 8"CC STGRD EA SIDE

NOTES:
1. WEB STIFFENERS TO BE FIELD INSTALLED AT ALL BEARING POINTS AND CONCENTRATED LOADS (MECH UNITS ETC) WHERE INDICATED ON THE SHOP DRAWINGS.
2. GAP MUST BE AT TOP AT ALL BEARING LOCATIONS AND AT BOTTOM AT CONCENTRATED LOADS.

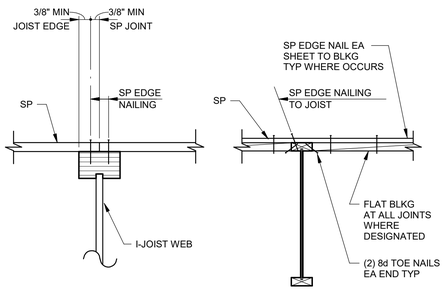
DETAIL I-JOIST WEB STIFFENERS 1 S5.34 NO SCALE 640SD001



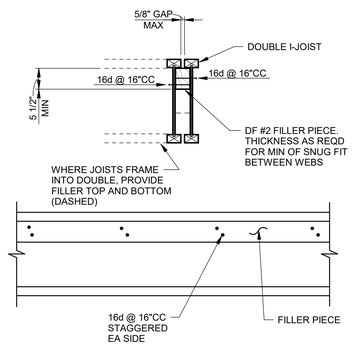
PLAN AT NON-BRG COND

PLAN AT BRG COND

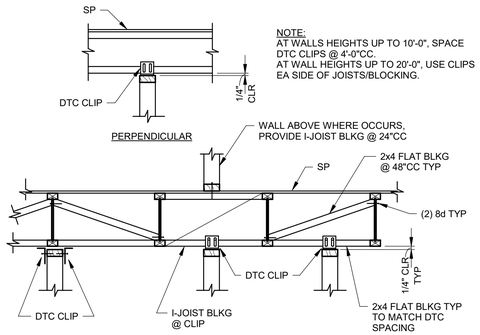
DETAIL I-JOIST BLOCKING 2 S5.34 NO SCALE 640SD002



DETAIL I-JOIST NAILING 3 S5.34 NO SCALE 640SD007



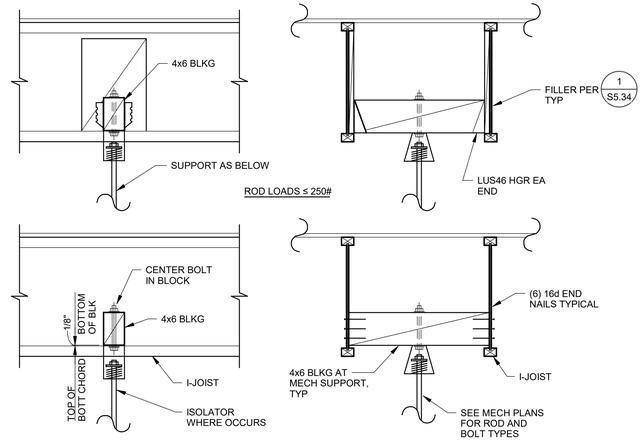
DETAIL DOUBLE I-JOIST ATTACHMENT 4 S5.34 NO SCALE 640SD005



PARALLEL TO JOISTS

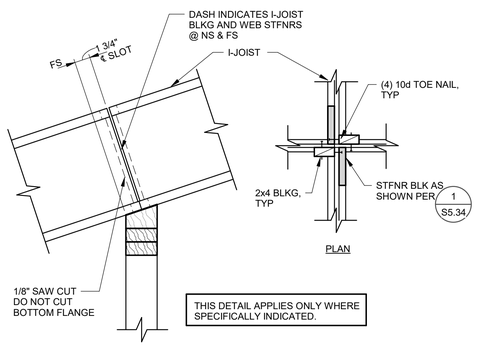
DETAIL INTERIOR NON-BEARING PARTITION AT TOP PLATE 5 S5.34 NO SCALE 640SD003

NOTE:
AT WALLS HEIGHTS UP TO 10'-0", SPACE DTC CLIPS @ 4'-0"CC.
AT WALL HEIGHTS UP TO 20'-0", USE CLIPS EA SIDE OF JOISTS/BLOCKING.



ROD LOADS ≤ 60#

DETAIL SUSPENDED MECH SUPPORT AT I-JOIST 6 S5.34 NO SCALE 640SD020



DETAIL I-JOIST CONTINUITY BREAK 7 S5.34 NO SCALE 640SD009

BUEHLER
600 Q STREET, SUITE 200
SACRAMENTO, CA 95811
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Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

CAL FIRE SINCE 1885

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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EOR
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drawn by	CL
checked by	BFU
job no.	2018-23
date	5-1-2019
cad file name	
drawing no.	WOOD I-JOISTS
sheet title	
sheet no.	S5.34
of	sheets

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MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	DETAIL NUMBER
	SHEET ON WHICH DETAIL IS FOUND
R	DUCT RISE
D	DUCT DROP
OSA	OUTSIDE AIR
SA	SUPPLY AIR
RA	RETURN AIR
BD	BALANCE DAMPER
ø	DIAMETER OR PHASE
	FLEXIBLE DUCT
12x10	DUCT - DIMENSION SHOWN X WIDTH OR HEIGHT NOT SHOWN
12x10L	ACOUSTICAL LINED DUCTING
	DUCT TRANSITION
	SUPPLY AIR DIFFUSER, RETURN OR EXHAUST AIR GRILLE
T	THERMOSTAT
R	RELOCATE
MD	MOTORIZED DAMPER
ABC	ABOVE CEILING
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AP	ACCESS PANEL
UCD	UNDER CUT DOOR
CD	CONDENSATE DRAIN
CFM, ✗	CUBIC FEET OF AIRFLOW PER MINUTE
CLG.	CEILING
(E), EXISTING	EXISTING TO BE FIELD VERIFIED BY CONTRACTOR
FA, TA	FROM ABOVE, TO ABOVE
FB, TB	FROM BELOW, TO BELOW
FC	FLEXIBLE CONNECTION
F.F.	FINISHED FLOOR
FSD	FIRE SMOKE DAMPER
/FT	PER FOOT
(N)	NEW
NIMC	NOT IN MECHANICAL CONTRACT
N.T.S.	NOT TO SCALE
O.B.D.	OPPOSED BLADE DAMPER
REF	REFERENCE
SD	SMOKE DETECTOR
TYP.	TYPICAL

GRILLE SCHEDULE

SYMBOL	DESCRIPTION
SDS	TITUS MODEL MCD OR EQUAL, LOUVERED FACE, ALL STEEL CONSTRUCTION, SURFACE MOUNT FRAME, WITH OPPOSED BLADE DAMPER, STANDARD WHITE FINISH.
SG	TITUS MODEL 272RL OR EQUAL, DOUBLE DEFLECTION, ¾" BLADE SPACING, INDIVIDUAL BLADE ADJUSTMENT, WITH OPPOSED BLADE DAMPER, PAINT READY FINISH FOR EXPOSED DUCTS AND STANDARD WHITE FINISH FOR CEILING APPLICATIONS.
RR	TITUS MODEL 23RL OR EQUAL, SINGLE BLADE FIXED, ¾" BLADE SPACING, 45 DEGREES DEFLECTION, SURFACE MOUNT FRAME, WITH OPPOSED BLADE DAMPER, STANDARD WHITE FINISH.
RDS	TITUS MODEL 50F OR EQUAL, EGG-CRATE FACE, ½" x ½" x ½" ALUMINUM GRID, SURFACE MOUNT FRAME, WITH OPPOSED BLADE DAMPER, STANDARD WHITE FINISH. EI SIMILAR EXCEPT FURNISH WITHOUT OPPOSED BLADE DAMPER.
NOTES:	COORDINATE WITH ARCHITECT FOR PAINT FINISH REQUIREMENTS FOR ALL DIFFUSERS, GRILLES, AND REGISTERS. BLOW PATTERN AS INDICATED ON PLAN. (SEE ARROWS). REFER TO ARCHITECTURAL PLAN FOR EXACT DIFFUSER, GRILLE AND REGISTER LOCATIONS. CONTRACTOR SHALL COORDINATE DIFFUSER LOCATION WITH ALL OTHER TRADES AND CONDITIONS. CONTRACTOR SHALL TRANSITION DUCTWORK TO DIFFUSER, REGISTER AND GRILLE NECK SIZES AS REQUIRED.

GENERAL MECHANICAL NOTES

1. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND SHALL BE EQUAL IN QUALITY, TYPE, CAPACITY EFFICIENCY AND ACCESSORIES TO THE EQUIPMENT NOTED ON THE DRAWINGS. ADJUSTMENTS TO CONSTRUCTION AND ACCESSORIES ON SUBSTITUTED EQUIPMENT MAY BE REQUIRED TO ACHIEVE THIS EQUALITY, AND SHALL BE INCLUDED AT NO EXTRA COST TO THE OWNER. MAKE ANY CHANGES IN DUCTWORK, PIPING, FRAMING, ETC., AS REQUIRED TO ACCOMMODATE SUBSTITUTED EQUIPMENT.

2. INSTALL ALL EQUIPMENT AND MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH ALL APPLICABLE CODES. APPLICABLE CODES SHALL INCLUDE, BUT NOT BE LIMITED TO THE 2019 CALIFORNIA MECHANICAL CODE, 2019 CALIFORNIA CODE OF REGULATIONS (CCR), 2019 CALIFORNIA FIRE REGULATIONS, 2019 CALIFORNIA GREEN BUILDING STANDARDS AND 2019 CALIFORNIA TITLE 24 ENERGY EFFICIENCY STANDARDS. WHERE HEAVIER GAGES OF MATERIAL, LARGER SIZES OR MORE STRINGENT REQUIREMENTS THAN THE CODES ARE REQUIRED BY THE CONTRACT DOCUMENTS, SUCH INCREASED REQUIREMENTS SHALL APPLY.

3. FABRICATE AND INSTALL ALL DUCTWORK IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA GUIDELINES FOR DUCT CONSTRUCTION AND THE 2016 CALIFORNIA MECHANICAL CODE. PROVIDE ALL BRANCH DUCTS WITH VOLUME DAMPERS WITH LOCKING QUADRANTS LOCATED AT LEAST FIVE FEET (5') FROM THE GRILLE OR DIFFUSER SERVED.

4. SUPPORTS FOR ALL PIPING AND DUCTWORK SHALL BE IN ACCORDANCE WITH SMACNA "GUIDELINES FOR SEISMIC RESTRAINT OF MECHANICAL SYSTEMS". CONTRACTOR SHALL PROVIDE CALCULATIONS FOR ISOLATORS AND MOUNTING ACCEPTABLE TO THE REVIEWING AUTHORITY WHEN REQUIRED BY SAME.

5. ALL ROUND RIGID DUCTS SHALL BE OF 24 GAGE GALVANIZED STEEL OR ALUMINUM, UNLESS OTHERWISE NOTED ON THE DRAWINGS. PROVIDE FLAT SEAM CONSTRUCTION FOR ANY DUCTS EXPOSED IN OCCUPIED SPACE. NOTE: ALUMA-FLEX IS NOT ACCEPTABLE IN LIEU OF ROUND RIGID DUCTWORK.

6. FLEXIBLE DUCTS WHERE PERMITTED SHALL BE GENFLEX IL, THERMAFLEX G-KM, CASCO OR EQUAL FACTORY INSULATED. FLEXIBLE DUCT SHALL NOT EXCEED 5-0" IN LENGTH (DOWNSTREAM OF RIGID ELBOWS), PER 2016 CMC, 603.4.1 INSULATE ALL SUPPLY AND RETURN DUCTS.

7. CONTROLS SHALL COMPLY WITH THE 2016 CALIFORNIA ENERGY CODE. ALL CONTROLS AND CONTROL WIRING NOT SPECIFICALLY SHOWN BUT REQUIRED FOR A COMPLETE AND WORKABLE SYSTEM SHALL BE SUPPLIED BY THE CONTRACTOR AND INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

8. ALL AIR SYSTEMS SHALL BE BALANCED BY A QUALIFIED MECHANICAL CONTRACTOR, USING AABC, SMACNA OR NEBB PROCEDURES. AIR QUANTITIES SHALL BE BALANCED TO NOT MORE THAN 10% ABOVE OR 10% BELOW THE QUANTITIES SHOWN ON THE DRAWINGS. CONTRACTOR SHALL SUBMIT A COMPLETE AIR BALANCE REPORT INDICATING, AS A MINIMUM, THE AIR DELIVERY FOR EACH DIFFUSER, THE FINAL OPERATING DATA FOR THE SYSTEMS AND THE AIR CONDITIONING UNITS.

9. SUBMIT FOR APPROVAL (6) COPIES OF COMPLETE SUBMITTAL DATA ON SPECIFIED AND PROPOSED EQUIPMENT AND MATERIALS. SUBMITTALS SHALL INCLUDE EQUIPMENT SIZES, CAPACITY, MOTOR LOCATIONS, PERFORMANCE CURVES AND OTHER PERTINENT DATA. EACH SUBMITTAL SHALL INCLUDE IDENTIFICATION TAGS OR SYMBOLS TO MATCH DWGS. PARTIAL SUBMITTALS OR SUBMITTALS WHICH ARE NOT MARKED WITH EQUIPMENT TAGS OR PERFORMANCE DATA WILL BE REJECTED.

10. PROVIDE PERMANENT NAME LABELS FOR ALL EQUIPMENT INSTALLED, INDICATING THE PLAN DESIGNATION OF THE UNIT (AC-1, REF, ETC.) AND ALSO THE BUILDING AREA SERVED (CLASSROOMS 2-4, CONFERENCE ROOM, ETC.).

11. CONTRACTOR SHALL VERIFY ALL WORK CONDITIONS PRIOR TO COMMENCING WORK, INCLUDING, BUT NOT LIMITED TO: DIMENSIONS, EQUIPMENT, STRUCTURAL ELEMENTS AND MATERIALS INDICATED AS EXISTING, AS WELL AS THE COORDINATED INSTALLATION OF ALL NEW WORK, MATERIALS, EQUIPMENT, ETC. COORDINATE THE LOCATION OF ALL ROOF MOUNTED EQUIPMENT WITH THE STRUCTURAL ENGINEER.

12. SUBMITTAL NOTE: MECHANICAL SYSTEMS DESIGN REFLECT EQUIPMENT SPECIFIED. WHEN EQUIPMENT SUBSTITUTIONS OCCUR AND DUCT DESIGN, DUCT DROPS, GAS INPUT AND ELECTRICAL SERVICE VARIES FROM THAT SPECIFIED, THEN IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR FOR ALL ADDITIONAL ENGINEERING FEES AND OTHER DISCIPLINE CHANGE ORDERS (STRUCTURAL, ELECTRICAL, ARCHITECTURAL, PLUMBING, ETC) WHEN SUBSTITUTED EQUIPMENT IS USED.

EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION
RTU 1	PACKAGED ROOFTOP AC UNIT WITH ELECTRIC COOLING, VERTICAL DISCHARGE. FURNISH COMPLETE WITH ROOF CURB, DIRECT DRIVE ECM MOTOR, COMPRESSOR START ASSIST, COMPRESSOR START ASSIST-CAPACITOR, PROGRAMMABLE THERMOSTAT, DISPOSABLE FILTERS IN FILTER RACK. PROVIDE CONVENIENCE POWERED OUTLET. CARRIER MODEL NO.: 50FCQA05 OR EQUAL, 14 SEER, NOMINAL 4 TON UNIT, COOLING ONLY. TOTAL COOLING CAPACITY: 47,000 BTUH SENSIBLE COOLING CAPACITY: 37,800 BTUH AIR FLOW SETTING: 1600 CFM AT Ø.5 S.P. ELECTRICAL SERVICE: 460 V/3 PH/60 Hz COMPRESSOR: 1 AT 6.2 RLA, 41.0 LRA EVAPORATOR FAN MOTOR: 1 AT 1.2 FLA CONDENSER FAN MOTOR: 1 AT 1/4 HP, 0.84 FLA MCA: 12.0 MOCP: 15.0 WEIGHT: 580 LBS OUTSIDE AIR SETTING: 0 CFM
CEF A	CEILING EXHAUST FAN COOK MODEL NO.: GC-542 OR EQUAL AIR FLOW SETTING: 125 CFM AT .325 S.P., 1435 RPM ELECTRICAL SERVICE: 120 V/1 PH/60 HZ., 105 WATTS CONTROL WITH WALL SWITCH. WEIGHT: 26 LBS. SOUND: 4.0 SONES FURNISH: BACKDRAFT DAMPER, INTERCONNECTING DUCT, INHERENT THERMAL MOTOR PROTECTION, ROOF CAP.
CEF B	CEILING EXHAUST FAN COOK MODEL NO.: GC-148 OR EQUAL AIR FLOW SETTING: 75 CFM AT .25 S.P., 1075 RPM ELECTRICAL SERVICE: 120 V/1 PH/60 HZ., 30.4 WATTS CONTROL WITH ROOM LIGHTS. WEIGHT: 10 LBS. SOUND: 0.9 SONES FURNISH: BACKDRAFT DAMPER, INTERCONNECTING DUCT, INHERENT THERMAL MOTOR PROTECTION, ROOF CAP.
UH A	UNIT HEATER, NATURAL GAS, PROPELLER TYPE, 80.0 AFUE. TRANE MODEL NO.: GFND003 OR EQUAL. HEATING CAPACITY: 30,000 BTUH INPUT 24,300 BTUH OUTPUT AIR FLOW SETTING: 700 CFM AT 0.1 E.S.P. ELECTRICAL SERVICE: 120 V/1 PH/60 Hz BLOWER FAN: 1 AT 1/30 HP, 1.3 FLA UNIT FLA: 2.1 WEIGHT: 75 LBS. FURNISH: SINGLE STAGE GAS CONTROL, INTERMITTENT SPARK IGNITION: FLUE VENT FAN, ROOF VENT CAP, THERMOSTAT, MOUNTING HARDWARE.

SINGLE ZONE SPLIT SYSTEM FAN COIL UNIT SCHEDULE

						SUPPLY FAN		ELECTRICAL				
TAG	SERVICE	MFG	MODEL	REFRIGERANT TYPE	MOUTING METHOD	CFM	FLA	V/PH/HZ	MCA	FAN POWER OUTPUT (WATTS)	WEIGHT (LBS)	NOTES
FC-A	BARRACKS-DATA B103	MITSUBISHI	PKAA18GA	R-410A	WALL	-	-	208/1/60	-	-	29	1 THRU 4
FC-B	HANGAR-SHOP H101	MITSUBISHI	PKAA24FA	R-410A	WALL	-	-	208/1/60	-	-	46	1 THRU 4
FC-C	HANGAR-STORAGE H104	MITSUBISHI	PKAA24FA	R-410A	WALL	-	-	208/1/60	-	-	46	1 THRU 4

NOTES:
1. PROVIDE SINGLE POINT ELECTRICAL CONNECTION.
2. PROVIDE REFRIGERANT PIPING AND WALL MOUNTED THERMOSTAT.
3. PROVIDE WALL MOUNTED ASSEMBLY HARDWARE.
4. PROVIDE CONDENSATE PUMP.

SINGLE ZONE SPLIT SYSTEM OUTDOOR UNIT SCHEDULE

				COOLING	HEATING	ELECTRICAL			EFFICIENCY		
TAG	SERVICE	MFG	MODEL	TOTAL MBH	TOTAL MBH	V/PH/HZ	MCA	MOCP	SEER	WEIGHT (LBS)	NOTES
CU-A	FC-A	MITSUBISHI	PUYA18NHA	18	N/A	208/1/60	13	15	15.3	97	1 THRU 5
CU-B	FC-B	MITSUBISHI	PUZA24NHA	24	24	208/1/60	18	20	17	163	1 THRU 5
CU-C	FC-C	MITSUBISHI	PUZA24NHA	24	24	208/1/60	18	20	17	163	1 THRU 5

NOTES:
1. PROVIDE LOW AMBIENT HEAD PRESSURE CONTROL.
2. PROVIDE ANIT-SHORT CYCLE TIMER.
3. PROVIDE FILTER DRYER.
4. PROVIDE COMPRESSOR START ASSIST CAPACITOR.
5. PROVIDE PRE-CHARGED REFRIGERANT SUCTION AND LIQUID LINES.

SACRAMENTO ENGINEERING CONSULTANTS
10555 Old Placerville Road
Sacramento, CA 95827-2503
Phone: (916) 368-4468
Fax: (916)368-4490
www.saceng.com
Job No. 18929

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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CALIFORNIA STATE FIRE MARSHAL APPROVED
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Reviewed by:_____

AOR
LICENSED ARCHITECT BRUCE F. UNGER NO. C15804 REN. 5-31-21 STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER KEVIN C. KING No. M-029816 EXP. 6-30-2020 MECHANICAL STATE OF CALIFORNIA
Date Signed: January 20, 2020

drawn by
checked by
job no. 2018-23
date 5-1-2019
cad file name M1.1.dwg
drawing no. M1.1
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MULTI-ZONE VARIABLE REFRIGERANT FLOW SYSM
INDOOR FAN COIL UNIT SCHEDULE

TAG	LOCATION	SERVICE AREA	MFG	MODEL	MOUNTING TYPE	NOTES
FC-1	BARRACKS	BEDROOM B105	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-2	BARRACKS	BEDROOM B106	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-3	BARRACKS	BEDROOM B107	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-4	BARRACKS	BEDROOM B108	MITSUBISH	PFKY-P06NBMU-E5	WALL	
FC-5	BARRACKS	BEDROOM B109	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-6	BARRACKS	BEDROOM B110	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-7	BARRACKS	BEDROOM B111	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-8	BARRACKS	COORIDOR/HALLWAY	MITSUBISH	PEFY-P24NM-AU-ER2	CEILING	
FC-9	BARRACKS	ACTIVITIES ROOM	MITSUBISH	PEFY-P24NM-AU-ER2	CEILING	
FC-10	BARRACKS	DAY ROOM	MITSUBISH	PEFY-P36NM-AU-ER2	CEILING	
FC-11	BARRACKS	DINING ROOM, KITCHEN	MITSUBISH	PEFY-P72NMHU	CEILING	
FC-12	BARRACKS	CORRDIRO, HALLWAY	MITSUBISH	PEFY-P30NM-AU-ER2	CEILING	
FC-13	BARRACKS	BEDROOM B131	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-14	BARRACKS	BEDROOM B132	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-15	BARRACKS	BEDROOM B133	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-16	BARRACKS	BEDROOM B134	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-17	BARRACKS	BEDROOM B135	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-18	BARRACKS	BEDROOM B136	MITSUBISH	PFKY-P06NBMU-E2	WALL	
FC-19	BARRACKS	OFFICES	MITSUBISH	PEFY-P18NM-AU-E2	CEILING	

NOTES:

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2 PROVIDE REFRIGERANT PIPING AND WALL MOUNTED THERMOSTAT.
3 PROVIDE MOUNTED ASSEMBLY HARDWARE.
4 PROVIDE CONDENSATE PUMP.

BRANCH CIRCUIT CONTROLLER

TAG	SERVICE	MFG	MODEL	MAX # OF BRANCHES	ELECTRICAL	WEIGHT (LBS)	DRAIN PIPE
BCC-1	BARRACKS	MITSUBISHI	CMB-P1013NU-G1	13	208V/1/60	126	1.25"
BCC-2	BARRACKS	MITSUBISHI	CMB-P1013NU-G1	13	208V/1/60	126	1.25"

OUTDOOR HEAT PUMP UNIT SCHEDULE

				COOLING	HEATING	ELECTRICAL			EFFICIENCY		
TAG	SERVICE	MFG	MODEL	TOTAL MBH	TOTAL MBH	V/PH/HZ	MCA	MOCP	EER	WEIGHT (LBS)	NOTES
HP-1	BARRACKS	MITSUBISHI	PURY-P96TLMU-A	96	108	460/3/60	15	25	12.0	534	1 THRU 5
HP-2	BARRACKS	MITSUBISHI	PURY-P168LMU-A	168	188	460/3/60	31	50	10.6	730	1 THRU 5

NOTES:

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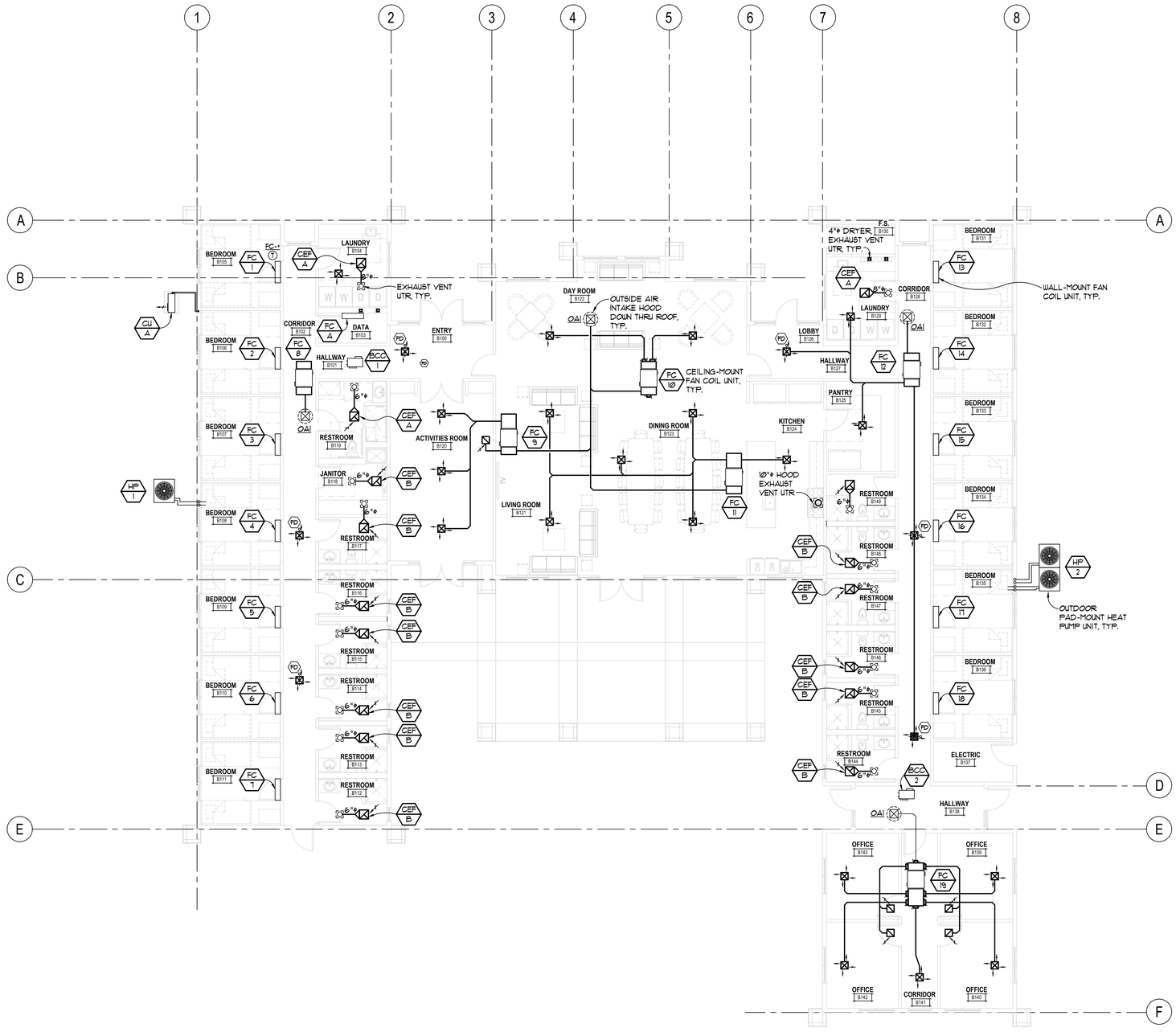
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STATE OF CALIFORNIA

EOR
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DAVID C. HOWARD
No. M-029816
EXP. 6-30-2020
MECHANICAL
STATE OF CALIFORNIA
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BARRACKS MECHANICAL FLOOR PLAN

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

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M2.1

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West Sacramento, California 95605
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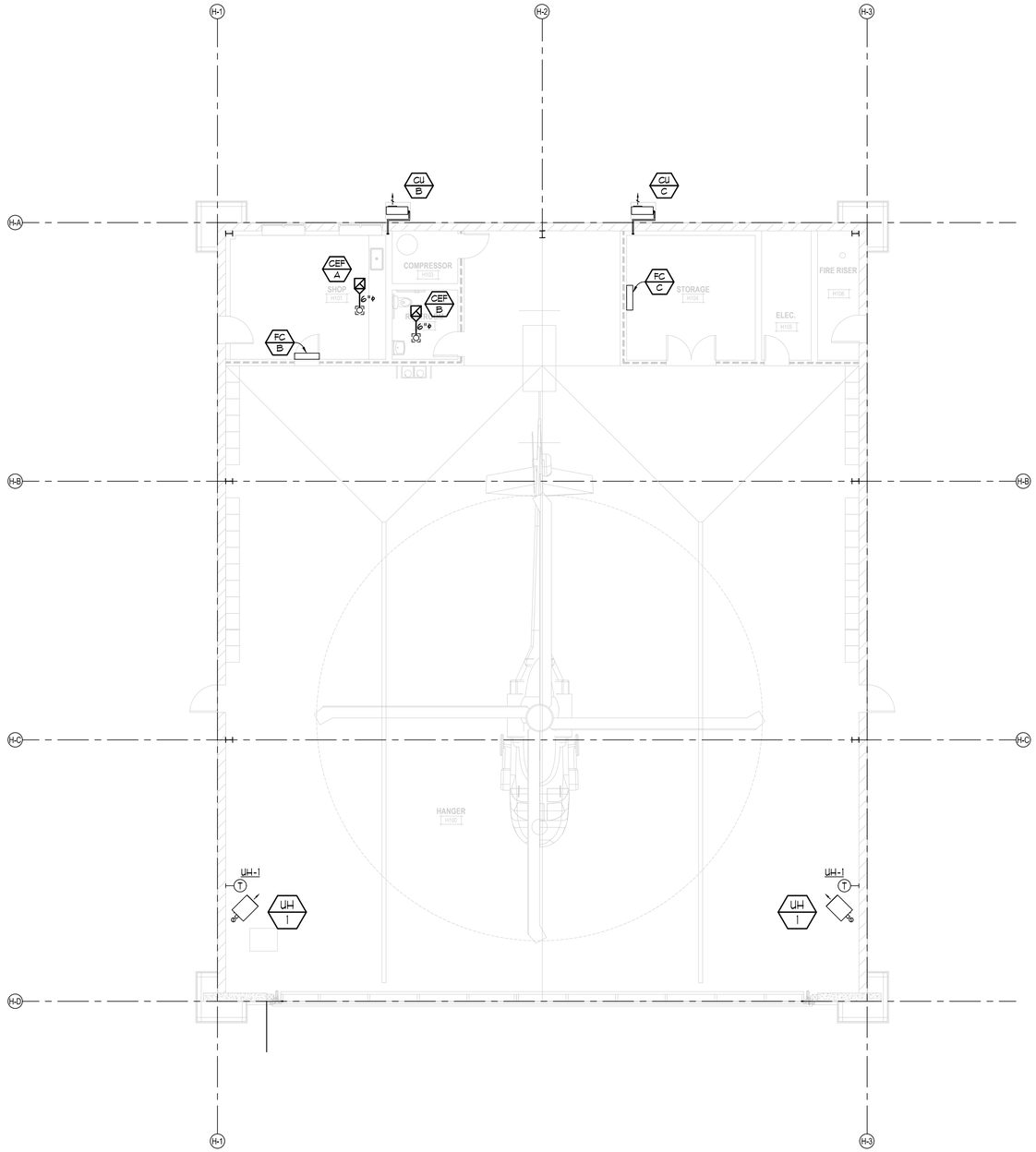
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Fax: (916)368-4490
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HANGAR MECHANICAL FLOOR PLAN

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

1 / M2.2

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Judy Haavisto, Project Director II

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916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
ROBERT C. HENDRICKSON
No. M-029816
EXP. 6-30-2020
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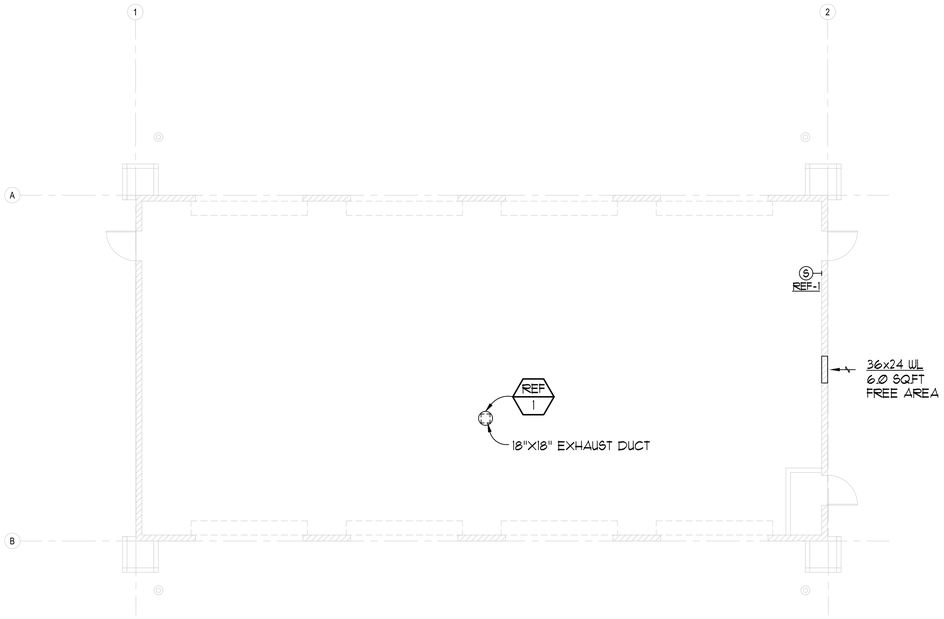
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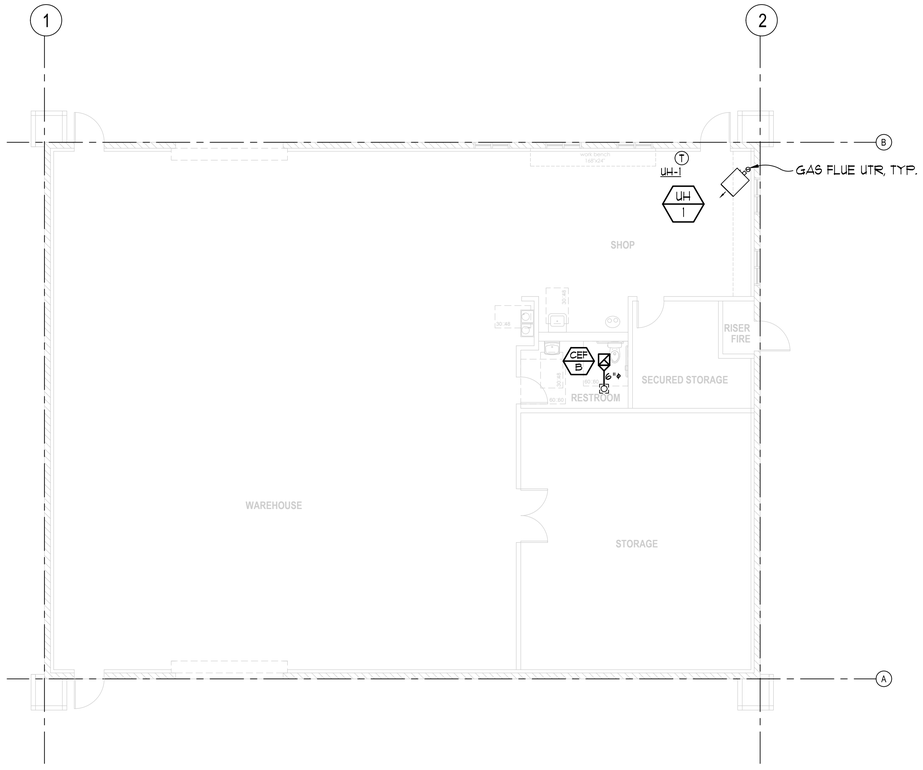


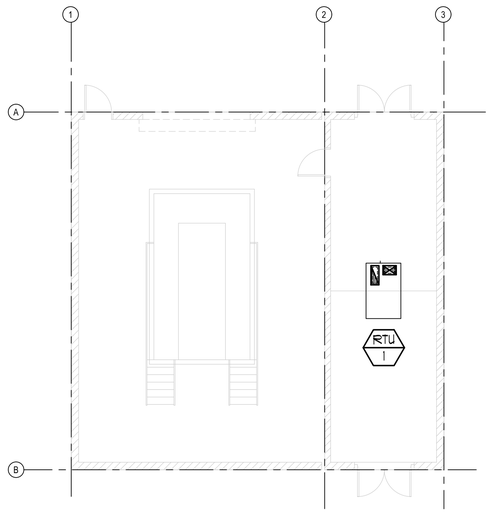
GARAGE MECHANICAL FLOOR PLAN

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

2 / M2.3

N





ELECTRICAL/STORAGE MECHANICAL FLOOR PLAN

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

3 / M2.3

N

WAREHOUSE/SHOP MECHANICAL FLOOR PLAN

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

1 / M2.3

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Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
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REN. 5-31-21
STATE OF CALIFORNIA

EOR

REGISTERED PROFESSIONAL ENGINEER
JOSEPH E. KING
No. M-029816
EXP. 6-30-2020
MECHANICAL
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PLUMBING LEGEND

SYMBOL	DESCRIPTION
———	SOIL, WASTE OR SANITARY SEWER BELOW GRADE OR SLAB
——— GW ———	GREASE WASTE BELOW GRADE
——— AW ———	ACID WASTE
———	SOIL, WASTE OR SANITARY SEWER ABOVE GRADE OR SLAB
— — — — — —	VENT PIPING
——— - ———	COLD WATER PIPING
——— - - ———	HOT WATER PIPING
——— - - - ———	HOT WATER RETURN PIPING
——— T ———	TEMPERED WATER PIPING
——— F ———	FILTERED WATER PIPING
——— G ———	GAS PIPING - PRESSURE NOTED
——— CA ———	COMPRESSED AIR PIPING
——— FS ———	FIRE SPRINKLER PIPING
——— SD ———	STORM DRAIN PIPING
P&TR	PRESSURE AND TEMPERATURE RELIEF PIPING
——— CD ———	CONDENSATE DRAIN PIPING
—X—X—X—	EXISTING PIPING OR FIXTURE TO BE REMOVED OR ABANDONED IN PLACE
—‖—	UNION
SOV	SHUT OFF VALVE
GV	GATE VALVE
GV/VB	GATE VALVE IN VALVE BOX
CKV	CHECK VALVE - DIRECTION OF FLOW INDICATED
BV	BALL VALVE
	SOLENOID OPERATED VALVE
	BALANCING VALVE
	AUTOMATIC GAS SHUT-OFF VALVE
P&TRV	PRESSURE AND TEMPERATURE RELIEF VALVE
CO, FCO	GRADE CLEAN OUT, FLOOR CLEAN OUT
CO, WCO	CLEANOUT, WALL CLEANOUT
FD	FLOOR DRAIN
FS	FLOOR SINK
HB	HOSE BIBB
POC	POINT OF CONNECTION
I.E.	INVERT ELEVATION
F.F.	FINISHED FLOOR
/FT	PER FOOT
US,UF,UG	UNDER SLAB, UNDER FLOOR, UNDERGROUND
FA, TA	FROM ABOVE, TO ABOVE
FB, TB	FROM BELOW, TO BELOW
TYP.	TYPICAL
(N)	NEW
(E), EXISTING	EXISTING TO BE FIELD VERIFIED BY CONTRACTOR
~~AFG~~	ABOVE FINISHED ~~GRADE~~
ABC	ABOVE CEILING
AP	ACCESS PANEL
VCP	VITRIFIED CLAY PIPE
V, VR, VTR	VENT, VENT RISER, VENT THRU ROOF
SS	SANITARY SEWER
HW, HWD, HWR	HOT WATER, HOT WATER DROP, HOT WATER RISER
CW, CWD, CWR	COLD WATER, COLD WATER DROP, COLD WATER RISER
REF	REFERENCE
RIC	ROUGH-IN & CONNECT
QC	QUICK CONNECT (AIR)
RD	ROOF DRAIN
OD	OVERFLOW DRAIN
TDL	TOTAL DEVELOPED LENGTH
SAD	SEE ARCHITECTURAL DRAWINGS
SCD	SEE CIVIL DRAWINGS
WHA	WATER HAMMER ARRESTOR
BV/VB	BALL VALVE IN VALVE BOX

FIXTURE CONNECTION SCHEDULE

SYMBOL	FIXTURE DESCRIPTION	VENT	WASTE		WATER		GAS
			DIRECT	IND.	CW	HW	BTUH
WC	WATER CLOSET, FT	2	3	-	¾	-	-
L	LAVATORY	1½	2	-	¾	¾	-
S	SINK	1½	2	-	¾	¾	-
SH	SHOWER	1½	2	-	¾	¾	-
EDF	ELECTRIC DRINKING FOUNTAIN	1½	2	-	¾	-	-
EWS	EMERGENCY EYEWASH SHOWER	1½	2	-	¾	¾	-
WB	WALL BOX	1½	2	-	½	½	-
HB	HOSE BIBB	-	-	-	¾	-	-
FD/FS	2" FLOOR DRAIN/SINK	2	2	-	-	-	-
TP	TRAP PRIMER	-	-	-	½	-	-
MS	MOP SINK	1½	2	-	¾	¾	-

PLUMBING SCHEDULE

SYMBOL	DESCRIPTION
TWH 1 / TWH 2 / TWH 3 / TWH 4	TANKLESS WATER HEATER, GAS FIRED, CONCENTIRC-VENT, WATER HEATER: RINNAI MODEL NO.: RUC98I , 199 MBH INPUT, 95% RECOVERY EFFICIENCY RATING, 6.2 RPG CAPACITY AT 60°F RISE. PROVIDE COMPLETE WITH COPPER HEAT EXCHANGER WITH 10 YEAR WARRANTY, STAINLESS STEEL BURNERS, MICROPROCESSOR CONTROLLER, DIRECT ELECTRONIC IGNITION, FULLY MODULATING GAS CONTROL VALVE, TURBINE FLOW METER, AUTOMATIC ELECTROMECHANICAL WATER FLOW CONTROL VALVE, WATER TEMPERATURE THERMISTERS, FLAME FAILURE LOCKOUT, BOILER PROTECTION LOCKOUT, THERMAL OVERHEAT PROTECTION, INTERNAL FREEZE PROTECTION, BLOCKED FLUE LOCKOUT PROTECTION, 3" CONCENTRIC VENT KIT, THERMOSTAT. PROVIDE EXPANSION TANK , AMTROL #ST-5 "THERM-X-TROL", DIAPHRAGM TYPE, PREPRESSURIZED TANK.
IWH 1	INSTANTANEOUS WATER HEATER: CHRONOMITE #SR-20L, "INSTANT-FLOW", LOW FLOW, UNDERCOUNTER MOUNTING, WITH 4.16 KW INPUT AT 208 V/1 PH/60 Hz ELECTRICAL SERVICE, 20 AMPS DRAW. SET AT 105 F LEAVING TEMPERATURE.
IWH 2	INSTANTANEOUS WATER HEATER: CHRONOMITE #E-80 L/208, "INSTANT-TEMP", LOW FLOW, UNDERCOUNTER MOUNTING, WITH 8 KW INPUT AT 208 V/1 PH/60 Hz ELECTRICAL SERVICE, 38 AMPS DRAW. SET AT 105 F LEAVING TEMPERATURE.
US	UTILITY SINK: GRIFFIN "MODELC60-124-00" 16 GAUGE TYPE 304 STAINLESS STEEL 20"x24"x12" DEEP SINK BOWL WITH BACKSPLASH, SINK LEGS & FEET, 2" OUTLET WITH FS-108 - 8" SWING SPOUT FAUCET, AERATOR (1.5 GPM) STOPS AND VACUUM BREAKER, AND #WA-350 BASKET DRAIN.
EWS	EYEWASH SHOWER: GUARD #GBF1909 COMBINATION EMERGENCY EYEWASH AND SHOWER UNIT WITH FLOW CONTROL, STAINLESS STEEL BOWL AND COVER, INSTANT ACTION STAY OPEN VALVE WITH HAND CONTROLS. UNIT SHALL CONFORM TO ADA FOR ACCESSIBLE INSTALLATIONS. FURNISH WITH G3800LF THERMOSTATIC MIXING VALVE.
MV	MIXING VALVE: GUARDIAN #G3800LF, MAXIMUM TEMPERATURE STOP SET FOR 85°F, BUILT-IN COLD WATER BYPASS, WITH CHECK STOPS, REMOVABLE STRAINERS, DIAL THERMOMETER. 1¼" INLETS WITH 1½" OUTLET.
HB	HOSE BIBB: ACORN #8121 BENT NOSE WITH FLANGE AND INTEGRAL VACUUM BREAKER, ROUGH CHROME FINISH WITH WHEEL HANDLE. HOSE BIBB IN PUBLIC AREA SHOULD BE LOCKABLE HYDRANT.
FD	FLOOR DRAIN: J.R. SMITH # 2005A, 5" DIAMETER NICKEL BRONZE TOP WITH 2" PIPE, FLANGE AND SEEPAGE PAN. PROVIDE TRAP PRIMER CONNECTION.
FS	FLOOR SINK: J.R.S #325-Y03 WITH CAST IRON BODY, ENAMELED INTERIOR, 6" DEEP SUMP, FLANGE AND SEEPAGE PAN, ALUMINUM BOTTOM DOME STRAINER, HALF GRATE, 3" OUTLET, CAULK JOINT.
WB	WASHING MACHINE BOX: GUY GRAY #BB-200TS WALL-MOUNTED, WITH 24" HIGH STANDPIPE, HOT AND COLD WATER CONNECTIONS WITH SHUT-OFF VALVES. COORDINATE LOCATION WITH WASHING MACHINE.
TD	TRENCH DRAIN: POLYCAST SERIES 700, CAST REINFORCED PLASTIC, INTERNALLY SLOPED, WITH HEAVY DUTY GRATE (DG0641D), END CAPS AND DRAIN FITTINGS. SHALL HAVE A MINIMUM OF 1/4" PER FOOT SLOPE.

GENERAL PLUMBING NOTES

1. PIPING MATERIALS SHALL BE AS FOLLOWS:

   STORM, WASTE AND VENT SHALL BE SCHEDULE 40 PVC. POLYVINYL CHLORIDE (PVC) PLASTIC PIPE. ALL PIPE, COUPLINGS AND FITTINGS SHALL BE MANUFACTURED OF MATERIAL CONFORMING TO ASTM D 1785. PLASTIC SOLVENT CEMENT FOR PVC PLASTIC PIPE SHALL CONFROM TO ASTM D 2235.

2. CONDENSATE DRAIN PIPING: TYPE DWV COPPER TUBING AND FITTINGS OR SCHEDULE 40 GALVANIZED STEEL PIPE AND MALLEABLE IRON FITTINGS. (PVC PIPING WILL NOT BE ACCEPTABLE.)

3. WATER PIPE (HOT AND COLD WATER): TYPE L BELOW GRADE, TYPE M ABOVE GRADE, COPPER TUBING, HARD-TEMPER, WITH WROUGHT COPPER FITTINGS. SOLDERING / BRAZING MATERIAL SHALL BE LEAD FREE, SILVER SOLDER BELOW GRADE, 95-5 OR SIMILAR ABOVE GRADE. CAPPED OR PLUGGED OUTLETS SHALL BE SCHEDULE 40 SCREWED BRASS. ELBOWS AT BRANCH OUTLETS SHALL BE SCREWED OUTLET, WITH EARS, FOR NAILING OR SCREWING TO WALL BACKING.

PLUMBING SCHEDULE

SYMBOL	DESCRIPTION
	PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL FIXTURES IN THIS SCHEDULE OR THEIR APPROVED EQUIVALENT. REFER TO ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS OF FIXTURES.:
WC-1	WATER CLOSET: KOHLER #K-3575 "WELLWORTH" FLOOR MOUNTED, WHITE VITREOUS CHINA, 15" HIGH ELONGATED SIPHON ACTION BOWL, CLOSE-COUPLED TANK, 1.28 GPF, WITH BOLT CAPS AND KOHLER #K-4670-C OPEN FRONT SEAT LESS COVER. ALL COMPONENTS SHALL BE WHITE.
WC-2	ACCESSIBLE WATER CLOSET: KOHLER #K-3999 "HIGHLINE" FLOOR MOUNTED, WHITE VITREOUS CHINA, 16.5" HIGH ELONGATED SIPHON ACTION BOWL, CLOSE-COUPLED TANK, 1.28 GPF, TRIP LEVER ON "OPEN" SIDE WITH BOLT CAPS AND KOHLER #K-4670-C OPEN FRONT SEAT LESS COVER. ALL COMPONENTS SHALL BE WHITE. UNIT SHALL CONFORM TO ADA AND TITLE 24 REQUIREMENTS FOR ACCESSIBLE INSTALLATIONS.
L-1	LAVATORY: KOHLER #K-2196-4 "PENNINGTON" COUNTER TOP, VITREOUS CHINA, SELF-RIMMING, FRONT OVERFLOW WITH KOHLER CHROME PLATED FAUCET MODEL #K-15593-P SINGLE LEVER 4" CENTERSET, AERATOR (0.5 GPM FLOW), AND METAL GRID DRAIN ASSEMBLY. INSULATE WATER AND WASTE PIPING. UNIT SHALL CONFORM TO STATE ACCESS REGULATIONS AND TITLE 24 REQUIREMENTS FOR ACCESSIBLE INSTALLATIONS.
L-2	LAVATORY: KOHLER #K-2005 "KINGSTON" WALL HUNG VITREOUS CHINA, FRONT OVERFLOW WITH SLOAN CHROME PLATED ELECTRONIC FAUCET MODEL #ETF-610 SINGLE LEVER, 4" CENTERSET, AERATOR (0.5 GPM FLOW), AND METAL GRID DRAIN ASSEMBLY. INSULATE WATER AND WASTE PIPING. UNIT SHALL CONFORM TO ADA AND TITLE 24 REQUIREMENTS FOR HANDICAP INSTALLATIONS.
S-1	SINK: ELKAY #ELUHAD-311855PD "LUSTERTONE", 18 GAUGE TYPE 304 STAINLESS STEEL, SELF-RIMMING, 30¾" x 18½" x 5⅜" DEEP BOWL, TWO-COMPARTMENT UNIT WITH 3-HOLE PUNCH FOR CHICAGO FAUCETS # 1100-GN2E35-317AB CHROME PLATED 5¼" GOOSENECK FAUCET WITH WRIST BLADE HANDLE, AERATOR (1.5 GPM) AND COMPLETE WITH ELKAY MODEL LK-35 DUO STRAINER.
S-2	SINK: ELKAY #LRAD2521 "LUSTERTONE", 18 GAUGE TYPE 304 STAINLESS STEEL, SELF-RIMMING, 21" x 15.75" x 6" DEEP BOWL, SINGLE COMPARTMENT UNIT WITH 3-HOLE PUNCH FOR DELTA #100-LHF CHROME PLATED SINGLE LEVER FAUCET AND COMPLETE WITH ELKAY MODEL #LK35 DUO STRAINER.
S-3	SINK: ELKAY #LRAD1918 "LUSTERTONE", 18 GAUGE TYPE 302 STAINLESS STEEL, SELF-RIMMING, 16" x 11.5" x 6" DEEP BOWL, SINGLE COMPARTMENT UNIT WITH 3-HOLE PUNCH FOR DELTA #100-LHF CHROME PLATED SINGLE LEVER FAUCET AND COMPLETE WITH ELKAY MODEL #LK35 DUO STRAINER.
TP	TRAP PRIMER: PRECISION PLUMBING PRODUCTS, INC. #PO-500 PRIME-RITE FOR TWO RESTROOM FLOOR DRAINS. PROVIDE 12"x12" ACCESS DOOR FOR CONCEALED UNIT. DETAIL 5/P4.1.
WSB	WATER SUPPLY BOX: GUY GRAY #BIM875 WALL-MOUNTED, FACTORY INSTALLED VALVE, 1/2" INLET AND 1/2" OUTLET. MOUNT 12" ABOVE FINISHED FLOOR. COORDINATE LOCATION WITH REFRIGERATOR.
MS	MOP SINK: FLORESTONE "MODEL 85" FLOOR MOUNTED, TERRAZZO, RECESS STYLE WITH 3 TILING FLANGES AND STAINLESS STEEL CAPS ON FRONT LEDGE, 3" OUTLET WITH AMERICAN STANDARD #8344.111 FAUCET WITH TOP BRACE, STOPS AND VACUUM BREAKER, AND #1121.038 DRAIN WITH STRAINER.
EWC 1	ELECTRIC WATER COOLER: ELKAY #LZSTLG8SSC, VERSATILE B-LEVLE FILTERED WATER COOLER, NO LEAD, WALL MOUNTED, BARRIER-FREE MODEL, STAINLESS STEEL FINISH, 8 GPH, 120 V/1 PH/60 Hz, 3.2 FLA. WEIGHT: 75 LBS. UNIT SHALL CONFORM TO ANSI/NSF 61 SECTION 9-1997B, ADA AND TITLE 24 REQUIREMENTS FOR ACCESSIBLE INSTALLATIONS.
GWH 1	WATER HEATER: BRADFORD WHITE #EF-60T-125-3XA, NATURAL GAS FIRED, 125,000 BTUH INPUT, 60 GALLON STORAGE CAPACITY, 145 GPH RECOVERY AT 100 F RISE, 96% THERMAL EFFICIENCY. GLASS LINED STORAGE TANK, MAGNESIUM ANODE, INSULATED AND JACKETED, CAST IRON BURNER, PRESSURE AND TEMPERATURE RELIEF VALVE, POWER DIRECT VENT WITH CONCENTRIC VENT KIT. 115V ELECTRICAL SERVICE. INSTALL WITH EXPANSION TANK, AMTROL #ST-5 "THERM-X-TROL", DIAPHRAGM TYPE, PREFRESSURIZED TANK. WEIGHT: 510 LBS.
TMV	THERMOSTATIC MIXING VALVE: BRADLEY #593-3080 WITH BI-METAL THERMOSTAT, MAX. TEMPERATURE STOP SET FOR 125°F, WITH CHECK STOPS, TEMPERATURE GAUGE, REMOVABLE STRAINERS, 1" BOTTOM SUPPLIES, 1¼" TOP OUTLET.
GD 1	GARBAGE DISPOSER: IN-SINK-ERATOR 'BADGER 5XP' GARBAGE DISPOSER, STAINLESS STEEL GRIND CHAMBER, FULLY INSULATED, 120 V/1/PH/60 Hz, ¾ HP, 9.5 AMP ELECTRICAL SERVICE.
SH-1	SHOWER: SYMMONS #35-1-231 TEMPTROL II VALVE, WASHERLESS, SINGLE LEVER, SCREWDRIVER STOPS, CHROME PLATED WITH SHOWER HEAD (1.5 GPM) AND CHROME PLATED FLOOR DRAIN WITH 2" OUTLET, FLANGE AND SEEPAGE PAN.
SH-2	SHOWER: SYMMONS #S-96-300-B3U-L-V "TEMPTROL" PRESSURE BALANCING MIXING VALVE WITH ADJUSTABLE STOP SCREW, LEVERTROL #4-458 DIVERTER WITH INTEGRAL VOLUME CONTROL, WALL/HAND SHOWER (1.5U GPM) WITH FLEXIBLE METAL HOSE, WALL CONNECTION AND FLANGE, 30" SLIDE BAR FOR HAND SHOWER MOUNTING. INSTALLATION INCLUDES GRID FLOOR DRAIN, FLANGE, SEEPAGE PAN, GRAB BARS AND SEAT PER ARCHITECTURAL DRAWINGS, AND SHALL COMPLY WITH ADA AND TITLE 24 REQUIREMENTS.
CP 1	CIRCULATION PUMP: B&G #SERIES NBF-33, ALL BRONZE CONSTRUCTION, 1/6, 115 V/1 PH/60 HZ ELECTRICAL SERVICE, WITH ACOUSTIC CONTROL. WEIGHT: 10.4 LBS.

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10555 Old Placerville Road
Sacramento, CA 95827-2503
Phone: (916) 368-4468
Fax: (916)368-4490
www.saceng.com
Job No. 18929

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
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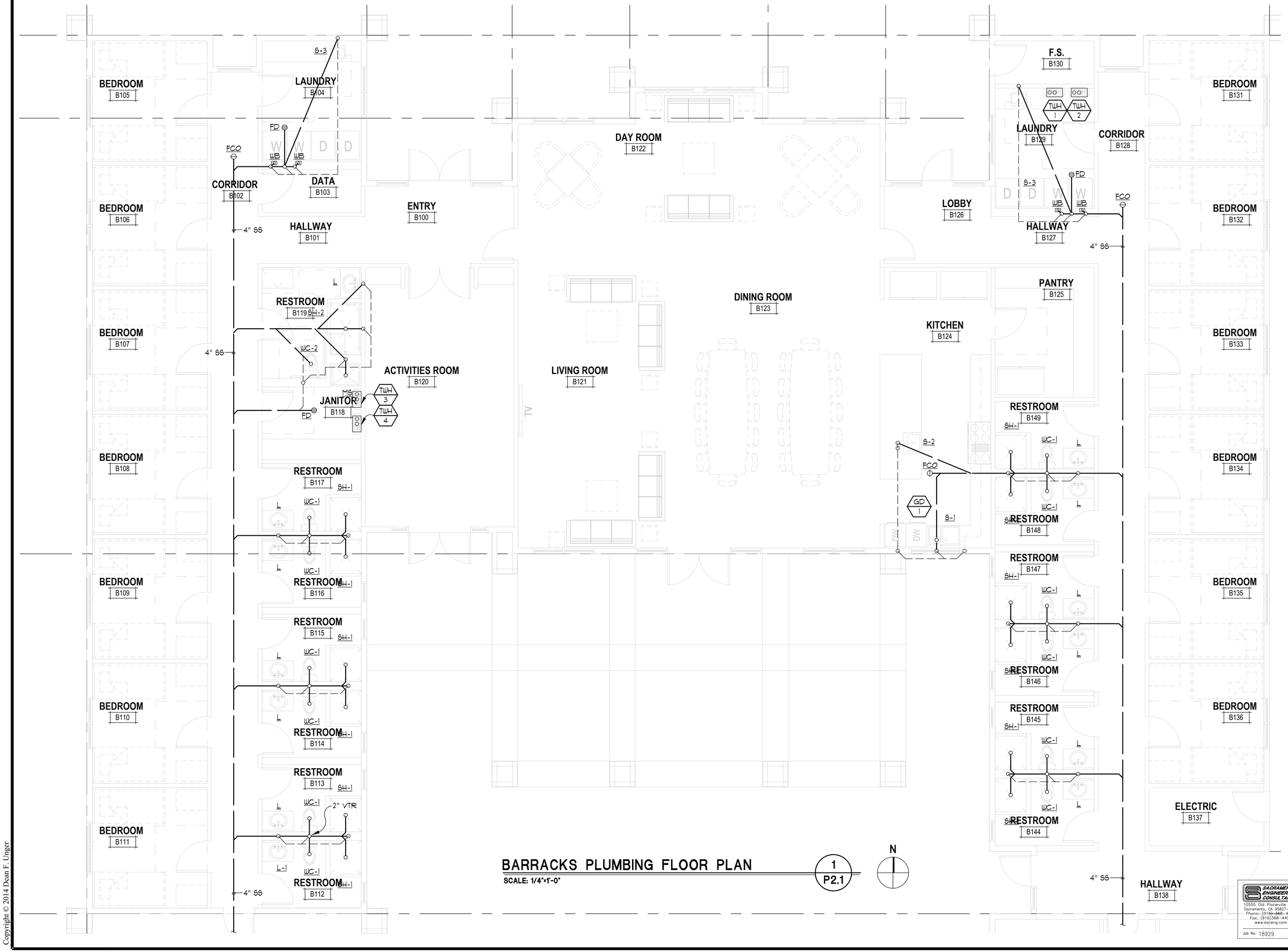
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LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER C. HENNESSY
No. M 029816
EXP. 6-30-2020
MECHANICAL
STATE OF CALIFORNIA
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BARRACKS PLUMBING FLOOR PLAN

1 / P2.1

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

N

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Real Estate Services Division
Judy Haavisto, Project Director II
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West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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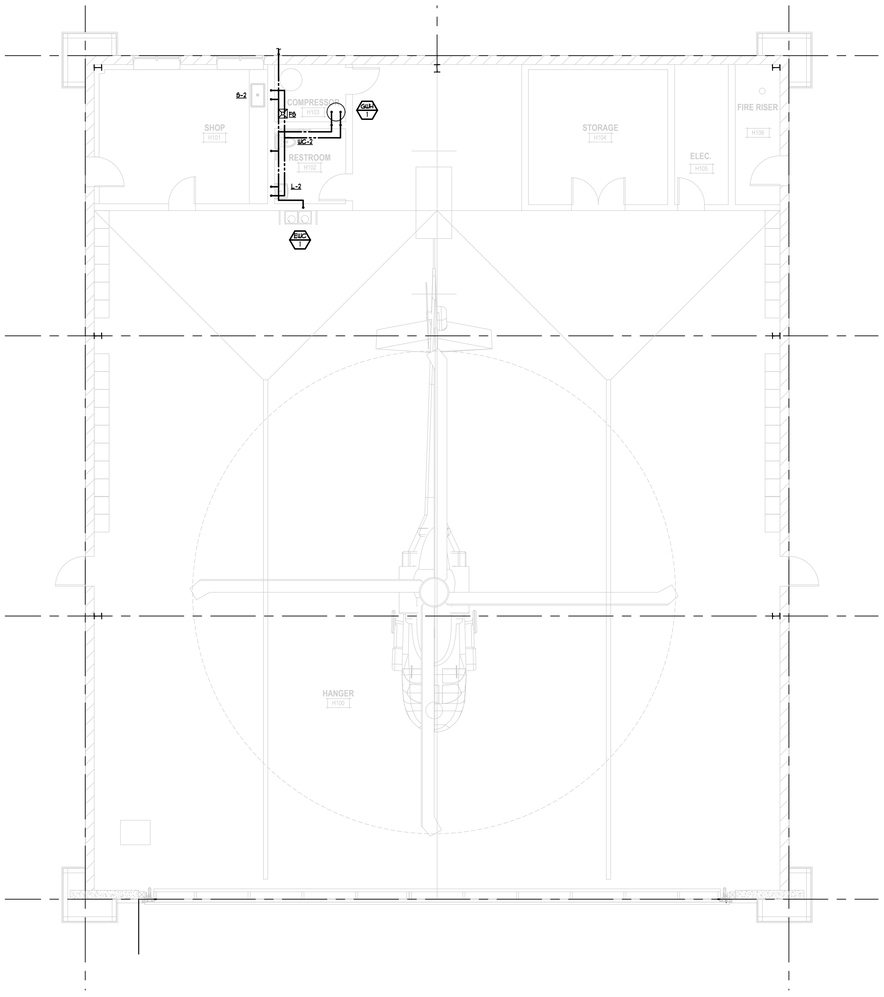
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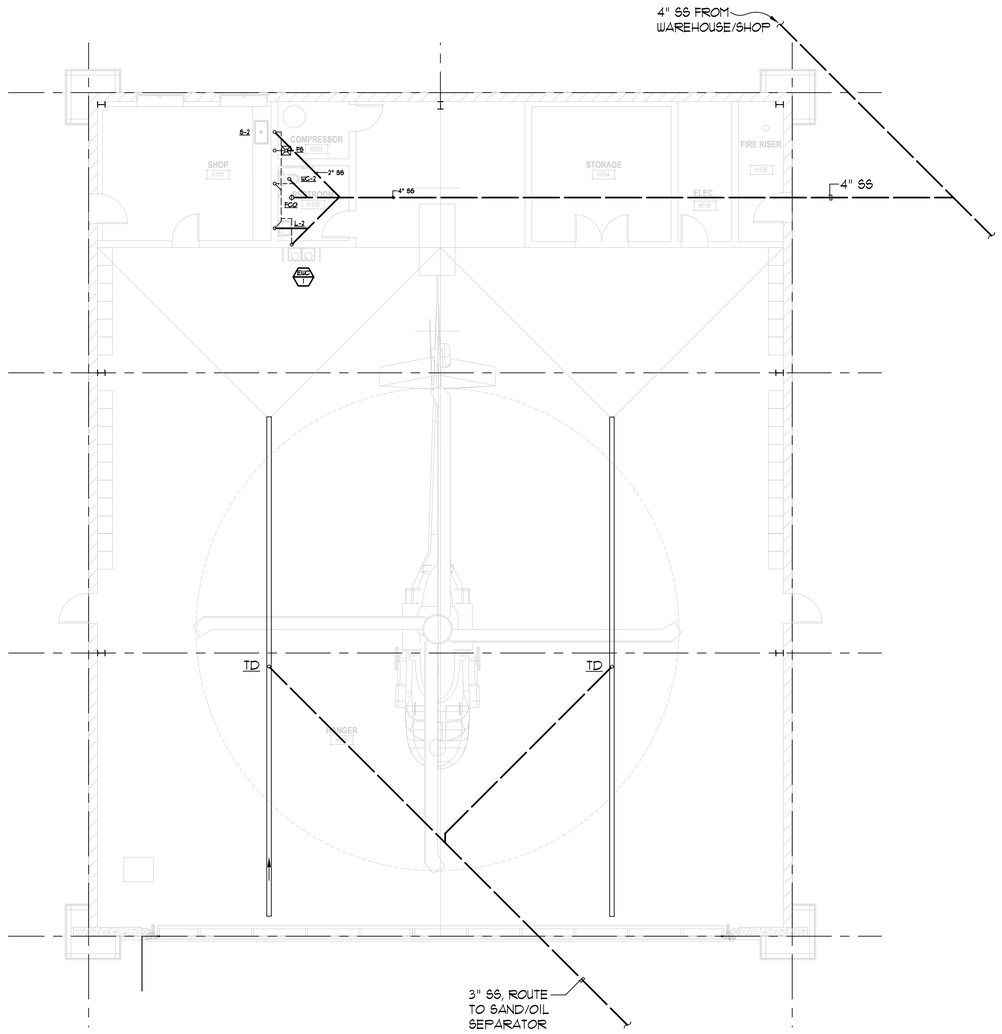
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EOR
REGISTERED PROFESSIONAL ENGINEER JESSE E. HOWE No. M-029816 EXP. 6-30-2020 MECHANICAL STATE OF CALIFORNIA
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HANGAR PLUMBING FLOOR PLAN

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

1 / P2.2

N

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Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
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PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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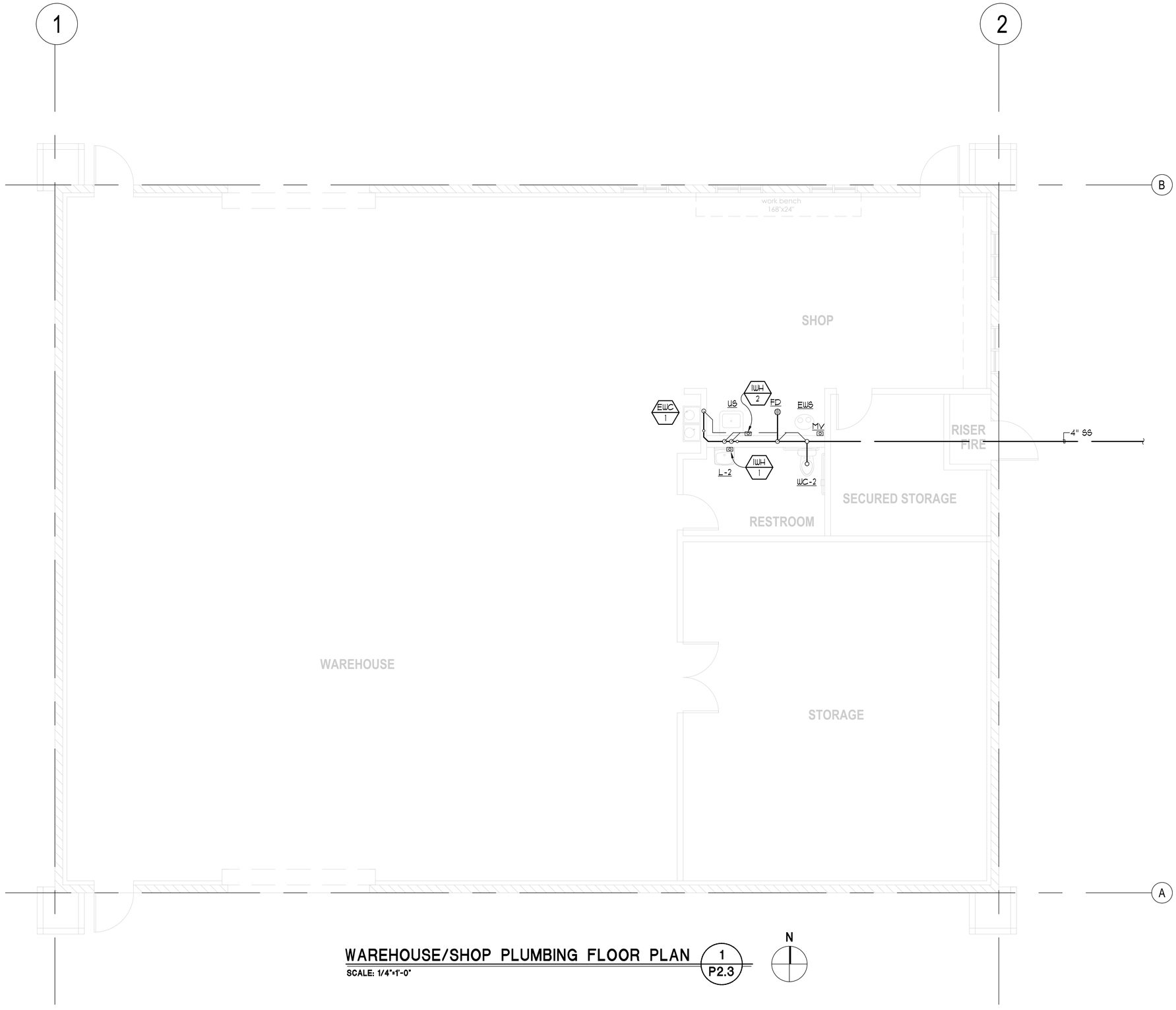
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NO. C15804
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STATE OF CALIFORNIA

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DAVID C. HOWARD
No. M-029816
EXP. 6-30-2020
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WAREHOUSE/SHOP PLUMBING FLOOR PLAN

1 / P2.3

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

N

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West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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PRADO HELITACK BASE
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CHINO, CA 91710

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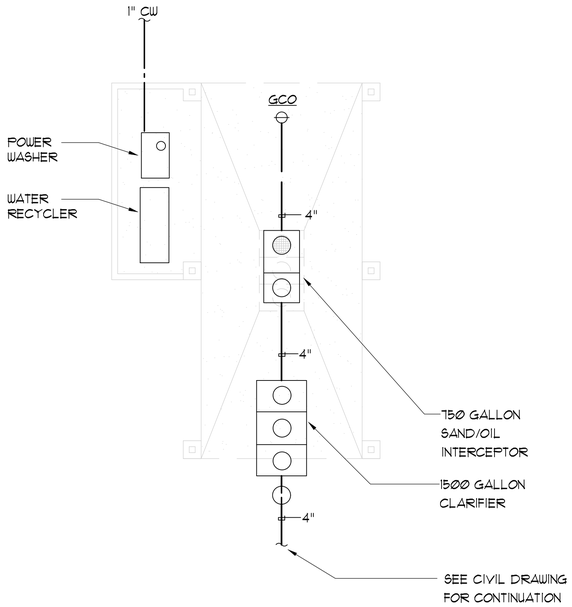
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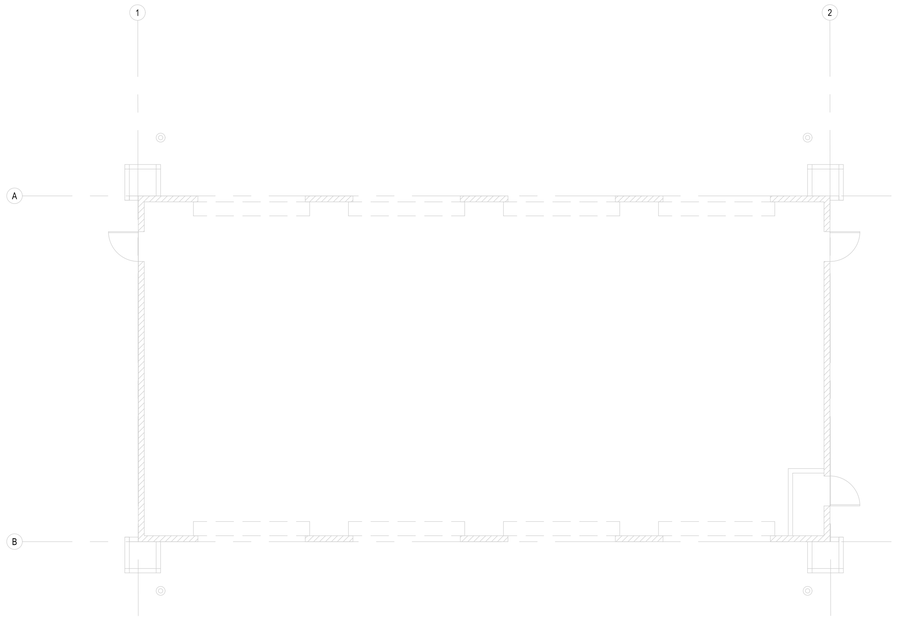
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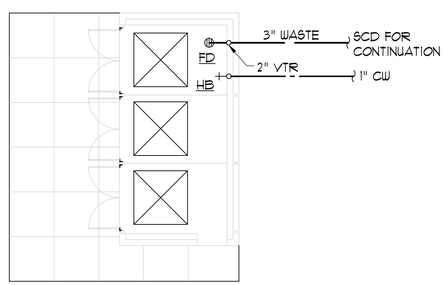




WASHRACK / GARAGE PLUMBING FLOOR PLAN

1 / P2.4

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



TRASH ENCLOSURE PLUMBING PLAN

2 / P2.4

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

N

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916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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PRADO HELITACK BASE
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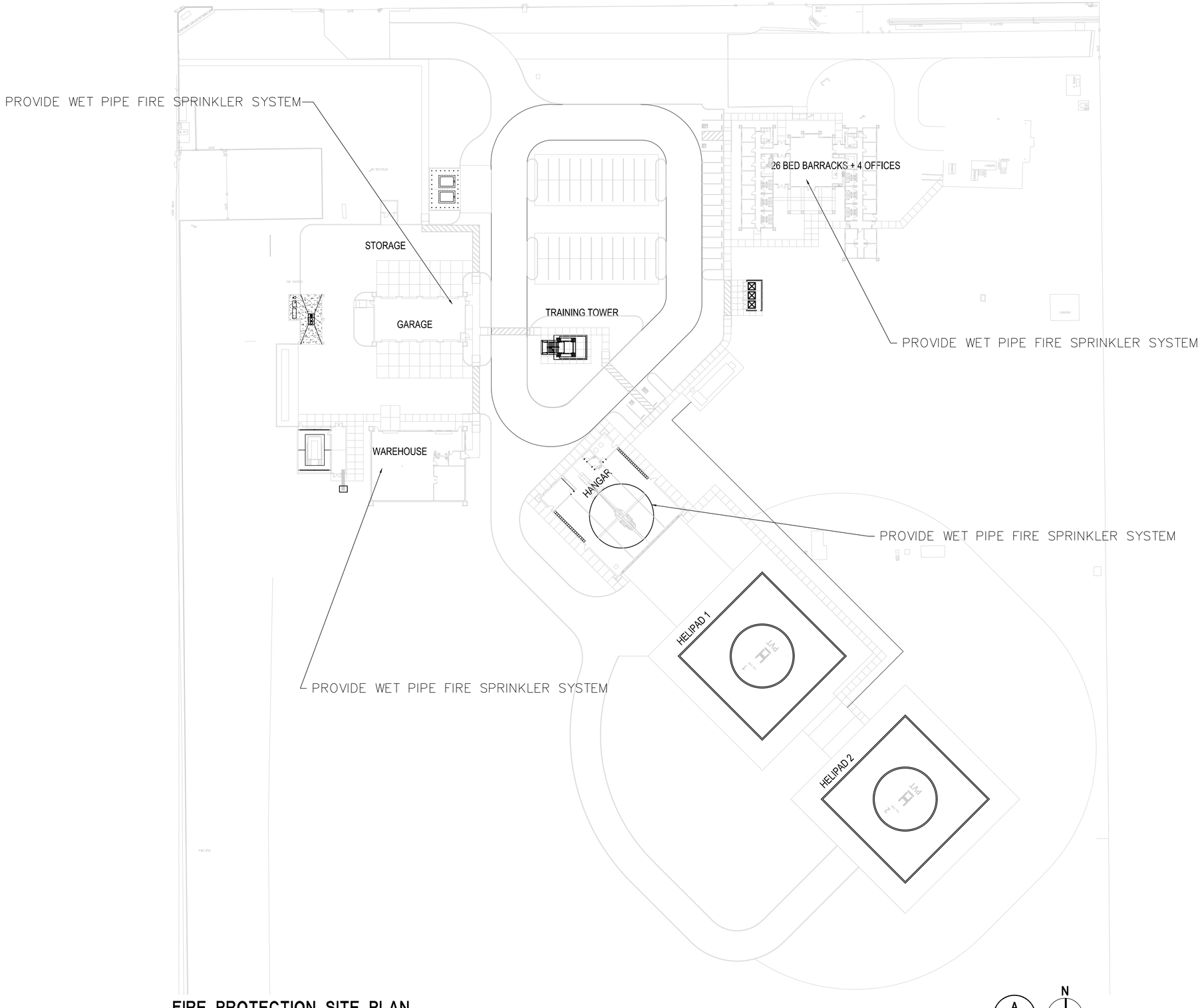
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Fax: (916)368-4490
www.saceng.com
Job No. 18929



FIRE PROTECTION SITE PLAN

SCALE: 1" = 40'-0"

A
FP1

N

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Sacramento, CA 95827-2503
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Fax: (916)368-4490
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Job No. 18929

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CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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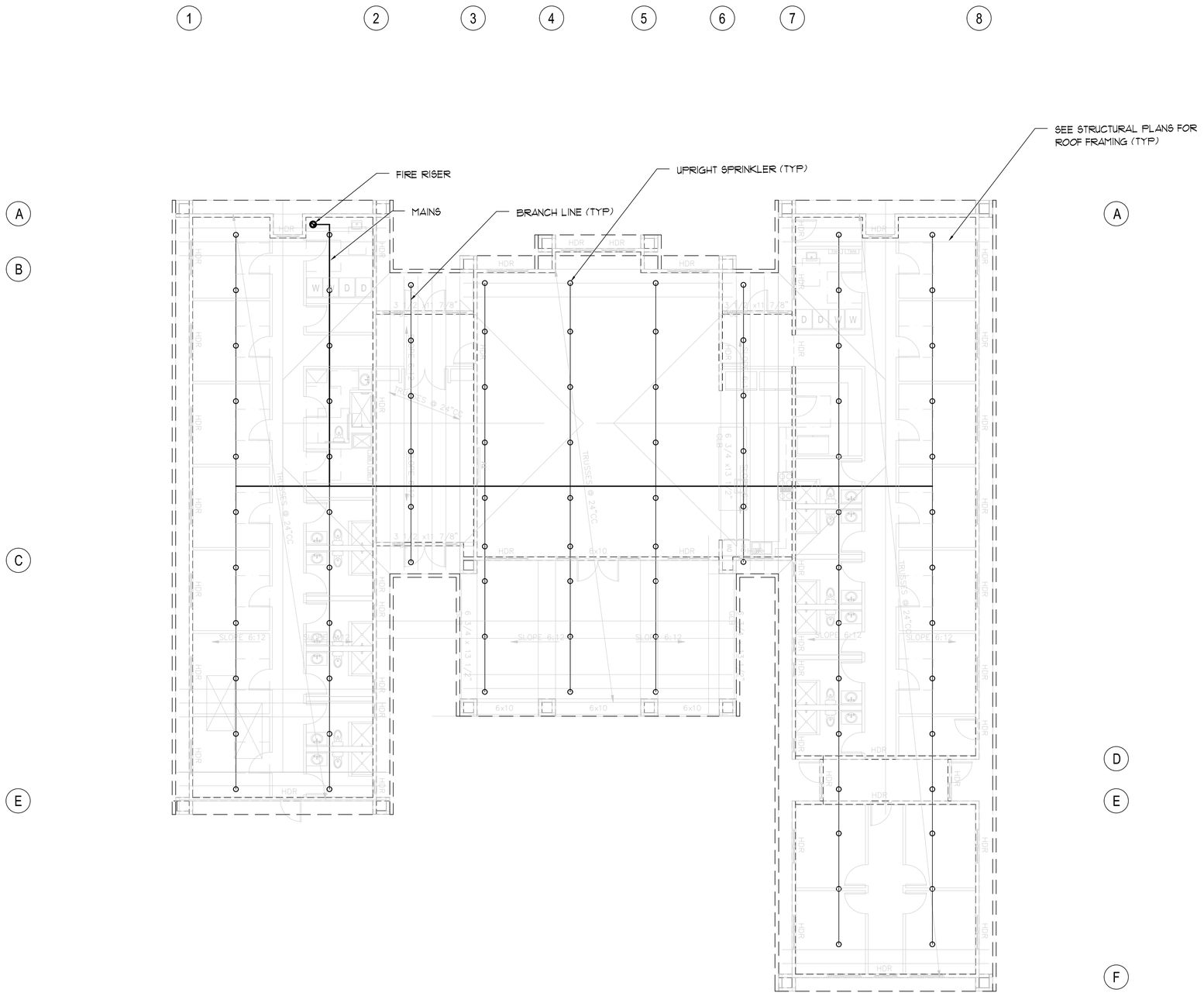
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NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER
JASON C. HOM
NO. ME-21808XE
EXP. 6-30-2020
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FIRE PROTECTION FLOOR PLAN BARRACKS

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

A
B-FP2.1

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Phone: (916) 368-4468
Fax: (916)368-4490
www.soceng.com
Job No. 18929

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CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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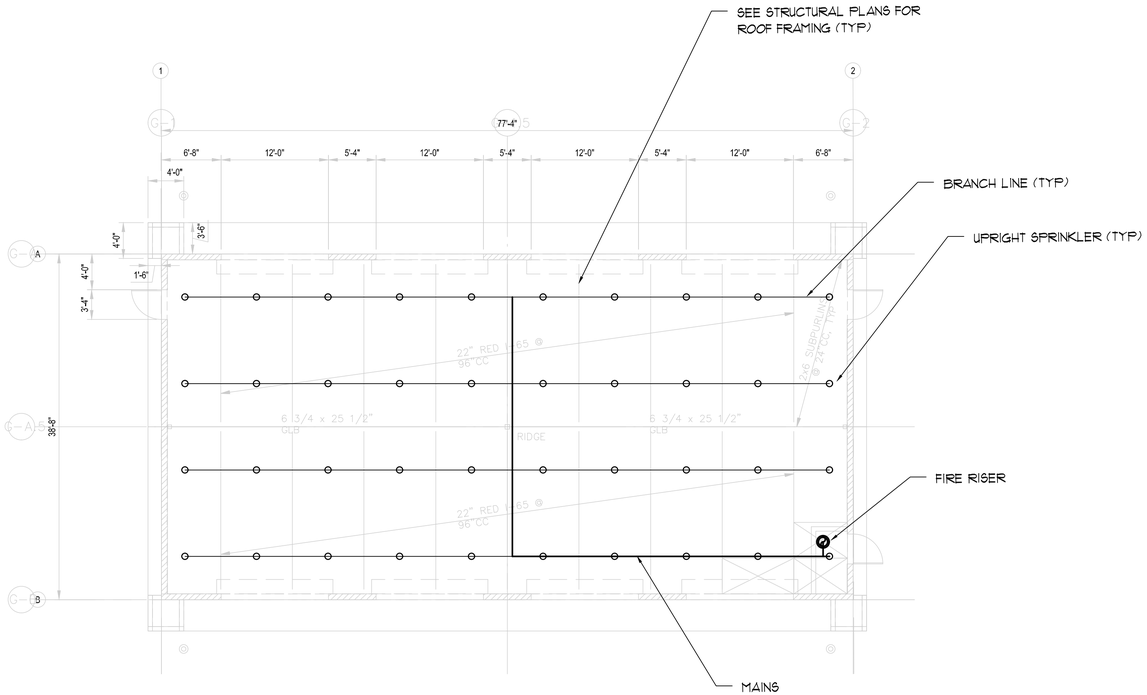
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NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR
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ROBERT C. HOWE
No. FPE-1497
EXP. 6-30-2021
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STATE OF CALIFORNIA

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FIRE PROTECTION FLOOR PLAN GARAGE

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

A
GA-FP2.1

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Fax: (916)368-4490
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Job No. 18929

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Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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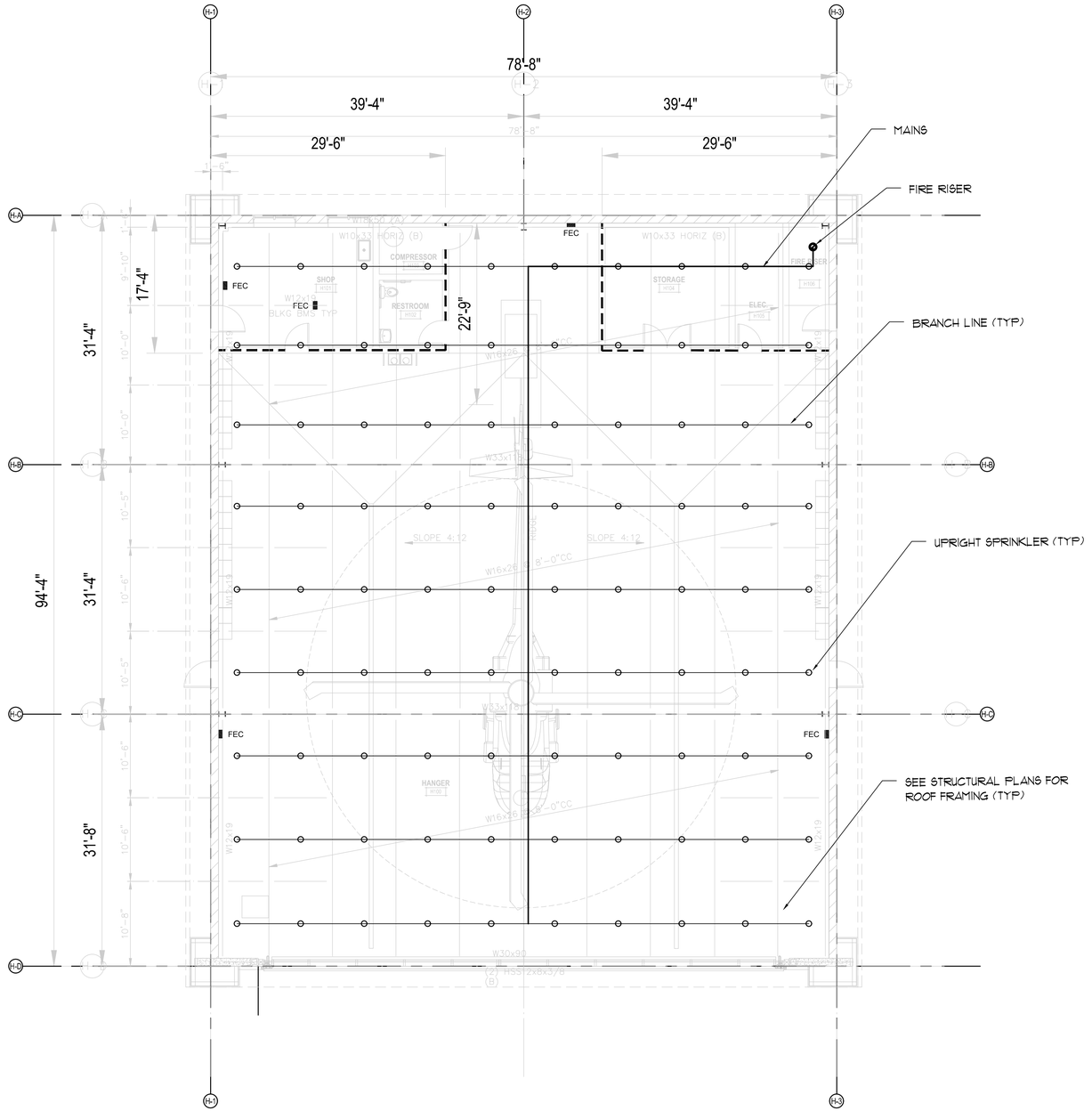
Reviewed by:_____

AOR
LICENSED ARCHITECT BRUCE F. UNGER NO. C15804 REN. 5-31-21 STATE OF CALIFORNIA

EOR
REGISTERED PROFESSIONAL ENGINEER JEFFREY C. HOWARD C.E. NO. FPE-1497 EXP. 6-30-2021 FIRE PROTECTION ENGINEER STATE OF CALIFORNIA
Date Signed:1/20/20

drawn by HB
checked by
job no. 2018-23
date 5-1-2019
cad file name GA-FP2.1.dwg
drawing no. GA-FP2.1
sheet title FIRE PROT FLR PLN
sheet no.
of sheets

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FIRE PROTECTION FLOOR PLAN HANGAR

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

A
H-FP2.1

N

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CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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JASON C. HENDRICKS
C.E. No. FPE-1497
EXP. 6-30-2021
FIRE PROTECTION ENGINEER
STATE OF CALIFORNIA

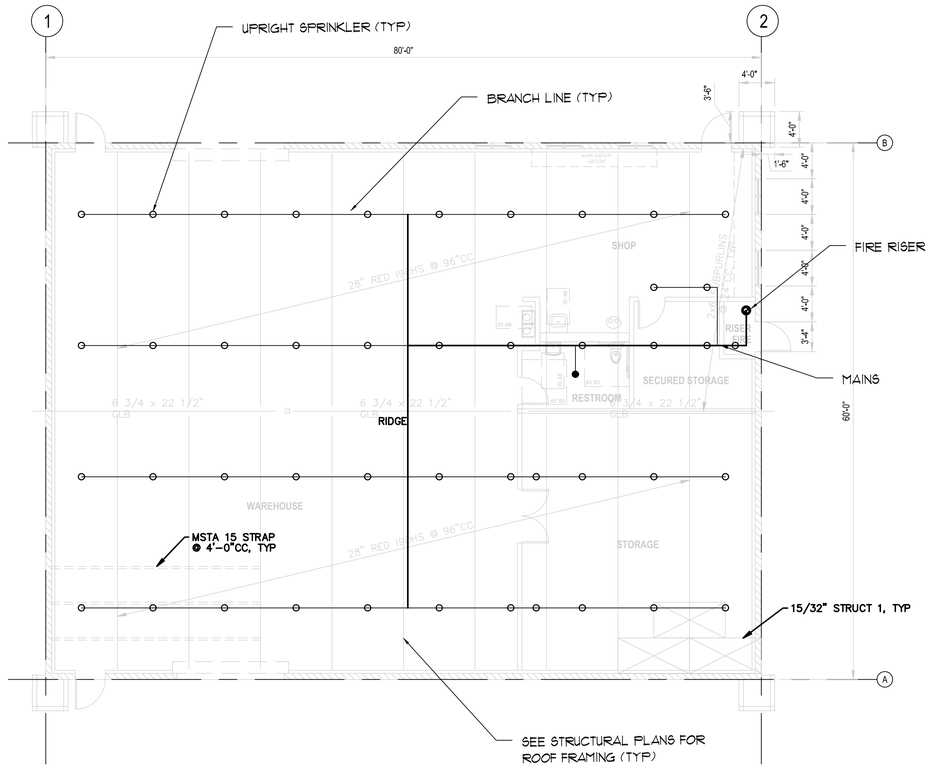
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SACRAMENTO ENGINEERING CONSULTANTS
10555 Old Placerville Road
Sacramento, CA 95827-2503
Phone: (916) 368-4468
Fax: (916)368-4490
www.saceng.com

Job No. 18929



FIRE PROTECTION FLOOR PLAN WAREHOUSE

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

A
W-FP2.1

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Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
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REGISTERED PROFESSIONAL ENGINEER
GREGORY C. HOMAN
NO. FPE-1497
EXP. 6-30-2021
FIRE PROTECTION ENGINEER
STATE OF CALIFORNIA
Date Signed:1/20/20

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Jan 21, 2020 - 12:18pm / jkropp

** UNDERGROUND DIGGING CAUTION **

USE EXTREME CAUTION WHEN DIGGING TO AVOID BURIED UTILITY CABLES, CONDUITS, AND PIPING. CALL "UNDERGROUND SERVICE ALERT" (U.S.A.):

1-800-642-2444

TWO WORKING DAYS BEFORE DIGGING TO VERIFY UNDERGROUND UTILITIES.

BUILDING NOTATION

B	= BARRACKS
E	= GENERATOR
G	= GARAGE
H	= HANGER
T	= TRAINING TOWER
W	= WAREHOUSE
WR	= WASH RACK

ABBREVIATIONS

A	AMPERES
AC	ALTERNATING CURRENT
A.F.F.	ABOVE FINISHED FLOOR
A.I.C.	AMPERE INTERRUPTING CAPACITY
AMP	AMPERE
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
C.	CONDUIT
C.B.	CIRCUIT BREAKER
CD	CANDELA
CKT	CIRCUIT
C.O.	CONDUIT ONLY, WITH PULL WIRE
C.T.	CURRENT TRANSFORMER
DC	DIRECT CURRENT
(E)	EXISTING
EL	EVENING LIGHT
EM	EMERGENCY
(ER)	EXISTING RELOCATED
EMT	ELECTRICAL METALLIC CONDUIT
(F)	FUTURE
FACP	FIRE ALARM CONTROL PANEL
FAPS	FIRE ALARM POWER SUPPLY
FATC	FIRE ALARM TERMINAL CABINET
GA.	GAUGE
GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HP	HORSEPOWER
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HZ.	HERTZ (CYCLES/SEC)
Isc	SHORT CIRCUIT AMPERES
ISO	ISOLATED
K	THOUSAND
KV	KILO VOLT
KVA	KILO VOLT AMPERE
KW	KILO WATT
KWH	KILO WATT HOUR
LT.	LIGHT
LV	LOW VOLTAGE
MAX.	MAXIMUM
MDF	MAIN DISTRIBUTION FRAME
MFR.	MANUFACTURER
MIN.	MINIMUM
MTD.	MOUNTED
N	NEUTRAL
(N)	NEW
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
N.I.C.	NOT IN CONTRACT
NL	NIGHT LIGHT
NM	NON-METALLIC CABLE
PFB	PROVISIONS FOR FUTURE CIRCUIT BREAKER
PH	PHASE
(R)	REMOVE
(RE)	RELOCATE EXISTING
RCPT.	RECEPTACLE
S.M.S	SHEET METAL SCREW
SWBD	SWITCHBOARD
SYS	SYSTEM
TV	TELEVISION
TYP.	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
V	VOLT
VA	VOLT-AMPERES
W	WIRE, WATT
WP	WEATHER PROTECTED
XFMR	TRANSFORMER

BRANCH CIRCUIT VOLTAGE DROP TABLE

VOLTAGE DROP VALUES NOT EXCEEDING 2% FOR FEEDERS HAVE BEEN SHOWN ON THE ONE LINE DIAGRAM. IN LIEU OF VOLTAGE DROP CALCULATIONS FOR EACH BRANCH CIRCUIT IN SCOPE OF WORK, THE GENERAL DESIGN STANDARD BELOW HAS BEEN FOLLOWED TO ENSURE A VOLTAGE DROP OF 3% IS NOT EXCEEDED. WHERE THE CIRCUIT LOAD OR CIRCUIT LENGTH LISTED HAS BEEN EXCEEDED, A DETAILED VOLTAGE DROP CALCULATION FOR THAT CIRCUIT HAS BEEN PROVIDED WITH THE TITLE 24 COMPLIANCE DOCUMENTATION.

VOLTAGE	MAXIMUM CIRCUIT LOAD FOR 20 AMP CIRCUIT BREAKER	CONDUCTOR SIZE	MAXIMUM BRANCH CIRCUIT LENGTH
120 VOLT	9 AMPS (1.08 KVA)	#8 AWG	285 FEET
		#10 AWG	180 FEET
		#12 AWG	115 FEET
	12 AMPS (1.44 KVA)	#8 AWG	210 FEET
		#10 AWG	135 FEET
		#12 AWG	85 FEET
	16 AMPS (1.92 KVA)	#8 AWG	130 FEET
		#10 AWG	85 FEET
		#12 AWG	55 FEET
208 VOLT	9 AMPS (1.87 KVA)	#8 AWG	440 FEET
		#10 AWG	285 FEET
		#12 AWG	170 FEET
	12 AMPS (2.49 KVA)	#8 AWG	330 FEET
		#10 AWG	215 FEET
		#12 AWG	130 FEET
	16 AMPS (3.33 KVA)	#8 AWG	250 FEET
		#10 AWG	160 FEET
		#12 AWG	95 FEET
277 VOLT	9 AMPS (2.49 KVA)	#8 AWG	660 FEET
		#10 AWG	420 FEET
		#12 AWG	270 FEET
	12 AMPS (3.32 KVA)	#8 AWG	495 FEET
		#10 AWG	315 FEET
		#12 AWG	200 FEET
	16 AMPS (4.43 KVA)	#8 AWG	370 FEET
		#10 AWG	235 FEET
		#12 AWG	150 FEET
480 VOLT	9 AMPS (2.49 KVA)	#8 AWG	1320 FEET
		#10 AWG	840 FEET
		#12 AWG	540 FEET
	12 AMPS (3.32 KVA)	#8 AWG	980 FEET
		#10 AWG	620 FEET
		#12 AWG	400 FEET
	16 AMPS (4.43 KVA)	#8 AWG	740 FEET
		#10 AWG	460 FEET
		#12 AWG	300 FEET

APPLICABLE CODES AND REGULATIONS

2019	CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR)
2019	CALIFORNIA GREEN BUILDING STANDARDS CODE - PART 11, TITLE 24
2018	IBC AND 2019 CALIFORNIA AMENDMENTS (2016 CALIFORNIA BUILDING CODE - PART 2, TITLE 24, CCR)
2017	NEC AND 2019 CALIFORNIA AMENDMENTS (2016 CALIFORNIA ELECTRICAL CODE - PART 3, TITLE 24, CCR)
2018	UMC AND 2019 CALIFORNIA AMENDMENTS (2016 CALIFORNIA MECHANICAL CODE - PART 4, TITLE 24, CCR)
2018	UPC AND 2019 CALIFORNIA AMENDMENTS (2016 CALIFORNIA PLUMBING CODE - PART 5, TITLE 24, CCR)
2018	IFC AND 2019 CALIFORNIA AMENDMENTS (2016 CALIFORNIA FIRE CODE - PART 9, TITLE 24, CCR)
2018	N.F.P.A. 101 LIFE SAFETY CODE
2019	N.F.P.A. 72 FIRE ALARM CODE
2019	EDITION TITLE 19, CALIFORNIA CODE OF REGULATIONS, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.
	TITLE 8, CALIFORNIA CODE OF REGULATIONS, INDUSTRIAL STANDARDS.
	TITLE 22, CALIFORNIA CODE OF REGULATIONS, SOCIAL SECURITY DIVISIONS 5, 7.
	OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
	FACTORY MUTUAL SYSTEM (FM) REQUIREMENTS.
	ALL APPLICABLE STATE AND LOCAL CODES AND REGULATIONS

ELECTRICAL SHEET INDEX

No. OF SHEETS	DRAWING No.	DRAWING DESCRIPTIONS
1	E0.01	ELECTRICAL SHEET INDEX
2	E0.02	ELECTRICAL SYMBOL LIST
3	E1.00	OVERALL SITE PLAN - ELECTRICAL
4	E1.10-N	SITE PLAN NORTH - LIGHTING
5	E1.10-S	SITE PLAN SOUTH - LIGHTING
6	E1.20-N	SITE PLAN NORTH - POWER AND SIGNAL
7	E1.20-S	SITE PLAN SOUTH - POWER AND SIGNAL
8	E2.B.1	BARRACKS FLOOR PLAN - LIGHTING
9	E2.B.21	BARRACKS FLOOR PLAN - POWER AND SIGNAL
10	E2.B.22	BARRACKS FLOOR PLAN - MECHANICAL POWER
11	E2.B.3	BARRACKS FLOOR PLAN - SECURITY
12	E2.E.1	GENERATOR FLOOR PLAN - LIGHTING
13	E2.E.21	GENERATOR FLOOR PLAN - POWER AND SIGNAL
14	E2.E.22	GENERATOR FLOOR PLAN - MECHANICAL POWER
15	E2.E.3	GENERATOR FLOOR PLAN - SECURITY
16	E2.H.1	HANGAR FLOOR PLAN - LIGHTING
17	E2.H.21	HANGAR FLOOR PLAN - POWER AND SIGNAL
18	E2.H.22	HANGAR FLOOR PLAN - MECHANICAL POWER
19	E2.H.3	HANGAR FLOOR PLAN - SECURITY
20	E2.G.1	GARAGE FLOOR PLANS - ELECTRICAL
21	E2.T.1	TOWER / HOIST FLOOR PLANS - ELECTRICAL
22	E2.W.1	WAREHOUSE FLOOR PLANS - ELECTRICAL
23	E2.WR.1	WASH RACK, STORAGE, & TRASH FLOOR PLANS - ELECTRICAL
24	E3.01	ONE LINE POWER DIAGRAM AND LOAD CALCULATIONS
25	E3.02	ONE LINE POWER DIAGRAM

M. NEILS ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410

PROJECT #: 19068.21

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
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EOR

drawn by	WP/JLB
checked by	JUB
job no.	2018-23
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of	sheets

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Jan 21, 2020 - 11:44am / jkrop

ELECTRICAL SYMBOL LIST

- LUMINAIRE - CEILING SURFACE OR PENDANT MOUNTED (LETTER "a" DENOTES SWITCH FUNCTION, NUMBER "2" DENOTES CIRCUIT NUMBER - TYPICAL FOR ALL LUMINAIRES UNLESS NOTED OTHERWISE).
- ROUND DISC LUMINAIRE - CEILING CABLE OR PENDANT
- LUMINAIRE - WALL MOUNTED
- LUMINAIRE - CEILING RECESSED
- WALL MOUNTED EXIT LUMINAIRE. ARROW SIGNIFIES DIRECTION, TYPICAL.
- CEILING OR PENDANT MOUNTED EXIT LUMINAIRE. ARROW SIGNIFIES DIRECTION, TYPICAL.
- CEILING OR PENDANT MOUNTED EXIT LUMINAIRE.
- OPEN TUBE FLUORESCENT LUMINAIRE - CEILING SURFACE OR SUSPENDED
- ENCLOSED LUMINAIRE - SURFACE MOUNTED
- ENCLOSED LUMINAIRE - CEILING LAY-IN
- ENCLOSED LUMINAIRE - CEILING RECESSED
- EMERGENCY ENCLOSED LUMINAIRE
- BATTERY PACK EMERGENCY LIGHT FIXTURE - WALL MOUNTED
- BOLLARD LUMINAIRE, WITH BASE
- ONE-ARM BRACKET LUMINAIRE, WITH POLE AND BASE
- TWO-ARM BRACKET LUMINAIRE, 90 DEGREE ANGLE, WITH POLE AND BASE
- TWO-ARM BRACKET LUMINAIRE, 180 DEGREE ANGLE, WITH POLE AND BASE
- FOUR-ARM BRACKET LUMINAIRE, WITH POLE AND BASE
- A / 2/32 — LUMINAIRE DESIGNATION WITH LAMP QUANTITY AND WATTAGE. SEE LUMINAIRE SCHEDULE.
- SINGLE POLE TOGGLE SWITCH, +45" A.F.F. - "a" LETTER DENOTES SWITCH FUNCTION, TYPICAL FOR ALL SWITCHES UNLESS NOTED OTHERWISE
- DOUBLE POLE TOGGLE SWITCH
- THREE-WAY TOGGLE SWITCH
- FOUR-WAY TOGGLE SWITCH
- DIMMER SWITCH - SIZE AS NOTED ON PLAN
- OCCUPANCY SENSOR SWITCH WITH MANUAL OVERRIDE - WALL MOUNTED AT +45" A.F.F. UNLESS NOTED OTHERWISE
- BI-LEVEL OCCUPANCY SENSOR SWITCH WITH 2 MANUAL OVERRIDE SWITCHES - WALL MOUNTED AT +45" A.F.F. UNLESS NOTED OTHERWISE
- OCCUPANCY AREA SENSOR SWITCH - CEILING MOUNTED
- OCCUPANCY SENSOR SWITCH POWER PACK AND OUTLET BOX - MOUNTED IN ACCESSIBLE CEILING AREA, UNLESS NOTED OTHERWISE
- (J) JUNCTION BOX - SIZE AS REQUIRED BY CODE
- DUPLEX CONVENIENCE OUTLET - NEMA 5-20R +18" A.F.F. TYPICAL FOR ALL CONVENIENCE OUTLETS, UNLESS NOTED OTHERWISE (LETTER "A" SHOWN ADJACENT TO OUTLET DESIGNATES MOUNTED HORIZONTALLY ABOVE COUNTER).
- ISOLATED GROUND CONVENIENCE OUTLET - NEMA 5-20R
- QUADPLEX CONVENIENCE OUTLET - NEMA 5-20R
- ISOLATED GROUND QUADPLEX CONVENIENCE OUTLET - NEMA 5-20R
- CEILING MOUNTED DUPLEX RECEPTACLE
- SPECIAL RECEPTACLE AS SHOWN ON PLANS
- TELEPHONE OUTLET - FLUSH IN WALL +18" A.F.F. STUB ONE 3/4" CONDUIT WITH BUSHING AT THE END AND PULL ROPE INTO ACCESSIBLE CEILING AREA.
- W — WALL TELEPHONE OUTLET - FLUSH IN WALL, +45" A.F.F. STUB ONE 3/4" CONDUIT WITH BUSHING AND PULL ROPE INTO ACCESSIBLE CEILING AREA.
- COMBINATION TELE/DATA OUTLET FLUSH IN WALL +18" A.F.F., 4-11/16" SQUARE BOX, 2-1/8" DEEP WITH 2 DEVICE RING AND PLATE (TOP HALF DEVICE FOR TELEPHONE, BOTTOM HALF DEVICE FOR DATA). STUB ONE 1" CONDUIT WITH BUSHING AT THE END OF CONDUIT AND A PULL ROPE INTO ACCESSIBLE CEILING AREA.
- (2) — DATA OUTLET - FLUSH IN WALL +18" A.F.F. NUMBER IN PARENTHESIS INDICATES NUMBER OF DATA JACKS. STUB ONE 1" CONDUIT WITH BUSHING AT THE END AND PULL ROPE INTO ACCESSIBLE CEILING AREA.
- IN-FLOOR MULTI-SERVICE BOX WITH FLUSH ACCESSIBLE LID, 2 DUPLEX RECEPTACLES (POWER), TELEPHONE AND DATA OUTLETS. REFER TO PLAN FOR SPECIFIC REQUIREMENTS.
- COMBINATION TELE/DATA OUTLET, CEILING MOUNTED 4-11/16" SQUARE BOX, 2-1/8" DEEP WITH 2 DEVICE RING AND COVER PLATE FOR MULTI JACK TERMINATION.
- (S) SPEAKER - CEILING MOUNTED
- SPEAKER - WALL MOUNTED +72" A.F.F. PROVIDE 1/2" CONDUIT STUB. SEE NOTE 4.
- SPEAKER WITH PUSH-BUTTON - WALL MOUNTED +72" A.F.F. PROVIDE 1/2" CONDUIT STUB. SEE NOTE 4.
- VC — P.A./SPEAKER REMOTE VOLUME CONTROL - WALL MOUNTED +45" A.F.F. PROVIDE 1/2" CONDUIT STUB. SEE NOTE 4.
- M — P.A. SYSTEM MICROPHONE OUTLET. PROVIDE 3/4" CONDUIT STUB. SEE NOTE 4.
- PB — MOMENTARY PUSH BUTTON SWITCH AND OUTLET BOX MOUNTED + 45" A.F.F. UNLESS NOTED. PROVIDE 1/2" CONDUIT STUB. SEE NOTE 4.
- PP — AUTO DOOR PUSH PLATE TOUCHLESS INFRARED
- CR — MAGNETIC CARD ACCESS READER AND OUTLET BOX MOUNTED AT 45" A.F.F. UNLESS NOTED. PROVIDE 1/2" CONDUIT STUB. SEE NOTE 4.
- IC — INTERCOM - PROVIDE BACKBOX AND CONDUIT RISER PER MANUFACTURER'S REQUIREMENTS.
- K — SECURITY SYSTEM KEYPAD AND OUTLET BOX +45" A.F.F. UNLESS NOTED. PROVIDE 3/4" CONDUIT STUB. SEE NOTE 4.
- SECURITY SYSTEM ELECTRONIC DOOR STRIKE. PROVIDE 1/2" CONDUIT STUB. SEE NOTE 4.
- SECURITY SYSTEM DOOR OR WINDOW CONTACT. PROVIDE 1/2" CONDUIT STUB. SEE NOTE 4.

- REX — REQUEST TO EXIT
- SECURITY SYSTEM MOTION SENSOR - CEILING MOUNTED
- SECURITY SYSTEM MOTION SENSOR - WALL MOUNTED AT 6" BELOW CEILING. ARROW SIGNIFIES AIMING DIRECTION.
- SECURITY CCTV CAMERA
- SECURITY CCTV CAMERA - CEILING MOUNTED
- MSC — MAIN SECURITY CONSOLE
- CEILING FAN WITH LIGHT
- CEILING FAN
- CONDUIT RUN CONCEALED IN CEILINGS OR WALLS. NUMBER OF HASH MARKS DENOTES QUANTITY OF WIRES. CURVED HASH MARK DENOTES QUANTITY OF #12 GREEN GROUND WIRES. CONDUCTORS OTHER THAN #12 ARE INDICATED ON PLANS. NO HASH MARKS DENOTES 2 #12 AWG AND 1 #12 GREEN GROUND IN 1/2" CONDUIT. TYPICAL FOR ALL CONDUITS.
- FLEXIBLE CONDUIT CONCEALED. NUMBER OF HASH MARKS DENOTES QUANTITY OF WIRES. CURVED HASH MARK DENOTES QUANTITY OF #12 GREEN GROUND WIRES. CONDUCTORS OTHER THAN #12 ARE INDICATED ON PLANS. NO HASH MARKS DENOTES 2 #12 AWG AND 1 #12 GREEN GROUND IN 1/2" MINIMUM DIAMETER CONDUIT.
- CONDUIT RUN UNDERFLOOR OR UNDERGROUND MINIMUM 1" DIAMETER.
- CONDUIT HOMERUN TO PANELBOARD, SWITCHBOARD OR TERMINAL CABINET
- CONDUIT TURNED AND RISED UP
- CONDUIT TURNED AND DROPPED DOWN
- CONDUIT WITH CAP
- CONDUIT STUB WITH INSULATED BUSHING
- EXISTING CONDUIT AND WIRING
- EXISTING CONDUIT TO BE REMOVED OR ABANDONED, REMOVE WIRES. COORDINATE WITH OWNER.
- PANELBOARD - SURFACE MOUNTED
- PANELBOARD - FLUSH MOUNTED
- EXISTING PANELBOARD - SURFACE MOUNTED
- EXISTING PANELBOARD - FLUSH MOUNTED
- TERMINAL CABINET
- SWITCHBOARD, DISTRIBUTION PANEL, OR MOTOR CONTROL CENTER
- EQUIPMENT DISCONNECT SWITCH - EXTERNALLY OPERATED, FUSED WITH FUSE SIZE INDICATED
- EQUIPMENT DISCONNECT SWITCH - EXTERNALLY OPERATED, NON-FUSIBLE
- EQUIPMENT CONTROLLER
- $_{OL} — TOGGLE TYPE MOTOR RATED DISCONNECT SWITCH WITH OVERLOAD PROTECTION
- EQUIPMENT MOTOR POWER CONNECTIONS PART OF ELECTRICAL WORK
- T — TRANSFORMER
- EQ / 1 — MECHANICAL EQUIPMENT DESIGNATION - SEE MECHANICAL PLANS
- 1 — DRAWING SHEET NUMBERED NOTE DESIGNATION - APPLIES TO NUMBERED NOTE ON SAME SHEET
- 123 — ROOM NUMBER DESIGNATION
- 1 — DRAWING PLAN OR DETAIL DESIGNATION - "1" OR "A" DENOTES PLAN OR DETAIL NUMBER, "E-1" DENOTES SHEET NUMBER

SYMBOL LIST NOTES:

1. EXISTING ELECTRICAL EQUIPMENT, OUTLETS, AND DEVICES ARE SHOWN THE SAME AS NEW, EXCEPT LIGHTLY AND ACCOMPANIED BY (E). SUCH ELECTRICAL EQUIPMENT, OUTLETS, AND DEVICES ARE TO REMAIN AS IS, UNLESS OTHERWISE NOTED ON PLAN OR SPECIFICATION.
2. ELECTRICAL OUTLET BOXES MOUNTED ON OPPOSITE SIDES OF FIRE-RATED WALLS OR PARTITIONS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES PER CBC 2019, WHETHER SHOWN ON THE PLANS OR NOT.
3. VERIFY ON SITE THAT ALL PANELBOARDS HAVE MINIMUM WORKING SPACES PER CODE AND THAT THE DEDICATED PANELBOARD SPACES ARE CLEAR OF ALL DUCTS, PIPING AND EQUIPMENT FOREIGN TO THE PANEL BOARDS. NOTIFY THE ENGINEER FOR CORRECTIVE ACTION IN THE EVENT THAT FOREIGN OBJECTS IMPEDE THE DEDICATED PANELBOARD AREAS.
4. WHERE CONDUIT STUB IS INDICATED, PROVIDE CONDUIT WITH BUSHING AT THE END OF CONDUIT AND PULL ROPE INTO ACCESSIBLE CEILING AREA.

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER / CATALOG NO.	VOLTAGE / DESCRIPTION	LIGHT SOURCE (LED, WATTS, LUMENS, COLOR TEMPERATURE, CRI, R9 IF AVAILABLE)	MOUNTING	REMARK NOTE No.
A1	~ / ~	277 VOLT / AREA LUMINAIRE, (1) HEAD CONFIGURATION	LED	30 FEET POLE MOUNTED	1 2
A2	~ / ~	277 VOLT / AREA LUMINAIRE, (2) HEAD CONFIGURATION	LED	30 FEET POLE MOUNTED	1 2
B1	~ / ~	277 VOLT / BOLLARD	LED	~	2 3
C1	~ / ~	277 VOLT / CANOPY LIGHT	LED	SURFACE MOUNTED	3 4
D1	~ / ~	277 VOLT / SURFACE LIGHT	LED	SURFACE MOUNTED	3 4
EP1	~ / ~	277 VOLT / EXPLOSION PROOF LIGHT	LED	WALL MOUNTED	5
F1	~ / ~	277 VOLT / 8FT STRIP LIGHT	LED	SURFACE MOUNTED	
F2	BIG ASS FANS / HAIKU L	120 VOLT / FAN CEILING	LED	SURFACE MOUNTED	
F4	~ / ~	277 VOLT / 4FT STRIP LIGHT	LED	SURFACE MOUNTED	
F8	~ / ~	277 VOLT / 8FT STRIP LIGHT	LED	SURFACE MOUNTED	
W	~ / ~	/ WALL SCONCE	~	~	
WE	~ / ~	277 VOLT /	~	~	1
EM	WILLIAMS / EMER / DECO - DBR	UNIV. / EMERGENCY LIGHT	LED, 2.8, 3500K°, MIN. 90CRI	WALL MOUNTED	
X	WILLIAMS / EXIT / CA - G - AF - WHT - EM	UNIV. / EXIT LIGHT	LED, 3.6	UNIVERSAL MOUNT	

LUMINAIRE SCHEDULE REMARK NOTES:

1. PROVIDE WITH ROUND STRAIGHT ALUMINUM POLE.
2. PROVIDE WITH INTEGRAL PHOTOCELL.
3. PROVIDE WITH INTEGRAL MOTION SENSOR.
4. PROVIDE WET LISTED FIXTURE.
5. PROVIDE CLASS 1, DIVISION 1 PROOF FIXTURE.
6. PROVIDE WITH SELF TESTING, SELF DIAGNOSTIC BATTERY PACK TO MAINTAIN ILLUMINATION FOR A MINIMUM OF 90 MINUTES TO PROVIDE FULL LUMEN OUTPUT FOR ONE LAMP MINIMUM, WHERE INDICATED AS EM.

GENERAL NOTE:

REFER TO PLAN FOR LOCATION, QUANTITIES, AND SWITCH FUNCTION.

TITLE 24 PART 6 ROLES AND RESPONSIBILITIES

	M. NEILS ENGINEERING, INC.	ELECTRICAL CONTRACTOR	ATTCP*
CERTIFICATION OF COMPLIANCE DOCUMENTS (NRCC DOCUMENTS)	X		
SUBMIT TO ONLINE DATA REGISTRY		X	
CERTIFICATION OF INSTALLATION DOCUMENTS (NRCI DOCUMENTS)		X	
SUBMIT TO ONLINE DATA REGISTRY		X	
CERTIFICATION OF ACCEPTANCE DOCUMENTS (NRCA DOCUMENTS)			X
SUBMIT TO ONLINE DATA REGISTRY		X OR	X

* ACCEPTANCE TEST TECHNICIAN CERTIFICATION PROVIDER (ATTCP)

M. NEILS ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410

PROJECT #: 19068.21

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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APPL.# 04- XXXXXX

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Reviewed by:_____

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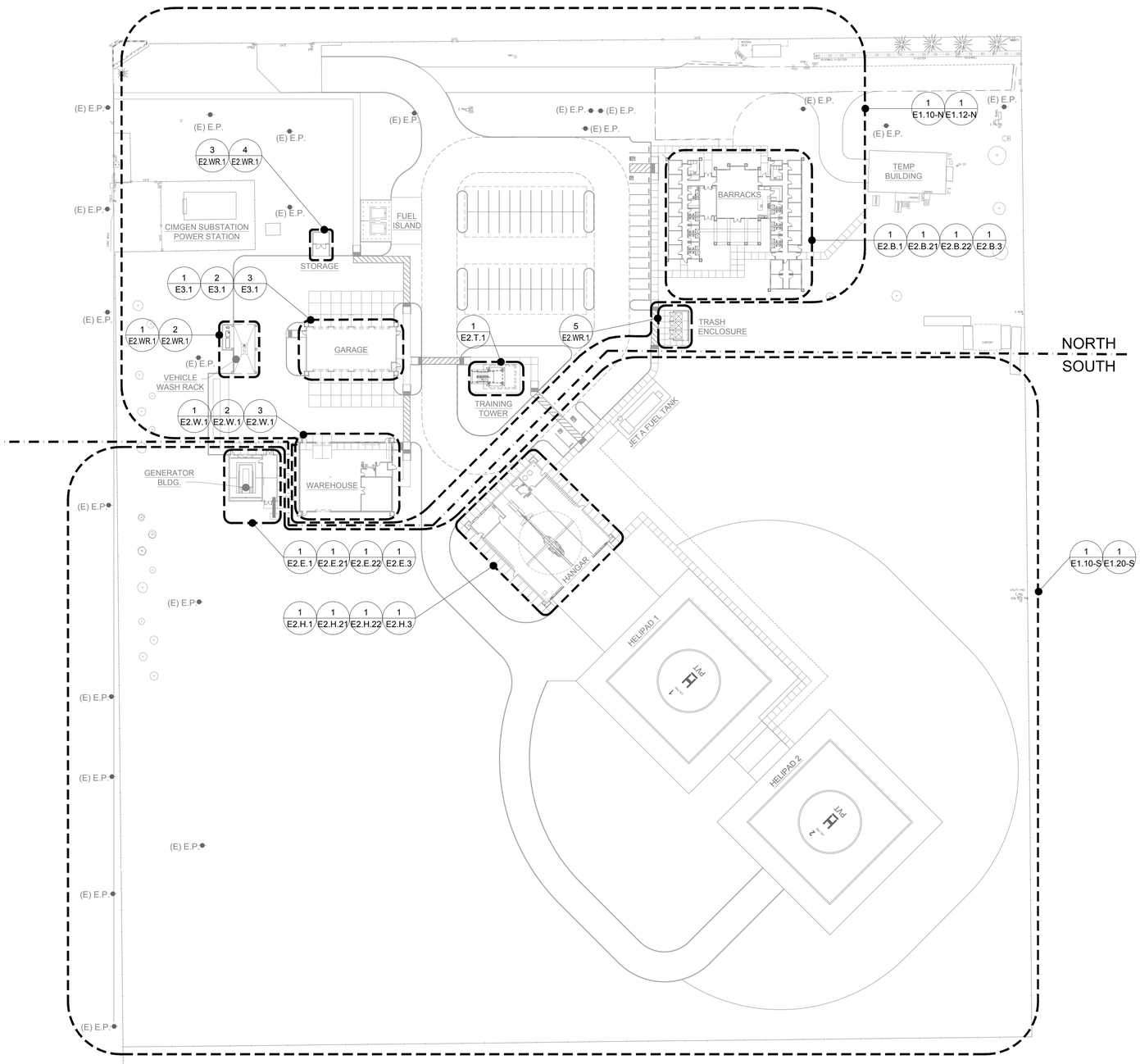
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BRUCE F. UNGER
NO. C15804
RCN. 5-31-21
STATE OF CALIFORNIA

EOR

drawn by WP/JLB
checked by JUB
job no. 2018-23
date 1-20-2020
cad file name
drawing no. E0.02
ELECTRICAL SHEET INDEX
sheet title
sheet no.
of sheets

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Jan 21, 2020 - 11:59am / jkropp



1 / E1.00 OVERALL SITE PLAN - ELECTRICAL

SCALE : 1" = 50'-0"

0 50' 100'

M. NEILS ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410
PROJECT #: 19068.21

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CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
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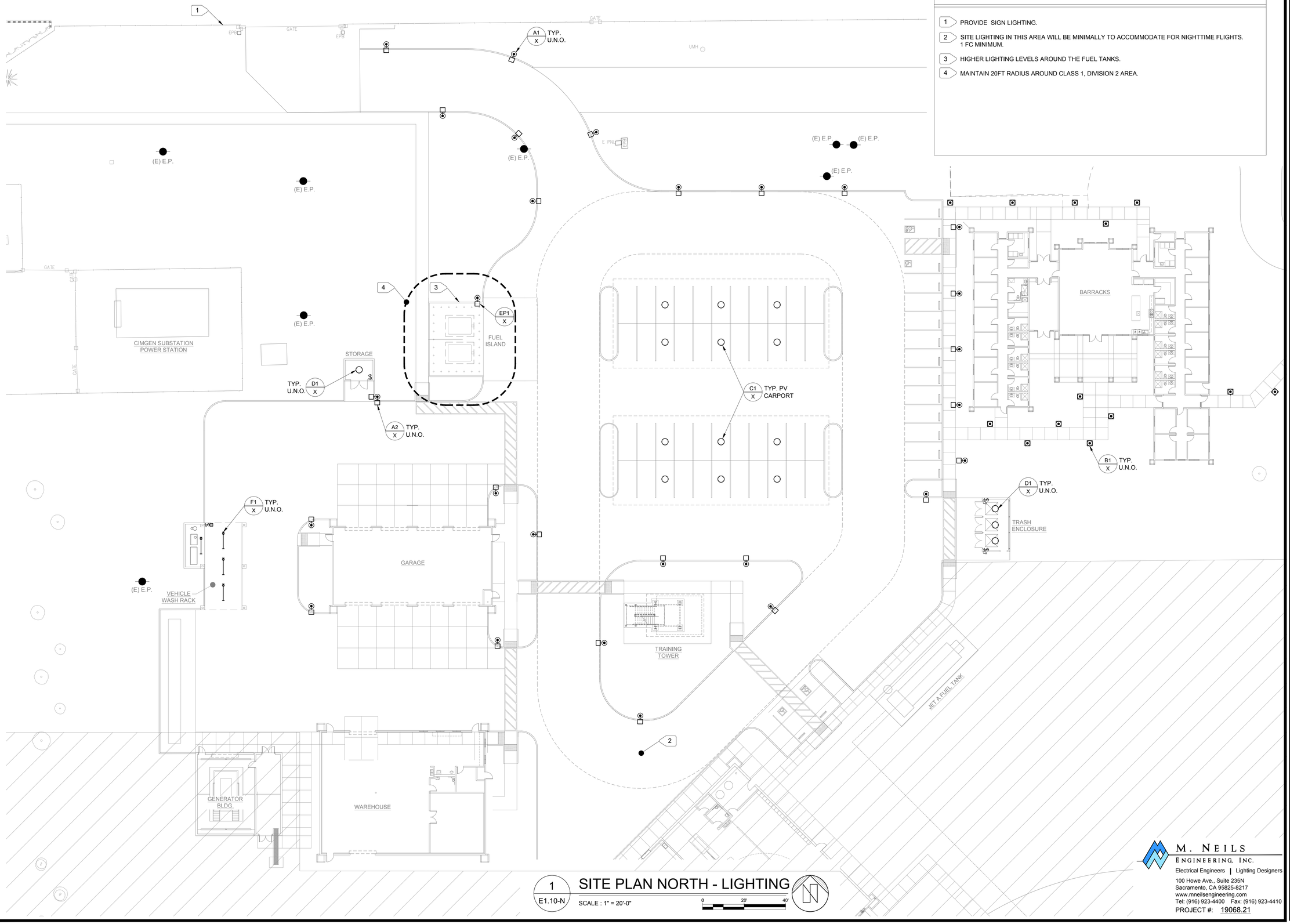
drawn by	WP/JLB
checked by	JUB
job no.	2018-23
date	1-20-2020
cad file name	
drawing no.	E1.00
sheet title	OVERALL SITE PLAN
sheet no.	
of	sheets

UNAUTHORIZED CHANGES & USES: M. Neils Engineering, Inc. preparing these plans will not be responsible for, or liable for unauthorized changes to or uses to these plans. All changes to these plans must be in writing and must be approved by M. Neils Engineering, Inc.

Jan 21, 2020 - 12:01pm / jacop

NUMBERED NOTES

1. PROVIDE SIGN LIGHTING.
2. SITE LIGHTING IN THIS AREA WILL BE MINIMALLY TO ACCOMMODATE FOR NIGHTTIME FLIGHTS. 1 FC MINIMUM.
3. HIGHER LIGHTING LEVELS AROUND THE FUEL TANKS.
4. MAINTAIN 20FT RADIUS AROUND CLASS 1, DIVISION 2 AREA.



1 / E1.10-N

SITE PLAN NORTH - LIGHTING

SCALE : 1" = 20'-0"

0 20' 40'

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Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
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PROJECT #: 19068.21

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916 945-6117 Fax
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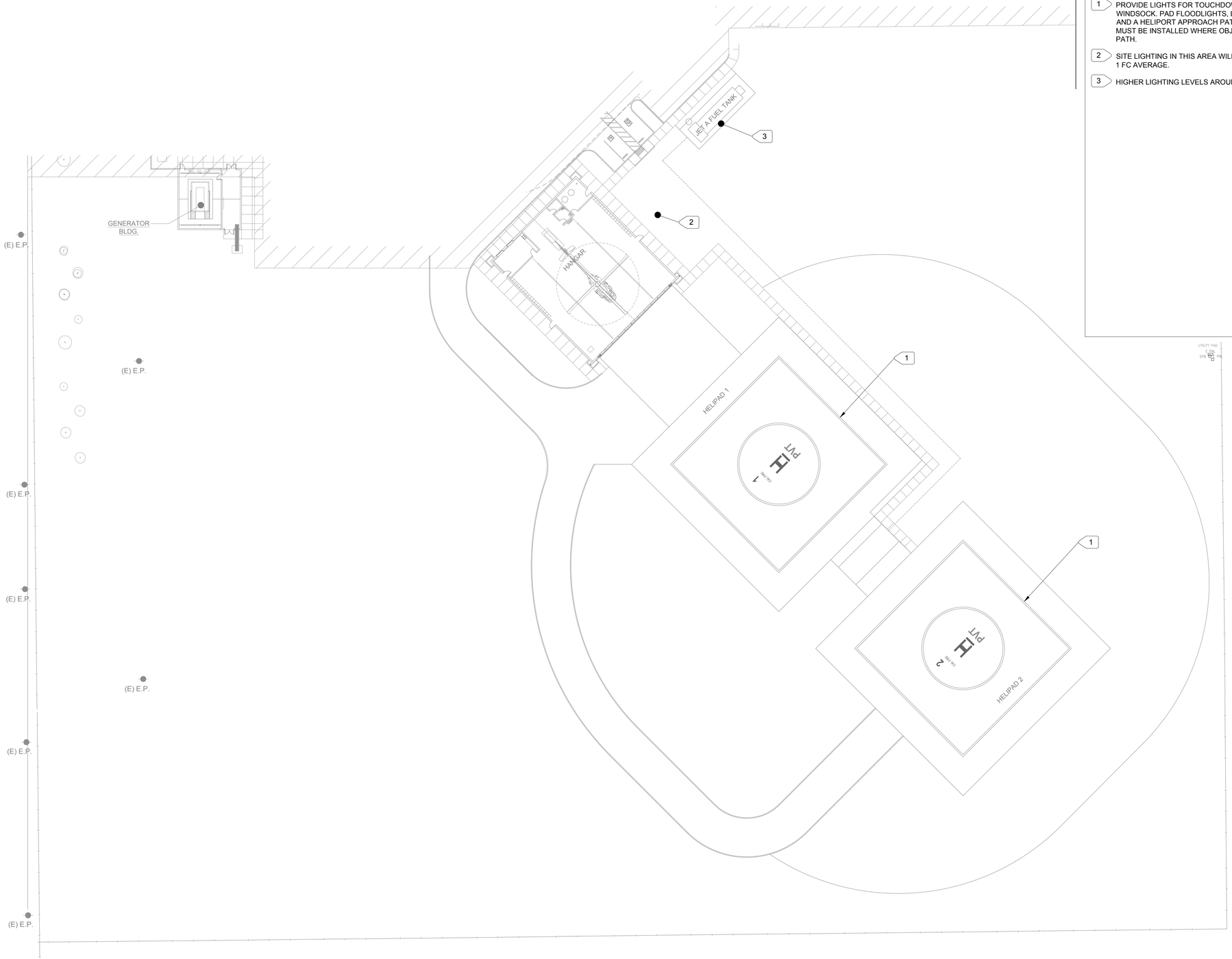
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BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR

drawn by	WP/JLB
checked by	JUB
job no.	2018-23
date	1-20-2020
cad file name	
drawing no.	E1.10-N
sheet title	SITE PLAN NORTH - LIGHTING
sheet no.	
of	sheets

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Jan 21, 2020 – 12:12pm / kreep



NUMBERED NOTES

1. PROVIDE LIGHTS FOR TOUCHDOWN/ LIFTOFF, APPROACH/TAKEOFF, TAXIWAYS, TAXI ROUTES, AND WINDSOCK. PAD FLOODLIGHTS, LANDING DIRECTION LIGHTS, A HELIPORT IDENTIFICATION BEACON, AND A HELIPORT APPROACH PATH INDICATOR LIGHTS WILL BE NEEDED. OBSTRUCTION LIGHTS MUST BE INSTALLED WHERE OBJECTS ARE IN CLOSE PROXIMITY TO THE APPROACH/DEPARTURE PATH.
2. SITE LIGHTING IN THIS AREA WILL BE MINIMALLY TO ACCOMMODATE FOR NIGHTTIME FLIGHTS. 1 FC AVERAGE.
3. HIGHER LIGHTING LEVELS AROUND THE FUEL TANK.

1 / E1.10-S — SITE PLAN SOUTH - LIGHTING

SCALE : 1/32" = 1'-0""

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Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
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PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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drawn by	WIP/JLB
checked by	JUB
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date	1-20-2020
cad file name	
drawing no.	E1.10-S
sheet title	SITE PLAN SOUTH - LIGHTING
sheet no.	
of	sheets

M. NEILS
ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410
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Jan 21, 2020 - 12:17pm / jkropp

NUMBERED NOTES

1. PROVIDE SIGN LIGHTING.
2. SITE LIGHTING IN THIS AREA WILL BE MINIMALLY TO ACCOMMODATE FOR NIGHTTIME FLIGHTS. 1 FC MINIMUM.
3. HIGHER LIGHTING LEVELS AROUND THE FUEL TANKS.
4. MAINTAIN 20FT RADIUS AROUND CLASS 1, DIVISION 2 AREA.

(E) OVERHEAD TELECOM LINE
(E) E.P.
GATE
EPS
UMH
E PNL
CIMGEN SUBSTATION POWER STATION
STORAGE
FUEL ISLAND
DISPENSER EMERGENCY DISCONNECT
BARRACKS
PANEL "EBH"
PANEL "BH"
PANEL "BL"
FIRE ALARM CONDUIT AND CABLE
POWER CONDUIT AND CABLE, SEE ONE-LINE
(2) 4" C. AND CABLE
PANEL "GL"
PANEL "GH"
PANEL "EGH"
GARAGE
TRASH ENCLOSURE
VEHICLE WASH RACK
TRAINING TOWER
PANEL "ETH"
TESCO PEDESTAL "TH"
JET A FUEL TANK
(2) 4"C. AND CABLE
MPOE
PANEL "WL"
PANEL "WH"
PANEL "EWH"
GENERATOR BLDG.
WAREHOUSE
TELEPHONE SERVICE
(2) 2"C. & (2) 4"C
ELECTRICAL SERVICE
12-STRAND FIBER, SINGLE MODE OUTSIDE PLANT UTILITY TRANSFORMER. COORDINATE LOCATION WITH UTILITY COMPANY.

1 / E1.20-N

SITE PLAN NORTH - POWER AND SIGNAL

SCALE : 1" = 20'-0"

0 20' 40'

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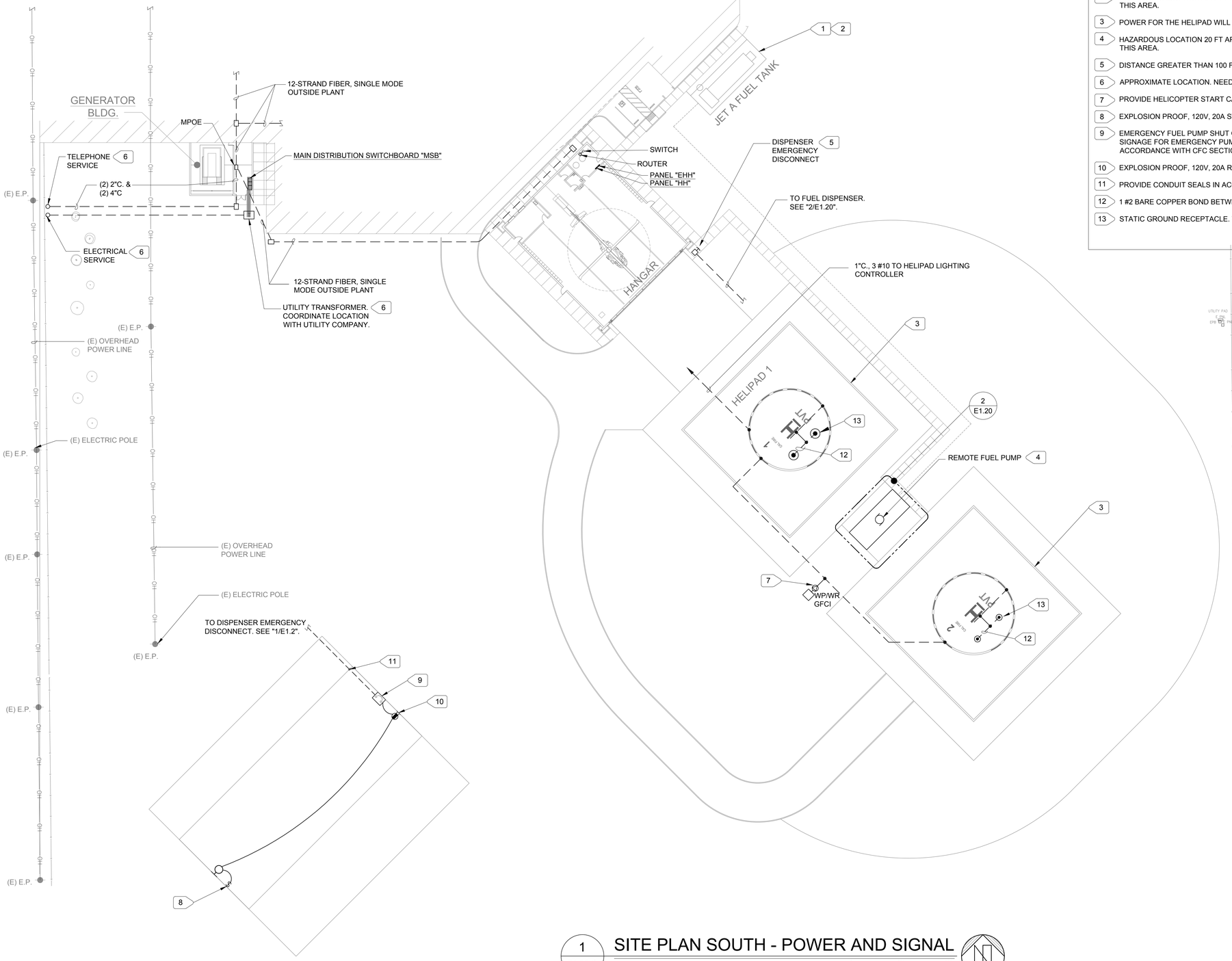
AOR
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EOR

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drawing no.	E1.20-N
sheet title	SITE PLAN NORTH - POWER AND SIGNAL
sheet no.	
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NUMBERED NOTES

1. JET FUEL STORAGE TANK CLASS II LIQUID. POWER FOR THE JET FUEL TANK AND REMOTE FILLING STATION WILL BE FEED FROM THE HANGAR.
2. HAZARDOUS LOCATION 20 FT AROUND TANK. KEEP ALL CONDUITS AND CONDUCTOR CLEAR OF THIS AREA.
3. POWER FOR THE HELIPAD WILL BE FEED FROM THE HANGAR.
4. HAZARDOUS LOCATION 20 FT AROUND PUMP. KEEP ALL CONDUITS AND CONDUCTOR CLEAR OF THIS AREA.
5. DISTANCE GREATER THAN 100 FT WILL NEED AHJ APPROVAL.
6. APPROXIMATE LOCATION. NEEDS TO BE VERIFIED/COORDINATED.
7. PROVIDE HELICOPTER START CART POWER, 480V-3P, 50 AMP RECEPTACLE.
8. EXPLOSION PROOF, 120V, 20A SWITCH APPLETON #EDSC150-F1 OR EQUAL.
9. EMERGENCY FUEL PUMP SHUT OFF BUTTON. VERIFY MOUNTING LOCATION IN FIELD. PROVIDE SIGNAGE FOR EMERGENCY PUMP SHUT OFF STATING "EMERGENCY PUMP SHUT OFF" IN ACCORDANCE WITH CFC SECTION 2302.2.
10. EXPLOSION PROOF, 120V, 20A RECEPTACLE APPLETON #EFSR-2023 OR EQUAL.
11. PROVIDE CONDUIT SEALS IN ACCORDANCE WITH CEC SECTION 514.9(A) AND (B).
12. 1 #2 BARE COPPER BOND BETWEEN GROUND RODS.
13. STATIC GROUND RECEPTACLE. VERIFY EXACT LOCATION IN FIELD.

2 / E1.20-S — FUEL DISPENSER ELECTRICAL LAYOUT

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

1 / E1.20-S — SITE PLAN SOUTH - POWER AND SIGNAL

SCALE : 1/32" = 1'-0"

0 50' 100'

DGS
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916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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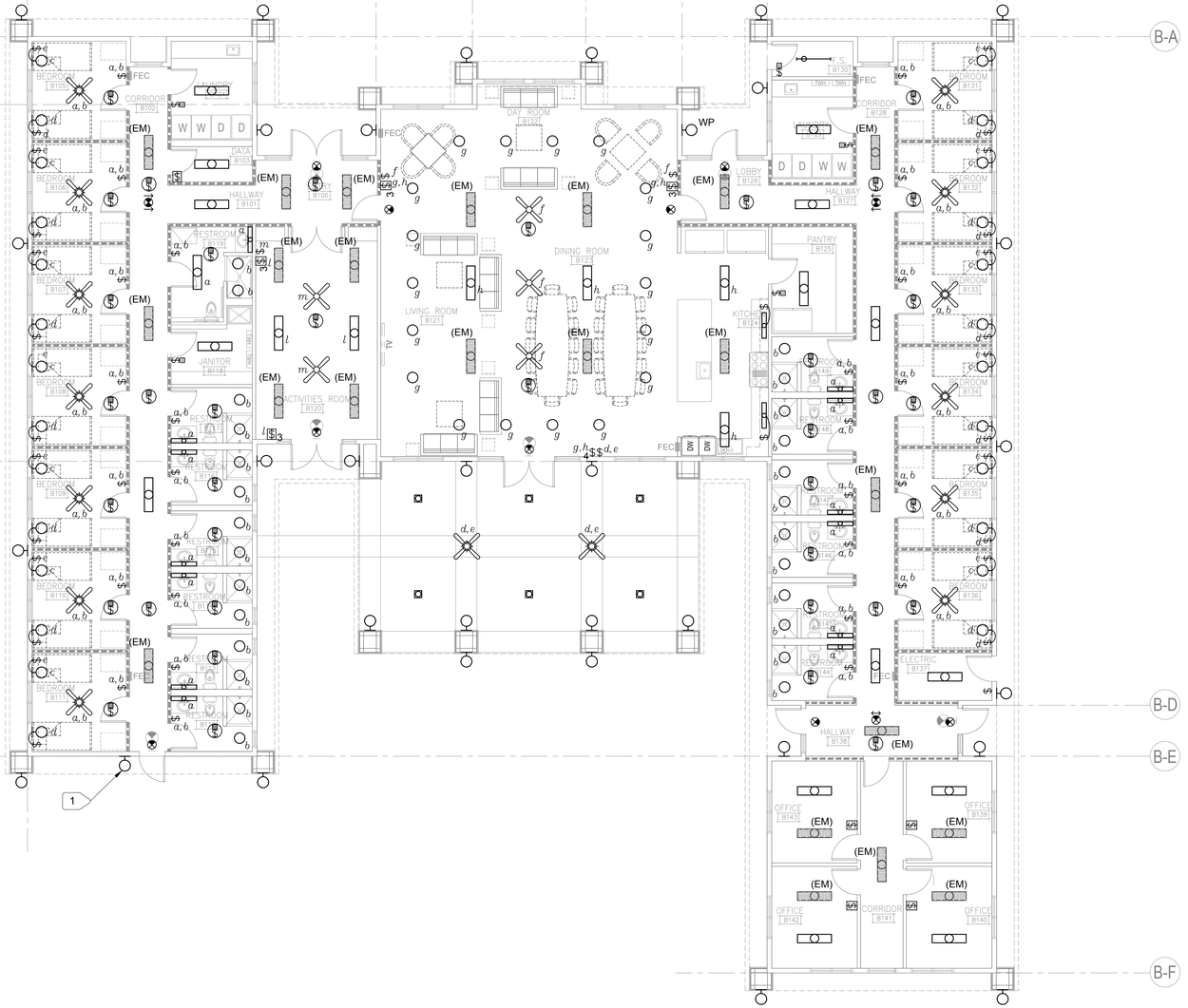
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ESSENTIAL SERVICE SET

Jan 21, 2020 - 2:10pm / jkropp



1 EXTERIOR WALL MOUNTED LIGHTS WILL BE USED TO LIGHT THE PATHWAY AROUND THE BUILDING. LIGHTS WILL BE CONTROLLED ASTRONOMICALLY VIA LIGHTING CONTROL SYSTEM.

1 / E2.B.1 BARRACKS FLOOR PLAN - LIGHTING

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

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jan 21, 2020 - 12:04pm / jacopo

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Judy Haavisto, Project Director II
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West Sacramento, California 95605
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916 945-6117 Fax
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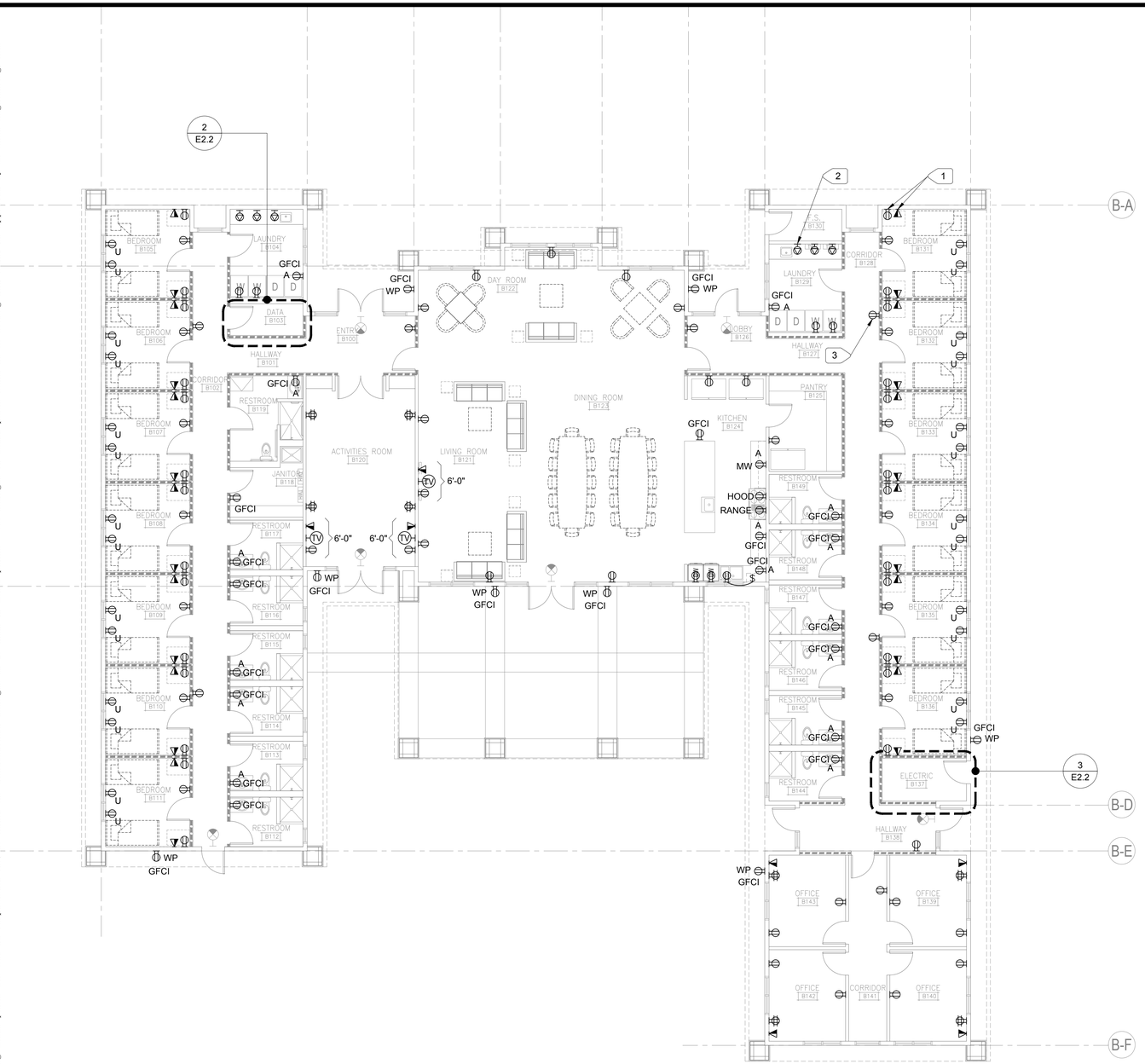
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drawn by	WP/JLB
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cad file name	
drawing no.	E2.B.1
sheet title	BARRACKS FLOOR PLAN - LIGHTING
sheet no.	
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Electrical Engineers | Lighting Designers
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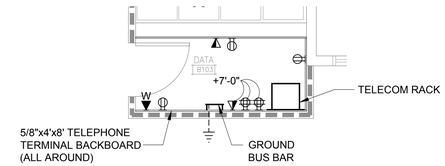


1 E2.B.21 — BARRACKS FLOOR PLAN - POWER & SIGNAL

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

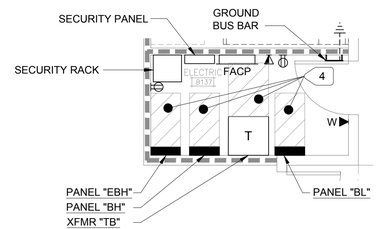
NUMBERED NOTES

1. PROVIDE 120V DUPLEX OUTLET AND DATA OUTLET TO EACH BEDSIDE TABLE IN EACH BEDROOM.
2. 240V, 30 AMP DEDICATED POWER SUPPLY WILL BE PROVIDED TO EACH CLOTHES DRYER.
3. GENERAL PURPOSE RECEPTACLE WILL BE PROVIDED EVERY 50 FT ALONG THE HALLWAY.
4. MAINTAIN REQUIRED CEC WORKING CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT.



2 E2.B.21 — DATA ROOM PLAN - POWER & SIGNAL

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



3 E2.B.21 — ELECTRICAL ROOM PLAN - POWER & SIGNAL

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

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Jan 21, 2020 – 12:05pm / jkropp

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ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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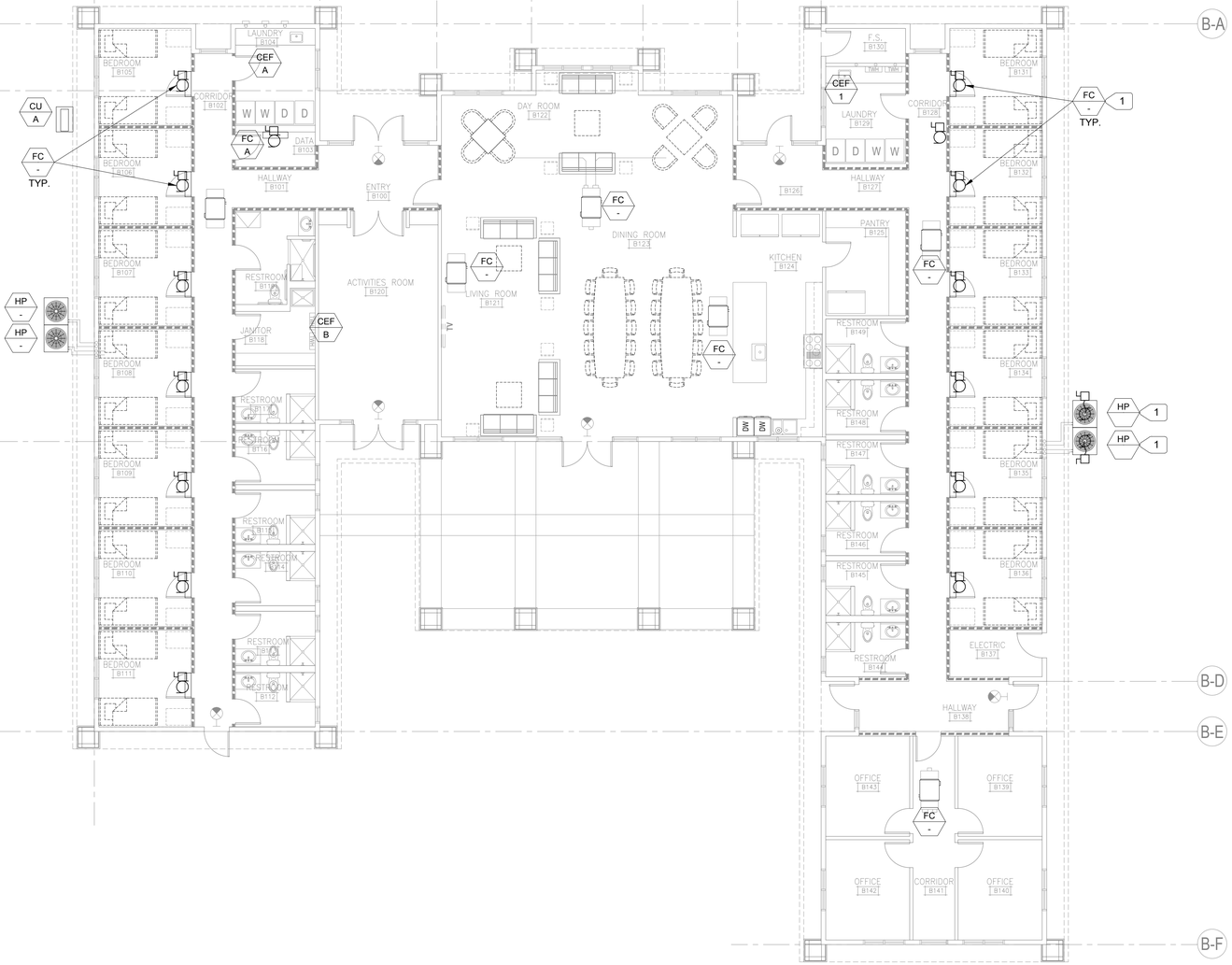
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EOR

drawn by	WP/JLB
checked by	JUB
job no.	2018-23
date	1-20-2020
cad file name	
drawing no.	E2.B.21
sheet title	BARRACKS FLOOR PLAN - POWER & SIGNAL
sheet no.	
of	sheets

M. NEILS ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410
PROJECT #: 19068.21



NUMBERED NOTES

1. PROVIDE POWER FOR HVAC EQUIPMENT.

1 E2.B.22 BARRACKS FLOOR PLAN - MECHANICAL POWER

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

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Jan 21, 2020 – 12:06pm / jkropp

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CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
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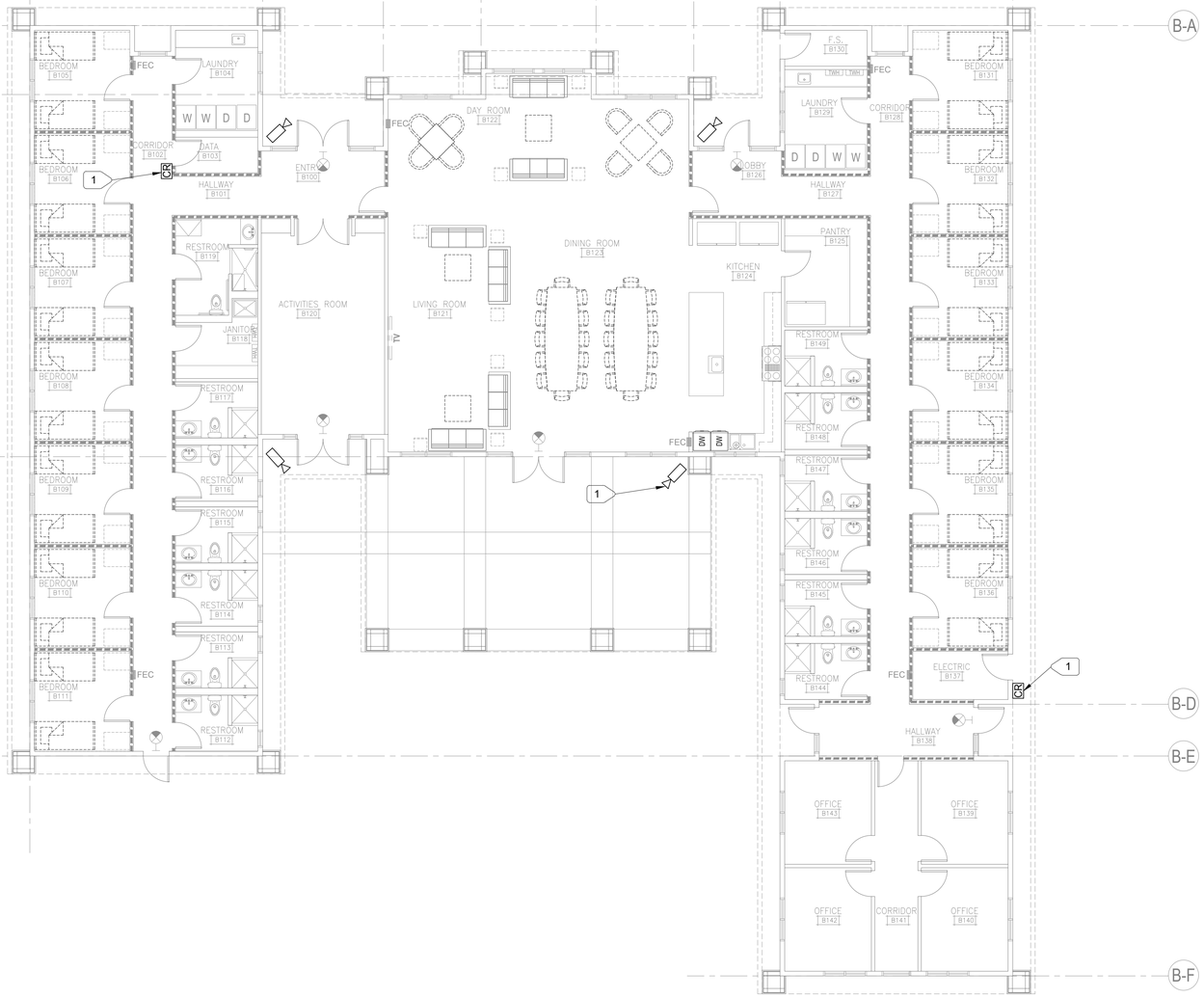
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NUMBERED NOTES

1. PROVIDE CARD READER ACCESS CONTROL.
2. PROVIDE SECURITY CAMERA AS REQUIRED.

1 / E2.B.3 — BARRACKS FLOOR PLAN - SECURITY

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

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Real Estate Services Division
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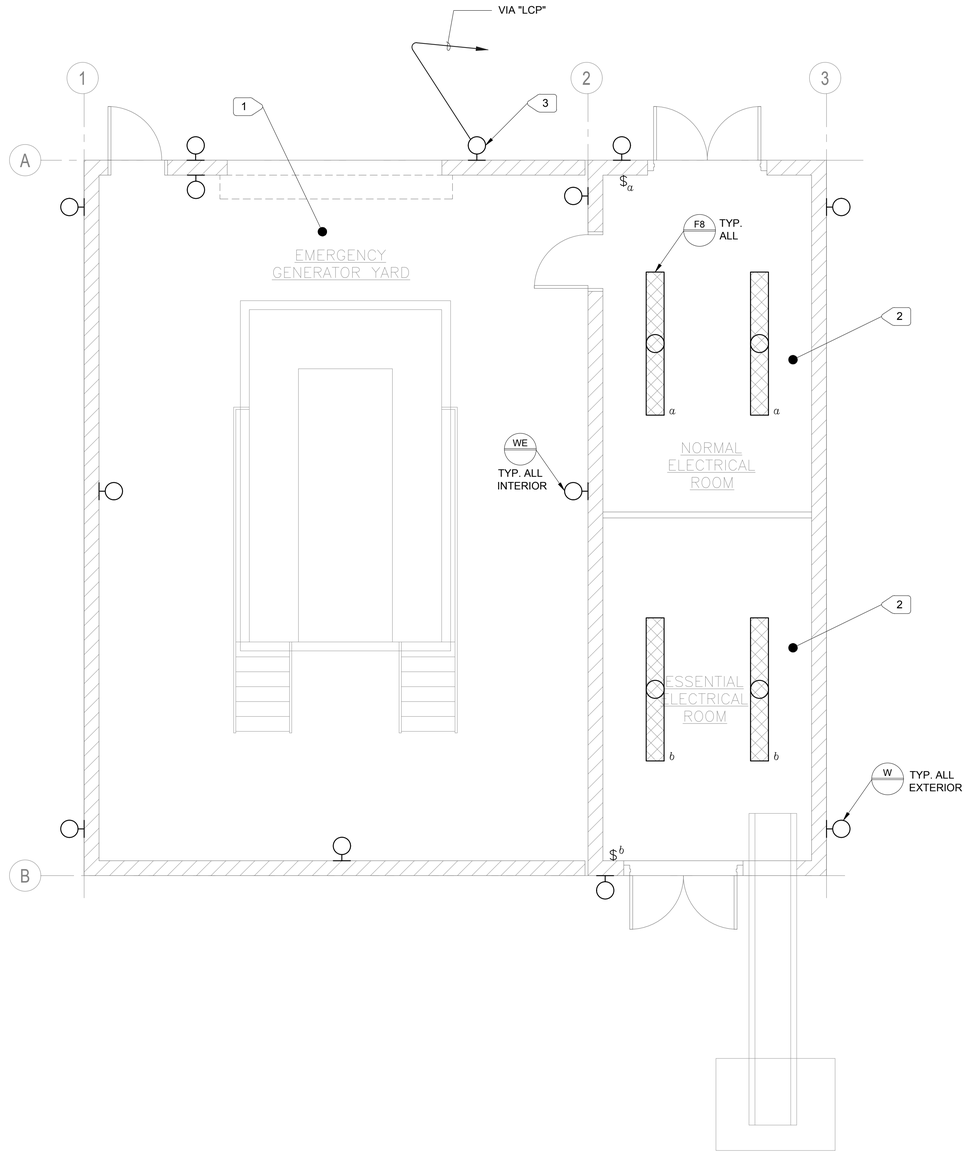
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Sacramento, CA 95825-8217
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Jan 21, 2020 - 12:04pm / jkropp

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1 E2.E.1

GENERATOR FLOOR PLAN - LIGHTING

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

NUMBERED NOTES

1. LIGHTING WILL BE SURFACE MOUNTED ON ALL FOUR WALL IN THE GENERATOR YARD WITH SWITCH NEXT THE DOOR. ALL EQUIPMENT IN THE YARD WILL BE WET RATED.
2. LIGHTING WILL BE INDUSTRIAL AND SURFACE MOUNTED. THE LIGHT SWITCH WILL BE NEXT TO THE DOOR
3. EXTERIOR WALL MOUNTED LIGHTS WILL BE USED TO LIGHT THE PATHWAY AROUND THE BUILDING. LIGHTS WILL BE CONTROLLED ASTRONOMICALLY VIA LIGHTING CONTROL SYSTEM.

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CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
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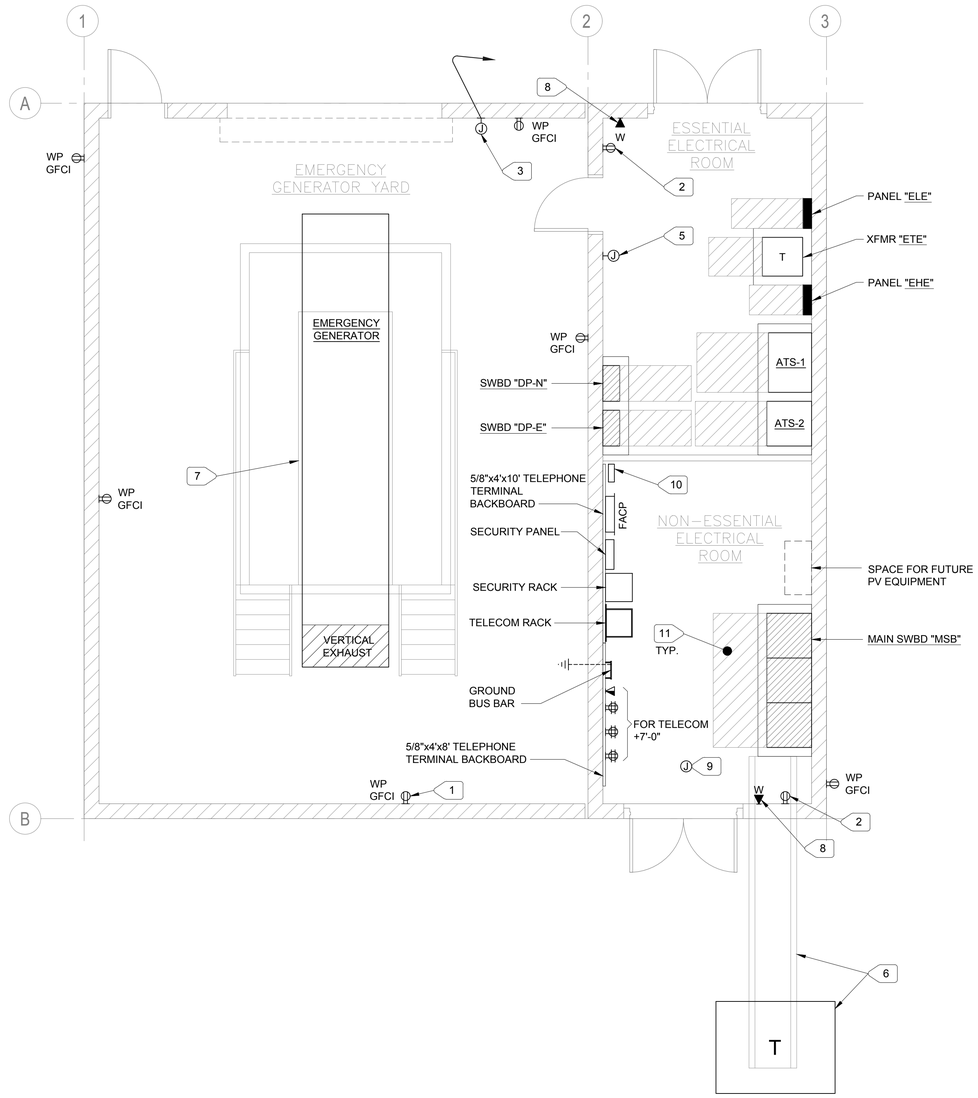
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drawn by	WIP/JLB
checked by	JUB
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date	1-20-2020
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drawing no.	E2.E.1
sheet title	GENERATOR FLOOR PLAN - LIGHTING
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of	sheets

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ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410
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1 / E2.E.21 GENERATOR FLOOR PLAN - POWER & SIGNAL

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

NUMBERED NOTES

1. GENERAL PURPOSE RECEPTACLE WILL BE PROVIDED EVERY 25'.
2. GENERAL PURPOSE RECEPTACLE WILL BE PROVIDED EVERY 12' DEPENDING ON AVAILABLE WALL SPACE. MINIMUM ONE PER ROOM.
3. PROVIDE POWER AND CONTROLS FOR ROLL UP DOORS.
4. PROVIDE 2 OUTSIDE WP, GFCI CONVENIENCE OUTLETS ON OPPOSITE SIDES OF THE BUILDING.
5. PROVIDE MONITORING FOR THE ELECTRICAL EQUIPMENT.
6. UTILITY TRANSFORMER AND TRENCH. NEEDS TO BE COORDINATED WITH THE UTILITY COMPANY.
7. PRELIMINARY GENERATOR SIZE IS 300KW.
8. PROVIDE A PHONE NEXT TO THE DOOR.
9. PROVIDE WI-FI.
10. PROVIDE A FIBER MPOE WITH A FIBER DISTRIBUTION TO THE CAMPUS.
11. MAINTAIN CEC REQUIRED WORKING CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT.

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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ARCHITECTURE AND ENVIRONMENTAL PLANNING
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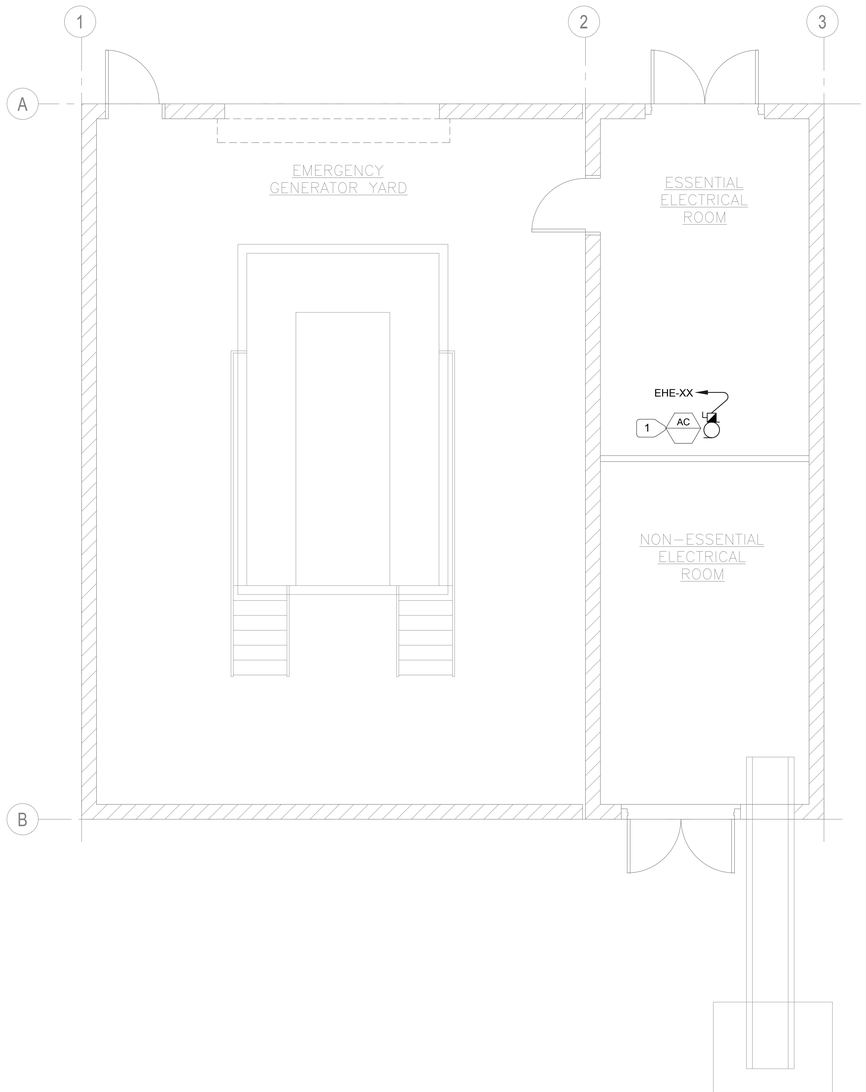
drawn by	WIP/JLB
checked by	JUB
job no.	2018-23
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cad file name	
drawing no.	E2.E.21
sheet title	GENERATOR FLOOR PLAN - POWER & SIGNAL
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100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
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Jan 21, 2020 - 12:20pm / jkopp

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jan 21, 2020 - 12:22pm / jkopp



1 / E2.E.22 GENERATOR FLOOR PLAN - MECHANICAL POWER

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

NUMBERED NOTES

1. PROVIDE POWER FOR MECHANICAL EQUIPMENT.

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Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
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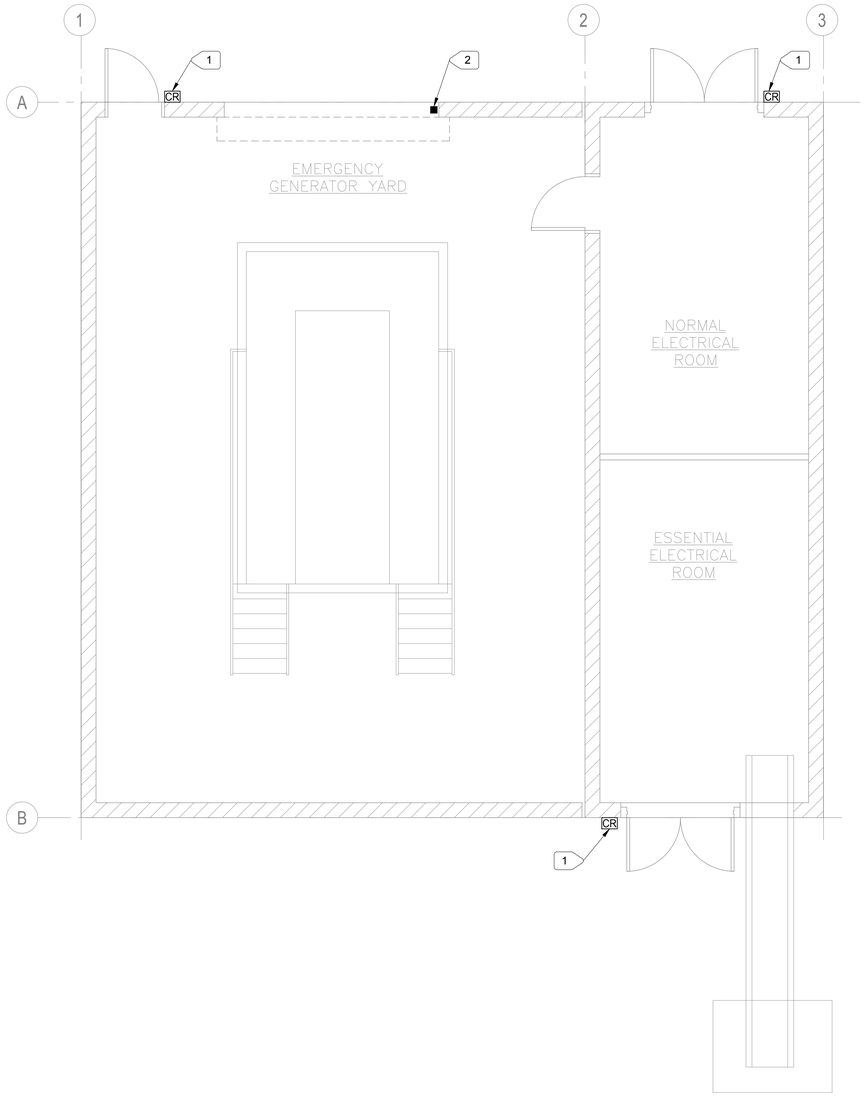
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1 / E2.E.3 GENERATOR FLOOR PLAN - SECURITY

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

NUMBERED NOTES

1. PROVIDE CARD READER ACCESS CONTROL ON EXTERIOR DOORS.
2. PROVIDE ALARM CONTACTS ON THE ROLL UP DOOR.

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Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
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PRADO HELITACK BASE
14467 CENTRAL AVE.,
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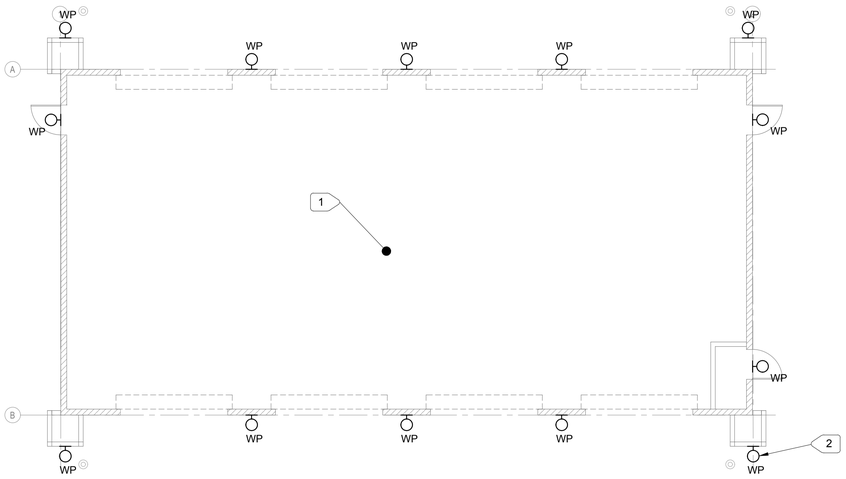
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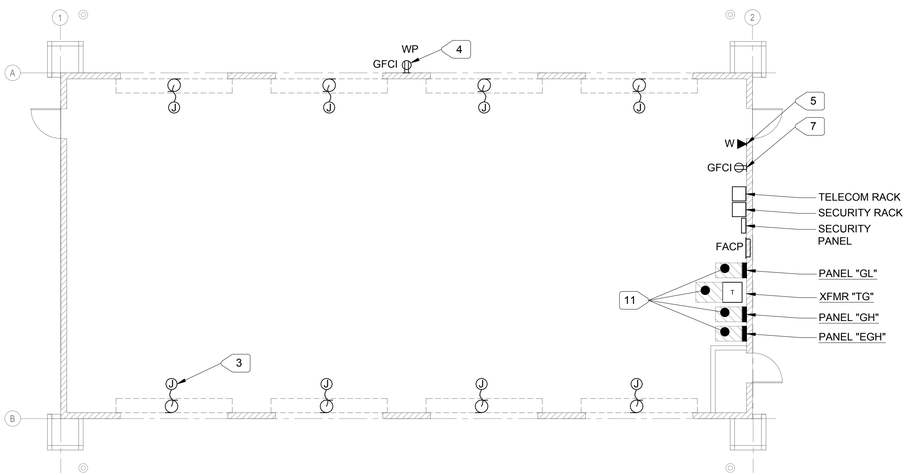


1 E2.G.1 GARAGE FLOOR PLAN - LIGHTING

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

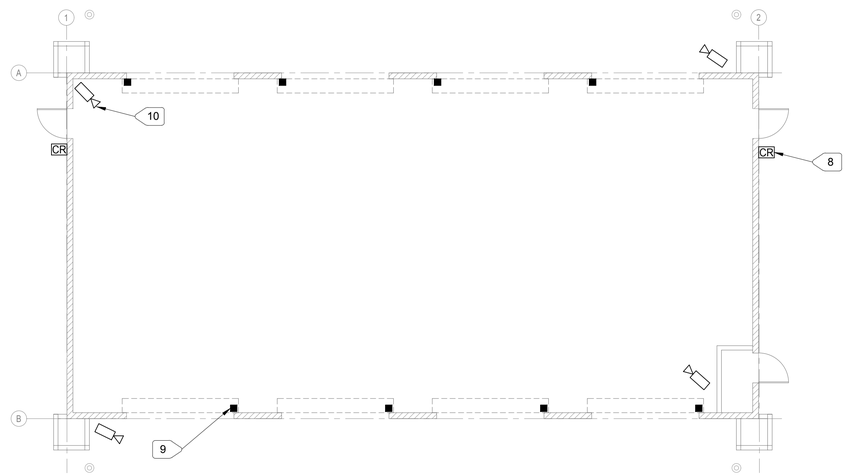
NUMBERED NOTES

1. LIGHTING WILL BE INDUSTRIAL AND SURFACE MOUNTED. THE LIGHT SWITCH WILL BE NEXT TO THE DOOR
2. EXTERIOR WALL MOUNTED LIGHTS WILL BE USED TO LIGHT THE PATHWAY AROUND THE BUILDING. LIGHTS WILL BE CONTROLLED ASTRONOMICALLY VIA LIGHTING CONTROL SYSTEM.
3. PROVIDE POWER AND CONTROLS FOR ROLL UP DOORS.
4. PROVIDE OUTSIDE WP, GFCI CONVENIENCE OUTLETS ON OPPOSITE SIDES OF THE BUILDING.
5. PROVIDE A PHONE NEXT TO THE DOOR.
6. NOT USED.
7. GENERAL PURPOSE RECEPTACLE WILL BE PROVIDED EVERY 25'.
8. PROVIDE CARD READER ACCESS CONTROL ON EXTERIOR DOORS.
9. PROVIDE ALARM CONTACTS ON THE ROLL UP DOOR.
10. PROVIDE SECURITY CAMERAS TO STRATEGIC AREAS AS REQUIRED.
11. MAINTAIN REQUIRED CEC WORKING CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT.



2 E2.G.1 GARAGE FLOOR PLAN - POWER AND SIGNAL

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



3 E2.G.1 GARAGE FLOOR PLAN - SECURITY

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

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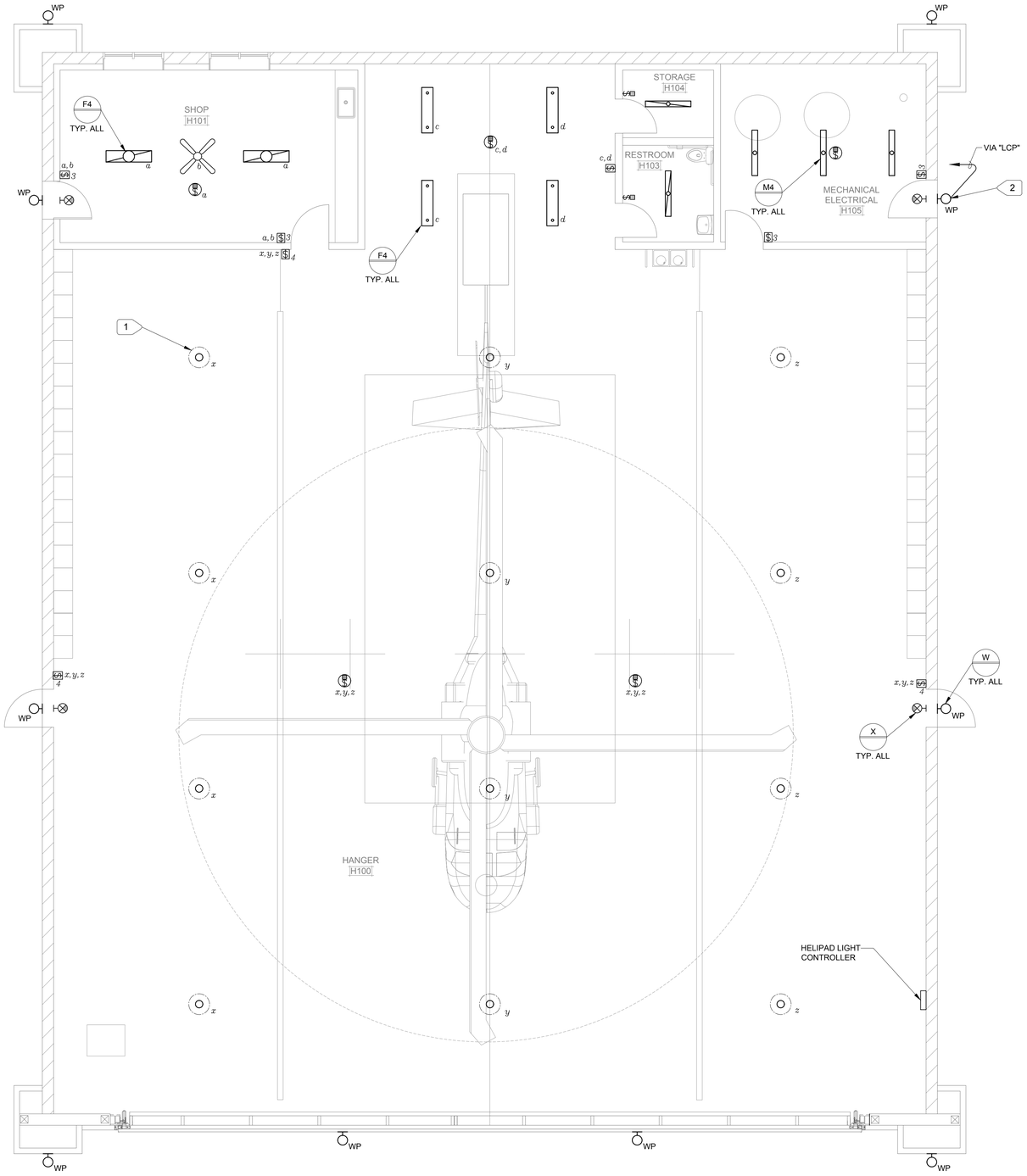
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Jan 21, 2020 – 12:24pm / jkopp



NUMBERED NOTES

1. LIGHTING WILL BE INDUSTRIAL AND SURFACE MOUNTED. THE LIGHT SWITCH WILL BE NEXT TO THE DOOR
2. EXTERIOR WALL MOUNTED LIGHTS WILL BE USED TO LIGHT THE PATHWAY AROUND THE BUILDING. LIGHTS WILL BE CONTROLLED ASTRONOMICALLY VIA LIGHTING CONTROL SYSTEM.

1 / E2.H.1 — HANGAR FLOOR PLAN - LIGHTING

SCALE : 3/16" = 1'-0"

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Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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PRADO HELITACK BASE
14467 CENTRAL AVE.,
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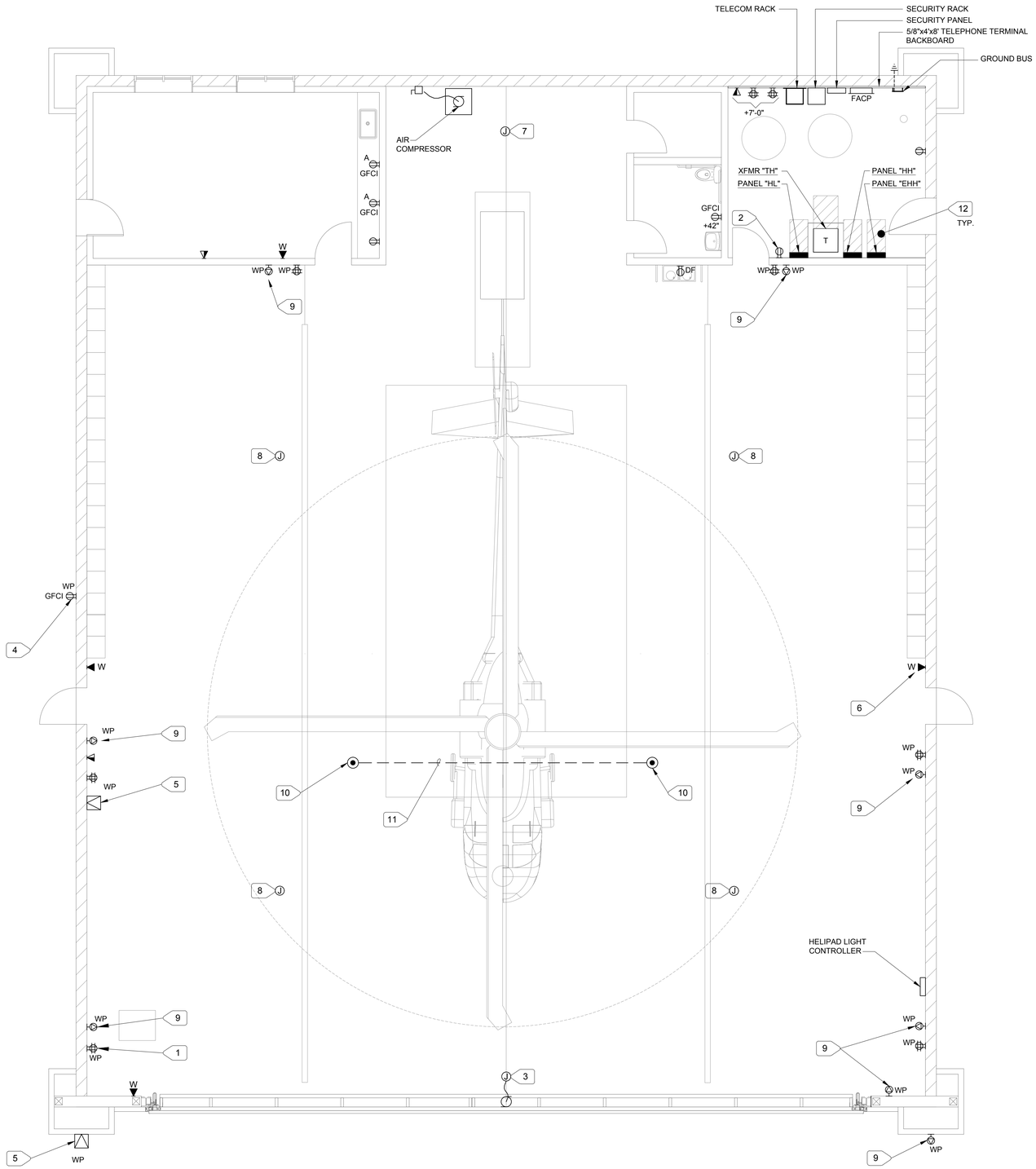
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1
E2.H.21

HANGAR FLOOR PLAN - POWER & SIGNAL

SCALE : 1=3/16" = 1'-0"

NUMBERED NOTES

1. GENERAL PURPOSE RECEPTACLE WILL BE PROVIDED EVERY 25'.
2. GENERAL PURPOSE RECEPTACLE WILL BE PROVIDED EVERY 12' DEPENDING ON AVAILABLE WALL SPACE. MINIMUM ONE PER ROOM.
3. PROVIDE POWER AND CONTROLS FOR ROLL UP DOORS.
4. PROVIDE OUTSIDE WP, GFCI CONVENIENCE OUTLETS ON OPPOSITE SIDES OF THE BUILDING.
5. PROVIDE P.A. SPEAKERS INSIDE AND OUTSIDE THE BUILDING.
6. PROVIDE A PHONE NEXT TO THE DOOR.
7. PROVIDE WI-FI.
8. PROVIDE POWER FOR CEILING FANS.
9. PROVIDE SPECIAL 208V, 1PH OR 3PH, 30A OR 50A RECEPTACLES.
10. STATIC GROUND RECEPTACLE. VERIFY EXACT LOCATION IN FIELD.
11. 1 #2 BARE COPPER BOND BETWEEN GROUND RODS.
12. MAINTAIN REQUIRED CEC WORKING CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT.

M. NEILS
ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410
PROJECT #: 19068.21

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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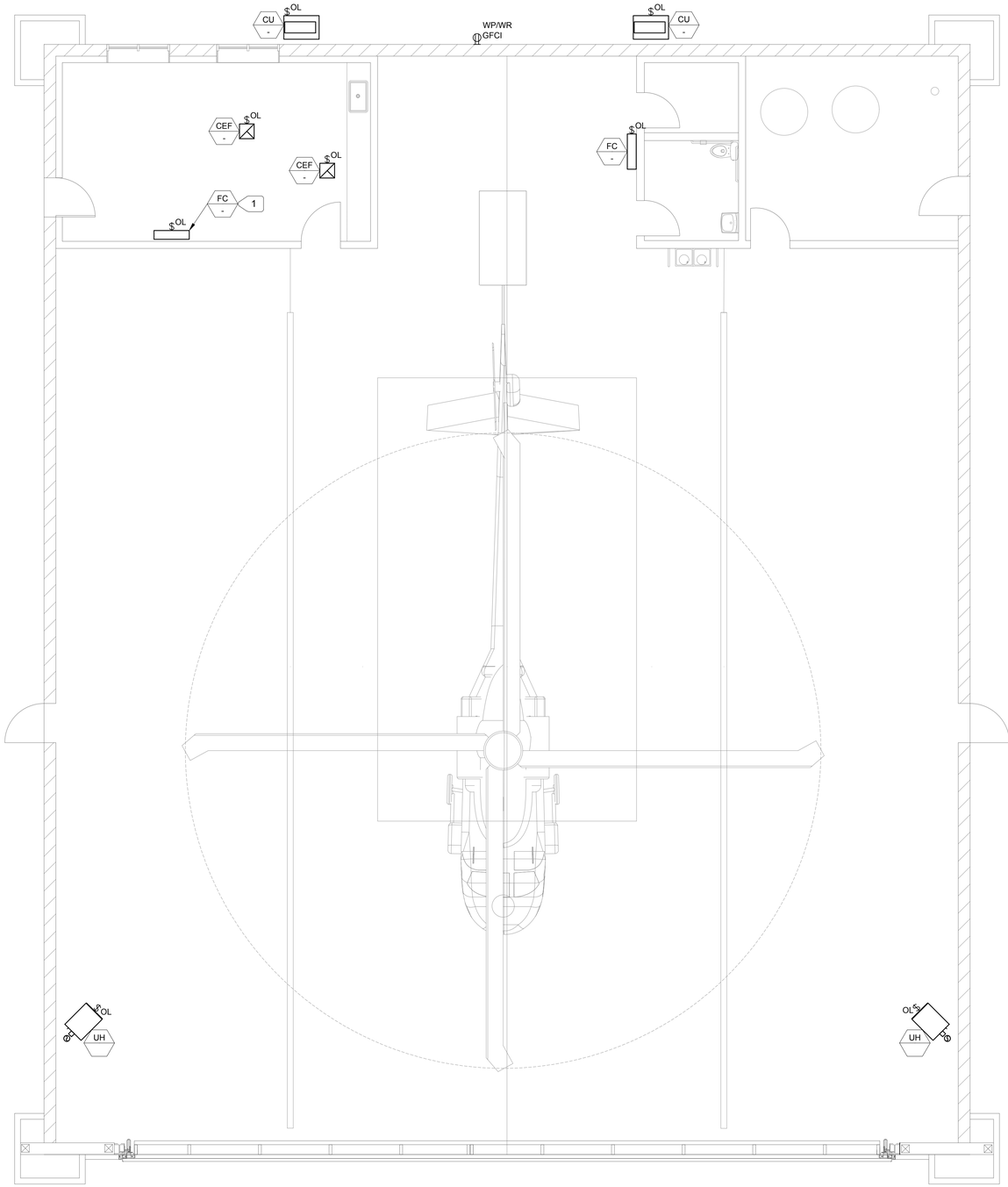
EOR

drawn by	WIP/JLB
checked by	JUB
job no.	2018-23
date	1-20-2020
cad file name	
drawing no.	E2.H.21
sheet title	HANGAR FLOOR PLAN - POWER & SIGNAL
sheet no.	
of	sheets

Jan 21, 2020 - 12:26pm / kreap

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Jan 21, 2020 - 12:26pm / jkopp



1 E2.H.22

HANGAR FLOOR PLAN - MECHANICAL POWER

SCALE : 3/16" = 1'-0"

NUMBERED NOTES

1 PROVIDE POWER FOR HVAC EQUIPMENT.

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916 945-6117 Fax
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ARCHITECTURE AND ENVIRONMENTAL PLANNING
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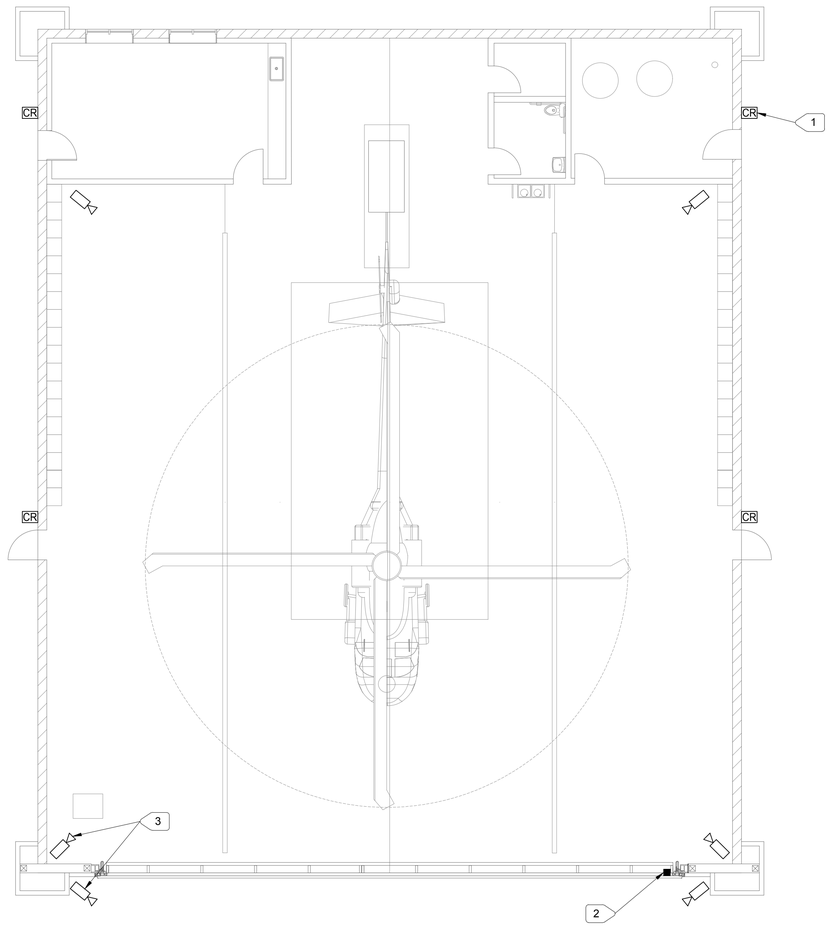
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Electrical Engineers | Lighting Designers
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Sacramento, CA 95825-8217
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jan 21, 2020 - 12:25pm / jkopp



1
E2.H.3

HANGAR FLOOR PLAN - SECURITY

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

NUMBERED NOTES

1. PROVIDE CARD READER ACCESS CONTROL ON EXTERIOR DOORS.
2. PROVIDE ALARM CONTACTS ON THE ROLL UP DOOR.
3. PROVIDE SECURITY CAMERAS TO STRATEGIC AREAS AS REQUIRED.

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West Sacramento, California 95605
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916 945-6117 Fax
judy.haavisto@dgs.ca.gov

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PRADO HELITACK BASE
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CHINO, CA 91710

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ARCHITECTURE AND ENVIRONMENTAL PLANNING
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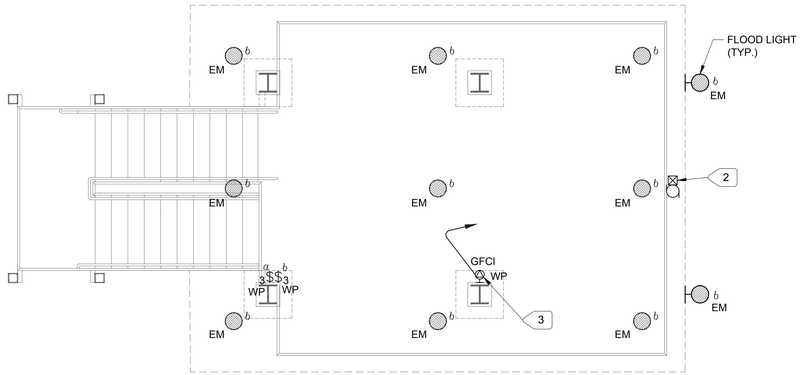
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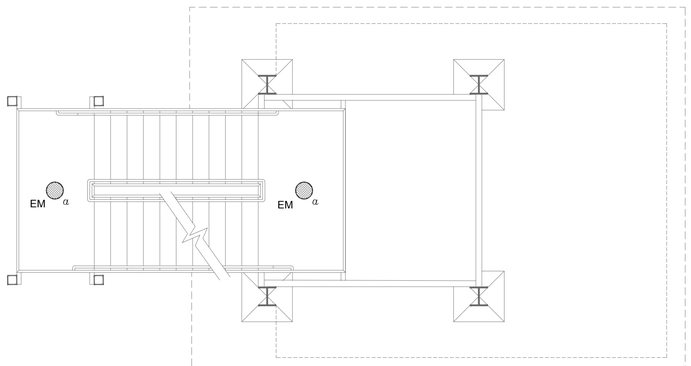
drawn by	WIP/JLB
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job no.	2018-23
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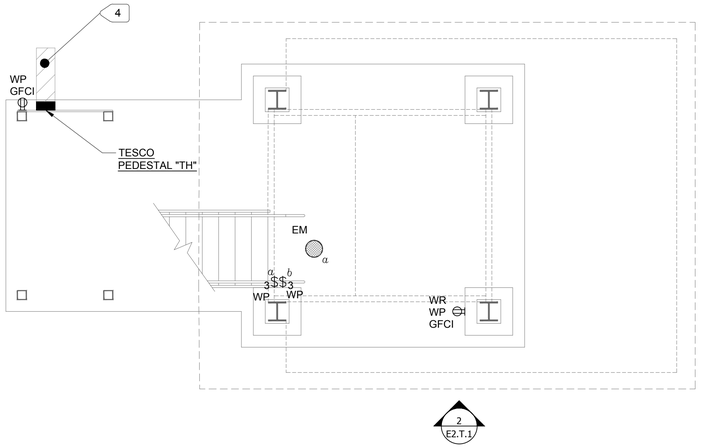
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LEVEL 4 PLAN



LEVEL 1 THRU LEVEL 3 PLAN



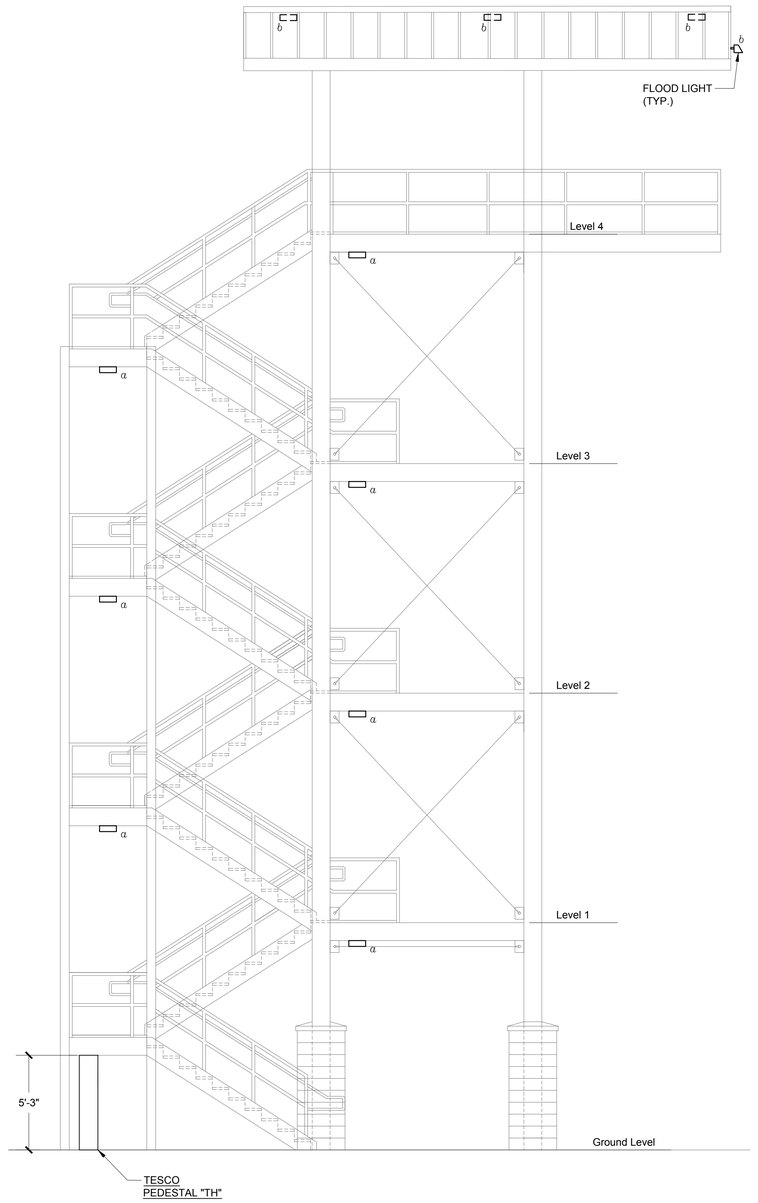
2
E2.T.1

GROUND LEVEL PLAN

1
E2.T.1

TOWER / HOIST FLOOR PLANS - ELECTRICAL

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



2
E2.T.1

TOWER / HOIST SOUTH ELEVATION - ELECTRICAL

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

NUMBERED NOTES

1. EXTERIOR SURFACE MOUNTED LIGHTS WILL BE USED TO LIGHT THE STAIRWAY AND LANDING. LIGHTS WILL BE CONTROLLED ASTRONOMICALLY VIA LIGHTING CONTROL SYSTEM.
2. PROVIDE POWER FOR HOIST. VERIFY EXACT LOCATION IN FIELD.
3. PROVIDE 30A, 208V, 1PH RECEPTACLE. VERIFY MOUNTING LOCATION IN FIELD PRIOR TO ROUGH-IN. VERIFY RECEPTACLE CONFIGURATION WITH OWNER.
4. MAINTAIN REQUIRED CEC WORKING CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT.

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
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Sacramento, California
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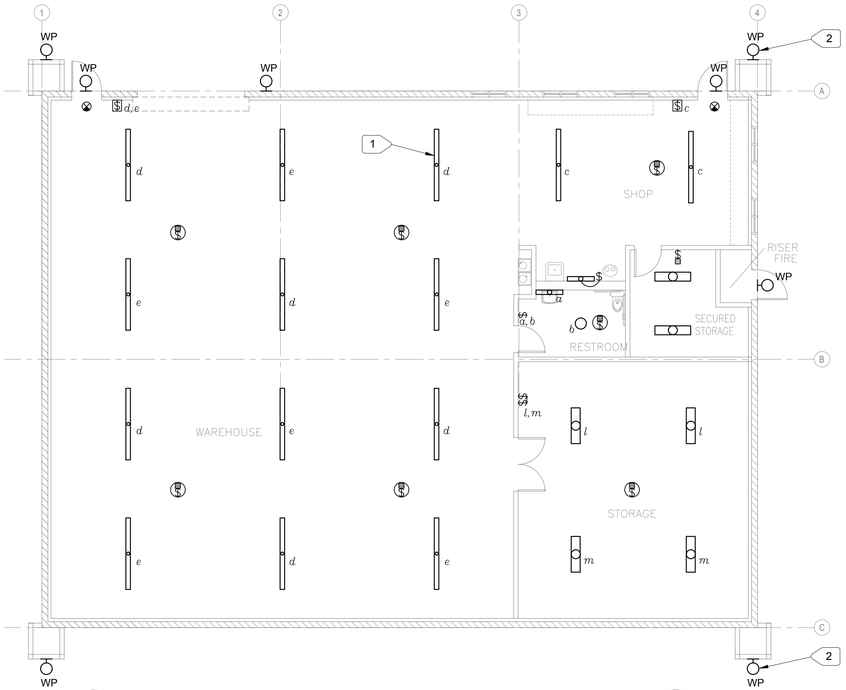
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REN. 5-31-21
STATE OF CALIFORNIA

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checked by JUB
job no. 2018-23
date 1-20-2020
cad file name
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TOWER / HOIST FLOOR PLANS - ELECTRICAL
sheet title
sheet no.
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Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410
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Jan 21, 2020 - 12:08pm / jkopp



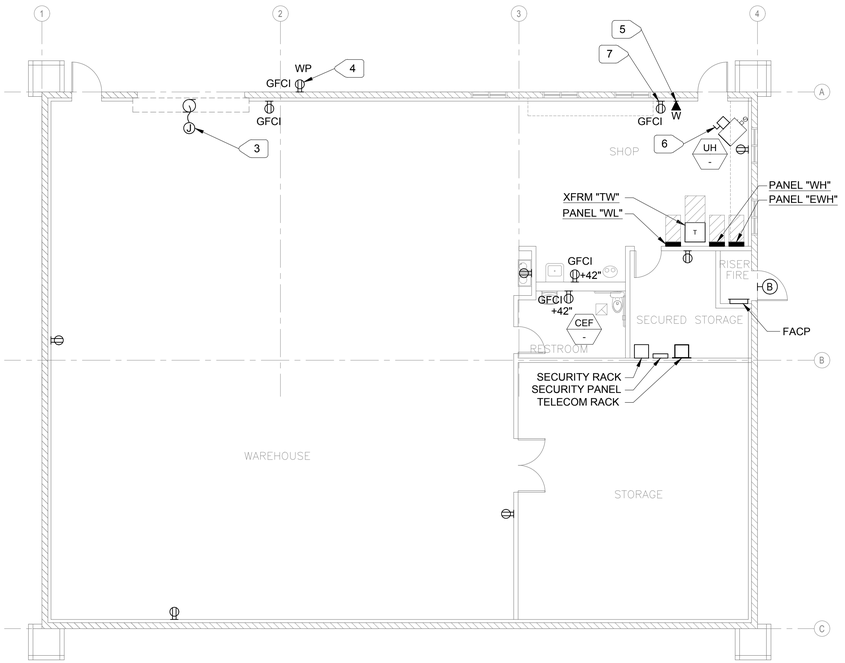
1 E2.W.1

WAREHOUSE FLOOR PLAN - LIGHTING

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

NUMBERED NOTES

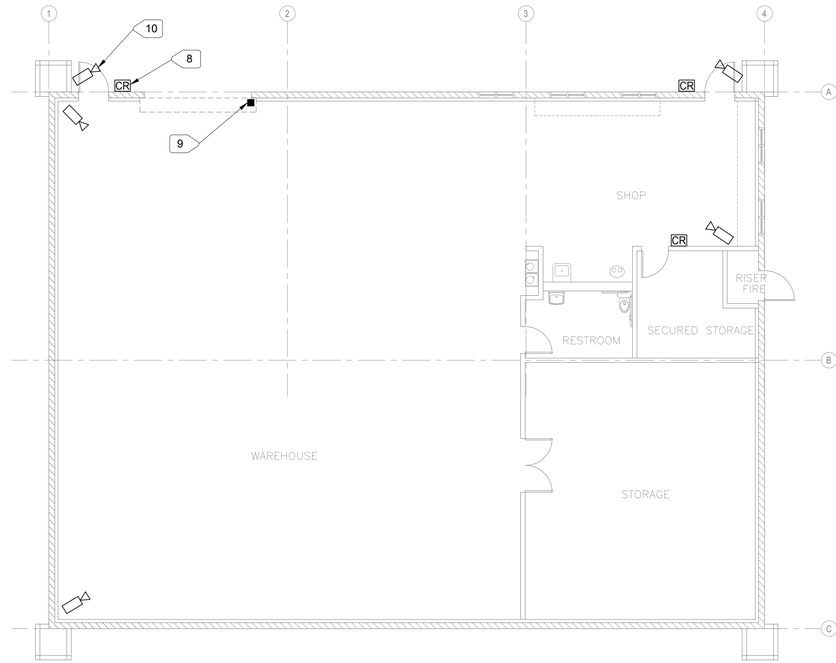
1. LIGHTING WILL BE INDUSTRIAL AND SURFACE MOUNTED. THE LIGHT SWITCH WILL BE NEXT TO THE DOOR
2. EXTERIOR WALL MOUNTED LIGHTS WILL BE USED TO LIGHT THE PATHWAY AROUND THE BUILDING. LIGHTS WILL BE CONTROLLED ASTRONOMICALLY VIA LIGHTING CONTROL SYSTEM.
3. PROVIDE POWER AND CONTROLS FOR ROLL UP DOORS.
4. PROVIDE OUTSIDE WP, GFCI CONVENIENCE OUTLETS ON OPPOSITE SIDES OF THE BUILDING.
5. PROVIDE A PHONE NEXT TO THE DOOR.
6. PROVIDE POWER TO MECHANICAL EQUIPMENT.
7. GENERAL PURPOSE RECEPTACLE WILL BE PROVIDED EVERY 50'.
8. PROVIDE CARD READER ACCESS CONTROL.
9. PROVIDE ALARM CONTACTS ON THE ROLL UP DOOR.
10. PROVIDE SECURITY CAMERAS TO STRATEGIC AREAS AS REQUIRED.



2 E2.W.1

WAREHOUSE FLOOR PLAN - POWER AND SIGNAL

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



3 E2.W.1

WAREHOUSE FLOOR PLAN - SECURITY

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

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Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

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ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
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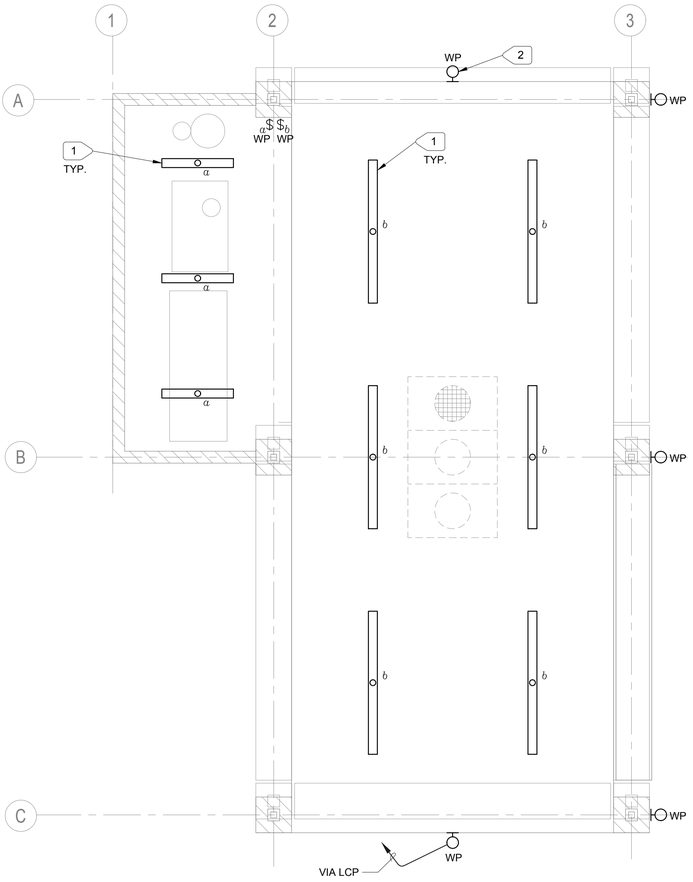
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checked by	JUB
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drawing no.	E2.W.1
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Electrical Engineers | Lighting Designers
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Sacramento, CA 95825-8217
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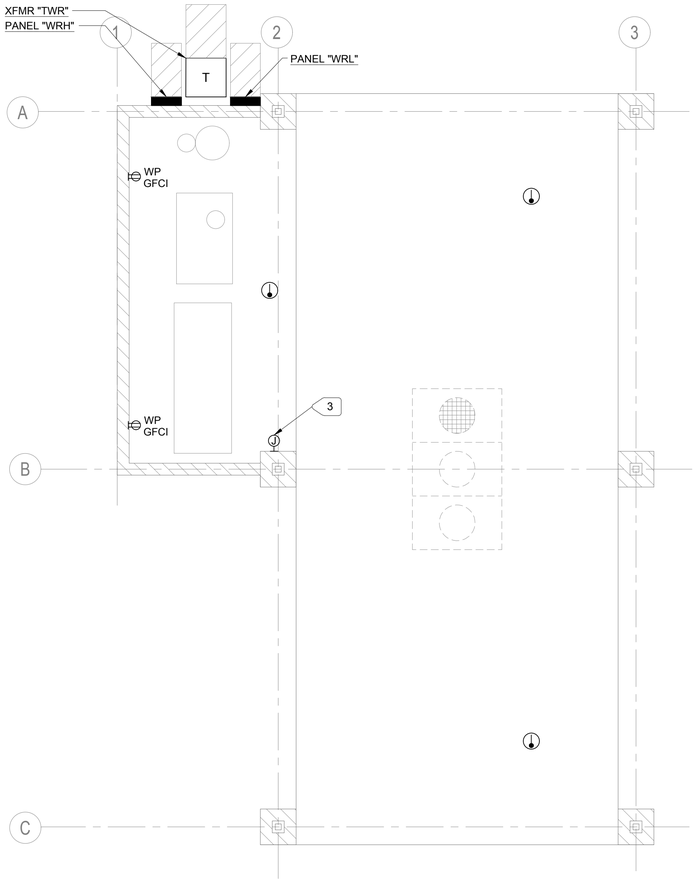
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Jan 21, 2020 - 12:10pm / akoon



1 E2.WR.1 **WASH RACK FLOOR PLAN - LIGHTING**

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

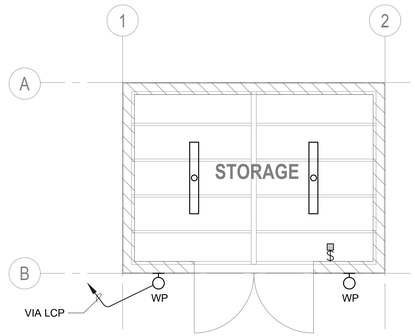


2 E2.WR.1 **WASH RACK FLOOR PLAN - POWER AND SIGNAL**

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

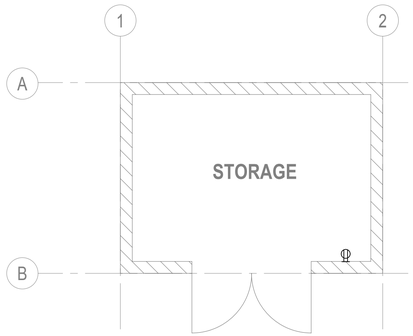
NUMBERED NOTES

1. LIGHTING WILL BE INDUSTRIAL, VAPOR TIGHT AND SURFACE MOUNTED TYPE.
2. EXTERIOR WALL MOUNTED LIGHTS WILL BE USED TO LIGHT THE PATHWAY AROUND THE BUILDING. LIGHTS WILL BE CONTROLLED ASTRONOMICALLY VIA LIGHTING CONTROL SYSTEM.
3. PROVIDE POWER AND CONTROLS FOR AIR COMPRESSOR/PRESSURE WASHER.



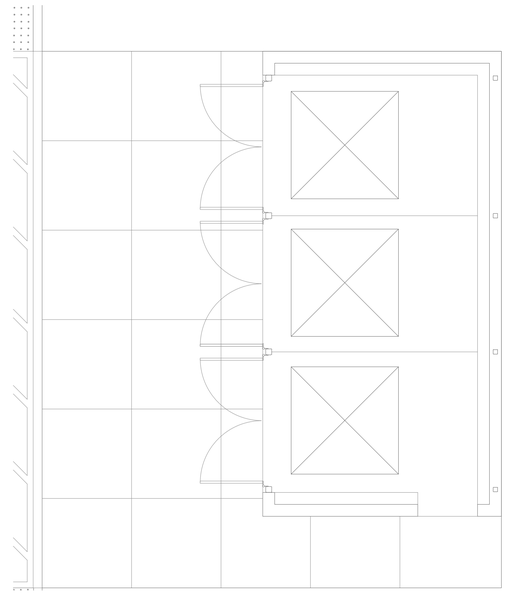
3 E2.WR.1 **STORAGE FLOOR PLAN - LIGHTING**

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



4 E2.WR.1 **STORAGE FLOOR PLAN - POWER AND SIGNAL**

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



5 E2.WR.1 **TRASH ENCLOSURE - LIGHTING**

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

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ARCHITECTURE AND ENVIRONMENTAL PLANNING
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ONE-LINE DIAGRAM LEGEND

- CIRCUIT BREAKER
- U.G. TERMINATION SERVICE LUGS
- TRANSFORMER
- (K)----(K) KIRK KEY SYSTEM TO ENABLE TEMPORARY GENERATOR CONNECTION. PROVIDE LAMINATED ENGRAVED PHENOLIC LABEL FOR SEQUENCE OF OPERATION SCHEME KIRK KEY SYSTEM. INSTALL ON FRONT OF SWITCHBOARD.
- SPD — SURGE PROTECTION DEVICE.
- GROUND

FEEDER SCHEDULE

TAG	DESCRIPTION
604	1-1/4" C., 4 #6, AND 1 #10 GND.
703	1-1/4" C., 3 #4, AND 1 #8 GND.
1004	1-1/4" C., 4 #2, AND 1 #8 GND.
1754	2" C., 4 #2/0, AND 1 #6 GND.
2004	2" C., 4 #3/0, AND 1 #6 GND.
6004	(2) 3" C., 2 SETS OF (4 #350, AND 1 #1 GND.)
8004	(2) 4" C., 2 SETS OF (4 #500, AND 1 #1/0 GND.)

NUMBERED NOTES

1. NOTE NOT USED.
2. COORDINATE UTILITY TRANSFORMER REQUIREMENTS WITH UTILITY.
3. PROVIDE ADJUSTABLE TRIP SETTING AND COORDINATE SETTING BETWEEN BREAKER.
4. PANEL SIZE ARE ESTIMATES ONLY AND WILL BE REVISED WHEN ALL THE LOAD CALCULATIONS ARE AVAILABLE.
5. EMERGENCY POWER SWITCH (EPO) MAINTAINED. PUSH/TURN BUTTON RED SHELL COVER WITH PROTECTIVE COVER STI #SS202-1PO. PROVIDE RELAY WITH 120 VAC COIL (ELECTRONICALLY HELD) NORMALLY OPEN (N.O.) CONTACTS AT 120 VAC RATED 10 AMP MINIMUM. PROVIDE SPACER SUB-10722 (RED) TO ACCOMMODATE ADDITIONAL DEPTH. PROVIDE WITH LAMINATED LABEL WITH RED LETTERS TO STATE "EMERGENCY GENERATOR SHUTOFF" LOCATED AT THE ABOVE THE EPO.

NON-ESSENTIAL ELECTRIC SERVICE LOAD CALCULATION

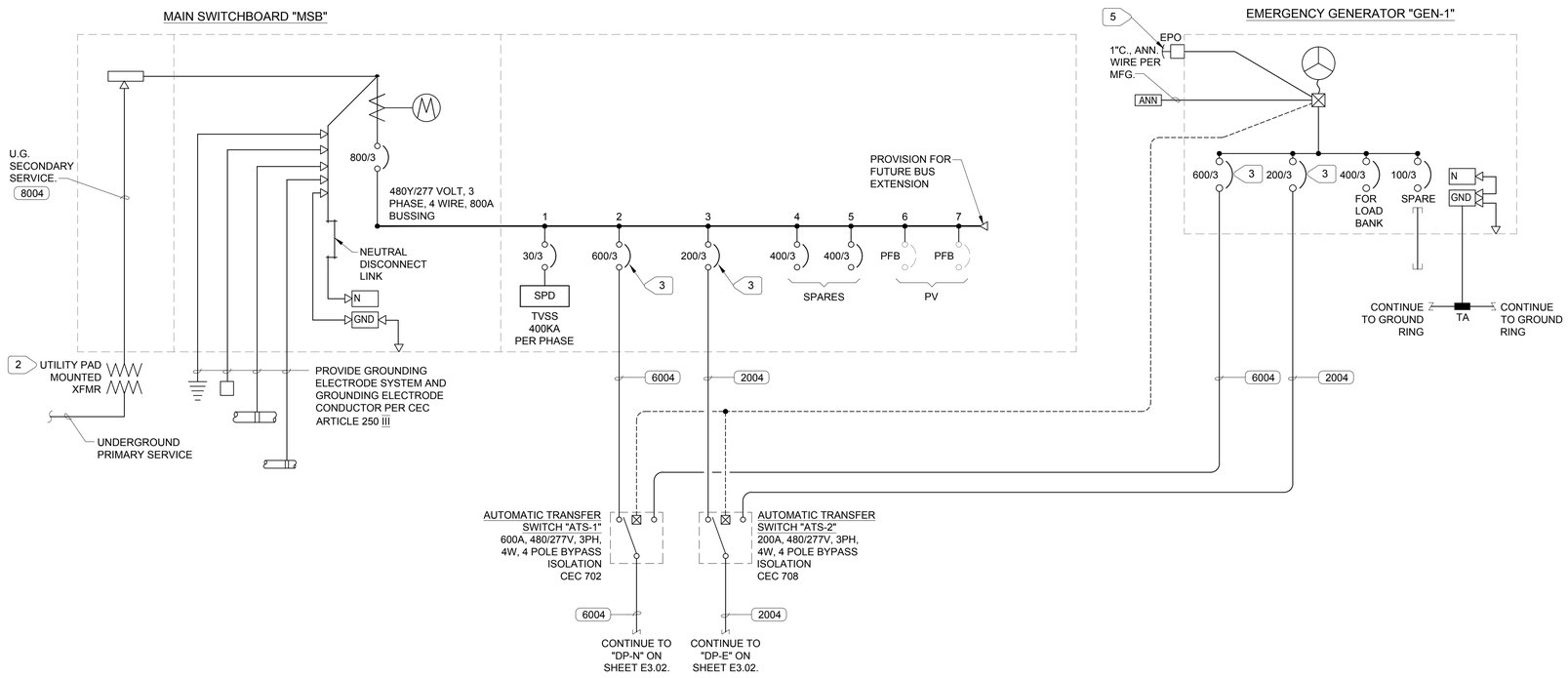
CAL FIRE Prado Helitack Base — Date: 1/16/2020
Project No.: 19068.21 — By: JLB

(NEC table 220-3[b])

Interior lighting						
Barracks	7300	Sq. Ft. @	0.70	VA per SF		5.11 kVA
Garage	3000	Sq. Ft. @	0.90	VA per SF		2.70
Canopy/Wash Rack	8900	Sq. Ft. @	1.10	VA per SF		9.79
Warehouse	4800	Sq. Ft. @	0.90	VA per SF		4.32
Trash/Storage	860	Sq. Ft. @	0.40	VA per SF		0.34
Fuel Tank/ Island	1900	Sq. Ft. @	0.90	VA per SF		1.71
Exterior lighting						6.05 kVA
25% continuous load factor						7.51
General purpose receptacle outlets			2.20	VA/SF =	58.87 kVA	
First 10 kVA or less			10.00		@ 100% =	10.00
Remainder over 10 kVA =					48.87 @ 50% =	24.44
Heating, ventilating and air conditioning equipment						
Air conditioning						167.25
Other equipment						
Garage Air Compressor			1	EA @	56.70 kVA ea.=	56.70
Water Heaters			1	EA @	3.60	3.60
Roll-Up Door			1	EA @	4.50	4.50
Air Dryer			1	EA @	1.00	1.00
Dryer/Washer			1	EA @	6.20	6.20
Furnace			1	EA @	1.50	1.50
Pump			1	EA @	54.00	54.00
Generator Motor			1	EA @	2.50	2.50
Largest motor =			1.50	kVA @ 25% =		0.38
TOTAL SERVICE LOAD					=	**369.59** kVA

369.59 kVA @ 277/480, 3 Ph, 4 W = **444.75** amperes

Use: **450** /3 main circuit breaker
(2) 2-1/2" C., 4 #4/0 THWN CU AND 1 #2 THWN CU GND IN EACH



1 / E3.01 — ONE LINE POWER DIAGRAM AND LOAD CALCULATIONS

NO SCALE

M. NEILS ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410
PROJECT #: 19068.21

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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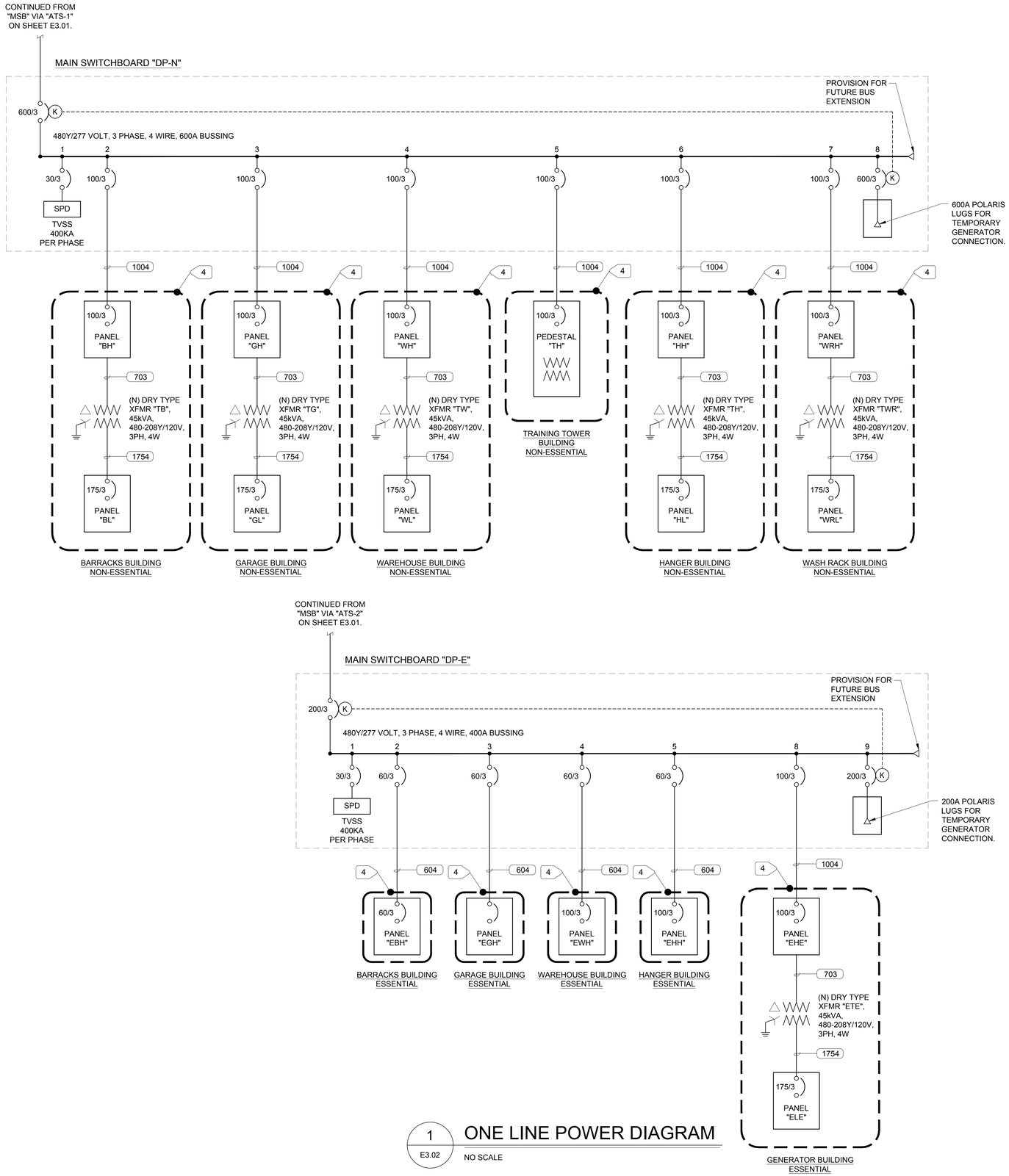
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drawn by WP/JLB
checked by JUB
job no. 2018-23
date 1-20-2020
cad file name
drawing no. E3.01
ONE LINE POWER DIAGRAM & LOAD CALCS
sheet title
sheet no.
of sheets

Jan 21, 2020 - 12:11pm / bcopp

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Jan 21, 2020 – 12:11pm / jkopp



1 E3.02 — ONE LINE POWER DIAGRAM

NO SCALE

GENERAL NOTES

SEE SHEET E3.01 FOR FEEDER SCHEDULE AND ONE-LINE DIAGRAM LEGEND.

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CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
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West Sacramento, California 95605
916-376-1638 Voice
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judy.haavisto@dgs.ca.gov

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cad file name
drawing no. E3.02
sheet title ONE LINE POWER DIAGRAM
sheet no.
of sheets

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ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410
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BUILDING NOTATION

B	= BARRACKS
E	= GENERATOR
G	= GARAGE
H	= HANGER
T	= TRAINING TOWER
W	= WAREHOUSE
WR	= WASH RACK

FIRE ALARM SYMBOL LIST

- JUNCTION BOX - SIZE AS REQUIRED BY CODE
- FIRE ALARM MANUAL PULL STATION, +45" A.F.F. UNLESS NOTED OTHERWISE (ALPHA-NUMBERIC SUBSCRIPT DENOTES LOOP AND DEVICE NUMBER - TYPICAL FOR ALL FIRE ALARM DEVICES)
- ABORT SWITCH (EMERGENCY POWER OFF, ETC.)
- FIRE ALARM HEAT DETECTOR - CEILING MOUNTED. "X" = "C", "R", "FR" TO INDICATE "RATE COMPENSATION", "RATE OF RISE", "FIXED TEMPERATURE AND RATE OF RISE" TYPE DETECTOR RESPECTIVELY. THE DEFAULT TYPE IS "FIXED TEMPERATURE" INDICATED BY NO LETTER.
- FIRE ALARM SMOKE DETECTOR - CEILING MOUNTED. "X" = "I", "R", "T" TO INDICATE "IONIZATION", "BEAM RECEIVER", "BEAM TRANSMITTER" TYPE DETECTOR RESPECTIVELY. THE DEFAULT TYPE IS "PHOTOELECTRIC" INDICATED BY NO LETTER.
- FIRE ALARM MECHANICAL DUCT DETECTOR - COORDINATE LOCATION WITH HVAC DRAWINGS AND CONTRACTOR.
- FIRE ALARM AUDIBLE DEVICE, +90" A.F.F. UNLESS OTHERWISE NOTED. DEFAULT DEVICE IS A CHIME (OR SPEAKER PER CONTRACT DOCUMENTS). "X" = "H" OR "B" TO INDICATE A HORN OR BELL RESPECTIVELY.
- FIRE ALARM AUDIO / VISUAL DEVICE, +80" A.F.F. DEFAULT AUDIO DEVICE IS A CHIME (OR SPEAKER PER CONTRACT DOCUMENTS). "X" = "H" OR "B" TO INDICATE A HORN OR BELL RESPECTIVELY. "YY" INDICATES STROBE CANDELA RATING.
- FIRE ALARM AUDIO / VISUAL DEVICE, CEILING MOUNTED. DEFAULT AUDIO DEVICE IS A CHIME (OR SPEAKER PER CONTRACT DOCUMENTS). "X" = "H" OR "B" TO INDICATE A HORN OR BELL RESPECTIVELY. "YY" INDICATES STROBE CANDELA RATING.
- VISUAL FIRE ALARM DEVICE +80" A.F.F. - WALL MOUNTED (LAMP, SIGNAL LIGHT, INDICATOR LAMP, STROBE), "YY" = CANDELA RATING
- VISUAL FIRE ALARM DEVICE - CEILING MOUNTED (LAMP, SIGNAL LIGHT, INDICATOR LAMP, STROBE), "YY" = CANDELA RATING
- F/S — FIRE/SMOKE DAMPER PROVIDED BY OTHER DIVISION, CONNECTION BY ELECTRICAL. SEE MECHANICAL PLANS
- F/D — FIRE DAMPER PROVIDED BY OTHER DIVISION, CONNECTION BY ELECTRICAL. SEE MECHANICAL PLANS
- RM — FIRE ALARM RELAY MODULE
- CM — FIRE ALARM CONTROL MODULE
- TS — FIRE RISER TAMPER SWITCH
- FS — FIRE RISER FLOW SWITCH
- EOL — END OF LINE RESISTOR
- FACP — MASTER FIRE ALARM CONTROL PANEL
- FAPS — REMOTE FIRE ALARM POWER SUPPLY
- ANN — FIRE ALARM REMOTE ANNUNCIATOR PANEL - FLUSH MOUNTED
- CONDUIT RUN CONCEALED IN CEILINGS OR WALLS. NUMBER OF HASH MARKS DENOTES QUANTITY OF WIRES. CURVED HASH MARK DENOTES QUANTITY OF #12 GREEN GROUND WIRES. CONDUCTORS OTHER THAN #12 ARE INDICATED ON PLANS. NO HASH MARKS DENOTES 2 #12 AWG AND 1 #12 GREEN GROUND IN 1/2" CONDUIT. TYPICAL FOR ALL CONDUITS.
- FLEXIBLE CONDUIT CONCEALED. NUMBER OF HASH MARKS DENOTES QUANTITY OF WIRES. CURVED HASH MARK DENOTES QUANTITY OF #12 GREEN GROUND WIRES. CONDUCTORS OTHER THAN #12 ARE INDICATED ON PLANS. NO HASH MARKS DENOTES 2 #12 AWG AND 1 #12 GREEN GROUND IN 1/2" MINIMUM DIAMETER CONDUIT.

- CONDUIT RUN UNDERFLOOR OR UNDERGROUND MINIMUM 1" DIAMETER.
- CONDUIT HOMERUN TO PANELBOARD, SWITCHBOARD OR TERMINAL CABINET
- CONDUIT TURNED AND RISED UP
- CONDUIT TURNED AND DROPPED DOWN
- CONDUIT WITH CAP
- CONDUIT STUB WITH INSULATED BUSHING
- EXISTING CONDUIT AND WIRING
- EXISTING CONDUIT TO BE REMOVED OR ABANDONED, REMOVE WIRES. COORDINATE WITH OWNER.
- PANELBOARD - SURFACE MOUNTED
- PANELBOARD - FLUSH MOUNTED
- EXISTING PANELBOARD - SURFACE MOUNTED
- EXISTING PANELBOARD - FLUSH MOUNTED
- TERMINAL CABINET
- $_{OL} — TOGGLE TYPE MOTOR RATED DISCONNECT SWITCH WITH OVERLOAD PROTECTION
- EQUIPMENT MOTOR POWER CONNECTIONS PART OF ELECTRICAL WORK
- EQ 1 — MECHANICAL EQUIPMENT DESIGNATION - SEE MECHANICAL PLANS
- 123 — ROOM NUMBER DESIGNATION
- 1 — DRAWING SHEET NUMBERED NOTE DESIGNATION - APPLIES TO NUMBERED NOTE ON SAME SHEET
- 1 / E-1 — DRAWING PLAN OR DETAIL DESIGNATION - "1" OR "A" DENOTES PLAN OR DETAIL NUMBER, "E-1" DENOTES SHEET NUMBER

SYMBOL LIST NOTES:

1. EXISTING ELECTRICAL EQUIPMENT, OUTLETS, AND DEVICES ARE SHOWN THE SAME AS NEW, EXCEPT LIGHTLY AND ACCOMPANIED BY (E). SUCH ELECTRICAL EQUIPMENT, OUTLETS, AND DEVICES ARE TO REMAIN AS IS, UNLESS OTHERWISE NOTED ON PLAN OR SPECIFICATION.
2. ELECTRICAL OUTLET BOXES MOUNTED ON OPPOSITE SIDES OF FIRE-RATED WALLS OR PARTITIONS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES PER CBC 2019, WHETHER SHOWN ON THE PLANS OR NOT.
3. VERIFY ON SITE THAT ALL PANELBOARDS HAVE MINIMUM WORKING SPACES PER CODE AND THAT THE DEDICATED PANELBOARD SPACES ARE CLEAR OF ALL DUCTS, PIPING AND EQUIPMENT FOREIGN TO THE PANEL BOARDS. NOTIFY THE ENGINEER FOR CORRECTIVE ACTION IN THE EVENT THAT FOREIGN OBJECTS IMPEDE THE DEDICATED PANELBOARD AREAS.
4. WHERE CONDUIT STUB IS INDICATED, PROVIDE CONDUIT WITH BUSHING AT THE END OF CONDUIT AND PULL ROPE INTO ACCESSIBLE CEILING AREA.

** UNDERGROUND DIGGING CAUTION **

USE EXTREME CAUTION WHEN DIGGING TO AVOID BURIED UTILITY CABLES, CONDUITS, AND PIPING. CALL "UNDERGROUND SERVICE ALERT" (U.S.A.):

1-800-642-2444

TWO WORKING DAYS BEFORE DIGGING TO VERIFY UNDERGROUND UTILITIES.

FIRE ALARM SHEET INDEX

No. OF SHEETS	DRAWING No.	DRAWING DESCRIPTIONS
1	FA0.01	FIRE ALARM SHEET INDEX
2	FA1.40	OVERALL SITE PLAN - FIRE ALARM
3	FA2.B.4	BARRACKS FLOOR PLAN - FIRE ALARM
4	FA2.E.4	GENERATOR FLOOR PLAN - FIRE ALARM
5	FA2.G.4	GARAGE FLOOR PLAN - FIRE ALARM
6	FA2.H.4	HANGAR FLOOR PLAN - FIRE ALARM
7	FA2.W.4	WAREHOUSE FLOOR PLAN - FIRE ALARM

APPLICABLE CODES AND REGULATIONS

2019	CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR)
2019	CALIFORNIA GREEN BUILDING STANDARDS CODE - PART 11, TITLE 24
2018	IBC AND 2019 CALIFORNIA AMENDMENTS (2016 CALIFORNIA BUILDING CODE - PART 2, TITLE 24, CCR)
2017	NEC AND 2019 CALIFORNIA AMENDMENTS (2016 CALIFORNIA ELECTRICAL CODE - PART 3, TITLE 24, CCR)
2018	UMC AND 2019 CALIFORNIA AMENDMENTS (2016 CALIFORNIA MECHANICAL CODE - PART 4, TITLE 24, CCR)
2018	UPC AND 2019 CALIFORNIA AMENDMENTS (2016 CALIFORNIA PLUMBING CODE - PART 5, TITLE 24, CCR)
2018	IFC AND 2019 CALIFORNIA AMENDMENTS (2016 CALIFORNIA FIRE CODE - PART 9, TITLE 24, CCR)
2018	N.F.P.A. 101 LIFE SAFETY CODE
2019	N.F.P.A. 72 FIRE ALARM CODE
2019	EDITION TITLE 19, CALIFORNIA CODE OF REGULATIONS, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.
	TITLE 8, CALIFORNIA CODE OF REGULATIONS, INDUSTRIAL STANDARDS.
	TITLE 22, CALIFORNIA CODE OF REGULATIONS, SOCIAL SECURITY DIVISIONS 5, 7.
	OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
	FACTORY MUTUAL SYSTEM (FM) REQUIREMENTS.
	ALL APPLICABLE STATE AND LOCAL CODES AND REGULATIONS

FIRE ALARM GENERAL NOTES

1. THE FIRE ALARM SYSTEM SHALL CONFORM TO ARTICLE 3-760 OF THE CALIFORNIA BUILDING CODE (CBC).
2. INSTALLATION OF THE FIRE ALARM DEVICE(S) SHALL NOT BE STARTED UNTIL DETAILED DEFERRED APPROVAL SHOP DRAWINGS AND SPECIFICATIONS, INCLUDING CALIFORNIA STATE FIRE MARSHAL LISTING NUMBERS FOR EACH COMPONENT OF THE SYSTEM, HAS BEEN SUBMITTED TO BUILDING DEPARTMENT BY THE CONTRACTOR AND APPROVED BY BUILDING FIRE MARSHAL.
3. THE LOCATION OF THE AUTOMATIC FIRE ALARM DEVICES SHOWN ON THE PLANS ARE FOR REFERENCE AND DO NOT CONSTITUTE SHOP DRAWINGS.
4. UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM DEVICE(S), A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE ENFORCING AGENCY.

M. NEILS ENGINEERING, INC.
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707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
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CAL FIRE
PRADO HELITACK BASE
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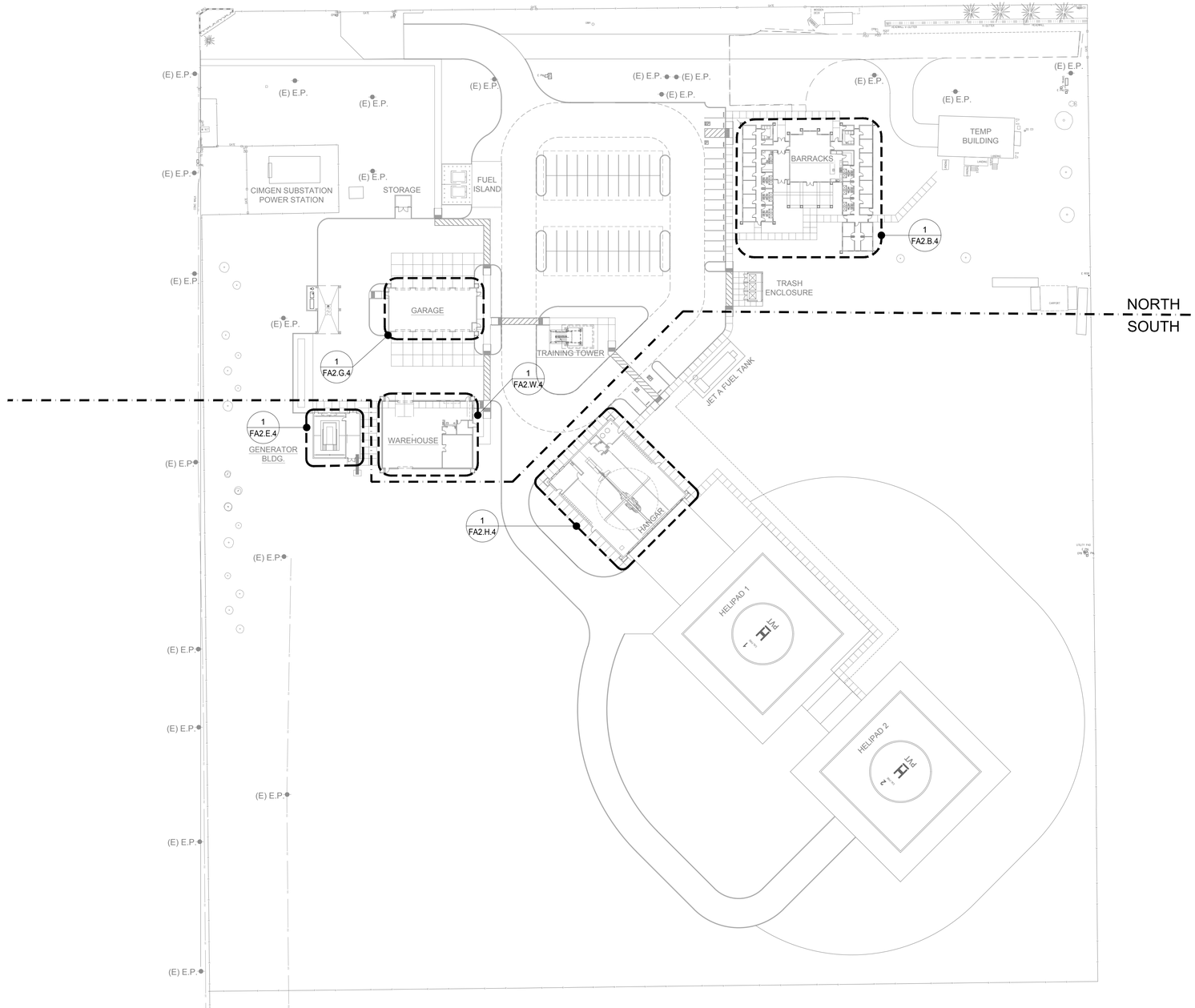
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drawn by	WP/JLB
checked by	JUB
job no.	2018-23
date	1-20-2020
cad file name	
drawing no.	FA0.01
sheet title	FIRE ALARM SHEET INDEX
sheet no.	
of	sheets

Jan 21, 2020 - 12:45pm / jkopp

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1 / FA1.40 OVERALL SITE PLAN - FIRE ALARM

SCALE : 1" = 50'-0"

0 50' 100'

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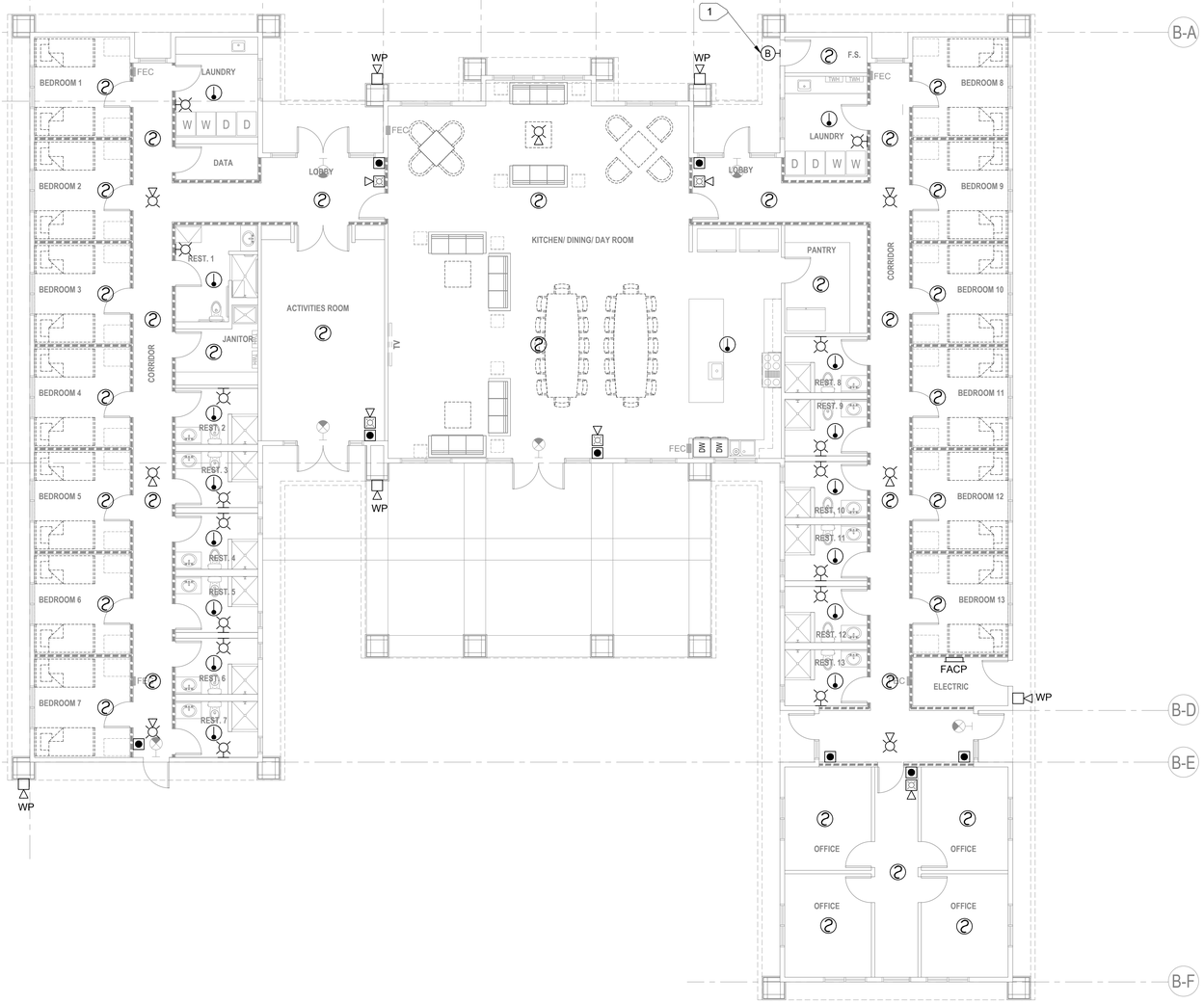
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checked by	JUB
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cad file name	
drawing no.	FA1.40
sheet title	OVERALL SITE PLAN - FIRE ALARM
sheet no.	
of	sheets



1 FA2.B.4

BARRACKS FLOOR PLAN - FIRE ALARM

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

NUMBERED NOTES

1 PROVIDE 24VDC BELL. CONNECT TO FLOW SWITCH.

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West Sacramento, California 95605
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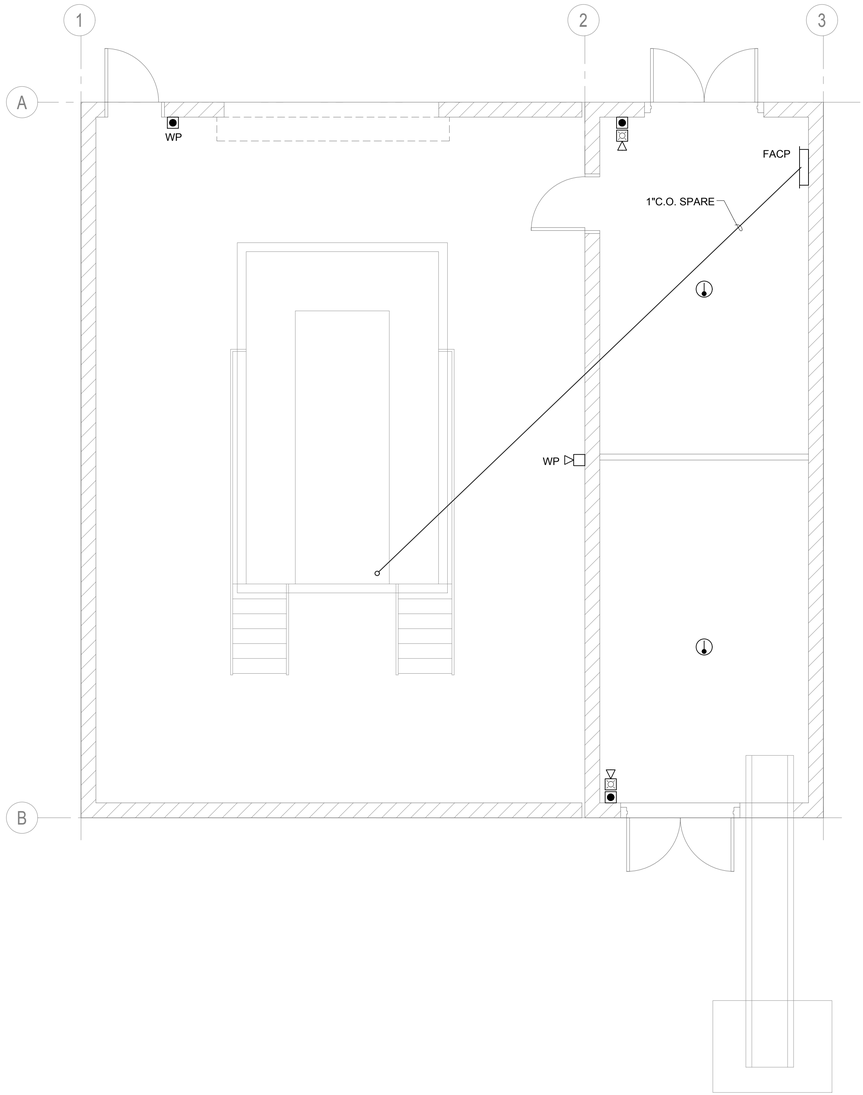
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sheet title	BARRACKS FLOOR PLAN - FIRE ALARM
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M. NEILS ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410
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Jan 21, 2020 – 12:43pm / jkopp



1 / FA2.E.4 GENERATOR FLOOR PLAN - FIRE ALARM

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

NUMBERED NOTES

~

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916 945-6117 Fax
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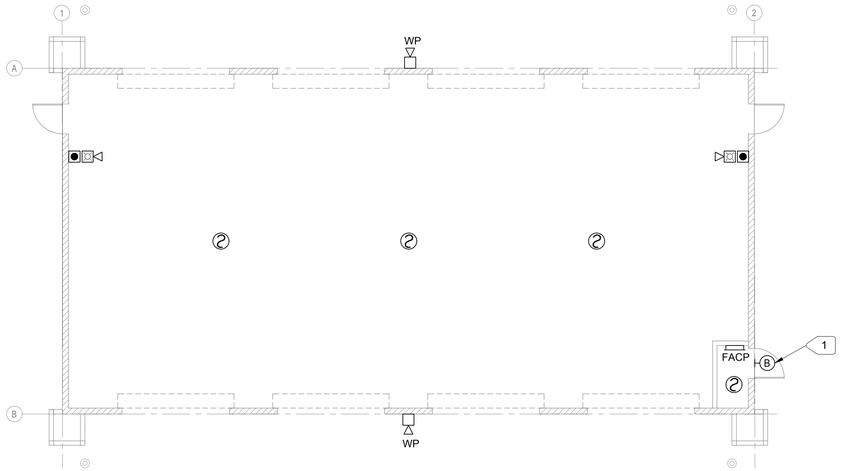
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date	1-20-2020
cad file name	
drawing no.	FA2.E.4

GENERATOR FLOOR PLAN - FIRE ALARM
sheet title

sheet no.
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1 FA2.G.4 GARAGE FLOOR PLAN - FIRE ALARM

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

NUMBERED NOTES

1 PROVIDE 24VDC BELL. CONNECT TO FLOW SWITCH.

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Judy Haavisto, Project Director II

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GARAGE FLOOR PLAN - FIRE ALARM
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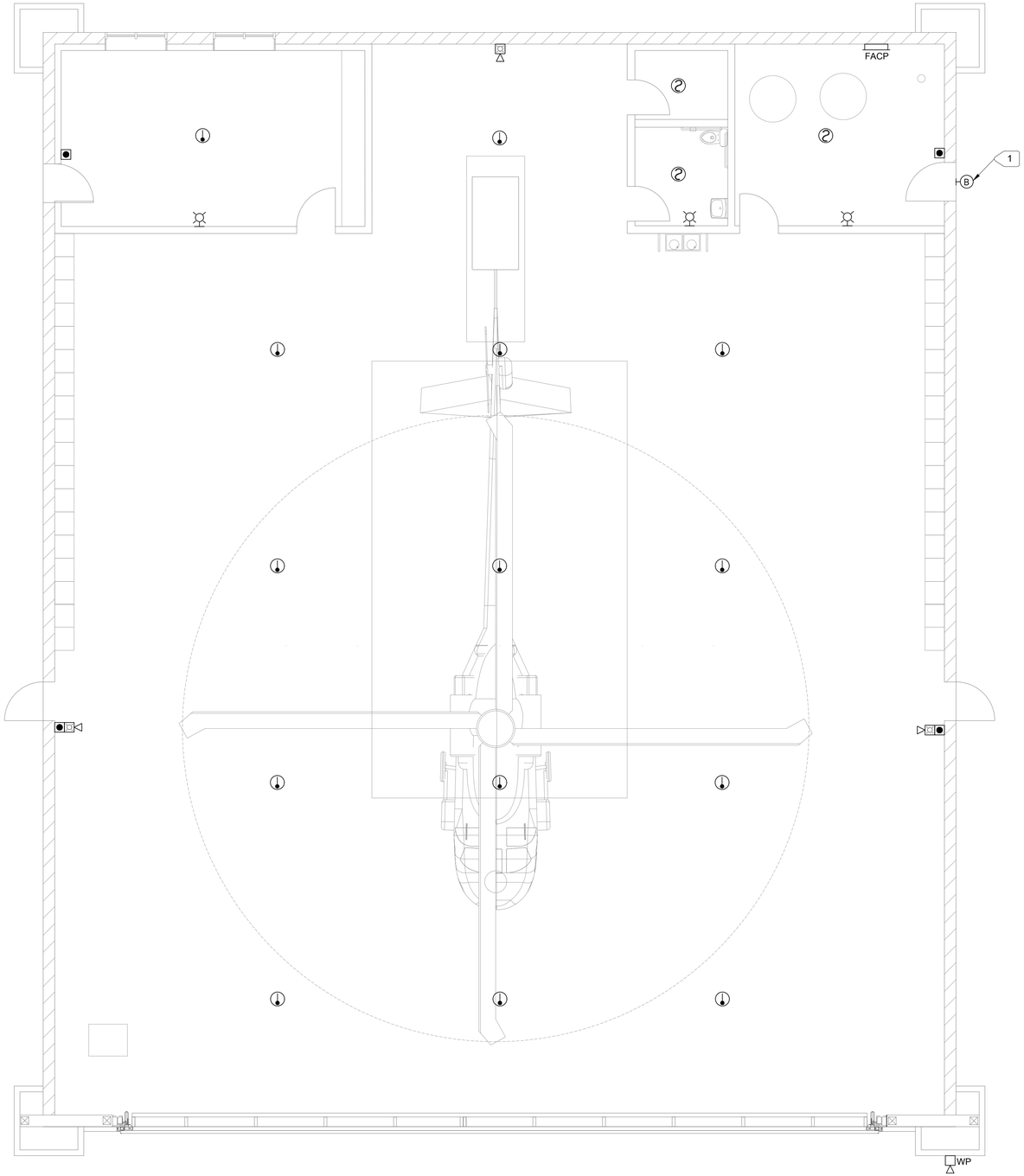
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Tel: (916) 923-4400 Fax: (916) 923-4410
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Jan 21, 2020 - 12:41pm / jkopp

UNAUTHORIZED CHANGES & USES: M. Neils Engineering, Inc. preparing these plans will not be responsible for, or liable for unauthorized changes to or uses to these plans. All changes to these plans must be in writing and must be approved by M. Neils Engineering, Inc.

Jan 21, 2020 – 12:44pm / jkopp



1 FA2.H.4

HANGAR FLOOR PLAN - FIRE ALARM

SCALE : 3/16" = 1'-0"

NUMBERED NOTES

1 PROVIDE 24VDC BELL. CONNECT TO FLOW SWITCH.

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
Judy Haavisto, Project Director II

707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

revisions

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL.# 04- XXXXXX
APPL.# 04- XXXXXX

AC _____ FLS _____ SS _____
DATE _____

CALIFORNIA STATE FIRE MARSHAL APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on project site at all times.

Reviewed by:_____

AOR

LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

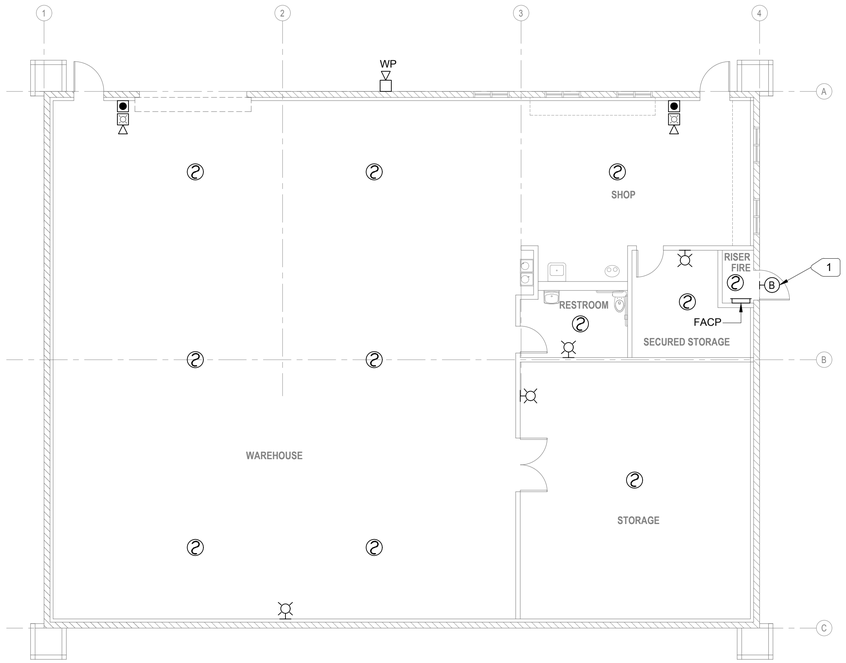
EOR

drawn by	WIP/JLB
checked by	JUB
job no.	2018-23
date	1-20-2020
cad file name	
drawing no.	FA2.H.4
sheet title	HANGAR FLOOR PLAN - FIRE ALARM
sheet no.	
of	sheets

M. NEILS
ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410
PROJECT #: 19068.21

UNAUTHORIZED CHANGES & USES: M. Neils Engineering, Inc. preparing these plans will not be responsible for, or liable for unauthorized changes to or uses to these plans. All changes to these plans must be in writing and must be approved by M. Neils Engineering, Inc.

Jan 21, 2020 - 12:42pm / jkropp



1 FA2.W.4

WAREHOUSE FLOOR PLAN - FIRE ALARM

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

NUMBERED NOTES

1 PROVIDE 24VDC BELL. CONNECT TO FLOW SWITCH.

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division
Judy Haavisto, Project Director II
707 Third Street, 4TH Floor
West Sacramento, California 95605
916-376-1638 Voice
916 945-6117 Fax
judy.haavisto@dgs.ca.gov

PROJECT:
CAL FIRE
PRADO HELITACK BASE
14467 CENTRAL AVE.,
CHINO, CA 91710

DEAN F. UNGER, AIA, INC.
ARCHITECTURE AND ENVIRONMENTAL PLANNING
700 Alhambra Blvd.
Sacramento, California
95816 916 443 5747

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Reviewed by:_____

AOR

LICENSED ARCHITECT
BRUCE F. UNGER
NO. C15804
REN. 5-31-21
STATE OF CALIFORNIA

EOR

drawn by	WP/JLB
checked by	JUB
job no.	2018-23
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M. NEILS ENGINEERING, INC.
Electrical Engineers | Lighting Designers
100 Howe Ave., Suite 235N
Sacramento, CA 95825-8217
www.mneilsengineering.com
Tel: (916) 923-4400 Fax: (916) 923-4410
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APPENDIX B

Land Evaluation and Site Assessment (LESA) Model (2020)

California Agricultural
Land Evaluation and Site Assessment (LESA)
Model Calculation Tables

Table 1A.
Land Evaluation Worksheet

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
Me	2.67	100%	3s	60	60	70	70
Totals	2.67	(Must Sum to 1.0)		***LCC Total***	60	***Storie Index Total***	70

Table 1B.
Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC Class I - II	LCC Class III	LCC Class IV - VIII
		0	
Total Acres		2.67	
Project Size Scores		0	

Highest Project Size Score 0

Table 4. Site Assessment Worksheet 2. - Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1	Irr. Water District	100%	65	65
2				
3				
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	65

Table 8. Final LESA Scoresheet

A	B		C		D
Factor Name	Factor Rating (0-100 points)	X	Factor Weighting (Total = 1.00)	=	Weighted Factor Rating
Land Evaluation (LE)					
1. Land Capability Classification	<Line 1> 60	X	0.25	=	15.0
2. Storie Index Rating	<Line 2> 70	X	0.25	=	**17.5**
Site Assessment (SA)					
1. Project Size	<Line 3> 0	X	0.15	=	0
2. Water Resource Availability	<Line 4> 65	X	0.15	=	9.75
3. Surrounding Agricultural Lands	<Line 5> 30	X	0.15	=	4.5
4. Protected Resource Lands	<Line 6> 0	X	0.05	=	0
			Total LESA Score (sum of weighted factor ratings)		<Line 7> 46.75

APPENDIX C1

Criteria Air Pollutants, ECORP Consulting, Inc. June 2020

Prado Helitack - Proposed Project

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government Office Building	7.47	1000sqft	0.17	7,465.00	0
Unrefrigerated Warehouse-No Rail	4.80	1000sqft	0.11	4,800.00	0
Unrefrigerated Warehouse-No Rail	2.99	1000sqft	0.07	2,990.00	0
Unrefrigerated Warehouse-No Rail	0.41	1000sqft	0.01	406.00	0
Unrefrigerated Warehouse-No Rail	1.09	1000sqft	0.03	1,093.00	0
Unrefrigerated Warehouse-No Rail	0.16	1000sqft	0.00	156.00	0
Unrefrigerated Warehouse-No Rail	7.42	1000sqft	0.17	7,421.00	0
Unrefrigerated Warehouse-No Rail	1.66	1000sqft	0.04	1,660.00	0
Other Non-Asphalt Surfaces	7.70	1000sqft	0.18	7,700.00	0
Parking Lot	44.00	Space	0.40	17,600.00	0
Gasoline/Service Station	3.00	Pump	0.01	423.52	0
Other Non-Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Parking Lot	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	549	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE 2017 CO2 Intensity Factor

Land Use - Accounts for 7,465 sf barracks, 4,800 sf warehouse, 2,990 garage, 406 sf tower, 1,093 wash rack, 156 sf storage bldng, 7,421 sf hangar, 1,660 sf electrical bldng, 7,700 sf of helipad space, parking lot, jet fuel tanks, utility improvements, and offsite improvements

Construction Phase - Building construction, paving, and painting assumed to occur simultaneously

Demolition -

Vehicle Trips - Trip Generation per TIA

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Summer

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	18.00	230.00
tblConstructionPhase	NumDays	18.00	230.00
tblConstructionPhase	PhaseEndDate	8/13/2021	4/1/2022
tblConstructionPhase	PhaseEndDate	6/24/2021	4/1/2022
tblConstructionPhase	PhaseEndDate	7/20/2020	4/28/2021
tblConstructionPhase	PhaseEndDate	8/6/2020	5/14/2021
tblConstructionPhase	PhaseEndDate	7/20/2021	4/1/2022
tblConstructionPhase	PhaseEndDate	7/27/2020	5/5/2021
tblConstructionPhase	PhaseStartDate	7/21/2021	5/15/2021
tblConstructionPhase	PhaseStartDate	8/7/2020	5/15/2021
tblConstructionPhase	PhaseStartDate	6/23/2020	4/1/2021
tblConstructionPhase	PhaseStartDate	7/28/2020	5/5/2021
tblConstructionPhase	PhaseStartDate	6/25/2021	5/15/2021
tblConstructionPhase	PhaseStartDate	7/21/2020	4/29/2021
tblProjectCharacteristics	CO2IntensityFactor	702.44	549
tblVehicleTrips	ST_TR	168.56	0.00
tblVehicleTrips	ST_TR	0.00	9.77
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	168.56	0.00
tblVehicleTrips	SU_TR	0.00	9.77
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	168.56	0.00
tblVehicleTrips	WD_TR	68.93	9.77
tblVehicleTrips	WD_TR	1.68	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.3462	65.3374	38.3779	0.0713	24.9875	3.2067	28.1942	13.3960	2.9502	16.3462	0.0000	6,918.6320	6,918.6320	2.1311	0.0000	6,971.9103
2022	4.7669	29.6036	35.0957	0.0686	1.4329	1.3903	2.8231	0.3844	1.3043	1.6887	0.0000	6,658.4427	6,658.4427	1.2806	0.0000	6,690.4561
Maximum	**6.3462**	**65.3374**	**38.3779**	**0.0713**	**24.9875**	**3.2067**	**28.1942**	**13.3960**	**2.9502**	**16.3462**	**0.0000**	**6,918.6320**	**6,918.6320**	**2.1311**	**0.0000**	**6,971.9103**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.3462	65.3374	38.3779	0.0713	9.8418	3.2067	13.0486	5.2526	2.9502	8.2028	0.0000	6,918.6320	6,918.6320	2.1311	0.0000	6,971.9103
2022	4.7669	29.6036	35.0957	0.0686	0.9467	1.3903	2.3369	0.2650	1.3043	1.5693	0.0000	6,658.4427	6,658.4427	1.2806	0.0000	6,690.4561
Maximum	**6.3462**	**65.3374**	**38.3779**	**0.0713**	**9.8418**	**3.2067**	**13.0486**	**5.2526**	**2.9502**	**8.2028**	**0.0000**	**6,918.6320**	**6,918.6320**	**2.1311**	**0.0000**	**6,971.9103**

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.17**	**0.00**	**50.40**	**59.96**	**0.00**	**45.82**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6580	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195
Energy	2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		24.9062	24.9062	4.8000e-004	4.6000e-004	25.0542
Mobile	0.1468	0.8997	1.4630	5.3400e-003	0.3662	3.7000e-003	0.3699	0.0980	3.4600e-003	0.1015		545.1459	545.1459	0.0304		545.9052
Total	**0.8071**	**0.9205**	**1.4890**	**5.4600e-003**	**0.3662**	**5.3100e-003**	**0.3715**	**0.0980**	**5.0700e-003**	**0.1031**		**570.0704**	**570.0704**	**0.0309**	**4.6000e-004**	**570.9789**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6580	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195
Energy	2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		24.9062	24.9062	4.8000e-004	4.6000e-004	25.0542
Mobile	0.1468	0.8997	1.4630	5.3400e-003	0.3662	3.7000e-003	0.3699	0.0980	3.4600e-003	0.1015		545.1459	545.1459	0.0304		545.9052
Total	**0.8071**	**0.9205**	**1.4890**	**5.4600e-003**	**0.3662**	**5.3100e-003**	**0.3715**	**0.0980**	**5.0700e-003**	**0.1031**		**570.0704**	**570.0704**	**0.0309**	**4.6000e-004**	**570.9789**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2021	4/28/2021	5	20	
2	Site Preparation	Site Preparation	4/29/2021	5/5/2021	5	5	
3	Grading	Grading	5/5/2021	5/14/2021	5	8	
4	Building Construction	Building Construction	5/15/2021	4/1/2022	5	230	
5	Paving	Paving	5/15/2021	4/1/2022	5	230	
6	Architectural Coating	Architectural Coating	5/15/2021	4/1/2022	5	230	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 3.58

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 39,622; Non-Residential Outdoor: 13,207; Striped Parking Area: 9,359 (Architectural Coating – sqft)

OffRoad Equipment

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Grading	Excavators	1	8.00	158	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	6.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	2	6.00	132	0.36
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	76.00	30.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	37.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3959	0.0000	0.3959	0.0599	0.0000	0.0599			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.3959**	**1.5513**	**1.9472**	**0.0599**	**1.4411**	**1.5010**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0110	0.4220	0.0654	1.4400e-003	0.0324	1.1900e-003	0.0336	8.8800e-003	1.1400e-003	0.0100		152.6601	152.6601	8.1800e-003		152.8647
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0872**	**0.4691**	**0.6863**	**3.0900e-003**	**0.2000**	**2.2600e-003**	**0.2023**	**0.0534**	**2.1300e-003**	**0.0555**		**316.7722**	**316.7722**	**0.0129**		**317.0935**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1544	0.0000	0.1544	0.0234	0.0000	0.0234			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.1544**	**1.5513**	**1.7057**	**0.0234**	**1.4411**	**1.4645**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0110	0.4220	0.0654	1.4400e-003	0.0226	1.1900e-003	0.0238	6.4700e-003	1.1400e-003	7.6200e-003		152.6601	152.6601	8.1800e-003		152.8647
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1094	1.0700e-003	0.1104	0.0302	9.9000e-004	0.0311		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0872**	**0.4691**	**0.6863**	**3.0900e-003**	**0.1320**	**2.2600e-003**	**0.1342**	**0.0366**	**2.1300e-003**	**0.0388**		**316.7722**	**316.7722**	**0.0129**		**317.0935**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0915	0.0565	0.7452	1.9800e-003	0.2012	1.2900e-003	0.2025	0.0534	1.1900e-003	0.0545		196.9345	196.9345	5.6000e-003		197.0746
Total	**0.0915**	**0.0565**	**0.7452**	**1.9800e-003**	**0.2012**	**1.2900e-003**	**0.2025**	**0.0534**	**1.1900e-003**	**0.0545**		**196.9345**	**196.9345**	**5.6000e-003**		**197.0746**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**7.0458**	**2.0445**	**9.0903**	**3.8730**	**1.8809**	**5.7539**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0915	0.0565	0.7452	1.9800e-003	0.1312	1.2900e-003	0.1325	0.0362	1.1900e-003	0.0374		196.9345	196.9345	5.6000e-003		197.0746
Total	**0.0915**	**0.0565**	**0.7452**	**1.9800e-003**	**0.1312**	**1.2900e-003**	**0.1325**	**0.0362**	**1.1900e-003**	**0.0374**		**196.9345**	**196.9345**	**5.6000e-003**		**197.0746**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.5523**	**1.1599**	**7.7123**	**3.3675**	**1.0671**	**4.4346**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0762**	**0.0471**	**0.6210**	**1.6500e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**164.1121**	**164.1121**	**4.6700e-003**		**164.2289**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**2.5554**	**1.1599**	**3.7153**	**1.3133**	**1.0671**	**2.3804**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1094	1.0700e-003	0.1104	0.0302	9.9000e-004	0.0311		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0762**	**0.0471**	**0.6210**	**1.6500e-003**	**0.1094**	**1.0700e-003**	**0.1104**	**0.0302**	**9.9000e-004**	**0.0311**		**164.1121**	**164.1121**	**4.6700e-003**		**164.2289**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0776	2.8931	0.5444	8.0900e-003	0.1921	4.9600e-003	0.1971	0.0553	4.7400e-003	0.0601		853.7679	853.7679	0.0540		855.1168
Worker	0.3862	0.2387	3.1463	8.3500e-003	0.8495	5.4300e-003	0.8549	0.2253	5.0000e-003	0.2303		831.5012	831.5012	0.0237		832.0928
Total	**0.4638**	**3.1318**	**3.6907**	**0.0164**	**1.0416**	**0.0104**	**1.0520**	**0.2806**	**9.7400e-003**	**0.2904**		**1,685.2691**	**1,685.2691**	**0.0776**		**1,687.2096**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0776	2.8931	0.5444	8.0900e-003	0.1374	4.9600e-003	0.1424	0.0419	4.7400e-003	0.0466		853.7679	853.7679	0.0540		855.1168
Worker	0.3862	0.2387	3.1463	8.3500e-003	0.5541	5.4300e-003	0.5595	0.1528	5.0000e-003	0.1578		831.5012	831.5012	0.0237		832.0928
Total	**0.4638**	**3.1318**	**3.6907**	**0.0164**	**0.6915**	**0.0104**	**0.7019**	**0.1947**	**9.7400e-003**	**0.2044**		**1,685.2691**	**1,685.2691**	**0.0776**		**1,687.2096**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0723	2.7439	0.5033	8.0300e-003	0.1921	4.1700e-003	0.1963	0.0553	3.9800e-003	0.0593		846.9228	846.9228	0.0521		848.2249
Worker	0.3606	0.2146	2.8903	8.0500e-003	0.8495	5.2700e-003	0.8548	0.2253	4.8600e-003	0.2302		801.4978	801.4978	0.0212		802.0285
Total	**0.4329**	**2.9585**	**3.3936**	**0.0161**	**1.0416**	**9.4400e-003**	**1.0511**	**0.2806**	**8.8400e-003**	**0.2895**		**1,648.4206**	**1,648.4206**	**0.0733**		**1,650.2534**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0723	2.7439	0.5033	8.0300e-003	0.1374	4.1700e-003	0.1416	0.0419	3.9800e-003	0.0459		846.9228	846.9228	0.0521		848.2249
Worker	0.3606	0.2146	2.8903	8.0500e-003	0.5541	5.2700e-003	0.5594	0.1528	4.8600e-003	0.1576		801.4978	801.4978	0.0212		802.0285
Total	**0.4329**	**2.9585**	**3.3936**	**0.0161**	**0.6915**	**9.4400e-003**	**0.7009**	**0.1947**	**8.8400e-003**	**0.2035**		**1,648.4206**	**1,648.4206**	**0.0733**		**1,650.2534**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0940	10.8399	12.2603	0.0189		0.5788	0.5788		0.5342	0.5342		1,804.5523	1,804.5523	0.5670		1,818.7270
Paving	0.0273					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1213**	**10.8399**	**12.2603**	**0.0189**		**0.5788**	**0.5788**		**0.5342**	**0.5342**		**1,804.5523**	**1,804.5523**	**0.5670**		**1,818.7270**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1016	0.0628	0.8280	2.2000e-003	0.2236	1.4300e-003	0.2250	0.0593	1.3200e-003	0.0606		218.8161	218.8161	6.2300e-003		218.9718
Total	**0.1016**	**0.0628**	**0.8280**	**2.2000e-003**	**0.2236**	**1.4300e-003**	**0.2250**	**0.0593**	**1.3200e-003**	**0.0606**		**218.8161**	**218.8161**	**6.2300e-003**		**218.9718**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0940	10.8399	12.2603	0.0189		0.5788	0.5788		0.5342	0.5342	0.0000	1,804.5523	1,804.5523	0.5670		1,818.7270
Paving	0.0273					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1213**	**10.8399**	**12.2603**	**0.0189**		**0.5788**	**0.5788**		**0.5342**	**0.5342**	**0.0000**	**1,804.5523**	**1,804.5523**	**0.5670**		**1,818.7270**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1016	0.0628	0.8280	2.2000e-003	0.1458	1.4300e-003	0.1472	0.0402	1.3200e-003	0.0415		218.8161	218.8161	6.2300e-003		218.9718
Total	**0.1016**	**0.0628**	**0.8280**	**2.2000e-003**	**0.1458**	**1.4300e-003**	**0.1472**	**0.0402**	**1.3200e-003**	**0.0415**		**218.8161**	**218.8161**	**6.2300e-003**		**218.9718**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9765	9.5221	12.1940	0.0189		0.4877	0.4877		0.4504	0.4504		1,805.1297	1,805.1297	0.5672		1,819.3091
Paving	0.0273					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0039**	**9.5221**	**12.1940**	**0.0189**		**0.4877**	**0.4877**		**0.4504**	**0.4504**		**1,805.1297**	**1,805.1297**	**0.5672**		**1,819.3091**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0949	0.0565	0.7606	2.1200e-003	0.2236	1.3900e-003	0.2249	0.0593	1.2800e-003	0.0606		210.9205	210.9205	5.5900e-003		211.0601
Total	**0.0949**	**0.0565**	**0.7606**	**2.1200e-003**	**0.2236**	**1.3900e-003**	**0.2249**	**0.0593**	**1.2800e-003**	**0.0606**		**210.9205**	**210.9205**	**5.5900e-003**		**211.0601**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9765	9.5221	12.1940	0.0189		0.4877	0.4877		0.4504	0.4504	0.0000	1,805.1297	1,805.1297	0.5672		1,819.3091
Paving	0.0273					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0039**	**9.5221**	**12.1940**	**0.0189**		**0.4877**	**0.4877**		**0.4504**	**0.4504**	**0.0000**	**1,805.1297**	**1,805.1297**	**0.5672**		**1,819.3091**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0949	0.0565	0.7606	2.1200e-003	0.1458	1.3900e-003	0.1472	0.0402	1.2800e-003	0.0415		210.9205	210.9205	5.5900e-003		211.0601
Total	**0.0949**	**0.0565**	**0.7606**	**2.1200e-003**	**0.1458**	**1.3900e-003**	**0.1472**	**0.0402**	**1.2800e-003**	**0.0415**		**210.9205**	**210.9205**	**5.5900e-003**		**211.0601**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.2532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**1.4721**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0762**	**0.0471**	**0.6210**	**1.6500e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**164.1121**	**164.1121**	**4.6700e-003**		**164.2289**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.2532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**1.4721**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1094	1.0700e-003	0.1104	0.0302	9.9000e-004	0.0311		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0762**	**0.0471**	**0.6210**	**1.6500e-003**	**0.1094**	**1.0700e-003**	**0.1104**	**0.0302**	**9.9000e-004**	**0.0311**		**164.1121**	**164.1121**	**4.6700e-003**		**164.2289**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.2532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**1.4578**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0712	0.0424	0.5705	1.5900e-003	0.1677	1.0400e-003	0.1687	0.0445	9.6000e-004	0.0454		158.1904	158.1904	4.1900e-003		158.2951
Total	**0.0712**	**0.0424**	**0.5705**	**1.5900e-003**	**0.1677**	**1.0400e-003**	**0.1687**	**0.0445**	**9.6000e-004**	**0.0454**		**158.1904**	**158.1904**	**4.1900e-003**		**158.2951**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.2532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**1.4578**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0712	0.0424	0.5705	1.5900e-003	0.1094	1.0400e-003	0.1104	0.0302	9.6000e-004	0.0311		158.1904	158.1904	4.1900e-003		158.2951
Total	**0.0712**	**0.0424**	**0.5705**	**1.5900e-003**	**0.1094**	**1.0400e-003**	**0.1104**	**0.0302**	**9.6000e-004**	**0.0311**		**158.1904**	**158.1904**	**4.1900e-003**		**158.2951**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1468	0.8997	1.4630	5.3400e-003	0.3662	3.7000e-003	0.3699	0.0980	3.4600e-003	0.1015		545.1459	545.1459	0.0304		545.9052
Unmitigated	0.1468	0.8997	1.4630	5.3400e-003	0.3662	3.7000e-003	0.3699	0.0980	3.4600e-003	0.1015		545.1459	545.1459	0.0304		545.9052

4.2 Trip Summary Information

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Summer

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Gasoline/Service Station	0.00	0.00	0.00		
Government Office Building	72.93	72.93	72.93	171,740	171,740
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	72.93	72.93	72.93	171,740	171,740

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
Government Office Building	16.60	8.40	6.90	33.00	62.00	5.00	50	34	16
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Gasoline/Service Station	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Government Office Building	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		24.9062	24.9062	4.8000e-004	4.6000e-004	25.0542
NaturalGas Unmitigated	2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		24.9062	24.9062	4.8000e-004	4.6000e-004	25.0542

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	37.6991	4.1000e-004	3.7000e-003	3.1000e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.4352	4.4352	9.0000e-005	8.0000e-005	4.4615
Government Office Building	70.9686	7.7000e-004	6.9600e-003	5.8400e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3493	8.3493	1.6000e-004	1.5000e-004	8.3989
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.867616	1.0000e-005	9.0000e-005	7.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		0.1021	0.1021	0.0000	0.0000	0.1027
Unrefrigerated Warehouse-No Rail	16.6293	1.8000e-004	1.6300e-003	1.3700e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.9564	1.9564	4.0000e-005	4.0000e-005	1.9680
Unrefrigerated Warehouse-No Rail	2.25803	2.0000e-005	2.2000e-004	1.9000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.2657	0.2657	1.0000e-005	0.0000	0.2672
Unrefrigerated Warehouse-No Rail	26.6959	2.9000e-004	2.6200e-003	2.2000e-003	2.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		3.1407	3.1407	6.0000e-005	6.0000e-005	3.1594
Unrefrigerated Warehouse-No Rail	41.273	4.5000e-004	4.0500e-003	3.4000e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.8556	4.8556	9.0000e-005	9.0000e-005	4.8845
Unrefrigerated Warehouse-No Rail	6.07888	7.0000e-005	6.0000e-004	5.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.7152	0.7152	1.0000e-005	1.0000e-005	0.7194
Unrefrigerated Warehouse-No Rail	9.23233	1.0000e-004	9.1000e-004	7.6000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		1.0862	1.0862	2.0000e-005	2.0000e-005	1.0926
Total		**2.3000e-003**	**0.0208**	**0.0174**	**1.2000e-004**		**1.5900e-003**	**1.5900e-003**		**1.5900e-003**	**1.5900e-003**		**24.9062**	**24.9062**	**4.8000e-004**	**4.5000e-004**	**25.0542**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0.0376991	4.1000e-004	3.7000e-003	3.1000e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.4352	4.4352	9.0000e-005	8.0000e-005	4.4615
Government Office Building	0.0709686	7.7000e-004	6.9600e-003	5.8400e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3493	8.3493	1.6000e-004	1.5000e-004	8.3989
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.000867616	1.0000e-005	9.0000e-005	7.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		0.1021	0.1021	0.0000	0.0000	0.1027
Unrefrigerated Warehouse-No Rail	0.00225803	2.0000e-005	2.2000e-004	1.9000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.2657	0.2657	1.0000e-005	0.0000	0.2672
Unrefrigerated Warehouse-No Rail	0.00607888	7.0000e-005	6.0000e-004	5.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.7152	0.7152	1.0000e-005	1.0000e-005	0.7194
Unrefrigerated Warehouse-No Rail	0.00923233	1.0000e-004	9.1000e-004	7.6000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		1.0862	1.0862	2.0000e-005	2.0000e-005	1.0926
Unrefrigerated Warehouse-No Rail	0.0166293	1.8000e-004	1.6300e-003	1.3700e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.9564	1.9564	4.0000e-005	4.0000e-005	1.9680
Unrefrigerated Warehouse-No Rail	0.0266959	2.9000e-004	2.6200e-003	2.2000e-003	2.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		3.1407	3.1407	6.0000e-005	6.0000e-005	3.1594
Unrefrigerated Warehouse-No Rail	0.041273	4.5000e-004	4.0500e-003	3.4000e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.8556	4.8556	9.0000e-005	9.0000e-005	4.8845
Total		**2.3000e-003**	**0.0208**	**0.0174**	**1.2000e-004**		**1.5900e-003**	**1.5900e-003**		**1.5900e-003**	**1.5900e-003**		**24.9062**	**24.9062**	**4.8000e-004**	**4.5000e-004**	**25.0542**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6580	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195
Unmitigated	0.6580	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5783					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-004	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195
Total	**0.6580**	**8.0000e-005**	**8.5800e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0183**	**0.0183**	**5.0000e-005**		**0.0195**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5783					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-004	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195
Total	**0.6580**	**8.0000e-005**	**8.5800e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0183**	**0.0183**	**5.0000e-005**		**0.0195**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Prado Helitack - Proposed Project

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government Office Building	7.47	1000sqft	0.17	7,465.00	0
Unrefrigerated Warehouse-No Rail	4.80	1000sqft	0.11	4,800.00	0
Unrefrigerated Warehouse-No Rail	2.99	1000sqft	0.07	2,990.00	0
Unrefrigerated Warehouse-No Rail	0.41	1000sqft	0.01	406.00	0
Unrefrigerated Warehouse-No Rail	1.09	1000sqft	0.03	1,093.00	0
Unrefrigerated Warehouse-No Rail	0.16	1000sqft	0.00	156.00	0
Unrefrigerated Warehouse-No Rail	7.42	1000sqft	0.17	7,421.00	0
Unrefrigerated Warehouse-No Rail	1.66	1000sqft	0.04	1,660.00	0
Other Non-Asphalt Surfaces	7.70	1000sqft	0.18	7,700.00	0
Parking Lot	44.00	Space	0.40	17,600.00	0
Gasoline/Service Station	3.00	Pump	0.01	423.52	0
Other Non-Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Parking Lot	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	549	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE 2017 CO2 Intensity Factor

Land Use - Accounts for 7,465 sf barracks, 4,800 sf warehouse, 2,990 garage, 406 sf tower, 1,093 wash rack, 156 sf storage bldng, 7,421 sf hangar, 1,660 sf electrical bldng, 7,700 sf of helipad space, parking lot, jet fuel tanks, utility improvements, and offsite improvements

Construction Phase - Building construction, paving, and painting assumed to occur simultaneously

Demolition -

Vehicle Trips - Trip Generation per TIA

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Winter

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	18.00	230.00
tblConstructionPhase	NumDays	18.00	230.00
tblConstructionPhase	PhaseEndDate	8/13/2021	4/1/2022
tblConstructionPhase	PhaseEndDate	6/24/2021	4/1/2022
tblConstructionPhase	PhaseEndDate	7/20/2020	4/28/2021
tblConstructionPhase	PhaseEndDate	8/6/2020	5/14/2021
tblConstructionPhase	PhaseEndDate	7/20/2021	4/1/2022
tblConstructionPhase	PhaseEndDate	7/27/2020	5/5/2021
tblConstructionPhase	PhaseStartDate	7/21/2021	5/15/2021
tblConstructionPhase	PhaseStartDate	8/7/2020	5/15/2021
tblConstructionPhase	PhaseStartDate	6/23/2020	4/1/2021
tblConstructionPhase	PhaseStartDate	7/28/2020	5/5/2021
tblConstructionPhase	PhaseStartDate	6/25/2021	5/15/2021
tblConstructionPhase	PhaseStartDate	7/21/2020	4/29/2021
tblProjectCharacteristics	CO2IntensityFactor	702.44	549
tblVehicleTrips	ST_TR	168.56	0.00
tblVehicleTrips	ST_TR	0.00	9.77
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	168.56	0.00
tblVehicleTrips	SU_TR	0.00	9.77
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	168.56	0.00
tblVehicleTrips	WD_TR	68.93	9.77
tblVehicleTrips	WD_TR	1.68	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.3466	65.3428	38.1323	0.0709	24.9875	3.2067	28.1942	13.3960	2.9502	16.3462	0.0000	6,881.4796	6,881.4796	2.1299	0.0000	6,934.7264
2022	4.7739	29.5874	34.4189	0.0671	1.4329	1.3904	2.8232	0.3844	1.3044	1.6888	0.0000	6,504.9021	6,504.9021	1.2825	0.0000	6,536.9642
Maximum	**6.3466**	**65.3428**	**38.1323**	**0.0709**	**24.9875**	**3.2067**	**28.1942**	**13.3960**	**2.9502**	**16.3462**	**0.0000**	**6,881.4796**	**6,881.4796**	**2.1299**	**0.0000**	**6,934.7264**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.3466	65.3428	38.1323	0.0709	9.8418	3.2067	13.0486	5.2526	2.9502	8.2028	0.0000	6,881.4796	6,881.4796	2.1299	0.0000	6,934.7264
2022	4.7739	29.5874	34.4189	0.0671	0.9467	1.3904	2.3370	0.2650	1.3044	1.5695	0.0000	6,504.9021	6,504.9021	1.2825	0.0000	6,536.9642
Maximum	**6.3466**	**65.3428**	**38.1323**	**0.0709**	**9.8418**	**3.2067**	**13.0486**	**5.2526**	**2.9502**	**8.2028**	**0.0000**	**6,881.4796**	**6,881.4796**	**2.1299**	**0.0000**	**6,934.7264**

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.17**	**0.00**	**50.40**	**59.96**	**0.00**	**45.81**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6580	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195
Energy	2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		24.9062	24.9062	4.8000e-004	4.6000e-004	25.0542
Mobile	0.1271	0.8960	1.3142	4.9100e-003	0.3662	3.7400e-003	0.3699	0.0980	3.5000e-003	0.1015		501.8555	501.8555	0.0313		502.6387
Total	**0.7874**	**0.9168**	**1.3402**	**5.0300e-003**	**0.3662**	**5.3500e-003**	**0.3715**	**0.0980**	**5.1100e-003**	**0.1031**		**526.7800**	**526.7800**	**0.0319**	**4.6000e-004**	**527.7125**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6580	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195
Energy	2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		24.9062	24.9062	4.8000e-004	4.6000e-004	25.0542
Mobile	0.1271	0.8960	1.3142	4.9100e-003	0.3662	3.7400e-003	0.3699	0.0980	3.5000e-003	0.1015		501.8555	501.8555	0.0313		502.6387
Total	**0.7874**	**0.9168**	**1.3402**	**5.0300e-003**	**0.3662**	**5.3500e-003**	**0.3715**	**0.0980**	**5.1100e-003**	**0.1031**		**526.7800**	**526.7800**	**0.0319**	**4.6000e-004**	**527.7125**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2021	4/28/2021	5	20	
2	Site Preparation	Site Preparation	4/29/2021	5/5/2021	5	5	
3	Grading	Grading	5/5/2021	5/14/2021	5	8	
4	Building Construction	Building Construction	5/15/2021	4/1/2022	5	230	
5	Paving	Paving	5/15/2021	4/1/2022	5	230	
6	Architectural Coating	Architectural Coating	5/15/2021	4/1/2022	5	230	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 3.58

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 39,622; Non-Residential Outdoor: 13,207; Striped Parking Area: 9,359 (Architectural Coating – sqft)

OffRoad Equipment

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Grading	Excavators	1	8.00	158	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	6.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	2	6.00	132	0.36
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	76.00	30.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	37.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3959	0.0000	0.3959	0.0599	0.0000	0.0599			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.3959**	**1.5513**	**1.9472**	**0.0599**	**1.4411**	**1.5010**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0115	0.4236	0.0746	1.4000e-003	0.0324	1.2100e-003	0.0336	8.8800e-003	1.1600e-003	0.0100		148.6593	148.6593	8.8900e-003		148.8815
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0879**	**0.4731**	**0.5840**	**2.8800e-003**	**0.2000**	**2.2800e-003**	**0.2023**	**0.0534**	**2.1500e-003**	**0.0555**		**295.8839**	**295.8839**	**0.0130**		**296.2086**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1544	0.0000	0.1544	0.0234	0.0000	0.0234			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.1544**	**1.5513**	**1.7057**	**0.0234**	**1.4411**	**1.4645**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0115	0.4236	0.0746	1.4000e-003	0.0226	1.2100e-003	0.0238	6.4700e-003	1.1600e-003	7.6300e-003		148.6593	148.6593	8.8900e-003		148.8815
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1094	1.0700e-003	0.1104	0.0302	9.9000e-004	0.0311		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0879**	**0.4731**	**0.5840**	**2.8800e-003**	**0.1320**	**2.2800e-003**	**0.1342**	**0.0366**	**2.1500e-003**	**0.0388**		**295.8839**	**295.8839**	**0.0130**		**296.2086**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0917	0.0595	0.6112	1.7700e-003	0.2012	1.2900e-003	0.2025	0.0534	1.1900e-003	0.0545		176.6696	176.6696	4.9200e-003		176.7925
Total	**0.0917**	**0.0595**	**0.6112**	**1.7700e-003**	**0.2012**	**1.2900e-003**	**0.2025**	**0.0534**	**1.1900e-003**	**0.0545**		**176.6696**	**176.6696**	**4.9200e-003**		**176.7925**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**7.0458**	**2.0445**	**9.0903**	**3.8730**	**1.8809**	**5.7539**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0917	0.0595	0.6112	1.7700e-003	0.1312	1.2900e-003	0.1325	0.0362	1.1900e-003	0.0374		176.6696	176.6696	4.9200e-003		176.7925
Total	**0.0917**	**0.0595**	**0.6112**	**1.7700e-003**	**0.1312**	**1.2900e-003**	**0.1325**	**0.0362**	**1.1900e-003**	**0.0374**		**176.6696**	**176.6696**	**4.9200e-003**		**176.7925**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.5523**	**1.1599**	**7.7123**	**3.3675**	**1.0671**	**4.4346**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0764**	**0.0496**	**0.5093**	**1.4800e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**147.2247**	**147.2247**	**4.1000e-003**		**147.3271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**2.5554**	**1.1599**	**3.7153**	**1.3133**	**1.0671**	**2.3804**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1094	1.0700e-003	0.1104	0.0302	9.9000e-004	0.0311		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0764**	**0.0496**	**0.5093**	**1.4800e-003**	**0.1094**	**1.0700e-003**	**0.1104**	**0.0302**	**9.9000e-004**	**0.0311**		**147.2247**	**147.2247**	**4.1000e-003**		**147.3271**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0824	2.8623	0.6368	7.7800e-003	0.1921	5.1000e-003	0.1972	0.0553	4.8800e-003	0.0602		820.6054	820.6054	0.0598		822.1005
Worker	0.3870	0.2511	2.5806	7.4900e-003	0.8495	5.4300e-003	0.8549	0.2253	5.0000e-003	0.2303		745.9382	745.9382	0.0208		746.4573
Total	**0.4694**	**3.1134**	**3.2174**	**0.0153**	**1.0416**	**0.0105**	**1.0522**	**0.2806**	**9.8800e-003**	**0.2905**		**1,566.5436**	**1,566.5436**	**0.0806**		**1,568.5578**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0824	2.8623	0.6368	7.7800e-003	0.1374	5.1000e-003	0.1425	0.0419	4.8800e-003	0.0468		820.6054	820.6054	0.0598		822.1005
Worker	0.3870	0.2511	2.5806	7.4900e-003	0.5541	5.4300e-003	0.5595	0.1528	5.0000e-003	0.1578		745.9382	745.9382	0.0208		746.4573
Total	**0.4694**	**3.1134**	**3.2174**	**0.0153**	**0.6915**	**0.0105**	**0.7020**	**0.1947**	**9.8800e-003**	**0.2046**		**1,566.5436**	**1,566.5436**	**0.0806**		**1,568.5578**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0768	2.7116	0.5912	7.7100e-003	0.1921	4.2900e-003	0.1964	0.0553	4.1000e-003	0.0594		813.7688	813.7688	0.0578		815.2143
Worker	0.3623	0.2256	2.3668	7.2200e-003	0.8495	5.2700e-003	0.8548	0.2253	4.8600e-003	0.2302		719.0710	719.0710	0.0186		719.5368
Total	**0.4391**	**2.9372**	**2.9579**	**0.0149**	**1.0416**	**9.5600e-003**	**1.0512**	**0.2806**	**8.9600e-003**	**0.2896**		**1,532.8397**	**1,532.8397**	**0.0765**		**1,534.7511**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0768	2.7116	0.5912	7.7100e-003	0.1374	4.2900e-003	0.1417	0.0419	4.1000e-003	0.0460		813.7688	813.7688	0.0578		815.2143
Worker	0.3623	0.2256	2.3668	7.2200e-003	0.5541	5.2700e-003	0.5594	0.1528	4.8600e-003	0.1576		719.0710	719.0710	0.0186		719.5368
Total	**0.4391**	**2.9372**	**2.9579**	**0.0149**	**0.6915**	**9.5600e-003**	**0.7011**	**0.1947**	**8.9600e-003**	**0.2036**		**1,532.8397**	**1,532.8397**	**0.0765**		**1,534.7511**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0940	10.8399	12.2603	0.0189		0.5788	0.5788		0.5342	0.5342		1,804.5523	1,804.5523	0.5670		1,818.7270
Paving	0.0273					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1213**	**10.8399**	**12.2603**	**0.0189**		**0.5788**	**0.5788**		**0.5342**	**0.5342**		**1,804.5523**	**1,804.5523**	**0.5670**		**1,818.7270**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1018	0.0661	0.6791	1.9700e-003	0.2236	1.4300e-003	0.2250	0.0593	1.3200e-003	0.0606		196.2995	196.2995	5.4600e-003		196.4361
Total	**0.1018**	**0.0661**	**0.6791**	**1.9700e-003**	**0.2236**	**1.4300e-003**	**0.2250**	**0.0593**	**1.3200e-003**	**0.0606**		**196.2995**	**196.2995**	**5.4600e-003**		**196.4361**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0940	10.8399	12.2603	0.0189		0.5788	0.5788		0.5342	0.5342	0.0000	1,804.5523	1,804.5523	0.5670		1,818.7270
Paving	0.0273					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1213**	**10.8399**	**12.2603**	**0.0189**		**0.5788**	**0.5788**		**0.5342**	**0.5342**	**0.0000**	**1,804.5523**	**1,804.5523**	**0.5670**		**1,818.7270**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1018	0.0661	0.6791	1.9700e-003	0.1458	1.4300e-003	0.1472	0.0402	1.3200e-003	0.0415		196.2995	196.2995	5.4600e-003		196.4361
Total	**0.1018**	**0.0661**	**0.6791**	**1.9700e-003**	**0.1458**	**1.4300e-003**	**0.1472**	**0.0402**	**1.3200e-003**	**0.0415**		**196.2995**	**196.2995**	**5.4600e-003**		**196.4361**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9765	9.5221	12.1940	0.0189		0.4877	0.4877		0.4504	0.4504		1,805.1297	1,805.1297	0.5672		1,819.3091
Paving	0.0273					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0039**	**9.5221**	**12.1940**	**0.0189**		**0.4877**	**0.4877**		**0.4504**	**0.4504**		**1,805.1297**	**1,805.1297**	**0.5672**		**1,819.3091**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.0594	0.6228	1.9000e-003	0.2236	1.3900e-003	0.2249	0.0593	1.2800e-003	0.0606		189.2292	189.2292	4.9000e-003		189.3518
Total	**0.0954**	**0.0594**	**0.6228**	**1.9000e-003**	**0.2236**	**1.3900e-003**	**0.2249**	**0.0593**	**1.2800e-003**	**0.0606**		**189.2292**	**189.2292**	**4.9000e-003**		**189.3518**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9765	9.5221	12.1940	0.0189		0.4877	0.4877		0.4504	0.4504	0.0000	1,805.1297	1,805.1297	0.5672		1,819.3091
Paving	0.0273					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0039**	**9.5221**	**12.1940**	**0.0189**		**0.4877**	**0.4877**		**0.4504**	**0.4504**	**0.0000**	**1,805.1297**	**1,805.1297**	**0.5672**		**1,819.3091**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.0594	0.6228	1.9000e-003	0.1458	1.3900e-003	0.1472	0.0402	1.2800e-003	0.0415		189.2292	189.2292	4.9000e-003		189.3518
Total	**0.0954**	**0.0594**	**0.6228**	**1.9000e-003**	**0.1458**	**1.3900e-003**	**0.1472**	**0.0402**	**1.2800e-003**	**0.0415**		**189.2292**	**189.2292**	**4.9000e-003**		**189.3518**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.2532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**1.4721**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0764**	**0.0496**	**0.5093**	**1.4800e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**147.2247**	**147.2247**	**4.1000e-003**		**147.3271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.2532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**1.4721**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1094	1.0700e-003	0.1104	0.0302	9.9000e-004	0.0311		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0764**	**0.0496**	**0.5093**	**1.4800e-003**	**0.1094**	**1.0700e-003**	**0.1104**	**0.0302**	**9.9000e-004**	**0.0311**		**147.2247**	**147.2247**	**4.1000e-003**		**147.3271**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.2532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**1.4578**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0445	0.4671	1.4200e-003	0.1677	1.0400e-003	0.1687	0.0445	9.6000e-004	0.0454		141.9219	141.9219	3.6800e-003		142.0139
Total	**0.0715**	**0.0445**	**0.4671**	**1.4200e-003**	**0.1677**	**1.0400e-003**	**0.1687**	**0.0445**	**9.6000e-004**	**0.0454**		**141.9219**	**141.9219**	**3.6800e-003**		**142.0139**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.2532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**1.4578**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0445	0.4671	1.4200e-003	0.1094	1.0400e-003	0.1104	0.0302	9.6000e-004	0.0311		141.9219	141.9219	3.6800e-003		142.0139
Total	**0.0715**	**0.0445**	**0.4671**	**1.4200e-003**	**0.1094**	**1.0400e-003**	**0.1104**	**0.0302**	**9.6000e-004**	**0.0311**		**141.9219**	**141.9219**	**3.6800e-003**		**142.0139**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1271	0.8960	1.3142	4.9100e-003	0.3662	3.7400e-003	0.3699	0.0980	3.5000e-003	0.1015		501.8555	501.8555	0.0313		502.6387
Unmitigated	0.1271	0.8960	1.3142	4.9100e-003	0.3662	3.7400e-003	0.3699	0.0980	3.5000e-003	0.1015		501.8555	501.8555	0.0313		502.6387

4.2 Trip Summary Information

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Winter

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Gasoline/Service Station	0.00	0.00	0.00		
Government Office Building	72.93	72.93	72.93	171,740	171,740
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	72.93	72.93	72.93	171,740	171,740

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
Government Office Building	16.60	8.40	6.90	33.00	62.00	5.00	50	34	16
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Gasoline/Service Station	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Government Office Building	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		24.9062	24.9062	4.8000e-004	4.6000e-004	25.0542
NaturalGas Unmitigated	2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003		24.9062	24.9062	4.8000e-004	4.6000e-004	25.0542

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	37.6991	4.1000e-004	3.7000e-003	3.1000e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.4352	4.4352	9.0000e-005	8.0000e-005	4.4615
Government Office Building	70.9686	7.7000e-004	6.9600e-003	5.8400e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3493	8.3493	1.6000e-004	1.5000e-004	8.3989
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.867616	1.0000e-005	9.0000e-005	7.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		0.1021	0.1021	0.0000	0.0000	0.1027
Unrefrigerated Warehouse-No Rail	16.6293	1.8000e-004	1.6300e-003	1.3700e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.9564	1.9564	4.0000e-005	4.0000e-005	1.9680
Unrefrigerated Warehouse-No Rail	2.25803	2.0000e-005	2.2000e-004	1.9000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.2657	0.2657	1.0000e-005	0.0000	0.2672
Unrefrigerated Warehouse-No Rail	26.6959	2.9000e-004	2.6200e-003	2.2000e-003	2.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		3.1407	3.1407	6.0000e-005	6.0000e-005	3.1594
Unrefrigerated Warehouse-No Rail	41.273	4.5000e-004	4.0500e-003	3.4000e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.8556	4.8556	9.0000e-005	9.0000e-005	4.8845
Unrefrigerated Warehouse-No Rail	6.07888	7.0000e-005	6.0000e-004	5.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.7152	0.7152	1.0000e-005	1.0000e-005	0.7194
Unrefrigerated Warehouse-No Rail	9.23233	1.0000e-004	9.1000e-004	7.6000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		1.0862	1.0862	2.0000e-005	2.0000e-005	1.0926
Total		**2.3000e-003**	**0.0208**	**0.0174**	**1.2000e-004**		**1.5900e-003**	**1.5900e-003**		**1.5900e-003**	**1.5900e-003**		**24.9062**	**24.9062**	**4.8000e-004**	**4.5000e-004**	**25.0542**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0.0376991	4.1000e-004	3.7000e-003	3.1000e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.4352	4.4352	9.0000e-005	8.0000e-005	4.4615
Government Office Building	0.0709686	7.7000e-004	6.9600e-003	5.8400e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3493	8.3493	1.6000e-004	1.5000e-004	8.3989
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.000867616	1.0000e-005	9.0000e-005	7.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		0.1021	0.1021	0.0000	0.0000	0.1027
Unrefrigerated Warehouse-No Rail	0.00225803	2.0000e-005	2.2000e-004	1.9000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.2657	0.2657	1.0000e-005	0.0000	0.2672
Unrefrigerated Warehouse-No Rail	0.00607888	7.0000e-005	6.0000e-004	5.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.7152	0.7152	1.0000e-005	1.0000e-005	0.7194
Unrefrigerated Warehouse-No Rail	0.00923233	1.0000e-004	9.1000e-004	7.6000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		1.0862	1.0862	2.0000e-005	2.0000e-005	1.0926
Unrefrigerated Warehouse-No Rail	0.0166293	1.8000e-004	1.6300e-003	1.3700e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		1.9564	1.9564	4.0000e-005	4.0000e-005	1.9680
Unrefrigerated Warehouse-No Rail	0.0266959	2.9000e-004	2.6200e-003	2.2000e-003	2.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		3.1407	3.1407	6.0000e-005	6.0000e-005	3.1594
Unrefrigerated Warehouse-No Rail	0.041273	4.5000e-004	4.0500e-003	3.4000e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.8556	4.8556	9.0000e-005	9.0000e-005	4.8845
Total		**2.3000e-003**	**0.0208**	**0.0174**	**1.2000e-004**		**1.5900e-003**	**1.5900e-003**		**1.5900e-003**	**1.5900e-003**		**24.9062**	**24.9062**	**4.8000e-004**	**4.5000e-004**	**25.0542**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6580	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195
Unmitigated	0.6580	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5783					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-004	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195
Total	**0.6580**	**8.0000e-005**	**8.5800e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0183**	**0.0183**	**5.0000e-005**		**0.0195**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5783					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-004	8.0000e-005	8.5800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0183	0.0183	5.0000e-005		0.0195
Total	**0.6580**	**8.0000e-005**	**8.5800e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0183**	**0.0183**	**5.0000e-005**		**0.0195**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Prado Helitack - Existing Conditions

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	3.00	1000sqft	0.07	3,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	549	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE 2017 CO2 Intensity Factor

Land Use -

Construction Phase - No construction - existing conditions

Vehicle Trips - Existing Conditons Trip Generation per TIA

Energy Use -

Prado Helitack - Existing Conditions - San Bernardino-South Coast County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	PhaseEndDate	12/10/2020	12/3/2020
tblProjectCharacteristics	CO2IntensityFactor	702.44	549
tblVehicleTrips	ST_TR	2.46	17.67
tblVehicleTrips	SU_TR	1.05	17.67
tblVehicleTrips	WD_TR	11.03	17.67

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.1109	0.0000	0.0000	0.1109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1109**	**0.0000**	**0.0000**	**0.1109**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.1109	0.0000	0.0000	0.1109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1109**	**0.0000**	**0.0000**	**0.1109**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0671	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854
Mobile	0.1277	0.7963	1.4946	5.2000e-003	0.3641	4.4600e-003	0.3686	0.0974	4.2000e-003	0.1016		529.8032	529.8032	0.0276		530.4927
Total	**0.1951**	**0.7997**	**1.4977**	**5.2200e-003**	**0.3641**	**4.7200e-003**	**0.3688**	**0.0974**	**4.4600e-003**	**0.1019**		**533.8651**	**533.8651**	**0.0277**	**7.0000e-005**	**534.5788**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0671	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854
Mobile	0.1277	0.7963	1.4946	5.2000e-003	0.3641	4.4600e-003	0.3686	0.0974	4.2000e-003	0.1016		529.8032	529.8032	0.0276		530.4927
Total	**0.1951**	**0.7997**	**1.4977**	**5.2200e-003**	**0.3641**	**4.7200e-003**	**0.3688**	**0.0974**	**4.4600e-003**	**0.1019**		**533.8651**	**533.8651**	**0.0277**	**7.0000e-005**	**534.5788**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	12/4/2020	12/3/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,500; Non-Residential Outdoor: 1,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1277	0.7963	1.4946	5.2000e-003	0.3641	4.4600e-003	0.3686	0.0974	4.2000e-003	0.1016		529.8032	529.8032	0.0276		530.4927
Unmitigated	0.1277	0.7963	1.4946	5.2000e-003	0.3641	4.4600e-003	0.3686	0.0974	4.2000e-003	0.1016		529.8032	529.8032	0.0276		530.4927

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	53.01	53.01	53.01	170,770	170,770
Total	53.01	53.01	53.01	170,770	170,770

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.546179	0.037976	0.179086	0.122965	0.018430	0.005460	0.017497	0.061396	0.001337	0.001657	0.006117	0.000817	0.001082

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854
NaturalGas Unmitigated	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	34.5205	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854
Total		**3.7000e-004**	**3.3800e-003**	**2.8400e-003**	**2.0000e-005**		**2.6000e-004**	**2.6000e-004**		**2.6000e-004**	**2.6000e-004**		**4.0612**	**4.0612**	**8.0000e-005**	**7.0000e-005**	**4.0854**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.0345205	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854
Total		**3.7000e-004**	**3.3800e-003**	**2.8400e-003**	**2.0000e-005**		**2.6000e-004**	**2.6000e-004**		**2.6000e-004**	**2.6000e-004**		**4.0612**	**4.0612**	**8.0000e-005**	**7.0000e-005**	**4.0854**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0671	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Unmitigated	0.0671	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.6200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0594					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Total	**0.0671**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.6200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0594					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Total	**0.0671**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Prado Helitack - Existing Conditions

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	3.00	1000sqft	0.07	3,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	549	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE 2017 CO2 Intensity Factor

Land Use -

Construction Phase - No construction - existing conditions

Vehicle Trips - Existing Conditons Trip Generation per TIA

Energy Use -

Prado Helitack - Existing Conditions - San Bernardino-South Coast County, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	PhaseEndDate	12/10/2020	12/3/2020
tblProjectCharacteristics	CO2IntensityFactor	702.44	549
tblVehicleTrips	ST_TR	2.46	17.67
tblVehicleTrips	SU_TR	1.05	17.67
tblVehicleTrips	WD_TR	11.03	17.67

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.1109	0.0000	0.0000	0.1109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1109**	**0.0000**	**0.0000**	**0.1109**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.1109	0.0000	0.0000	0.1109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1109**	**0.0000**	**0.0000**	**0.1109**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0671	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854
Mobile	0.1117	0.7999	1.3150	4.7900e-003	0.3641	4.4900e-003	0.3686	0.0974	4.2300e-003	0.1017		488.3244	488.3244	0.0279		489.0218
Total	**0.1791**	**0.8032**	**1.3181**	**4.8100e-003**	**0.3641**	**4.7500e-003**	**0.3689**	**0.0974**	**4.4900e-003**	**0.1019**		**492.3863**	**492.3863**	**0.0280**	**7.0000e-005**	**493.1079**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0671	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854
Mobile	0.1117	0.7999	1.3150	4.7900e-003	0.3641	4.4900e-003	0.3686	0.0974	4.2300e-003	0.1017		488.3244	488.3244	0.0279		489.0218
Total	**0.1791**	**0.8032**	**1.3181**	**4.8100e-003**	**0.3641**	**4.7500e-003**	**0.3689**	**0.0974**	**4.4900e-003**	**0.1019**		**492.3863**	**492.3863**	**0.0280**	**7.0000e-005**	**493.1079**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	12/4/2020	12/3/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,500; Non-Residential Outdoor: 1,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1117	0.7999	1.3150	4.7900e-003	0.3641	4.4900e-003	0.3686	0.0974	4.2300e-003	0.1017		488.3244	488.3244	0.0279		489.0218
Unmitigated	0.1117	0.7999	1.3150	4.7900e-003	0.3641	4.4900e-003	0.3686	0.0974	4.2300e-003	0.1017		488.3244	488.3244	0.0279		489.0218

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	53.01	53.01	53.01	170,770	170,770
Total	53.01	53.01	53.01	170,770	170,770

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.546179	0.037976	0.179086	0.122965	0.018430	0.005460	0.017497	0.061396	0.001337	0.001657	0.006117	0.000817	0.001082

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854
NaturalGas Unmitigated	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	34.5205	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854
Total		**3.7000e-004**	**3.3800e-003**	**2.8400e-003**	**2.0000e-005**		**2.6000e-004**	**2.6000e-004**		**2.6000e-004**	**2.6000e-004**		**4.0612**	**4.0612**	**8.0000e-005**	**7.0000e-005**	**4.0854**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.0345205	3.7000e-004	3.3800e-003	2.8400e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004		4.0612	4.0612	8.0000e-005	7.0000e-005	4.0854
Total		**3.7000e-004**	**3.3800e-003**	**2.8400e-003**	**2.0000e-005**		**2.6000e-004**	**2.6000e-004**		**2.6000e-004**	**2.6000e-004**		**4.0612**	**4.0612**	**8.0000e-005**	**7.0000e-005**	**4.0854**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0671	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Unmitigated	0.0671	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.6200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0594					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Total	**0.0671**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.6200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0594					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Total	**0.0671**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX C2

Helicopter Criteria Air Pollutants, ECORP Consulting, Inc. June 2020

Prado Helitack Helicopter Criteria Air Pollutant Emission Calculations

Sikorsky S70 [Black Hawk] Helicopter Take Off/Landing Emission Rates

1.26 lbs/NOx	1.25 lbs/ROG	0.03 lbs/PM10	1.59 lbs/CO

Source: Guidance on the Determination of Helicopter Emissions, Rindlisbacher, Theo & Chabbey, Lucian (2015).
https://www.bazl.admin.ch/bazl/en/home/specialists/regulations-and-guidelines/environment/pollutant-emissions/aircraft-engine-emissions/guidance-on-the-determination-of-helicopter-emissions.htm

Sikorsky S70 [Black Hawk] Hourly Emission Rates

11.97 lbs/NOx	2.44 lbs/ROG	0.03 lbs/PM10	2.91 lbs/CO

Source: Guidance on the Determination of Helicopter Emissions, Rindlisbacher, Theo & Chabbey, Lucian (2015).
https://www.bazl.admin.ch/bazl/en/home/specialists/regulations-and-guidelines/environment/pollutant-emissions/aircraft-engine-emissions/guidance-on-the-determination-of-helicopter-emissions.htm

Project Helicopter Emission Calculations

5 Helicopter Flights Daily - Average 3.5 hours per flight

Sikorsky S70 [Black Hawk] Helicopter Take Off/Landing Emissions

NOx	ROG	PM10	CO
12.6	12.5	0.3	15.9

Sikorsky S70 [Black Hawk] Cruising Emissions

NOx	ROG	PM10	CO
209.48	42.70	0.53	50.93

Sikorsky S70 [Black Hawk] Total Emissions

NOx	ROG	PM10	CO
222.08	**55.20**	**0.1575**	**66.83**

APPENDIX D

Draft Biological Technical Report, ECORP Consulting, Inc. June 2020

Biological Technical Report

CAL FIRE Prado Helitack Base Project

San Bernardino County, California

Submitted to:

State of California Department of General Services

Real Estate Services Division
707 Third Street, 4th Floor
West Sacramento, CA 95605

Submitted by:

ECORP Consulting, Inc.
2861 Pullman Street
Santa Ana, California 92705
(714) 648-0630

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ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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LIST OF ACRONYMS AND ABBREVIATIONS

amsl	Above mean sea level
AOU	American Ornithologists' Union
CDFW's	California Department of Fish and Wildlife's
CAL FIRE	California Department of Forestry and Fire Protection
CNPS'	California Native Plant Society's
CNDDB	California Natural Diversity Data Base
CCH	Consortium of California Herbaria
ESA	Endangered Species Act
MBTA	Migratory Bird Treaty Act
NRCS	Natural Resources Conservation Service
SSAR	Society for the Study of Reptiles and Amphibians
SSC	Species of special concern
USFWS	United States Fish and Wildlife Service

1.0 INTRODUCTION

The California Department of Forestry and Fire Protection (CAL FIRE) is proposing to upgrade the existing Prado Helitack base located at the Prado Conservation Camp in Chino, California. ECORP Consulting, Inc. conducted a biological resources assessment literature review and field survey to document existing biological conditions at the Project site. This report documents the findings of the biological resources assessment, literature review, and field survey for the Project and was prepared in accordance with California Environmental Quality Act requirements.

1.1 Project Location and Description

The Project site is located southeast of the intersection of Central Avenue and Eucalyptus Avenue in the City of Chino in San Bernardino County (Figure 1). The Project site is located in an unsectioned portion of the Santa Ana Del Chino Land Grant, in Township 2 South, Range 8 West of the Prado Dam United States Geological Survey 7.5-minute topographic quadrangle (Figure 2). Topography is relatively flat around the existing facilities and within the boundaries of the Project site and a 500-foot buffer. Elevations for the Project site and 500-foot buffer range between approximately 187 meters (614 feet) above mean sea level (amsl) and 196 meters (642 feet) amsl. Adjacent land uses for the Project site and 500-foot buffer include developed industrial use to the west, and a partially developed state prison and disturbed areas to the north, east and south.

2.0 METHODOLOGY

2.1 Literature Review

Prior to conducting the field portion of the assessment, a literature search was performed using California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Data Base (CNDDB; CDFW 2020) and the California Native Plant Society's (CNPS') Electronic Inventory (CNPS 2020) to determine the special-status species that have been documented in the Prado Dam, San Dimas, Ontario, Guasti, Yorba Linda, Corona North, Corona South, Black Star Canyon, and Orange 7.5-minute topographic quadrangles. Additional information was gathered from the following sources:

- *Natural Resources Conservation Service* (NRCS) *Web Soil Survey* (NRCS 2020);
- *United States Fish and Wildlife Service (USFWS) National Wetland Inventory* (USFWS 2020);
- *CDFW CNDDB Special Animals List* (CDFW 2019);
- *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012);
- *The Manual of California Vegetation, 2nd Edition* (Sawyer, et al. 2009);
- Various online websites (e.g., Calflora 2020, Consortium of California Herbaria [CCH] 2020).



Location: N:\2018\2018-116.008 Cal Fire Prado Helitack Base Replacement\MAPS\location_vicinity\Prado_Vicinity.mxd (TR) trotellini 5/26/2020

Map Date: 5/26/2020

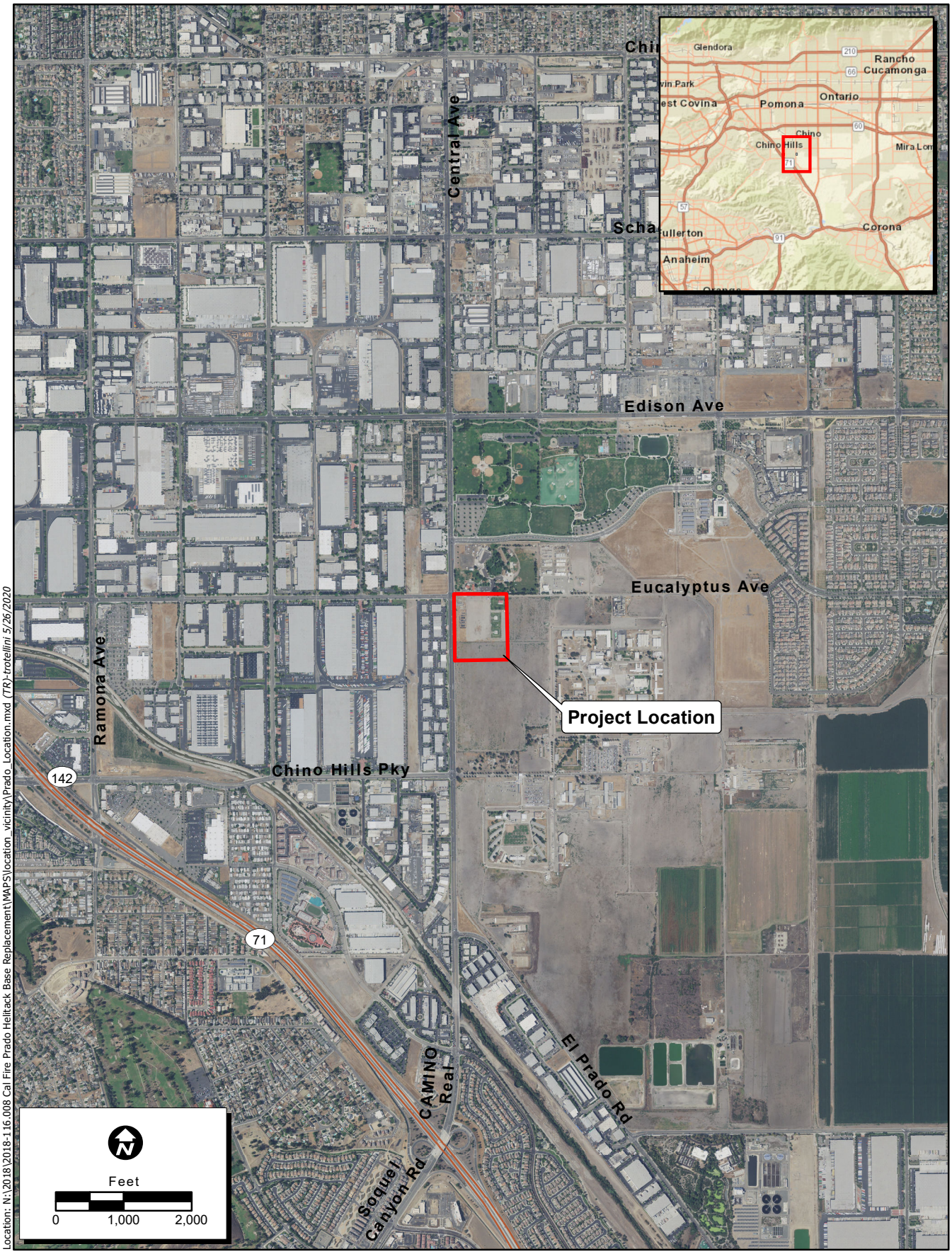
Sources:

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Figure 1. Project Vicinity

2018-116.008 Cal Fire Prado Helitack Base Replacement



Location: N:\2018\2018-116.008 Cal Fire Prado Helitack Base Replacement\MAPS\location_vicinity\Prado_Location.mxd *(TR)-trotellini 5/26/2020*

Map Date: 5/26/2020

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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Figure 2. Project Location

2018-116.008 Cal Fire Prado Helitack Base Replacement

Using this information and observations in the field, a list of special-status plant and wildlife species that may have the potential to occur within the Project site was generated. For the purposes of this assessment, special-status species are defined as plants or wildlife that:

- have been designated as either rare, threatened, or endangered by CDFW or the USFWS, and are protected under either the California or federal Endangered Species Acts (ESAs);
- are candidate species being considered or proposed for listing under these same acts;
- are fully protected by the California Fish and Game Code, Sections 3511, 4700, 5050, or 5515; and/or
- are of expressed concern to resource and regulatory agencies, or local jurisdictions.

Sensitive species reported for the region in the literature search, or for which suitable habitat occurs on the Project site, were assessed for potential to occur within the area based on the following guidelines:

Present: Species was observed within the Project site during a site visit or focused survey.

High: Habitat (including soils and elevation factors) for the species occurs within the Project site and a known occurrence has recently been recorded (within the last 20 years) within five miles of the Project site.

Moderate: Habitat (including soils and elevation factors) for the species occurs within the Project site and a documented observation occurs within the database search, but not within five miles of the area; a historic documented observation (more than 20 years old) was recorded within five miles of the Project site; or a recently documented observation occurs within five miles of the area and marginal or limited amounts of habitat occurs in the Project site.

Low: Limited or marginal habitat for the species occurs within the Project site and a recently documented observation occurs within the database search, but not within five miles of the area; a historic documented observation (more than 20 years old) was recorded within five miles of the Project site; or suitable habitat strongly associated with the species occurs on site, but no records or only historic records were found within the database search.

Presumed Absent: Species was not observed during a site visit or focused surveys conducted in accordance with protocol guidelines at an appropriate time for identification; habitat (including soils and elevation factors) does not exist on site; or the known geographic range of the species does not include the Project site.

Note that location information on some sensitive species may be of questionable accuracy or unavailable; therefore, for survey purposes, environmental factors associated with species occurrence requirements may be considered sufficient justification to give a species a positive potential for occurrence.

Plant nomenclature follows that of The *Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012). Wildlife nomenclature follows Checklist of North American Birds and the sixtieth supplement (The American Ornithologists' Union [AOU] 2020), Society for the Study of Reptiles and Amphibians (SSAR 2017), and the Revised Checklist of North American Mammals North of Mexico (Bradley et al. 2014).

2.2 Biological Reconnaissance Survey

The survey consisted of walking the entire Project site plus a 500-foot buffer to identify any vegetation communities and wildlife habitats present. Areas where physical access was not possible were scanned using binoculars so that 100 percent visual coverage of the Project site and surrounding vicinity was achieved. The field survey included the following:

- Recording plant and wildlife species observed on the Project site and in immediately adjacent areas;
- Characterizing plant communities present on the Project site;
- Searching for wildlife sign (e.g., detections of burrows, scat, tracks, vocalizations);
- Taking photographs of the Project site; and
- Recording weather data including time, temperature, cloud cover, and wind speed at the beginning and end of the survey.

Plant species not recognized in the field were collected and identified using botanical references (Baldwin et al. 2012). Vegetation types were classified according to CNPS nomenclature (Sawyer et al. 2009).

3.0 RESULTS

The general biological resource assessment was conducted on March 20, 2020, by ECORP biologists Carley Lancaster and Adam Schroeder. Vegetation communities were mapped in the field by ECORP biologist Carley Lancaster using an iPad equipped with the ESRI Collector application. The results of the field survey, including site characteristics, plant communities, plants, wildlife, special-status species, and special-status habitats are summarized below. Weather conditions during the biological resource assessment are summarized in Table 1.

Table 1. Survey Weather Conditions

Type of Survey	Date	Surveyor*	Time		Temperature (˚F)		Cloud Cover (%)		Wind Speed (mph)	
			start	end	start	end	start	end	start	end
General Biological Resource Assessment	3/20/2020	CL, AS	0800	0920	49	58	50	30	1-3	1-3

* CL=Carley Lancaster and AS = Adam Schroeder

3.1 Topography and Soils

Topography throughout the Project site and the 500-foot buffer for the Project site is relatively flat with minimal changes in elevation. A soils analysis search was conducted using NRCS soil survey data (NRCS 2020). One soil series occurs within the Project site and 500-foot buffer: Merrill silt loam 0 to 2 percent slopes. Merrill silt loam is characterized by somewhat poorly drained soils with moderate runoff

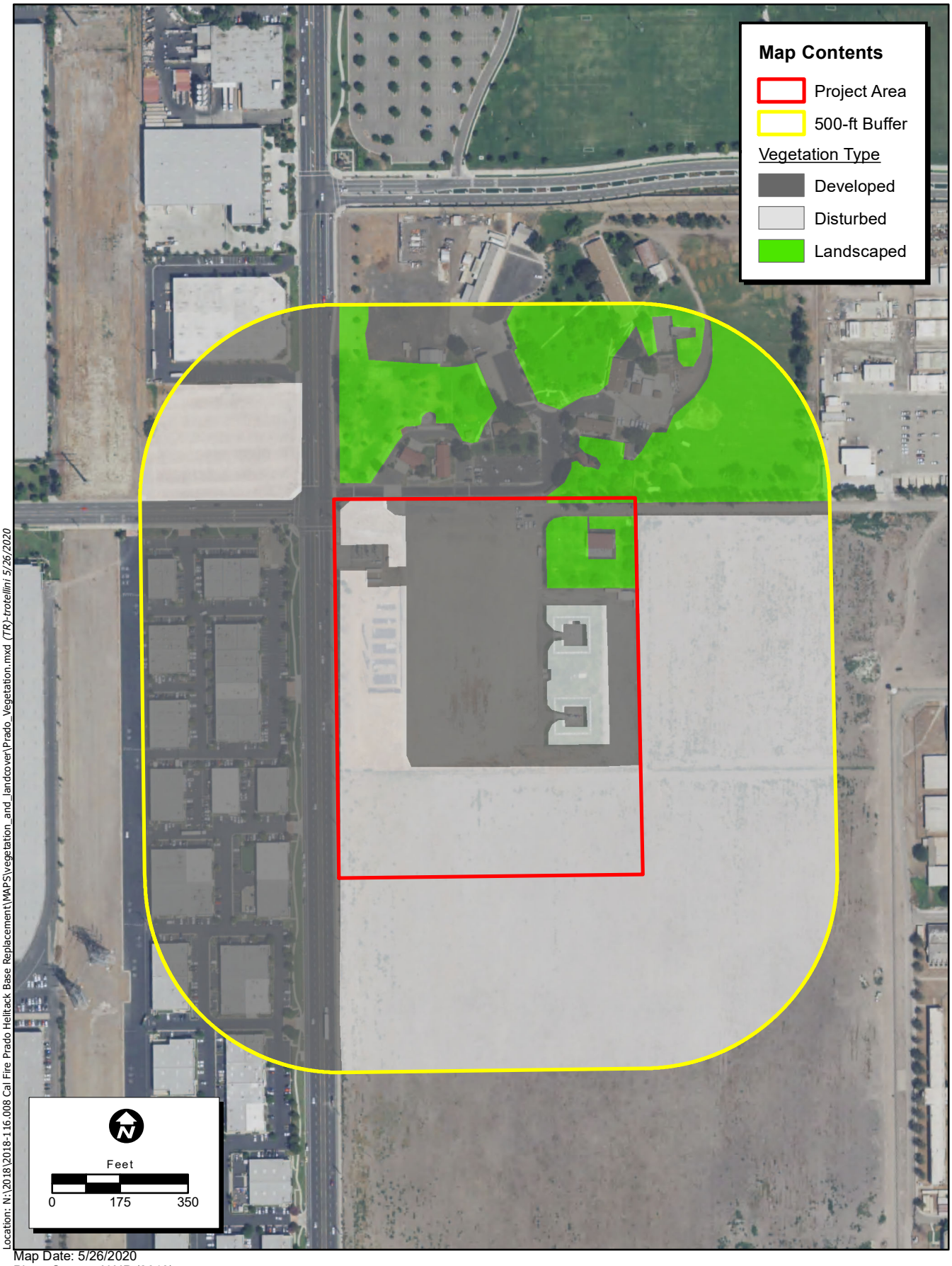
3.2 Site Characteristics and Land Use

Elevations of the Project site range from 614 to 642 feet amsl. The Project Site is located on a developed lot in a suburban environment. The majority of the parcel has been cleared and graded for parking areas, two helipads, paved access roads, and two portable office buildings. The Project Site was recently mowed and tilled for weed abatement and portions of the property contain ruderal vegetation. It is located 1.41 miles northeast of Lake Los Serranos, a manmade recreational lake, in an area of residential neighborhoods. The dominant plant community within the Project site includes nonnative annual grasses and invasive weedy species. Representative site photographs are included in Attachment A.

3.3 Vegetation Communities/Habitats

The Project site and the 500-foot buffer for the Project site are characterized mostly by disturbed habitat with weedy and nonnative vegetation. Common species observed within the disturbed portions of the Project site and 500-foot buffer included annual bursage (*Ambrosia acanthicarpa*), red-stemmed filaree (*Erodium cicutarium*), cheeseweed (*Malva parviflora*), lamb's quarters (*Chenopodium album*), red brome (*Bromus madritensis* ssp. *rubens*), cheatgrass (*Bromus tectorum*), foxtail barley (*Hordeum murinum*), black mustard (*Brassica nigra*), and annual yellow sweetclover (*Melilotus indicus*). The Project site and the 500-foot buffer are also characterized by developed and landscaped land cover types. A complete list of plant species observed on the Project site and 500-foot buffer is included in Attachment B.

Table 2 lists the associated acreage for the land cover types that occur within the Project site and Table 3 lists the associated acreages for the land cover types that occur within the 500-foot buffer. The land cover types are described in detail below and the distribution of the land cover types is shown on Figure 3.



Location: N:\2018\2018-116.008 Cal Fire Prado Helitack Base Replacement\MAPS\vegetation_and_landcover\Prado_Vegetation.mxd (TR)-trotellini 5/26/2020

Map Date: 5/26/2020
Photo Source: NAIP (2018)

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Figure 3. Vegetation and Land Use

2018-116.008 Cal Fire Prado Helitack Base Replacement

Table 2. Land Cover Types within Project Site	
Vegetation Community/Land Cover	**Acreage**
Disturbed	8.557
Developed/Landscaped	0.943
Developed	7.910
TOTAL	**17.410**

Table 3. Land Cover Types within Buffer	
Vegetation Community/Land Cover	**Acreage**
Disturbed	26.745
Developed/Landscaped	7.954
Developed	23.562
TOTAL	**58.261**

3.3.1 Disturbed

Disturbed is not a vegetation classification, but rather a land cover type. Areas mapped as disturbed were largely devoid of native vegetation due to human disturbance and were dominated by open areas or nonnative weedy and ruderal vegetation. Areas of bare dirt and areas covered with nonnative annual plants that appeared to have been previously graded were also mapped as disturbed. Disturbed areas occurred mostly throughout the southern and western portions of the Project site and throughout the southern and eastern portions of the 500-foot buffer for the Project site. In addition, a small area near the northwestern corner of the 500-foot buffer was mapped as Disturbed. Plants present in this land cover type included nonnative weedy species such as red-stemmed filaree, cheeseweed, lamb's quarters, nonnative grasses, black mustard, and annual yellow sweetclover, but occasionally also included a few native plant species such annual bursage. Approximately 8.557 acres of disturbed areas are present within the Project site and ±26.745 acres are present within the 500-foot buffer for the Project site.

3.3.2 Landscaped

Landscaped is not a vegetation classification, but rather a land cover type. Areas mapped as Landscaped had landscaping plants present including various fruit trees, black poui (*Jacaranda mimosifolia*), Taiwanese photinia (*Photinia serratifolia*) and sheoak (*Casuarina* sp.). Landscaped areas were mapped in the northeast corner of the Project site near housing facilities and in the northern portion of the 500-foot boundary surrounding Prado Conservation Camp. Approximately 0.943 acres of Landscaped areas are present within the Project site and ±7.954 acres are present within the 500-foot buffer for the Project site.

3.3.3 Developed

Developed is not a vegetation classification, but rather a land cover type. Areas mapped as developed were largely devoid of any vegetation due to human development. Several paved areas, including Central Avenue and the Prado Conservation Camp facilities were mapped as developed. Approximately 7.910 acres of developed areas are present within the Project site and ±23.562 acres are present within the 500-foot buffer for the Project site.

3.4 General Wildlife Species

The flora and fauna observed during the field reconnaissance survey included those typical of the aforementioned vegetation communities. Bird species observed within the Project site and the 500-foot buffer included gull sp. (*Larus* sp.), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), western kingbird (*Tyrannus verticalis*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), bushtit (*Psaltriparus minimus*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), white-crowned sparrow (*Zonotrichia leucophrys*), and house finch (*Haemorhous mexicanus*). One raptor species, American kestrel (*Falco sparverius*), was detected during the survey, and evidence of one other raptor species, barn owl (*Tyto alba*), was detected. Although none were observed, reptile species expected to occur are those that can thrive amid disturbance, including western fence lizard (*Sceloporus occidentalis*) and side-blotched lizard (*Uta stansburiana*). Two mammal species, desert cottontail (*Sylvilagus audubonii*) and California ground squirrel (*Otospermophilus beecheyi*), were observed during the survey and evidence of one other mammal species, Botta's pocket gopher (*Thomomys bottae*), was detected. Small mammal burrows were detected throughout the Project site. A list of wildlife species observed during the field survey is included as Attachment C.

3.5 Special-Status Species

The literature review resulted in 43 special-status plant and 21 special-status wildlife species that have historically been recorded in the vicinity of the Project site or that are highly associated with habitat that occurs in the area. The majority of the Project site consists of disturbed habitat dominated by nonnative weedy species. Special-status plants were evaluated for their potential to occur within the Project limits where impacts could occur. Special-status wildlife species were evaluated for their potential to occur within the Project site, plus a broader area, which includes the Project site, and a 500-foot buffer, where direct or indirect impacts could occur.

3.5.1 Special-Status Plants

No listed or special-status plant species have been documented on the Project site. No special-status plant species were determined to have a high potential to occur within the Project site. Four special-status plant species were determined to have a moderate potential to occur within the Project site. Thirty-nine special-status plant species were determined to have a low potential to occur and/or are unlikely to occur on the site itself. Listed and special-status plant species that were determined to have a moderate

potential to occur are described in more detail below. Attachment D provides the list of special-status plant species with potential to occur (based upon the literature review in combination with habitat that occurs onsite) and an evaluation of their potential to occur.

3.5.1.1 Special-Status Plant Species with a Moderate Potential to Occur

Braunton's milkvetch (*Astragalus brauntonii*) is a federally-listed endangered and CNPS 1B.1 plant species. This species is known to occur at elevations less than 650 meters (2,133 feet) and flowers between January and August. Braunton's milkvetch occurs in chaparral, coastal sage scrub, and valley and foothill grassland habitats. It is often found in recently burned or disturbed areas. The Disturbed portions of the Project site provide marginally suitable habitat for this species. Multiple records were returned during the literature review, including within five miles of the Project site.

Smooth Tarplant (*Centromadia pungens* ssp. *laevis*) is a federally listed as endangered, state listed as endangered, and a CNPS 1B.2 plant species. This species is known to occur at elevations lower than 640 meters (2,100 feet) and flowers between April and September. Smooth tarplant occurs in a variety of habitats, including chenopod scrub, meadows and seeps, riparian woodlands, and valley and foothill grassland habitats. It is often found on disturbed sites and along roadsides. The Disturbed portions of the Project site provide marginally suitable habitat for this species. Multiple records were returned during the literature review, including within five miles of the Project site.

Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*) is a CNPS 4.3 plant species. This species is known to occur at elevations between one and 885 meters (three and 2,904 feet) and flowers between January and July. Robinson's pepper-grass is known to occur in chaparral and coastal scrub habitats, often in disturbed areas. The Disturbed portions of the Project site provide marginally suitable habitat for this species. Multiple records were returned during the literature review, including within five miles of the Project site.

San Bernardino aster (*Symphyotrichum defoliatum*) is a CNPS 1B.2 plant species. This species is known to occur at elevations less than 2,050 meters (6,726 feet) and flowers between July and November. San Bernardino aster occurs in a variety of habitats including cismontane woodland, coastal sage scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland, and disturbed areas. The Disturbed portions of the Project site provide marginally suitable habitat for this species. Multiple records were returned during the literature review, including within five miles of the Project site.

3.5.2 Special-Status Wildlife

No listed or special-status wildlife species have been documented on the Project site or within the 500-foot buffer. Three special-status wildlife species were determined to have a high potential to occur within the Project site and/or 500-foot buffer and are described in detail below. Seven special-status wildlife species were determined to have a low potential to occur and/or are unlikely to occur on the site itself. Eleven special-status wildlife species were presumed absent from the Project site. Attachment E provides

the list of special-status wildlife species with potential to occur based upon the literature review, in combination with onsite habitat and an evaluation of their potential to occur.

3.5.2.1 Special-Status Wildlife Species with a High Potential to Occur

Cooper's hawk (*Accipiter cooperii*) is a CDFW Watch List species. This species is typically associated with forests and woodlands but is often found in suburban areas such as parks and neighborhoods. It typically nests in pines, oaks, Douglas-firs, beeches, spruces, and other tree species, often on flat ground rather than hillsides, and in dense woods. Suitable trees for nesting occur along the northern edge of the site. Foraging habitat is present throughout much of the disturbed and landscaped portions of the site. One CNDDB record occurs within four miles of the site in 2012. Due to the presence of nesting and foraging habitat and a recently documented occurrence, this species was determined to have a high potential to occur.

Burrowing owl (*Athene cunicularia*) is a USFWS bird of conservation concern and a CDFW species of special concern (SSC). It is typically found in dry open areas with few trees and short grasses; it is also found in vacant lots near human habitation. It uses uninhabited mammal burrows for roosts and nests, oftentimes in close proximity to California ground squirrel colonies. It primarily feeds on large insects and small mammals but will also eat birds and amphibians. The open disturbed habitat provides potential habitat throughout the site and survey area. Ground squirrel burrows that could be utilized by owls were detected throughout the site, but no owl sign was detected at the burrow entrances. Multiple observations of this species have been documented within five miles of the Project site. Due to the presence of suitable habitat and several known records within five miles of the site, this species was determined to have a high potential to occur.

3.5.2.2 Special-Status Wildlife Species with a Moderate Potential to Occur

White-tailed kite (*Elanus leucurus*) is a CDFW Fully Protected species. The species is associated with open habitat in lowlands including savanna, open woodlands, marshes, and agricultural fields. Suitable trees for nesting occur onsite; however marsh habitat does not occur on or near the site. Foraging habitat is present throughout the disturbed portions of the site. Three CNDDB records occur within four miles of the site in 2009. Due to the presence of foraging habitat and recently documented occurrences, this species was determined to have a moderate potential to occur.

3.6 Critical Habitat

3.6.1 Large Mammal Use

Large mammals were neither detected within the Project site nor within the 500-foot buffer for the Project site during the biological resource assessment. There was no sign of any other large mammal species observed within the Project site during the survey; however, the Project site and 500-foot buffer support suitable habitat for native medium sized mammals, such as coyote (*Canis latrans*). It is unlikely that the site would be utilized for mountain lion habitation or used as a corridor due to developed and fenced

areas surrounding the Project site, paved roads immediately west and north of the Project site, and industrial developments, including a prison, in the vicinity of the Project site.

3.6.2 Migratory Birds and Raptors

The Project site and surrounding 500-foot buffer contains potential nesting habitat for numerous migratory bird species. Native bird species and their nests are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code 703-712). Potential nesting habitat within the Project site is present for birds that nest on the ground and in open scrub habitat. In addition, several mature pine trees are also present along the northern edge of the Project site and can provide nesting substrate for various songbirds and raptors. The disturbed habitats that occur within the 500-foot buffer for the Project site provide potential foraging habitat for raptors foraging habitat.

4.0 SUMMARY AND RECOMMENDATIONS

Implementation of the Project has potential to impact 8.56 acres of primarily disturbed habitat with ruderal vegetation. This type of disturbed habitat may provide suitable raptor foraging habitat and burrowing owl habitat. In addition, this type of disturbed habitat may be suitable for certain special-status plant species. The following recommendations would be required to determine if the Project would result in significant impacts to special-status plant and wildlife species.

4.1 Vegetation Communities

Due to the high level of disturbance and development observed within the Project site, the Project is unlikely to have any impacts on any vegetation communities. Vegetation mapping conducted during the biological resource assessment should be verified during the recommended rare plant survey.

4.2 Special-Status Plants

Focused rare plant surveys conducted during the appropriate blooming season for listed and special-status plant species with a high or moderate potential to occur would be required to determine presence/absence of these species. One survey period would be required to correspond to appropriate blooming seasons: July.

4.3 Special-Status Wildlife

4.3.1 Raptors/Migratory Birds

Foraging habitat for a number of raptor species and breeding habitat for numerous passerine species that are protected by the MBTA occurs throughout the site. The site provides nesting habitat for ground-nesting species as well as species that nest low in shrubs and trees. The trees along the northern edge of the Project site provide potential nesting habitat for raptors in addition to passerine species. Clearing of vegetation would need to comply with MBTA regulations and should avoid the nesting bird season to the maximum extent possible, typically February 1 through September 15.

4.3.2 Burrowing owl

The disturbed, relative flat areas provide potential breeding and overwintering habitat for the ground-dwelling burrowing owl. Focused burrowing owl breeding season surveys (February 15 and July 15) in accordance with the most recent guidelines are recommended to determine presence or absence of this SSC species.

5.0 REFERENCES

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LIST OF ATTACHMENTS

Attachment A – Representative Project Site Photos

Attachment B - Plant Species Observed

Attachment C - Wildlife Species Observed

Attachment D - Special-Status Plant Potential for Occurrence Table

Attachment E - Special-Status Wildlife Potential for Occurrence Table

ATTACHMENT A

Representative Project Site Photographs



Photo 1: Eastern section of the Project site, facing south.



Photo 2: Eastern section of the Project site, facing north.



Photo 3: Southern section of the existing Helitack Project site, facing west.



Photo 4: Eastern section of the Project site, facing north.



Photo 5: Southern expansion section of the Project site, facing south.



Photo 6: Northern section of the Project site, facing east.



Photo 7: Northern section of the Project site, facing west.



Photo 8: California ground squirrel burrow complex in the southeastern section of the Project site, facing southeast.

Attachment B

Plant Species Observed

Scientific Name	Common Name
VASCULAR PLANTS	
GYMNOSPERS	
Pinaceae	**Pine Family**
Pinus sp.	pine
ANGIOSPERMS (DICOTYLEDONS)	
Asteraceaea	**Sunflower Family**
Ambrosia acanthicarpa	annual bursage
Erigeron Canadensis	Canada horseweed
*Lactuca serriola**	prickly lettuce
*Salsola tragus**	Russian thistle
*Sonchus asper**	spiny sowthistle
*Taraxacum officinale**	common dandelion
Bignoniaceae	**Bignonia Family**
*Jacaranda mimosifolia**	black poui
Boraginaceae	**Borage Family**
Amsinckia menziesii	Menzies fiddleneck
Brassicaceae	**Mustard Family**
*Brassica nigra**	black mustard
*Hirschfeldia incana**	short-pod mustard
*Lepidium didymium**	lesser swine cress
*Sisymbrium irio**	London rocket
Casuarinaceae	**Beefwood Family**
Casuarina sp.*	sheoak
Chenopodiaceae	**Goosefoot Family**
*Chenopodium album**	lamb's quarters
Euphorbiaceae	**Spurge Family**
Euphorbia sp.	spurge
Fabaceae	**Legume Family**
*Melilotus indicus**	annual yellow sweetclover
Geraniaceae	**Geranium Family**
*Erodium cicutarium**	red stemmed filaree

Scientific Name	Common Name
Lamiaceae	**Mint Family**
*Lamium amplexicaule**	henbit deadnettle
*Rosmarinus officinalis**	rosemary
Lauraceae	**Laurel Family**
*Persea americana**	avocado
Malvaceae	**Mallow Family**
*Malva parviflora**	cheeseweed mallow
Myrtaceae	**Myrtle Family**
*Feijoa sellowiana**	pineapple guava
Polygonaceae	**Buckwheat Family**
*Polygonum aviculare**	prostrate knotweed
Rosaceae	**Rose Family**
*Photinia serratifolia**	Taiwanese photinia
*Prunus persica**	peach
Rutaceae	**Citrus Family**
*Citrus aurantiifolia**	Mexican lime
Urticaceae	**Nettle Family**
*Urtica urens**	dwarf nettle
ANGIOSPERMS (MONOCOTYLEDONS)	
Arecaceae	**Palm Family**
Washingtonia filifera	California fan palm
Poaceae	**Grass Family**
*Avena fatua**	wild oat
Bromus madritensis ssp. *rubens**	red brome
*Cynodon dactylon**	Bermuda grass
*Hordeum murinum**	foxtail barley
*Schismus Barbatus**	Mediterranean Grass

*Nonnative species

** Federally endangered or threatened/State endangered or threatened or CNPS designated

Attachment C

Prado Wildlife Species Observed

SCIENTIFIC NAME	COMMON NAME
AVES	**BIRDS**
Falconidae	Falcons
Falco sparverius	American kestrel
Laridae	Gulls, Terns, & Skimmers
Larus sp.	gull sp.
Columbidae	Pigeons and Doves
Zenaida macroura	mourning dove
Tytonidae	Barn owls
Tyto alba	barn owl
Trochilidae	Hummingbirds
Calypte anna	Anna's hummingbird
Tyrannidae	Tyrant flycatchers
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus verticalis	western kingbird
Corvidae	Jays & Crows
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Aegithalidae	Bushtits
Psaltriparus minimus	bushtit
Mimidae	Mockingbirds and Thrashers
Mimus polyglottos	northern mockingbird
Sturnidae	Starlings
*Sturnus vulgaris**	European starling
Emberizidae	Towhees and Sparrows
Zonotrichia leucophrys	white-crowned sparrow
Fringillidae	Finches
Haemorhous mexicanus	house finch
MAMMALIA	**MAMMALS**
Leporidae	Hares & Rabbits
Sylvilagus audubonii	desert cottontail

SCIENTIFIC NAME	COMMON NAME
AVES	**BIRDS**
Sciuridae	Squirrels
Spermophilus beecheyi	California ground squirrel
Geomyidae	Pocket gophers
Thomomys bottae	Botta's pocket gopher

*Nonnative species
**CDFW California Species of Special Concern
***Federally endangered or threatened/State endangered or threatened

Attachment D

Special-Status Plant Species Potential to Occur

Scientific Name Common Name	Status		Bloom Period & Elevation (meters)	Habitat Requirements	Potential for Occurrence
Abronia villosa var. aurita chaparral sand-verbena	Fed: Ca: CNPS:	None None 1B.1	Jan-Sep <1600	Occurs in chaparral and coastal sage scrub habitats, usually in sandy soils.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Androsace elongata ssp. acuta California androsace	Fed: Ca: CNPS:	None None 4.2	March-June 150-1305	Occurs in chaparral, cismontane woodland, coastal sage scrub, meadows and seeps, pinyon and juniper woodland, and valley and foothill grassland habitats.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Asplenium vespertinum western spleenwort	Fed: Ca: CNPS:	None None 4.2	Feb-Jun 180-1000	Occurs in chaparral, cismontane woodland, and coastal sage scrub habitats.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Astragalus brauntonii Braunton's milkvetch	Fed: Ca: CNPS:	**END** None 1B.1	Jan- Aug <650	Occurs in chaparral, coastal scrub, and valley and foothill grassland habitats. Often found in recently burned or disturbed areas.	**Moderate:** Marginal suitable habitat for this species occurs within the Project site. Multiple records returned during database search, including within 5 miles of the Project site.
Atriplex coulteri Coulter's saltbush	Fed: Ca: CNPS:	None None 1B.1	March-Oct <500	Occurs in valley grassland, coastal strand, and coastal sage scrub habitats, typically on alkaline or clay soils.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Atriplex serenana var. davidsonii Davidson's saltscale	Fed: Ca: CNPS:	None None 1B.2	April-Oct 10-200	Occurs in coastal bluff scrub and coastal sage scrub habitat, typically on alkaline soils.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Baccharis malibuensis Malibu baccharis	Fed: Ca: CNPS:	None None 1B.1	August 50-300	Occurs in chaparral habitat and grassy openings.	**Low:** Marginal suitable habitat for this species occurs within the Project site. Multiple records returned during database search; however, none within 5 miles of the Project site.
Berberis nevinii Nevin's barberry	Fed: Ca: CNPS:	**END** **END** 1B.1	(Feb) March-June 70-825	Occurs in chaparral, cismontane woodland, coastal sage scrub, and riparian scrub habitats, typically on sandy or gravelly soil.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.

Scientific Name Common Name	Status		Bloom Period & Elevation (meters)	Habitat Requirements	Potential for Occurrence
Calandrinia breweri Brewer's calandrinia	Fed: Ca: CNPS:	None None 4.2	(Jan)Mar-Jun 10-1220	Occurs in chaparral and coastal sage scrub habitat, usually in sandy or loamy soil. Often found in disturbed or burned areas.	**Low:** Marginal suitable habitat for this species occurs within the Project site. Multiple records returned during database search; however, none within 5 miles of the Project site.
Calochortus catalinae Catalina mariposas lily	Fed: Ca: CNPS:	None None 4.2	(Feb)Mar-June 15-700	Occurs in chaparral, cismontane woodland, coastal sage scrub, and valley and foothill grassland.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Calochortus plummerae Plummer's mariposa-lily	Fed: Ca: CNPS:	None None 4.2	May-July 100-1700	Occurs in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland habitat in granitic, rocky soils.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Calochortus weedii var. intermedius intermediate mariposa-lily	Fed: Ca: CNPS:	None None 1B.2	May-July <680	Occurs in chaparral, valley grassland, and coastal sage scrub communities, usually on dry rocky slopes.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Calystegia felix lucky morning-glory	Fed: Ca: CNPS:	None None 1B.1	March-Sep 30-215	Occurs in meadows and seeps (sometimes alkaline), and riparian scrub (alluvial) habitat.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Centromadia parryi ssp. australis Southern tarplant	Fed: Ca: CNPS:	None None 1B.1	May-Nov <480	Occurs on margins of marshes and swamps, in vernally mesic valley and foothill grassland, and vernal pools.	**Presumed Absent**: Suitable habitat for this species does not occur within the Project site.
Centromadia pungens ssp. laevis Smooth tarplant	Fed: Ca: CNPS:	**END** **END** 1B.2	April-Sept <640	Occurs in chenopod scrub, meadows and seeps, playas, riparian woodlands, and valley and foothill grassland habitats. Often found on disturbed sites.	**Moderate:** Marginal suitable habitat for this species occurs within the Project site. Multiple records returned during database search, including within 5 miles of the Project site.
Chorizanthe parryi *var.* ***fernandina*** San Fernando Valley spineflower	Fed: Ca: CNPS:	CAN **END** 1B.1	April-June 150-1220	Occurs in sandy soils in coastal sage scrub habitats and in valley and foothill grassland.	**Presumed Absent**: Suitable habitat for this species does not occur within the Project site.
Chorizanthe polygonoides var. longispina long-spined spineflower	Fed: Ca: CNPS:	None None 1B.2	April-July 30-1500	Occurs in chaparral, valley grassland, and coastal sage scrub habitats in sandy soils.	**Presumed Absent**: Suitable habitat for this species does not occur within the Project site.
Cladium californicum California sawgrass	Fed: Ca: CNPS:	None None 2B.2	June-Sep 60-1600	Occurs in freshwater wetlands, alkali sink, and wetland-riparian habitats.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Convolvulus simulans small-flowered morning-glory	Fed: Ca: CNPS:	None None 4.2	March-July 30-740	Occurs in chaparral (openings), coastal sage scrub, and valley and foothill grassland habitats.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.

Scientific Name Common Name	Status		Bloom Period & Elevation (meters)	Habitat Requirements	Potential for Occurrence
Deinandra paniculata paniculate tarplant	Fed: Ca: CNPS:	None None 4.2	(Mar)Apr-Nov(Dec) 25-940	Occurs in coastal sage scrub, valley and foothill grassland, and vernal pools.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Dudleya multicaulis Many-stemmed dudleya	Fed: Ca: CNPS:	None None 1B.2	April-July <600	Occurs in chaparral, coastal sage scrub, and valley and foothill grassland habitats. Often found in clay soils.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Eriastrum densifolium ssp. sanctorum Santa Ana River woollystar	Fed: Ca: CNPS:	**END** **END** 1B.1	May-Sep <500	Occurs in washes, alluvial floodplains, and dry riverbeds.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Harpagonella palmeri Palmer's Grapplinghook	Fed: Ca: CNPS:	None None 4.2	March-May 20-955	Occurs in chaparral, coastal sage scrub, and valley and foothill grassland in clay soils. Found in open grassy areas within shrubland.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Hesperocyparis forbesii Tecate cypress	Fed: Ca: CNPS:	None None 1B.1	NA 80-1500	Occurs in chaparral habitat.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Horkelia cuneata var. ***puberula*** Mesa horkelia	Fed: Ca: CNPS:	None None 1B.1	Feb-Sept 70-870	Typically occurs in maritime chaparral, cismontane woodland, and coastal scrub habitats in sandy or gravelly soils.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Juglans californica Southern California black walnut	Fed: Ca: CNPS:	None None 4.2	March-Aug 50-900	Occurs in chaparral, cismontane woodland, coastal sage scrub, and riparian woodland habitats.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site. Conspicuous species not observed during biological resources assessment.
Lepidium virginicum *var.* ***menziesii*** Robinson's pepper-grass	Fed: Ca: CNPS:	None None 4.3	Jan-July <885	Occurs in chaparral and coastal sage scrub habitats, often in disturbed areas and meadows.	**Moderate:** Marginal suitable habitat for this species occurs within the Project site. Multiple records returned during database search, including within 5 miles of the Project site.
Lilium humboldtii ssp. ocellatum	Fed: Ca: CNPS:	None None 4.2	March-Jul(Aug) 30-1800	Occurs in chaparral, cismontane woodland, coastal sage scrub, lower montane coniferous forest, and riparian woodland habitats.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Monardella australis ssp. jokerstii Jokerst's Monardella	Fed: Ca: CNPS:	None None 1B.1	July-Sep (160)1350-1750	Occurs in chaparral or montane forest on stony benches and in canyon bottoms.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.

Scientific Name Common Name	Status		Bloom Period & Elevation (meters)	Habitat Requirements	Potential for Occurrence
Muhlenbergia californica California muhly	Fed: None Ca: None CNPS: 4.3		June-Sep 100-2000	Occurs in chaparral, coastal sage scrub, and lower montane coniferous forest habitats, typically in meadows and seeps.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Navarretia prostrata prostrate vernal pool navarretia	Fed: None Ca: None CNPS: 1B.1		April-July <1210	Occurs in coastal sage scrub, meadows and seeps, valley and foothill grassland (alkaline), and vernal pools.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Nolina cismontane chaparral nolina	Fed: None Ca: None CNPS: 1B.2		May-July 200-1300	Occurs in dry chaparral and coastal mountain habitats.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Pentachaeta aurea ssp. allenii Allen's pentachaeta	Fed: None Ca: None CNPS: 1B.1		March-June <500	Occurs in valley grassland and southern oak woodland habitats.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Phacelia hubbyi Hubby's phacelia	Fed: None Ca: None CNPS: 4.2		April-July <1000	Occurs in chaparral, coastal sage scrub, and valley and foothill grassland habitat, typically in rocky or gravelly soils.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Phacelia stellaris Brand's star phacelia	Fed: None Ca: None CNPS: 1B.1		March-June <400	Occurs on coastal dunes and in coastal sage scrub habitat.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Pickeringia montana var. tomentosa woolly chaparral pea	Fed: None Ca: None CNPS: 4.3		May-Aug <1700	Occur in chaparral habitat with Gabbroic, granitic, clay soils.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Polygala cornuta var. fishiae Fish's milkwort	Fed: None Ca: None CNPS: 4.3		May-Aug 90-1270	Occurs in chaparral, cismontane woodland, and riparian woodland habitats.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Pseudognaphalium leucocephalum White rabbit-tobacco	Fed: None Ca: None CNPS: 2B.2		July-Dec <2100	Occurs in habitats with sandy or gravelly soils including chaparral, cismontane woodland, coastal sage scrub, and riparian woodland.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Quercus engelmannii Engelmann oak	Fed: None Ca: None CNPS: 4.2		March-June 50-1300	Occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland habitats.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site. Conspicuous species not observed during biological resources assessment.
Romneya coulteri Coulter's matilija poppy	Fed: None Ca: None CNPS: 4.2		March-July <1200	Occurs in chaparral and coastal sage scrub habitats, typically in dry washes and canyons.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Senecio aphanactis chaparral ragwort	Fed: None Ca: None CNPS: 2B.2		Jan-April 10-550	Occurs in chaparral, foothill woodland, and coastal sage scrub habitats typically in dry, open, and rocky areas.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.

Scientific Name Common Name	Status		Bloom Period & Elevation (meters)	Habitat Requirements	Potential for Occurrence
Sidalcea neomexicana Salt spring checkerbloom	Fed: Ca: CNPS:	None None 2B.2	March-June 15-1530	Typically occurs in mesic and alkaline habitats including coastal sage scrub, chaparral, lower montane coniferous forest, Mojavean desert scrub, and playas.	**Presumed Absent:** Suitable habitat for this species does not occur within the Project site.
Symphyotrichum defoliatum San Bernardino aster	Fed: Ca: CNPS:	None None 1B.2	July-Nov <2050	Occurs in cismontane woodland, coastal sage scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland, and disturbed areas.	**Moderate:** Marginal suitable habitat for this species occurs within the Project site. Multiple records returned during database search, including within 5 miles of the Project site.

Federal Designations:
(Federal Endangered Species Act, USFWS)

END: federally listed, endangered
THR: federally listed, threatened

State designations:
(California Endangered Species Act, CDFG)

END: state-listed, endangered
THR: state-listed, threatened
CAN: Candidate
Rare: CDFW Rare

Source: California Natural Diversity Data Base (CNDDB) California Native Plant Society Electronic Inventory (CNPSEI) Prado Dam, San Dimas, Ontario, Guasti, Yorba Linda, Corona North, Oregon, Black Star Canyon, and Corona South 7.5-minute topographic quadrangles.

Attachment E

Prado Wildlife Potential for Occurrence

Scientific Name Common Name	Status		Habitat	Potential for Occurrence
INVERTEBRATES				
Bombus crotchii Crotch bumble bee	Fed: Ca:	none CAN	Occurs in open grassland and scrub habitats.	**Presumed Absent.** No suitable open grassland or scrub habitat present on the Project site. One historic occurrence was documented approximately five miles from the Project site in 1894 (Occ #187).
Rhaphiomidas terminatus abdominalis Delhi sands flower-loving fly	Fed: Ca:	**END** none	Dune habitat, with fine sandy Delhi soils.	**Presumed Absent.** No suitable Delhi sands habitat is present on the Project site**.**
AMPHIBIANS				
Spea hammondii western spadefoot toad	Fed: Ca:	none SSC	Typically occurs in rivers with sandy banks, willows, cottonwoods, and sycamores with loose, gravelly areas of streams in drier parts of range.	**Low Potential to Occur.** Marginal habitat is present within some of the disturbed areas of the site; however, the Project site generally lacks sandy soils required by this species. Two recent sightings of this species are located approximately three miles from the project site in the Santa Ana Mountains (Occ # 1042 and 1043).
REPTILES				
Anniella stebbinsi southern California legless lizard	Fed: Ca:	none SSC	Typically occurs in moist warm loose soil with plant cover in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks.	**Low Potential to Occur.** Marginal habitat is present in some of the disturbed areas of the Project site. One historic occurrence was documented within five miles of the Project site in 1938 (Occ #137).

Scientific Name Common Name	Status		Habitat	Potential for Occurrence
Arizona elegans occidentalis California glossy snake	Fed: Ca:	none SSC	Typically occurs in rocky washes, chaparral, scrub and grassland habitat, often with loose or sandy soils.	**Presumed Absent.** No suitable rocky wash or chaparral habitat present on the Project site. One historic occurrence was documented within five miles of the Project site in the 1890s (Occ #94).
Aspidoscelis hyperythra orange-throated whiptail	Fed: Ca:	none WL	Typically occurs in semi-arid brushy areas typically with loose soil and rocks, including washes, streamsides, rocky hillsides, and coastal chaparral.	**Low Potential to Occur.** Marginal habitat is present in some of the disturbed areas of the Project site. One historic occurrence was documented within five miles of the Project site in 1983 (Occ #141).
Emys marmorata western pond turtle	Fed: Ca:	none SSC	Typically occurs in slow moving permanent or intermittent streams, small ponds, small lakes, reservoirs, and other long-term water deposits, where abundant cover is available.	**Presumed Absent.** No suitable stream, pond, or lake habitat present on the Project site.

Scientific Name Common Name	Status		Habitat	Potential for Occurrence
AVES				
Accipiter cooperii Cooper's hawk (nesting)	Fed: Ca:	none WL	Typically breeds in pines, oaks, Douglas-firs, beeches, spruces, and other tree species, often on flat ground rather than hillsides, and in dense woods.	**High Potential to Occur.** The mature trees on the northern end of the Project site provide suitable habitat and disturbed areas provide suitable foraging habitat. One observation of this species has been recorded within four miles of the Project site in 2012 (Occ # 190).
Agelaius tricolor tricolored blackbird (nesting colony)	Fed: Ca:	none **END**	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey in proximity to the colony. Nests in dense and tall emergent vegetation.	**Presumed Absent.** No suitable open water habitat present on the Project site.
Aquila chrysaetos golden eagle (nesting & wintering)	Fed: Ca:	none FP	Nests on rock ledges, cliffs, and sometimes in large trees.	**Low Potential to Occur.** No suitable nesting habitat in the form of ledges or cliffs are present on the Project site; however, marginally suitable foraging habitat is present in the disturbed annual grasslands. There have been two previous sightings of this species, one historic sighting in 1998 within four miles of the project site (Occ # 63), and one recent sighting in 2007 within one mile of the Project site (Occ #125).
Asio otus long-eared owl (nesting)	Fed: Ca:	none SSC	Nests in trees or tree cavities within deciduous and evergreen forests, orchards, wooded parks, farm woodlots, river woods, desert oases. Requires riparian habitat	**Low Potential to Occur.** The mature trees on the northern edge of the Project site provide suitable habitat. One historic occurrence was documented in 1925 within three miles of the Project site (Occ # 16).

Scientific Name Common Name	Status		Habitat	Potential for Occurrence
Athene cunicularia burrowing owl (burrow sites and some wintering sites)	Fed: Ca:	none SSC	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation.	**High Potential to Occur.** Suitable habitat is present throughout the disturbed areas within and adjacent to the Project site. Multiple ground squirrel burrows (suitable size and shape) were observed during the survey. Multiple observations of this species have been documented within five miles of the Project site (Occ # 646, 950, 1046, 1776, 1778, 1779, 1780, 1781, 1782,1783, 1790, 1791, 1792, 1993).
Buteo swainsoni Swainson's hawk	Fed: Ca:	none SSC	Typically breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural lands with groves of trees.	**Low Potential to Occur.** The Project site supports marginally suitable foraging habitat. Swainson's hawk prefers large open habitats in agricultural fields and grasslands. One historical sighting was recorded within two miles of the Project site in 1920 (Occ # 2548).
Coccyzus americanus occidentalis western yellow-billed cuckoo (nesting)	Fed: Ca:	**THR** **END**	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	**Presumed Absent.** No suitable riparian habitat present on the Project site. Two historic records of this species have been recorded, one within one mile of the Project site in 1931 (Occ #76), and one within five miles of the Project site in 1991 (Occ #37).
Elanus leucurus white-tailed kite (nesting)	Fed: Ca:	none FP	Nests in trees, often near a marsh, usually 6-15 meters above the ground in branches near the top of a tree.	**Moderate Potential to Occur.** The mature trees on the northern end of the Project site provide marginal nesting habitat and disturbed areas provide marginal foraging habitat. Three observations of this species have been recorded within four miles of the Project site in 2009 (Occ # 141, 139, and 140).

Scientific Name Common Name	Status		Habitat	Potential for Occurrence
Icteria virens yellow-breasted chat (nesting)	Fed: Ca:	none SSC	Occurs in second growth, shrubby old pastures, thickets, bushy areas, scrub, woodland undergrowth, and fence rows, including low wet places near streams, pond edges, or swamps; thickets with few tall trees; early successional stages of forest regeneration; commonly in sites close to human habitation.	**Presumed Absent.** No suitable second growth habitat, thickets, or bushy areas are is present on the Project site**.** One observation of this species has been recorded within five miles of the Project site in 2010 (Occ # 112).
Laterallus jamaicensis coturniculus California black rail (nesting)	Fed: Ca:	none **THR**, FP	Occurs in salt marshes, freshwater marshes, and wet meadows.	**Presumed Absent.** The project site is outside the current known range of this species. Furthermore, no suitable marsh or wet meadow habitat is present on the Project site**.**
Polioptila californica californica coastal California gnatcatcher	Fed: Ca:	**THR** SSC	Obligate, permanent resident of coastal sage scrub below 2,500 feet in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes; not all areas classified as coastal sage scrub are occupied.	**Presumed Absent.** No suitable coastal sage scrub habitat is present on the Project site**.**
Setophaga petechia yellow warbler	Fed: Ca:	none SSC	Riparian plant associations in proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	**Presumed Absent.** No suitable riparian habitat is present on the Project site**.**
Vireo bellii pusillus least Bell's vireo (nesting)	Fed: Ca:	**END** **END**	Summer resident of southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, mulefat, mesquite.	**Presumed Absent.** No suitable riparian habitat is present on the Project site**.**
MAMMALS				

Scientific Name Common Name	Status		Habitat	Potential for Occurrence
Antrozous pallidus pallid bat	Fed: Ca:	none SSC	Typically found in chaparral, and forages along the edges between shrubs and small open areas. Less commonly found in arid grassland, desert, and coastal scrub habitats. Roosts in bridges, buildings, and in tree cavities.	**Low Potential to Occur.** Marginal habitat is present on the Project site in the mature trees along the northern edge pf the Project site. One historical sighting was recorded within five miles of the Project site in 1951 (Occ # 1951).

Federal Designations (Federal Endangered Species Act, USFWS)
END: federally listed, endangered
THR: federally listed, threatened
DL: federally delisted

State designations: (California Endangered Species Act, CDFW)
END: state-listed, endangered
THR: state-listed, threatened
FP: Fully Protected species
SSC: California Species of Special Concern
CAN: Candidate for Listing (Endangered)
WL: Watch List

Source: California Natural Diversity Data Base (CNDDB) California Native Plant Society Electronic Inventory (CNPSEI) Prado Dam, San Dimas, Ontario, Guasti, Yorba Linda, Corona North, Corona South, Black Star Canyon, and Orange.7.5-minute topographic quadrangles.

APPENDIX E

CONFIDENTIAL Cultural Resources Inventory and Evaluation, ECORP Consulting, Inc. June 2020

Due to the confidential nature of this document, the Cultural Resources Inventory and Evaluation Report is not included in this submittal.

APPENDIX F1

Emissions Modeling Outputs, ECORP Consulting, Inc. June 2020

Prado Helitack - Proposed Project

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government Office Building	7.47	1000sqft	0.17	7,465.00	0
Unrefrigerated Warehouse-No Rail	4.80	1000sqft	0.11	4,800.00	0
Unrefrigerated Warehouse-No Rail	2.99	1000sqft	0.07	2,990.00	0
Unrefrigerated Warehouse-No Rail	0.41	1000sqft	0.01	406.00	0
Unrefrigerated Warehouse-No Rail	1.09	1000sqft	0.03	1,093.00	0
Unrefrigerated Warehouse-No Rail	0.16	1000sqft	0.00	156.00	0
Unrefrigerated Warehouse-No Rail	7.42	1000sqft	0.17	7,421.00	0
Unrefrigerated Warehouse-No Rail	1.66	1000sqft	0.04	1,660.00	0
Other Non-Asphalt Surfaces	7.70	1000sqft	0.18	7,700.00	0
Parking Lot	44.00	Space	0.40	17,600.00	0
Gasoline/Service Station	3.00	Pump	0.01	423.52	0
Other Non-Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Parking Lot	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	549	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE 2017 CO2 Intensity Factor

Land Use - Accounts for 7,465 sf barracks, 4,800 sf warehouse, 2,990 garage, 406 sf tower, 1,093 wash rack, 156 sf storage bldng, 7,421 sf hangar, 1,660 sf electrical bldng, 7,700 sf of helipad space, parking lot, jet fuel tanks, utility improvements, and offsite improvements

Construction Phase - Building construction, paving, and painting assumed to occur simultaneously

Demolition -

Vehicle Trips - Trip Generation per TIA

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	18.00	230.00
tblConstructionPhase	NumDays	18.00	230.00
tblConstructionPhase	PhaseEndDate	8/13/2021	4/1/2022
tblConstructionPhase	PhaseEndDate	6/24/2021	4/1/2022
tblConstructionPhase	PhaseEndDate	7/20/2020	4/28/2021
tblConstructionPhase	PhaseEndDate	8/6/2020	5/14/2021
tblConstructionPhase	PhaseEndDate	7/20/2021	4/1/2022
tblConstructionPhase	PhaseEndDate	7/27/2020	5/5/2021
tblConstructionPhase	PhaseStartDate	7/21/2021	5/15/2021
tblConstructionPhase	PhaseStartDate	8/7/2020	5/15/2021
tblConstructionPhase	PhaseStartDate	6/23/2020	4/1/2021
tblConstructionPhase	PhaseStartDate	7/28/2020	5/5/2021
tblConstructionPhase	PhaseStartDate	6/25/2021	5/15/2021
tblConstructionPhase	PhaseStartDate	7/21/2020	4/29/2021
tblProjectCharacteristics	CO2IntensityFactor	702.44	549
tblVehicleTrips	ST_TR	168.56	0.00
tblVehicleTrips	ST_TR	0.00	9.77
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	168.56	0.00
tblVehicleTrips	SU_TR	0.00	9.77
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	168.56	0.00
tblVehicleTrips	WD_TR	68.93	9.77
tblVehicleTrips	WD_TR	1.68	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.4713	3.2509	3.2459	6.2500e-003	0.1945	0.1610	0.3554	0.0709	0.1506	0.2215	0.0000	549.8739	549.8739	0.1123	0.0000	552.6823
2022	0.1534	0.9639	1.1228	2.1900e-003	0.0457	0.0452	0.0909	0.0123	0.0424	0.0547	0.0000	193.0319	193.0319	0.0377	0.0000	193.9754
Maximum	**0.4713**	**3.2509**	**3.2459**	**6.2500e-003**	**0.1945**	**0.1610**	**0.3554**	**0.0709**	**0.1506**	**0.2215**	**0.0000**	**549.8739**	**549.8739**	**0.1123**	**0.0000**	**552.6823**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.4713	3.2509	3.2459	6.2500e-003	0.1082	0.1610	0.2692	0.0373	0.1506	0.1879	0.0000	549.8734	549.8734	0.1123	0.0000	552.6819
2022	0.1534	0.9639	1.1228	2.1900e-003	0.0303	0.0452	0.0754	8.4900e-003	0.0424	0.0509	0.0000	193.0318	193.0318	0.0377	0.0000	193.9753
Maximum	**0.4713**	**3.2509**	**3.2459**	**6.2500e-003**	**0.1082**	**0.1610**	**0.2692**	**0.0373**	**0.1506**	**0.1879**	**0.0000**	**549.8734**	**549.8734**	**0.1123**	**0.0000**	**552.6819**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**42.35**	**0.00**	**22.79**	**44.97**	**0.00**	**13.55**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
4	**3-23-2021**	**6-22-2021**	1.0917	1.0917
5	**6-23-2021**	**9-22-2021**	1.2544	1.2544
6	**9-23-2021**	**12-22-2021**	1.2405	1.2405
7	**12-23-2021**	**3-22-2022**	1.1167	1.1167
8	**3-23-2022**	**6-22-2022**	0.1227	0.1227
		Highest	1.2544	1.2544

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1200	1.0000e-005	1.0700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0800e-003	2.0800e-003	1.0000e-005	0.0000	2.2100e-003
Energy	4.2000e-004	3.7900e-003	3.1800e-003	2.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	42.9059	42.9059	2.1300e-003	5.0000e-004	43.1080
Mobile	0.0225	0.1669	0.2460	9.1000e-004	0.0654	6.8000e-004	0.0661	0.0175	6.3000e-004	0.0182	0.0000	84.7627	84.7627	5.0400e-003	0.0000	84.8888
Waste						0.0000	0.0000		0.0000	0.0000	5.2737	0.0000	5.2737	0.3117	0.0000	13.0654
Water						0.0000	0.0000		0.0000	0.0000	1.8423	21.4096	23.2518	0.1904	4.7000e-003	29.4117
Total	**0.1430**	**0.1707**	**0.2502**	**9.3000e-004**	**0.0654**	**9.7000e-004**	**0.0664**	**0.0175**	**9.2000e-004**	**0.0185**	**7.1160**	**149.0803**	**156.1963**	**0.5092**	**5.2000e-003**	**170.4761**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1200	1.0000e-005	1.0700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0800e-003	2.0800e-003	1.0000e-005	0.0000	2.2100e-003
Energy	4.2000e-004	3.7900e-003	3.1800e-003	2.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	42.9059	42.9059	2.1300e-003	5.0000e-004	43.1080
Mobile	0.0225	0.1669	0.2460	9.1000e-004	0.0654	6.8000e-004	0.0661	0.0175	6.3000e-004	0.0182	0.0000	84.7627	84.7627	5.0400e-003	0.0000	84.8888
Waste						0.0000	0.0000		0.0000	0.0000	5.2737	0.0000	5.2737	0.3117	0.0000	13.0654
Water						0.0000	0.0000		0.0000	0.0000	1.8423	21.4096	23.2518	0.1904	4.7000e-003	29.4117
Total	**0.1430**	**0.1707**	**0.2502**	**9.3000e-004**	**0.0654**	**9.7000e-004**	**0.0664**	**0.0175**	**9.2000e-004**	**0.0185**	**7.1160**	**149.0803**	**156.1963**	**0.5092**	**5.2000e-003**	**170.4761**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2021	4/28/2021	5	20	
2	Site Preparation	Site Preparation	4/29/2021	5/5/2021	5	5	
3	Grading	Grading	5/5/2021	5/14/2021	5	8	
4	Building Construction	Building Construction	5/15/2021	4/1/2022	5	230	
5	Paving	Paving	5/15/2021	4/1/2022	5	230	
6	Architectural Coating	Architectural Coating	5/15/2021	4/1/2022	5	230	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 3.58

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 39,622; Non-Residential Outdoor: 13,207; Striped Parking Area: 9,359 (Architectural Coating – sqft)

OffRoad Equipment

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Grading	Excavators	1	8.00	158	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	6.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	2	6.00	132	0.36
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	76.00	30.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	37.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.9600e-003	0.0000	3.9600e-003	6.0000e-004	0.0000	6.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3144	0.2157	3.9000e-004		0.0155	0.0155		0.0144	0.0144	0.0000	34.0008	34.0008	9.5700e-003	0.0000	34.2400
Total	**0.0317**	**0.3144**	**0.2157**	**3.9000e-004**	**3.9600e-003**	**0.0155**	**0.0195**	**6.0000e-004**	**0.0144**	**0.0150**	**0.0000**	**34.0008**	**34.0008**	**9.5700e-003**	**0.0000**	**34.2400**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1000e-004	4.3200e-003	6.9000e-004	1.0000e-005	3.2000e-004	1.0000e-005	3.3000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.3697	1.3697	8.0000e-005	0.0000	1.3716
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.2000e-004	5.3400e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3649	1.3649	4.0000e-005	0.0000	1.3658
Total	**8.0000e-004**	**4.8400e-003**	**6.0300e-003**	**3.0000e-005**	**1.9600e-003**	**2.0000e-005**	**1.9900e-003**	**5.3000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**2.7345**	**2.7345**	**1.2000e-004**	**0.0000**	**2.7374**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.5400e-003	0.0000	1.5400e-003	2.3000e-004	0.0000	2.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3144	0.2157	3.9000e-004		0.0155	0.0155		0.0144	0.0144	0.0000	34.0007	34.0007	9.5700e-003	0.0000	34.2400
Total	**0.0317**	**0.3144**	**0.2157**	**3.9000e-004**	**1.5400e-003**	**0.0155**	**0.0171**	**2.3000e-004**	**0.0144**	**0.0146**	**0.0000**	**34.0007**	**34.0007**	**9.5700e-003**	**0.0000**	**34.2400**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1000e-004	4.3200e-003	6.9000e-004	1.0000e-005	2.2000e-004	1.0000e-005	2.3000e-004	6.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.3697	1.3697	8.0000e-005	0.0000	1.3716
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.2000e-004	5.3400e-003	2.0000e-005	1.0700e-003	1.0000e-005	1.0900e-003	3.0000e-004	1.0000e-005	3.1000e-004	0.0000	1.3649	1.3649	4.0000e-005	0.0000	1.3658
Total	**8.0000e-004**	**4.8400e-003**	**6.0300e-003**	**3.0000e-005**	**1.2900e-003**	**2.0000e-005**	**1.3200e-003**	**3.6000e-004**	**2.0000e-005**	**3.9000e-004**	**0.0000**	**2.7345**	**2.7345**	**1.2000e-004**	**0.0000**	**2.7374**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7200e-003	0.1012	0.0529	1.0000e-004		5.1100e-003	5.1100e-003		4.7000e-003	4.7000e-003	0.0000	8.3589	8.3589	2.7000e-003	0.0000	8.4265
Total	**9.7200e-003**	**0.1012**	**0.0529**	**1.0000e-004**	**0.0452**	**5.1100e-003**	**0.0503**	**0.0248**	**4.7000e-003**	**0.0295**	**0.0000**	**8.3589**	**8.3589**	**2.7000e-003**	**0.0000**	**8.4265**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.6000e-004	1.6000e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4095	0.4095	1.0000e-005	0.0000	0.4097
Total	**2.1000e-004**	**1.6000e-004**	**1.6000e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4095**	**0.4095**	**1.0000e-005**	**0.0000**	**0.4097**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0176	0.0000	0.0176	9.6800e-003	0.0000	9.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7200e-003	0.1012	0.0529	1.0000e-004		5.1100e-003	5.1100e-003		4.7000e-003	4.7000e-003	0.0000	8.3589	8.3589	2.7000e-003	0.0000	8.4265
Total	**9.7200e-003**	**0.1012**	**0.0529**	**1.0000e-004**	**0.0176**	**5.1100e-003**	**0.0227**	**9.6800e-003**	**4.7000e-003**	**0.0144**	**0.0000**	**8.3589**	**8.3589**	**2.7000e-003**	**0.0000**	**8.4265**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.6000e-004	1.6000e-003	0.0000	3.2000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.4095	0.4095	1.0000e-005	0.0000	0.4097
Total	**2.1000e-004**	**1.6000e-004**	**1.6000e-003**	**0.0000**	**3.2000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.4095**	**0.4095**	**1.0000e-005**	**0.0000**	**0.4097**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1600e-003	0.0990	0.0634	1.2000e-004		4.6400e-003	4.6400e-003		4.2700e-003	4.2700e-003	0.0000	10.4215	10.4215	3.3700e-003	0.0000	10.5057
Total	**9.1600e-003**	**0.0990**	**0.0634**	**1.2000e-004**	**0.0262**	**4.6400e-003**	**0.0309**	**0.0135**	**4.2700e-003**	**0.0177**	**0.0000**	**10.4215**	**10.4215**	**3.3700e-003**	**0.0000**	**10.5057**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.1400e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5459	0.5459	2.0000e-005	0.0000	0.5463
Total	**2.8000e-004**	**2.1000e-004**	**2.1400e-003**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5459**	**0.5459**	**2.0000e-005**	**0.0000**	**0.5463**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0102	0.0000	0.0102	5.2500e-003	0.0000	5.2500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1600e-003	0.0990	0.0634	1.2000e-004		4.6400e-003	4.6400e-003		4.2700e-003	4.2700e-003	0.0000	10.4215	10.4215	3.3700e-003	0.0000	10.5057
Total	**9.1600e-003**	**0.0990**	**0.0634**	**1.2000e-004**	**0.0102**	**4.6400e-003**	**0.0149**	**5.2500e-003**	**4.2700e-003**	**9.5200e-003**	**0.0000**	**10.4215**	**10.4215**	**3.3700e-003**	**0.0000**	**10.5057**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.1400e-003	1.0000e-005	4.3000e-004	0.0000	4.3000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.5459	0.5459	2.0000e-005	0.0000	0.5463
Total	**2.8000e-004**	**2.1000e-004**	**2.1400e-003**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.5459**	**0.5459**	**2.0000e-005**	**0.0000**	**0.5463**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1568	1.4382	1.3675	2.2200e-003		0.0791	0.0791		0.0744	0.0744	0.0000	191.1008	191.1008	0.0461	0.0000	192.2534
Total	**0.1568**	**1.4382**	**1.3675**	**2.2200e-003**		**0.0791**	**0.0791**		**0.0744**	**0.0744**	**0.0000**	**191.1008**	**191.1008**	**0.0461**	**0.0000**	**192.2534**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.5600e-003	0.2408	0.0490	6.6000e-004	0.0156	4.1000e-004	0.0160	4.5000e-003	4.0000e-004	4.9000e-003	0.0000	62.8559	62.8559	4.2300e-003	0.0000	62.9618
Worker	0.0289	0.0218	0.2234	6.3000e-004	0.0688	4.5000e-004	0.0692	0.0183	4.1000e-004	0.0187	0.0000	57.0508	57.0508	1.6000e-003	0.0000	57.0907
Total	**0.0354**	**0.2626**	**0.2724**	**1.2900e-003**	**0.0844**	**8.6000e-004**	**0.0852**	**0.0228**	**8.1000e-004**	**0.0236**	**0.0000**	**119.9067**	**119.9067**	**5.8300e-003**	**0.0000**	**120.0525**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1568	1.4382	1.3675	2.2200e-003		0.0791	0.0791		0.0744	0.0744	0.0000	191.1005	191.1005	0.0461	0.0000	192.2531
Total	**0.1568**	**1.4382**	**1.3675**	**2.2200e-003**		**0.0791**	**0.0791**		**0.0744**	**0.0744**	**0.0000**	**191.1005**	**191.1005**	**0.0461**	**0.0000**	**192.2531**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.5600e-003	0.2408	0.0490	6.6000e-004	0.0112	4.1000e-004	0.0116	3.4200e-003	4.0000e-004	3.8200e-003	0.0000	62.8559	62.8559	4.2300e-003	0.0000	62.9618
Worker	0.0289	0.0218	0.2234	6.3000e-004	0.0449	4.5000e-004	0.0454	0.0124	4.1000e-004	0.0128	0.0000	57.0508	57.0508	1.6000e-003	0.0000	57.0907
Total	**0.0354**	**0.2626**	**0.2724**	**1.2900e-003**	**0.0561**	**8.6000e-004**	**0.0570**	**0.0158**	**8.1000e-004**	**0.0166**	**0.0000**	**119.9067**	**119.9067**	**5.8300e-003**	**0.0000**	**120.0525**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0555	0.5075	0.5318	8.8000e-004		0.0263	0.0263		0.0247	0.0247	0.0000	75.3107	75.3107	0.0180	0.0000	75.7618
Total	**0.0555**	**0.5075**	**0.5318**	**8.8000e-004**		**0.0263**	**0.0263**		**0.0247**	**0.0247**	**0.0000**	**75.3107**	**75.3107**	**0.0180**	**0.0000**	**75.7618**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4100e-003	0.0898	0.0179	2.6000e-004	6.1500e-003	1.4000e-004	6.2800e-003	1.7700e-003	1.3000e-004	1.9100e-003	0.0000	24.5597	24.5597	1.6100e-003	0.0000	24.6000
Worker	0.0106	7.7200e-003	0.0807	2.4000e-004	0.0271	1.7000e-004	0.0273	7.1900e-003	1.6000e-004	7.3500e-003	0.0000	21.6647	21.6647	5.6000e-004	0.0000	21.6788
Total	**0.0130**	**0.0976**	**0.0986**	**5.0000e-004**	**0.0332**	**3.1000e-004**	**0.0335**	**8.9600e-003**	**2.9000e-004**	**9.2600e-003**	**0.0000**	**46.2244**	**46.2244**	**2.1700e-003**	**0.0000**	**46.2788**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0555	0.5075	0.5318	8.8000e-004		0.0263	0.0263		0.0247	0.0247	0.0000	75.3106	75.3106	0.0180	0.0000	75.7617
Total	**0.0555**	**0.5075**	**0.5318**	**8.8000e-004**		**0.0263**	**0.0263**		**0.0247**	**0.0247**	**0.0000**	**75.3106**	**75.3106**	**0.0180**	**0.0000**	**75.7617**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4100e-003	0.0898	0.0179	2.6000e-004	4.4100e-003	1.4000e-004	4.5400e-003	1.3500e-003	1.3000e-004	1.4800e-003	0.0000	24.5597	24.5597	1.6100e-003	0.0000	24.6000
Worker	0.0106	7.7200e-003	0.0807	2.4000e-004	0.0177	1.7000e-004	0.0179	4.8900e-003	1.6000e-004	5.0500e-003	0.0000	21.6647	21.6647	5.6000e-004	0.0000	21.6788
Total	**0.0130**	**0.0976**	**0.0986**	**5.0000e-004**	**0.0221**	**3.1000e-004**	**0.0224**	**6.2400e-003**	**2.9000e-004**	**6.5300e-003**	**0.0000**	**46.2244**	**46.2244**	**2.1700e-003**	**0.0000**	**46.2788**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0903	0.8943	1.0115	1.5600e-003		0.0478	0.0478		0.0441	0.0441	0.0000	135.0576	135.0576	0.0424	0.0000	136.1185
Paving	2.2600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0925**	**0.8943**	**1.0115**	**1.5600e-003**		**0.0478**	**0.0478**		**0.0441**	**0.0441**	**0.0000**	**135.0576**	**135.0576**	**0.0424**	**0.0000**	**136.1185**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5900e-003	5.7400e-003	0.0588	1.7000e-004	0.0181	1.2000e-004	0.0182	4.8000e-003	1.1000e-004	4.9100e-003	0.0000	15.0134	15.0134	4.2000e-004	0.0000	15.0239
Total	**7.5900e-003**	**5.7400e-003**	**0.0588**	**1.7000e-004**	**0.0181**	**1.2000e-004**	**0.0182**	**4.8000e-003**	**1.1000e-004**	**4.9100e-003**	**0.0000**	**15.0134**	**15.0134**	**4.2000e-004**	**0.0000**	**15.0239**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0903	0.8943	1.0115	1.5600e-003		0.0478	0.0478		0.0441	0.0441	0.0000	135.0575	135.0575	0.0424	0.0000	136.1184
Paving	2.2600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0925**	**0.8943**	**1.0115**	**1.5600e-003**		**0.0478**	**0.0478**		**0.0441**	**0.0441**	**0.0000**	**135.0575**	**135.0575**	**0.0424**	**0.0000**	**136.1184**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5900e-003	5.7400e-003	0.0588	1.7000e-004	0.0118	1.2000e-004	0.0119	3.2700e-003	1.1000e-004	3.3700e-003	0.0000	15.0134	15.0134	4.2000e-004	0.0000	15.0239
Total	**7.5900e-003**	**5.7400e-003**	**0.0588**	**1.7000e-004**	**0.0118**	**1.2000e-004**	**0.0119**	**3.2700e-003**	**1.1000e-004**	**3.3700e-003**	**0.0000**	**15.0134**	**15.0134**	**4.2000e-004**	**0.0000**	**15.0239**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0317	0.3095	0.3963	6.2000e-004		0.0159	0.0159		0.0146	0.0146	0.0000	53.2216	53.2216	0.0167	0.0000	53.6396
Paving	8.9000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0326**	**0.3095**	**0.3963**	**6.2000e-004**		**0.0159**	**0.0159**		**0.0146**	**0.0146**	**0.0000**	**53.2216**	**53.2216**	**0.0167**	**0.0000**	**53.6396**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-003	2.0300e-003	0.0212	6.0000e-005	7.1300e-003	5.0000e-005	7.1700e-003	1.8900e-003	4.0000e-005	1.9300e-003	0.0000	5.7012	5.7012	1.5000e-004	0.0000	5.7050
Total	**2.8000e-003**	**2.0300e-003**	**0.0212**	**6.0000e-005**	**7.1300e-003**	**5.0000e-005**	**7.1700e-003**	**1.8900e-003**	**4.0000e-005**	**1.9300e-003**	**0.0000**	**5.7012**	**5.7012**	**1.5000e-004**	**0.0000**	**5.7050**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0317	0.3095	0.3963	6.2000e-004		0.0159	0.0159		0.0146	0.0146	0.0000	53.2215	53.2215	0.0167	0.0000	53.6395
Paving	8.9000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0326**	**0.3095**	**0.3963**	**6.2000e-004**		**0.0159**	**0.0159**		**0.0146**	**0.0146**	**0.0000**	**53.2215**	**53.2215**	**0.0167**	**0.0000**	**53.6395**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-003	2.0300e-003	0.0212	6.0000e-005	4.6600e-003	5.0000e-005	4.7000e-003	1.2900e-003	4.0000e-005	1.3300e-003	0.0000	5.7012	5.7012	1.5000e-004	0.0000	5.7050
Total	**2.8000e-003**	**2.0300e-003**	**0.0212**	**6.0000e-005**	**4.6600e-003**	**5.0000e-005**	**4.7000e-003**	**1.2900e-003**	**4.0000e-005**	**1.3300e-003**	**0.0000**	**5.7012**	**5.7012**	**1.5000e-004**	**0.0000**	**5.7050**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1034					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.1260	0.1500	2.5000e-004		7.7600e-003	7.7600e-003		7.7600e-003	7.7600e-003	0.0000	21.0643	21.0643	1.4500e-003	0.0000	21.1005
Total	**0.1215**	**0.1260**	**0.1500**	**2.5000e-004**		**7.7600e-003**	**7.7600e-003**		**7.7600e-003**	**7.7600e-003**	**0.0000**	**21.0643**	**21.0643**	**1.4500e-003**	**0.0000**	**21.1005**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-003	4.3100e-003	0.0441	1.2000e-004	0.0136	9.0000e-005	0.0137	3.6000e-003	8.0000e-005	3.6900e-003	0.0000	11.2600	11.2600	3.2000e-004	0.0000	11.2679
Total	**5.7000e-003**	**4.3100e-003**	**0.0441**	**1.2000e-004**	**0.0136**	**9.0000e-005**	**0.0137**	**3.6000e-003**	**8.0000e-005**	**3.6900e-003**	**0.0000**	**11.2600**	**11.2600**	**3.2000e-004**	**0.0000**	**11.2679**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1034					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.1260	0.1500	2.5000e-004		7.7600e-003	7.7600e-003		7.7600e-003	7.7600e-003	0.0000	21.0643	21.0643	1.4500e-003	0.0000	21.1005
Total	**0.1215**	**0.1260**	**0.1500**	**2.5000e-004**		**7.7600e-003**	**7.7600e-003**		**7.7600e-003**	**7.7600e-003**	**0.0000**	**21.0643**	**21.0643**	**1.4500e-003**	**0.0000**	**21.1005**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-003	4.3100e-003	0.0441	1.2000e-004	8.8600e-003	9.0000e-005	8.9500e-003	2.4500e-003	8.0000e-005	2.5300e-003	0.0000	11.2600	11.2600	3.2000e-004	0.0000	11.2679
Total	**5.7000e-003**	**4.3100e-003**	**0.0441**	**1.2000e-004**	**8.8600e-003**	**9.0000e-005**	**8.9500e-003**	**2.4500e-003**	**8.0000e-005**	**2.5300e-003**	**0.0000**	**11.2600**	**11.2600**	**3.2000e-004**	**0.0000**	**11.2679**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0407					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0458	0.0589	1.0000e-004		2.6600e-003	2.6600e-003		2.6600e-003	2.6600e-003	0.0000	8.2981	8.2981	5.4000e-004	0.0000	8.3116
Total	**0.0474**	**0.0458**	**0.0589**	**1.0000e-004**		**2.6600e-003**	**2.6600e-003**		**2.6600e-003**	**2.6600e-003**	**0.0000**	**8.2981**	**8.2981**	**5.4000e-004**	**0.0000**	**8.3116**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-003	1.5200e-003	0.0159	5.0000e-005	5.3500e-003	3.0000e-005	5.3800e-003	1.4200e-003	3.0000e-005	1.4500e-003	0.0000	4.2759	4.2759	1.1000e-004	0.0000	4.2787
Total	**2.1000e-003**	**1.5200e-003**	**0.0159**	**5.0000e-005**	**5.3500e-003**	**3.0000e-005**	**5.3800e-003**	**1.4200e-003**	**3.0000e-005**	**1.4500e-003**	**0.0000**	**4.2759**	**4.2759**	**1.1000e-004**	**0.0000**	**4.2787**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0407					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0458	0.0589	1.0000e-004		2.6600e-003	2.6600e-003		2.6600e-003	2.6600e-003	0.0000	8.2981	8.2981	5.4000e-004	0.0000	8.3116
Total	**0.0474**	**0.0458**	**0.0589**	**1.0000e-004**		**2.6600e-003**	**2.6600e-003**		**2.6600e-003**	**2.6600e-003**	**0.0000**	**8.2981**	**8.2981**	**5.4000e-004**	**0.0000**	**8.3116**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-003	1.5200e-003	0.0159	5.0000e-005	3.4900e-003	3.0000e-005	3.5300e-003	9.6000e-004	3.0000e-005	1.0000e-003	0.0000	4.2759	4.2759	1.1000e-004	0.0000	4.2787
Total	**2.1000e-003**	**1.5200e-003**	**0.0159**	**5.0000e-005**	**3.4900e-003**	**3.0000e-005**	**3.5300e-003**	**9.6000e-004**	**3.0000e-005**	**1.0000e-003**	**0.0000**	**4.2759**	**4.2759**	**1.1000e-004**	**0.0000**	**4.2787**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0225	0.1669	0.2460	9.1000e-004	0.0654	6.8000e-004	0.0661	0.0175	6.3000e-004	0.0182	0.0000	84.7627	84.7627	5.0400e-003	0.0000	84.8888
Unmitigated	0.0225	0.1669	0.2460	9.1000e-004	0.0654	6.8000e-004	0.0661	0.0175	6.3000e-004	0.0182	0.0000	84.7627	84.7627	5.0400e-003	0.0000	84.8888

4.2 Trip Summary Information

Prado Helitack - Proposed Project - San Bernardino-South Coast County, Annual

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Gasoline/Service Station	0.00	0.00	0.00		
Government Office Building	72.93	72.93	72.93	171,740	171,740
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	72.93	72.93	72.93	171,740	171,740

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
Government Office Building	16.60	8.40	6.90	33.00	62.00	5.00	50	34	16
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Gasoline/Service Station	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Government Office Building	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	38.7824	38.7824	2.0500e-003	4.2000e-004	38.9600
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	38.7824	38.7824	2.0500e-003	4.2000e-004	38.9600
NaturalGas Mitigated	4.2000e-004	3.7900e-003	3.1800e-003	2.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	4.1235	4.1235	8.0000e-005	8.0000e-005	4.1480
NaturalGas Unmitigated	4.2000e-004	3.7900e-003	3.1800e-003	2.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	4.1235	4.1235	8.0000e-005	8.0000e-005	4.1480

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Gasoline/Service Station	13760.2	7.0000e-005	6.7000e-004	5.7000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7343	0.7343	1.0000e-005	1.0000e-005	0.7387
Government Office Building	25903.6	1.4000e-004	1.2700e-003	1.0700e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.3823	1.3823	3.0000e-005	3.0000e-005	1.3905
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	15064.6	8.0000e-005	7.4000e-004	6.2000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8039	0.8039	2.0000e-005	1.0000e-005	0.8087
Unrefrigerated Warehouse-No Rail	2218.79	1.0000e-005	1.1000e-004	9.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1184	0.1184	0.0000	0.0000	0.1191
Unrefrigerated Warehouse-No Rail	316.68	0.0000	2.0000e-005	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0169	0.0169	0.0000	0.0000	0.0170
Unrefrigerated Warehouse-No Rail	3369.8	2.0000e-005	1.7000e-004	1.4000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1798	0.1798	0.0000	0.0000	0.1809
Unrefrigerated Warehouse-No Rail	6069.7	3.0000e-005	3.0000e-004	2.5000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3239	0.3239	1.0000e-005	1.0000e-005	0.3258
Unrefrigerated Warehouse-No Rail	824.18	0.0000	4.0000e-005	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0440	0.0440	0.0000	0.0000	0.0442
Unrefrigerated Warehouse-No Rail	9744	5.0000e-005	4.8000e-004	4.0000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5200	0.5200	1.0000e-005	1.0000e-005	0.5231
Total		**4.0000e-004**	**3.8000e-003**	**3.1800e-003**	**1.0000e-005**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**4.1235**	**4.1235**	**8.0000e-005**	**7.0000e-005**	**4.1480**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Gasoline/Service Station	13760.2	7.0000e-005	6.7000e-004	5.7000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7343	0.7343	1.0000e-005	1.0000e-005	0.7387
Government Office Building	25903.6	1.4000e-004	1.2700e-003	1.0700e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.3823	1.3823	3.0000e-005	3.0000e-005	1.3905
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	15064.6	8.0000e-005	7.4000e-004	6.2000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8039	0.8039	2.0000e-005	1.0000e-005	0.8087
Unrefrigerated Warehouse-No Rail	2218.79	1.0000e-005	1.1000e-004	9.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1184	0.1184	0.0000	0.0000	0.1191
Unrefrigerated Warehouse-No Rail	316.68	0.0000	2.0000e-005	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0169	0.0169	0.0000	0.0000	0.0170
Unrefrigerated Warehouse-No Rail	3369.8	2.0000e-005	1.7000e-004	1.4000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1798	0.1798	0.0000	0.0000	0.1809
Unrefrigerated Warehouse-No Rail	6069.7	3.0000e-005	3.0000e-004	2.5000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3239	0.3239	1.0000e-005	1.0000e-005	0.3258
Unrefrigerated Warehouse-No Rail	824.18	0.0000	4.0000e-005	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0440	0.0440	0.0000	0.0000	0.0442
Unrefrigerated Warehouse-No Rail	9744	5.0000e-005	4.8000e-004	4.0000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5200	0.5200	1.0000e-005	1.0000e-005	0.5231
Total		**4.0000e-004**	**3.8000e-003**	**3.1800e-003**	**1.0000e-005**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**4.1235**	**4.1235**	**8.0000e-005**	**7.0000e-005**	**4.1480**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Gasoline/Service Station	4298.73	1.0705	6.0000e-005	1.0000e-005	1.0754
Government Office Building	71066.8	17.6972	9.3000e-004	1.9000e-004	17.7782
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	30492	7.5932	4.0000e-004	8.0000e-005	7.6279
Parking Lot	6160	1.5340	8.0000e-005	2.0000e-005	1.5410
Unrefrigerated Warehouse-No Rail	11328	2.8209	1.5000e-004	3.0000e-005	2.8338
Unrefrigerated Warehouse-No Rail	17513.6	4.3613	2.3000e-004	5.0000e-005	4.3812
Unrefrigerated Warehouse-No Rail	2579.48	0.6424	3.0000e-005	1.0000e-005	0.6453
Unrefrigerated Warehouse-No Rail	368.16	0.0917	0.0000	0.0000	0.0921
Unrefrigerated Warehouse-No Rail	3917.6	0.9756	5.0000e-005	1.0000e-005	0.9800
Unrefrigerated Warehouse-No Rail	7056.4	1.7572	9.0000e-005	2.0000e-005	1.7652
Unrefrigerated Warehouse-No Rail	958.16	0.2386	1.0000e-005	0.0000	0.2397
Total		**38.7825**	**2.0300e-003**	**4.2000e-004**	**38.9600**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Gasoline/Service Station	4298.73	1.0705	6.0000e-005	1.0000e-005	1.0754
Government Office Building	71066.8	17.6972	9.3000e-004	1.9000e-004	17.7782
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	30492	7.5932	4.0000e-004	8.0000e-005	7.6279
Parking Lot	6160	1.5340	8.0000e-005	2.0000e-005	1.5410
Unrefrigerated Warehouse-No Rail	11328	2.8209	1.5000e-004	3.0000e-005	2.8338
Unrefrigerated Warehouse-No Rail	17513.6	4.3613	2.3000e-004	5.0000e-005	4.3812
Unrefrigerated Warehouse-No Rail	2579.48	0.6424	3.0000e-005	1.0000e-005	0.6453
Unrefrigerated Warehouse-No Rail	368.16	0.0917	0.0000	0.0000	0.0921
Unrefrigerated Warehouse-No Rail	3917.6	0.9756	5.0000e-005	1.0000e-005	0.9800
Unrefrigerated Warehouse-No Rail	7056.4	1.7572	9.0000e-005	2.0000e-005	1.7652
Unrefrigerated Warehouse-No Rail	958.16	0.2386	1.0000e-005	0.0000	0.2397
Total		**38.7825**	**2.0300e-003**	**4.2000e-004**	**38.9600**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1200	1.0000e-005	1.0700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0800e-003	2.0800e-003	1.0000e-005	0.0000	2.2100e-003
Unmitigated	0.1200	1.0000e-005	1.0700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0800e-003	2.0800e-003	1.0000e-005	0.0000	2.2100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0144					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1055					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-004	1.0000e-005	1.0700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0800e-003	2.0800e-003	1.0000e-005	0.0000	2.2100e-003
Total	**0.1200**	**1.0000e-005**	**1.0700e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0800e-003**	**2.0800e-003**	**1.0000e-005**	**0.0000**	**2.2100e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0144					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1055					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-004	1.0000e-005	1.0700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0800e-003	2.0800e-003	1.0000e-005	0.0000	2.2100e-003
Total	**0.1200**	**1.0000e-005**	**1.0700e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0800e-003**	**2.0800e-003**	**1.0000e-005**	**0.0000**	**2.2100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	23.2518	0.1904	4.7000e-003	29.4117
Unmitigated	23.2518	0.1904	4.7000e-003	29.4117

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Gasoline/Service Station	0.0398457 / 0.0244215	0.2094	1.3100e-003	3.0000e-005	0.2519
Government Office Building	1.482 / 0.908323	7.7886	0.0487	1.2200e-003	9.3692
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.28506 / 0	15.2539	0.1404	3.4500e-003	19.7907
Total		**23.2519**	**0.1904**	**4.7000e-003**	**29.4117**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Gasoline/Service Station	0.0398457 / 0.0244215	0.2094	1.3100e-003	3.0000e-005	0.2519
Government Office Building	1.482 / 0.908323	7.7886	0.0487	1.2200e-003	9.3692
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.28506 / 0	15.2539	0.1404	3.4500e-003	19.7907
Total		**23.2519**	**0.1904**	**4.7000e-003**	**29.4117**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.2737	0.3117	0.0000	13.0654
Unmitigated	5.2737	0.3117	0.0000	13.0654

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Gasoline/Service Station	1.62	0.3289	0.0194	0.0000	0.8147
Government Office Building	6.94	1.4088	0.0833	0.0000	3.4901
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	17.42	3.5361	0.2090	0.0000	8.7605
Total		**5.2737**	**0.3117**	**0.0000**	**13.0654**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Gasoline/Service Station	1.62	0.3289	0.0194	0.0000	0.8147
Government Office Building	6.94	1.4088	0.0833	0.0000	3.4901
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	17.42	3.5361	0.2090	0.0000	8.7605
Total		**5.2737**	**0.3117**	**0.0000**	**13.0654**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Prado Helitack - Existing Conditions

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	3.00	1000sqft	0.07	3,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	549	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE 2017 CO2 Intensity Factor

Land Use -

Construction Phase - No construction - existing conditions

Vehicle Trips - Existing Conditons Trip Generation per TIA

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	PhaseEndDate	12/10/2020	12/3/2020
tblProjectCharacteristics	CO2IntensityFactor	702.44	549
tblVehicleTrips	ST_TR	2.46	17.67
tblVehicleTrips	SU_TR	1.05	17.67
tblVehicleTrips	WD_TR	11.03	17.67

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0122	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Energy	7.0000e-005	6.2000e-004	5.2000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	9.0918	9.0918	4.6000e-004	1.0000e-004	9.1344
Mobile	0.0199	0.1490	0.2473	8.9000e-004	0.0650	8.1000e-004	0.0658	0.0174	7.7000e-004	0.0182	0.0000	82.2924	82.2924	4.5300e-003	0.0000	82.4056
Waste						0.0000	0.0000		0.0000	0.0000	0.5663	0.0000	0.5663	0.0335	0.0000	1.4031
Water						0.0000	0.0000		0.0000	0.0000	0.1692	2.6331	2.8022	0.0175	4.4000e-004	3.3709
Total	**0.0322**	**0.1496**	**0.2479**	**8.9000e-004**	**0.0650**	**8.6000e-004**	**0.0659**	**0.0174**	**8.2000e-004**	**0.0183**	**0.7355**	**94.0173**	**94.7528**	**0.0560**	**5.4000e-004**	**96.3140**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0122	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Energy	7.0000e-005	6.2000e-004	5.2000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	9.0918	9.0918	4.6000e-004	1.0000e-004	9.1344
Mobile	0.0199	0.1490	0.2473	8.9000e-004	0.0650	8.1000e-004	0.0658	0.0174	7.7000e-004	0.0182	0.0000	82.2924	82.2924	4.5300e-003	0.0000	82.4056
Waste						0.0000	0.0000		0.0000	0.0000	0.5663	0.0000	0.5663	0.0335	0.0000	1.4031
Water						0.0000	0.0000		0.0000	0.0000	0.1692	2.6331	2.8022	0.0175	4.4000e-004	3.3709
Total	**0.0322**	**0.1496**	**0.2479**	**8.9000e-004**	**0.0650**	**8.6000e-004**	**0.0659**	**0.0174**	**8.2000e-004**	**0.0183**	**0.7355**	**94.0173**	**94.7528**	**0.0560**	**5.4000e-004**	**96.3140**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	12/4/2020	12/3/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,500; Non-Residential Outdoor: 1,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0199	0.1490	0.2473	8.9000e-004	0.0650	8.1000e-004	0.0658	0.0174	7.7000e-004	0.0182	0.0000	82.2924	82.2924	4.5300e-003	0.0000	82.4056
Unmitigated	0.0199	0.1490	0.2473	8.9000e-004	0.0650	8.1000e-004	0.0658	0.0174	7.7000e-004	0.0182	0.0000	82.2924	82.2924	4.5300e-003	0.0000	82.4056

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	53.01	53.01	53.01	170,770	170,770
Total	53.01	53.01	53.01	170,770	170,770

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.546179	0.037976	0.179086	0.122965	0.018430	0.005460	0.017497	0.061396	0.001337	0.001657	0.006117	0.000817	0.001082

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8.4194	8.4194	4.4000e-004	9.0000e-005	8.4580
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8.4194	8.4194	4.4000e-004	9.0000e-005	8.4580
NaturalGas Mitigated	7.0000e-005	6.2000e-004	5.2000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6724	0.6724	1.0000e-005	1.0000e-005	0.6764
NaturalGas Unmitigated	7.0000e-005	6.2000e-004	5.2000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6724	0.6724	1.0000e-005	1.0000e-005	0.6764

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	12600	7.0000e-005	6.2000e-004	5.2000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6724	0.6724	1.0000e-005	1.0000e-005	0.6764
Total		**7.0000e-005**	**6.2000e-004**	**5.2000e-004**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.6724**	**0.6724**	**1.0000e-005**	**1.0000e-005**	**0.6764**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	12600	7.0000e-005	6.2000e-004	5.2000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6724	0.6724	1.0000e-005	1.0000e-005	0.6764
Total		**7.0000e-005**	**6.2000e-004**	**5.2000e-004**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.6724**	**0.6724**	**1.0000e-005**	**1.0000e-005**	**0.6764**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	33810	8.4194	4.4000e-004	9.0000e-005	8.4580
Total		**8.4194**	**4.4000e-004**	**9.0000e-005**	**8.4580**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	33810	8.4194	4.4000e-004	9.0000e-005	8.4580
Total		**8.4194**	**4.4000e-004**	**9.0000e-005**	**8.4580**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0122	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Unmitigated	0.0122	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.3900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0108					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Total	**0.0122**	**0.0000**	**4.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0000**	**8.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.3900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0108					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Total	**0.0122**	**0.0000**	**4.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0000**	**8.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.8022	0.0175	4.4000e-004	3.3709
Unmitigated	2.8022	0.0175	4.4000e-004	3.3709

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.533201 / 0.326801	2.8022	0.0175	4.4000e-004	3.3709
Total		**2.8022**	**0.0175**	**4.4000e-004**	**3.3709**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.533201 / 0.326801	2.8022	0.0175	4.4000e-004	3.3709
Total		**2.8022**	**0.0175**	**4.4000e-004**	**3.3709**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.5663	0.0335	0.0000	1.4031
Unmitigated	0.5663	0.0335	0.0000	1.4031

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	2.79	0.5663	0.0335	0.0000	1.4031
Total		**0.5663**	**0.0335**	**0.0000**	**1.4031**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	2.79	0.5663	0.0335	0.0000	1.4031
Total		**0.5663**	**0.0335**	**0.0000**	**1.4031**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX F2

Helicopter Fuel Consumption, ECORP Consulting, Inc. June 2020

Prado Helitack Helicopter GHG Emission Calculations

Sikorsky S70 Emission Rates per Gallon of Fuel Consumed

0.01191 metric tons/CO2 **0.00000047 metric tons/CH4** **0.00000009 metric tons/N20** **0.01194 metric tons/CO2e**

Source: Emission Factors for Greenhouse Gas Inventories, USEPA (2018).
https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf

Project Helicopter Emission Calculations

Fire season flights of up to five flights daily are assumed and off-season flights of up to three flights daily are assumed. Fire season = April – November (214 days). 214 days x 5 flights = 1,070 flights. Off-Season = November – April (151 days).

151 x 3 = 453 flights. 1,070 + 453 = 1,523 annual flights.

Median flight duration is 3.5 hours. 1,523 x 3.5 = 5,330.5 flight hours. Sikorsky S70 helicopters consume 160 gallons of fuel per hour of flight.

5,330.5 hours x 160 gallons = 852,880 gallons consumed annually

Sikorsky S70 [Black Hawk] Emissions

CO2	CH4	N20	CO2e
10157.80	0.40	0.0767592	10183.39

APPENDIX G

Geotechnical Investigation Prado Helitack Base: New Facility, SCST, LLC. August 2019

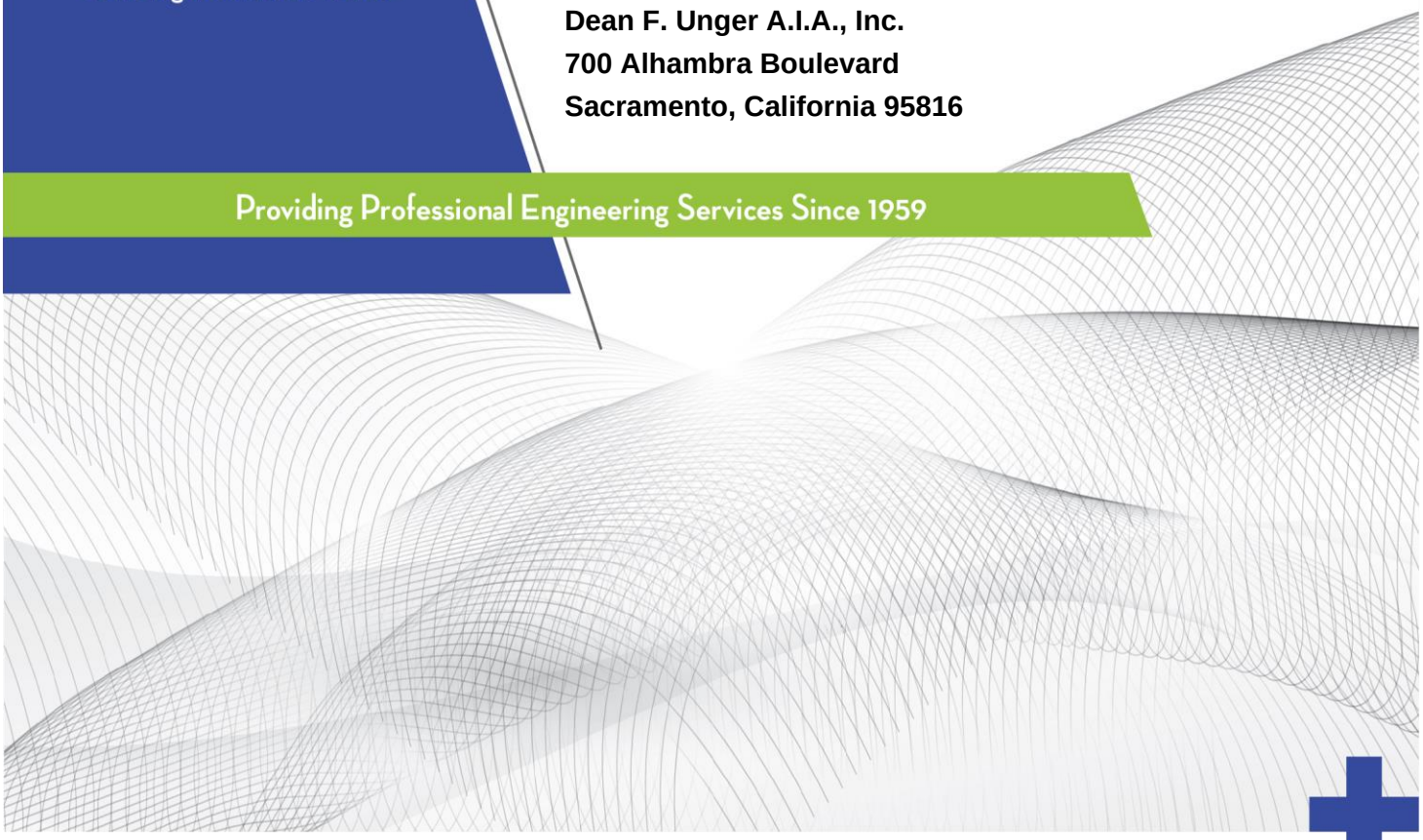
GEOTECHNICAL INVESTIGATION
PRADO HELITACK BASE: NEW FACILITY

Chino, California

Prepared By:
SCST, LLC
6280 Riverdale Street
San Diego, California 92120

Prepared For:
Mr. Sean Cordone
Dean F. Unger A.I.A., Inc.
700 Alhambra Boulevard
Sacramento, California 95816

Providing Professional Engineering Services Since 1959



August 19, 2019

SCST No. 190068P4
Report No. 1

Mr. Sean Cordone
Dean F. Unger A.I.A., Inc.
700 Alhambra Boulevard
Sacramento, California 95816

Subject: GEOTECHNICAL INVESTIGATION
PRADO HELITACK BASE: NEW FACILITY
DEPARTMENT OF FORESTRY AND FIRE PROTECTION
PROJECT NUMBER DGS000000004691
14467 CENTRAL AVENUE
CHINO, SAN BERNARDINO COUNTY, CALIFORNIA 91710

Dear Mr. Cordone:

SCST, LLC (SCST), an Atlas company, is pleased to present our report describing the geotechnical investigation performed for the subject project. We conducted the geotechnical investigation in general conformance with the scope of work presented in our proposal dated November 27, 2018. Based on the results of our investigation, we consider the planned improvements feasible from a geotechnical standpoint provided the recommendations of this report are followed. If you have any questions, please call our office at (619) 280-4321.

Respectfully submitted,
SCST, LLC

DRAFT ONLY – DO NOT RELY ON THIS REPORT

Noble Rassam
Staff Engineer

Reza Saeedzadeh, Ph.D., PE 87885
Senior Engineer

DRAFT ONLY – DO NOT RELY ON THIS REPORT

Isaac Chun, GE 2649
Principal Engineer

RS:IC:NR:af:hu

(1) Addressee via e-mail: SCordone@deanunger.com
(1) Mr. Bruce Unger via e-mail: Bruce@deanunger.com

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Appendix I....Field Investigation
Appendix II....Laboratory Testing
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EXECUTIVE SUMMARY

This report presents the results of the geotechnical investigation SCST, LLC (SCST), an Atlas company, performed for the new facility project of Prado Helitack Base located in Chino, San Bernardino County, California. We understand that the new construction will consist of approximately 16,550 square feet of building space, including an aircraft hangar, a warehouse/shop building, a garage, a 22 barracks building/mess hall, a generator/pump/storage building, a wash rack canopy, a storage building, a helicopter training tower/hoist, ancillary structures, and associated appurtenances. The purpose of our work was to explore the subsurface conditions of the soil and groundwater at the new construction site and provide recommendations regarding the geotechnical aspects of design and construction of the new facility.

Our field investigation was performed on July 17 and 18, 2019 and consisted of advancing a total of 8 geotechnical borings at the existing site using a truck-mounted drill rig equipped with an 8-inch hollow-stem auger. Two borings were advanced to approximately 50 feet below the existing ground surface and the other 6 borings were advanced to between 9 and 20 feet below the existing ground surface. Additionally, two borings were advanced to 5 feet below existing ground surface and converted to percolation test holes. SCST tested selected samples from the borings to evaluate pertinent soil classification and engineering properties to assist in developing geotechnical conclusions and recommendations.

The materials encountered in the explorations consisted of fill and young alluvial fan deposits. Groundwater was not encountered in the borings. However, a saturated zone between the depths of about 30 to 33 feet below ground surface was encountered. Local wells data shows that the historic groundwater has been as shallow as 60 feet below the ground surface.

The main geotechnical consideration affecting the planned development is the presence of potentially compressible fill and alluvium. Remedial grading will need to be performed to reduce the potential for distress to the planned improvements. The planned improvements can be supported on shallow spread footings or mat foundations with bottom levels on compacted fill.

The grading and foundation recommendations presented herein may need to be updated once final plans are developed.

1. INTRODUCTION

This report presents the results of the geotechnical investigation SCST, LLC (SCST), an Atlas company, performed for the new facility project of Prado Helitack Base located in Chino, San Bernardino County, California.

1.1 SITE AND PROJECT DESCRIPTION

The project site is in the southeast corner of the intersection of Central Avenue and Eucalyptus Avenue. The site area is approximately 15.19 acres. The project site is currently an undeveloped area covered with grass and gravel. Existing improvements consist of two helipads, a power transmission station, and some ancillary structures. The site gently slopes north. Elevations range between 620 to 630 feet above mean sea level (MSL). The general site location is shown on the Site Vicinity Map (Figure 1).

We understand that the new construction will consist of approximately 16,550 square feet of building space, including an aircraft hangar, a warehouse/shop building, a garage, a 22 barracks building/mess hall, a generator/pump/storage building, a wash rack canopy, a storage building, and a helicopter training tower/hoist. The scope of work will include necessary grading and drainage, above ground fuel storage and dispensing facilities, water tank and fire suppression pump system, asphalt and rigid paving, sidewalks, curbs, wash rack, landscaping, lighting, solar power, fencing, utilities including water, sewer, electrical power including generator(s), LPG/natural gas, telephone cabling/installation, radio cabling/installation, and associated appurtenances.

1.2 PURPOSE AND SCOPE OF WORK

The purpose of our work was to explore the subsurface conditions of the soil and groundwater at the new construction site and provide recommendations regarding the geotechnical aspects of design and construction of the new facility. Specifically, our services consisted of:

- Marking the boring locations and locating the underground utilities at the vicinity of the proposed boring locations
- Preparing and submitting the County of San Bernardino Division of Environmental Health Services (DEHS) permit application
- Drilling ten (10) soil borings between 5 and 50 feet below existing ground surface or refusal, whichever is less. Additionally, two of the soil borings were converted to percolation test holes. An engineer and a geologist from SCST logged the borings, obtained samples for examination and laboratory testing, and performed the percolation tests
- Backfilling the holes per County of San Bernardino requirements

- Performing laboratory soil testing to classify the subsurface soil and evaluate engineering properties. The tests consisted of classification, in situ moisture and density, Atterberg limits, direct shear, consolidation, expansion index, Resistance (R)-value, and corrosivity
- Preparing this geotechnical report presenting the conclusions and recommendations of the geotechnical investigation

2. FIELD INVESTIGATION

Our field investigation was performed on July 17 and 18, 2019 and consisted of advancing a total of 8 geotechnical borings at the existing site using a truck-mounted drill rig equipped with an 8-inch hollow-stem auger. Two borings were advanced to approximately 50 feet below the existing ground surface and the other 6 borings were advanced to between 9 and 20 feet below the existing ground surface. Additionally, two borings were advanced to 5 feet below existing ground surface and converted to percolation test holes.

Alternating Standard Penetration Test (SPT) and Modified California Sampler (CAL) were driven in approximately 5-foot intervals. An SCST engineer logged and sampled the borings in accordance with the Unified Soil Classification System (USCS). Disturbed bulk samples were collected in the upper 5 feet at the proposed structures. Bulk and drive samples were obtained from the borings in general conformance with current applicable ASTM standards. The samples were then transported to our in-house geotechnical laboratory for testing.

The approximate locations of the geotechnical borings are shown on the Subsurface Exploration Map (Figure 2). Logs of the borings are presented in Appendix I. Soils are classified in accordance with the Unified Soil Classification System illustrated on Figure I-1.

3. LABORATORY TESTING

Selected samples obtained from the borings were tested to evaluate pertinent classification and engineering properties and enable development of geotechnical conclusions. Laboratory testing of representative soil samples included in situ moisture content and density, particle-size distribution, Atterberg limits, expansion index, consolidation, direct shear, resistance (R) value, and corrosivity suite testing. Brief descriptions of the laboratory test procedures and the test results are presented in Appendix II.

4. IN SITU INFILTRATION TESTING

In situ infiltration testing was performed on July 18, 2019 and consisted of borehole percolation testing at a depth of about 5 feet below the existing surface at 2 locations. The test locations are shown in Figure 2. The testing was performed by an SCST engineer following a 24-hour pre-

soak period. Table 1 presents the tested infiltration rates. The results of the on-site percolation testing are presented in Appendix III.

TABLE 1
RESULTS OF IN SITU BOREHOLE PERCOLATION TESTING

Test Location	Test Depth (feet)	Material Type at Test Depth	Infiltration Rate (inches/hour)
P-1	5	Silt with Sand	0.9
P-2	5	Sandy Silty Clay	2.6

5. GEOLOGIC SETTING

The site is located within the Peninsular Ranges Geomorphic Province of California, which stretches from the Los Angeles basin to the tip of Baja California. This province is characterized as a series of northwest trending mountain ranges separated by subparallel fault zones, and a coastal plain of subdued landforms. The mountain ranges are underlain primarily by Mesozoic metamorphic rocks that were intruded by plutonic rocks of the southern California batholith, while the coastal plain is underlain by subsequently deposited marine and non-marine sedimentary formations. The site is located in the coastal plain portion of the province and is underlain by fill and young alluvium. The regional geology in the vicinity of the site is shown on the Regional Geology Map (Figure 3). A geologic cross section of the site is presented in Figure 4.

6. SUBSURFACE CONDITIONS

The site is underlain by fill and young alluvium. Descriptions of the materials are presented below.

Fill: The fill consisted of mostly loose to medium dense silty and clayey sand with varying amounts of gravel. Fill encountered up to the depth of about 5 feet below ground surface.

Young Alluvial Fan Deposits (Qyf): Young Alluvial Fan Deposits were encountered below fill to the bottom of our borings. They consisted of a variety of soil types in soft to hard and loose to medium dense state.

Groundwater: Groundwater was not encountered in the borings. However, a saturated zone between the depths of about 30 to 33 feet below ground surface was encountered at borings B-3 and B-6. Local wells (per Geotracker, 2019) data shows that the historic groundwater has been as shallow as 60 feet below the ground surface. Therefore, this value will be used for engineering analyses.

7. GEOLOGIC HAZARDS

7.1 FAULTING AND SURFACE RUPTURE

The closest known active faults are the Central Avenue and Chino faults, which are located about ½ and 1 mile southwest of the site, respectively. The faults are part of Elsinore fault zone, which is anticipated to produce a 6.8 magnitude earthquake. The site is not located in an Alquist-Priolo Earthquake Fault Zone. No active faults are known to underlie or project toward the site. However, due to the site's proximity to an Alquist-Priolo Earthquake Fault Zone, the probability of fault rupture-related damage should be considered. A fault map of the vicinity of the project area is shown in Figure 5.

7.2 CBC SEISMIC DESIGN PARAMETERS

A geologic hazard likely to affect the project is ground shaking resulting from movement along an active fault zone in the vicinity of the subject site. The site coefficients and adjusted maximum considered earthquake spectral response accelerations in accordance with the 2016 CBC are presented in Table 2 below:

TABLE 2
2016 CALIFORNIA BUILDING CODE SEISMIC DESIGN CRITERIA

Site Coordinates	
Latitude	**Longitude**
33.98961° N	117.68824° W
Site Coefficients and Spectral Response Acceleration Parameters	**Values**
Risk Category	IV
Site Class	D
Site Coefficients, F_a	1.000
Site Coefficients, F_v	1.500
Mapped Spectral Response Acceleration at Short Period, S_s	1.967g
Mapped Spectral Response Acceleration at 1-Second Period, S_1	0.711g
Design Spectral Acceleration at Short Period, S_{DS}	1.311g
Design Spectral Acceleration at 1-Second Period, S_{D1}	0.711g
Design Peak Ground Acceleration, PGA_M	0.712g

7.3 LIQUEFACTION AND DYNAMIC SETTLEMENT

Liquefaction is the loss of soil strength or stiffness due to a buildup of pore-water pressure during server ground shaking. Liquefaction is associated primarily with loose, saturated,

fine to medium grained, cohesionless soils. Effects of severe liquefaction can include sand boils, excessive settlement, bearing capacity failures and lateral spreading.

The site area has not been evaluated for liquefaction potential on the State of California Seismic Hazards Zones Map (CGS, 2001). Due to the lack of shallow groundwater, we anticipate the liquefaction potential to be negligible. However, there are layers of medium dense cohesionless materials that are prone to dynamic settlement. We used the information from borings B-3 and B-6 to evaluate the potential for dynamic settlement. We estimate that in the event of design earthquake, less than 1 inch of free field dynamic settlement can occur.

7.4 LANDSLIDES AND SLOPE STABILITY

The site has not been evaluated for the potential of earthquake-induced landslide movement on the State of California Seismic Hazards Zones Map (CGS, 2001). Evidence of landslides or slope instabilities was not observed. The potential for landslides or slope instabilities to occur at the site is considered low.

7.5 FLOODING, TSUNAMIS, AND SEICHES

The flood hazard has not been determined for this site (FEMA, 2019). The site is not located within a zone of Tsunami hazard (CGS, 2019). Seiches are periodic oscillations in large bodies of water such as lakes, harbors, bays, or reservoirs. The site is not located adjacent to any lakes or confined bodies of water. Therefore, the potential for a seiche to affect the site is considered low.

7.6 SUBSIDENCE

The site is located in an area of known subsidence associated with groundwater pumping (USGS, 2019); therefore, the potential for subsidence due to the extraction of fluids exists.

7.7 HYDRO-CONSOLIDATION

Hydro-consolidation can occur in recently deposited (less than 10,000 years old) sediments that were deposited in a semi-arid environment. Examples of such sediments are aeolian sands, alluvial fan deposits, and mudflow sediments deposited during flash floods. The pore space between particle grains can re-adjust when inundated by groundwater causing the material to consolidate. Hydro-collapse was not observed in the performed laboratory tests and as such we do not anticipate that the materials underlying the site are susceptible to hydro-consolidation.

8. CONCLUSIONS

Based on the results of our investigation, we consider the planned construction feasible from a geotechnical standpoint provided the recommendations of this report are followed. The main geotechnical consideration affecting the planned development is the presence of potentially compressible fill and alluvium. Remedial grading will need to be performed to reduce the potential for distress to the planned improvements. The planned improvements can be supported on shallow spread footings or mat foundation with bottom levels on compacted fill. The on-site materials tested possess a low to medium expansion potential.

9. RECOMMENDATIONS

9.1 SITE PREPARATION AND GRADING

9.1.1 Site Preparation

Site preparation should begin with the removal of existing improvements, topsoil, vegetation, and debris. Subsurface improvements that are to be abandoned should be removed, and the resulting excavations should be backfilled and compacted in accordance with the recommendations of this report. Pipeline abandonment can consist of capping or rerouting at the project perimeter and removal within the project perimeter. If appropriate, abandoned pipelines can be filled with grout or slurry as recommended by and observed by the geotechnical consultant.

9.1.2 Remedial Grading

Remedial grading should be performed to reduce the potential for settlement of planned improvements. The existing fill should be excavated beneath the new premises, settlement sensitive improvements, and new fills. Excavations up to 5 feet deep are anticipated. Horizontally, the excavations should extend at least 5 feet outside the planned perimeter foundations, at least 2 feet outside the planned hardscape and pavements, or up to existing improvements, whichever is less. An SCST representative should observe conditions exposed in the bottom of the excavation to determine if additional excavation is required. The bottom of excavated areas should be scarified to the depth of 1 foot, moisture-conditioned near optimum moisture content, and recompacted to at least 90% relative compaction prior to construction of new improvements or placement of new fill. The maximum dry density and optimum moisture content for evaluating relative compaction should be determined in accordance with ASTM D1557.

9.1.3 Cut/Fill Transitions

The planned structures should not be underlain by cut/fill transitions or transitions from shallow fill to deep fill. Where such transitions are encountered, the young alluvial fan deposits should be over-excavated and replaced with compacted fill to provide a relatively uniform layer of compacted fill beneath the entire structure and reduce the potential for differential settlement. The over-excavation depth should be at least 3 feet below the planned finished pad elevation, at least 2 feet below the deepest planned footing bottom elevation, or to a depth of H/2, whichever is deeper, where H is the greatest depth of fill beneath the structure. Horizontally, the over-excavation should extend at least 5 feet outside the planned footing perimeter or up to existing improvements, whichever is less. Where practical, the bottom of excavations should be sloped toward the fill portion of the site and away from its center. An SCST representative should observe the conditions exposed in the bottom of excavations to determine if additional excavation is required.

9.1.4 Compacted Fill

Excavated material, except for roots, debris, and rocks greater than 6 inches, can generally be used as compacted fill. Material with an expansion index of 50 or less determined in accordance with ASTM D4829 should be placed and compacted from 1 foot below the deepest planned footing bottom level to finished pad grade elevation. We expect that most of the onsite materials will meet the expansion index criteria. Additional testing is needed at the time of grading to evaluate the expansion potential of the mixed materials.

Fill should be moisture conditioned to near optimum moisture content and compacted to at least 90% relative compaction. Fill should be placed in horizontal lifts at a thickness appropriate for the equipment spreading, mixing, and compacting the material, but generally should not exceed 8 inches in loose thickness. The maximum dry density and optimum moisture content for evaluating relative compaction should be determined in accordance with ASTM D 1557. Utility trench backfill beneath structures, pavements, and hardscape should be compacted to at least 90% relative compaction. The top 12 inches of subgrade beneath pavements should be compacted to at least 95%.

9.1.5 Excavation Characteristics

It is anticipated that excavations can be achieved with conventional earthwork equipment in good working order.

9.1.6 Temporary Excavations

Temporary excavations 3 feet deep or less can be made vertically. Deeper temporary excavations should be laid back no steeper than 1:1 (horizontal:vertical). The faces of temporary slopes should be inspected daily by the contractor's Competent Person before personnel are allowed to enter the excavation. Zones of potential instability, sloughing or raveling should be brought to the attention of the Engineer and corrective action implemented before personnel begin working in the excavation. Excavated soils should not be stockpiled behind temporary excavations within a distance equal to the depth of the excavation. SCST should be notified if other surcharge loads are anticipated so that lateral load criteria can be developed for the specific situation. If temporary slopes are to be maintained during the rainy season, berms are recommended along the tops of slopes to prevent runoff water from entering the excavation and eroding the slope faces. Slopes steeper than those described above will need shoring. Additionally, temporary excavations that extend below a plane inclined at 1½:1 (horizontal:vertical) downward from the outside bottom edge of existing structures or improvements will need shoring. A shoring system consisting of soldier piles and lagging can be used.

9.1.7 Temporary Shoring

For design of cantilevered shoring, an active soil pressure equal to a fluid weighing 40 pcf can be used for level retained ground. The surcharge loads on shoring from traffic and construction equipment adjacent to the excavation can be modeled by assuming an additional 2 feet of soil behind the shoring. For design of soldier piles, an allowable passive pressure of 300 psf per foot of embedment over twice the pile diameter up to a maximum of 4,500 psf can be used. Soldier piles should be spaced at least three pile diameters, center to center. Continuous lagging will be required throughout. The soldier piles should be designed for the full anticipated lateral pressure; however, the pressure on the lagging will be less due to arching in the soils. For design of lagging, the earth pressure but can be limited to a maximum value of 400 psf.

9.1.8 Expansive Soil

The on-site materials tested possess a low to medium expansion potential. The grading and foundation recommendations presented in this report are based on the tested expansion potential.

9.1.9 Imported Soil

Imported soil should consist of predominately granular soil free of organic matter and rocks greater than 6 inches. Imported soil should have an expansion index of 20 or less and should be inspected and, if appropriate, tested by SCST prior to transport to the site.

9.1.10 Surface Drainage

Final surface grades around structures should be designed to collect and direct surface water away from the structure and toward appropriate drainage facilities. The ground around the structure should be graded so that surface water flows rapidly away from the structure without ponding. In general, we recommend that the ground adjacent to the structure slope away at a gradient of at least 2%. Densely vegetated areas where runoff can be impaired should have a minimum gradient of at least 5% within the first 5 feet from the structure. Roof gutters with downspouts that discharge directly into a closed drainage system are recommended on structures. Drainage patterns established at the time of fine grading should be maintained throughout the life of the proposed structures. Site irrigation should be limited to the minimum necessary to sustain landscape growth. Should excessive irrigation, impaired drainage, or unusually high rainfall occur, saturated zones of perched groundwater can develop.

9.1.11 Grading Plan Review

SCST should review the grading plans and earthwork specifications to ascertain whether the intent of the recommendations contained in this report have been implemented and that no revised recommendations are needed due to changes in the development scheme.

9.2 FOUNDATIONS

Foundation recommendations for the planned improvements are presented in this section. The recommended bearing capacity values are controlled by settlement of the underlying compressible soil layers. If higher values are required for design, SCST should be notified to provide recommendations for other alternatives such as preloading, ground improvements, or deep foundations.

9.2.1 Spread Footings

Lightly-loaded structures can be supported on shallow spread footings with grade beams on compacted fill. Footings should extend at least 24 inches below lowest adjacent finished grade. A minimum width of 12 inches is recommended for continuous footings and 24 inches for isolated or wall footings. An allowable bearing capacity of

1,000 psf can be used for footings founded in compacted fill or suitable alluvial deposits. The bearing value can be increased by ⅓ when considering short-term loads, including wind or seismic forces. Footings located adjacent to or within slopes should be extended to a depth such that a minimum horizontal distance of 7 feet exists between the lower outside footing edge and the face of the slope.

9.2.2 Mat Foundation

The planned buildings can also be supported on a mat foundation on compacted fill. Mat foundation should extend at least 18 inches below lowest adjacent finished grade. A subgrade modulus of 125 pci is recommended. The allowable bearing capacity of 750 pounds per square foot can be assumed. This value can be increased by ⅓ when considering the total of all loads, including wind or seismic forces.

9.2.3 Resistance to Lateral Loads

Lateral loads will be resisted by friction between the bottoms of foundation and passive pressure on the faces of footings and other structural elements below grade. An allowable coefficient of friction of 0.30 can be used. Passive pressure can be computed using an allowable lateral pressure of 300 psf per foot of depth below the ground surface for level ground conditions. Reductions for sloping ground should be made. The passive pressure can be increased by ⅓ when considering the total of all loads, including wind or seismic forces. The upper 1 foot of soil should not be relied on for passive support unless the ground is covered with pavements or slabs.

9.2.4 SETTLEMENT CHARACTERISTICS

Total foundation settlements (static or seismic) are estimated to be less than 1 inch. Differential settlements between adjacent columns and across continuous footings are estimated to be less than ¾ inch over a distance of 40 feet. Static settlements should be completed shortly after structural loads are applied.

9.2.5 FOUNDATION PLAN REVIEW

SCST should review the foundation plans to ascertain that the intent of the recommendations in this report has been implemented and that revised recommendations are not necessary as a result of changes after this report was completed.

9.2.6 Foundation Excavation Observations

A representative from SCST should observe the foundation excavations prior to forming or placing reinforcing steel to evaluate the suitability of the subgrade materials.

9.3 SLABS-ON-GRADE

9.3.1 Interior Slabs-on-Grade

The project structural engineer should design the interior concrete slabs-on-grade floor. However, we recommend that building slabs be at least 5 inches thick and reinforced with at least No. 4 bars at 12 inches on center each way. A modulus of subgrade reaction of 125 pci can be considered for the design of interior slabs.

Moisture protection should be installed beneath slabs where moisture sensitive floor coverings will be used. The project architect should review the tolerable moisture transmission rate of the proposed floor covering and specify an appropriate moisture protection system. Typically, a plastic vapor barrier is used. Minimum 10-mil plastic is recommended. The plastic should comply with ASTM E1745. The vapor barrier installation should comply with ASTM E1643. Construction practice often includes placement of a 2-inch-thick sand cushion between the bottom of the concrete slab and the moisture vapor retarder/barrier. This cushion can provide some protection to the vapor retarder/barrier during construction and may assist in reducing the potential for edge curling in the slab during curing. However, the sand layer also provides a source of moisture to the underside of the slab that can increase the time required to reduce vapor emissions to limits acceptable for the type of floor covering placed on top of the slab. The slab can be placed directly on the vapor retarder/barrier.

9.3.2 Exterior Slabs-on-Grade

Exterior slabs should be at least 4 inches thick and reinforced with at least No. 4 bars at 18 inches on center each way. A modulus of subgrade reaction of 125 pci can be considered for the design of interior slabs. Slabs should be provided with weakened plane joints. Joints should be placed in accordance with the American Concrete Institute (ACI) guidelines. The project architect should select the final joint patterns. A 1-inch maximum size aggregate mix is recommended for concrete for exterior slabs. The corrosion potential of on-site soils with respect to reinforced concrete will need to be considered in concrete mix design. Coarse and fine aggregate in concrete should conform to the “Greenbook” Standard Specifications for Public Works Construction.

9.4 SOIL CORROSIVITY

Representative samples of the on-site soils were tested to evaluate corrosion potential. The test results are presented in Appendix II. The project design engineer can use the sulfate results in conjunction with ACI 318 to specify the water/cement ratio, compressive strength,

and cementitious material types for concrete exposed to soil. A corrosion engineer should be contacted to provide specific corrosion control recommendations.

9.5 PAVEMENT SECTION RECOMMENDATIONS

SCST utilized the California Department of Transportation's Highway Design Manual (Caltrans, 2017) to prepare preliminary recommendations for flexible pavements. The pavement support characteristics of the soils encountered during our investigation are considered medium. An R-value of 20 was assumed for design of preliminary pavement sections. The actual R-value of the subgrade soils should be determined after grading and final pavement sections are provided. Tables 3 and 4 provide recommended flexible and rigid pavement structural sections for the assumed Traffic Indexes and subgrade R-value of 20.

TABLE 3
FLEXIBLE PAVEMENT SECTIONS

Traffic Type	Traffic Index	AC[1] over AB[2] (inches)	Full-Depth AC[1] (inches)
Parking Stalls	5.0	3 over 7	6
Drive Lanes	6.0	4 over 9	8
Fire Trucks	8.0	6 over 12	12½

[1] **AC: Asphalt Concrete**
[2] **AB: Aggregate Base**

TABLE 4
PORTLAND CEMENT CONCRETE PAVEMENT SECTIONS

Traffic Type	Traffic Index	Design Wheel Load[1] (lb)	JPCP[2] over AB[3] (inches)
Parking Stalls	5.0	-	4 over 4
Drive Lanes	6.0	5,000	6 over 4
Fire Trucks	8.0	12,000	8½ over 4

[1] **One-Half of Single/Tandem Axle Load**
[2] **Jointed Plain Concrete Pavement**
[3] **AB: Aggregate Base**

The top 12 inches of subgrade should be scarified, moisture conditioned to near optimum moisture content, and compacted to at least 95% relative compaction. All soft or yielding areas should be removed and replaced with compacted fill or aggregate base. Aggregate base and asphalt concrete should conform to the Caltrans Standard Specifications or the "Greenbook" and should be compacted to at least 95% relative compaction. Aggregate base should have an R-value of not less than 78. Portland cement concrete should have a minimum 28-day flexural strength of 650psi. All materials and methods of construction should conform to good engineering practices, and "Greenbook" and local standards.

10. GEOTECHNICAL ENGINEERING DURING CONSTRUCTION

The geotechnical engineer should review project plans and specifications prior to bidding and construction to check that the intent of the recommendations in this report has been incorporated. Observations and tests should be performed during construction. If the conditions encountered during construction differ from those anticipated based on the subsurface exploration program, the presence of the geotechnical engineer during construction will enable an evaluation of the exposed conditions and modifications of the recommendations in this report or development of additional recommendations in a timely manner.

11. CLOSURE

SCST should be advised of any changes in the project scope so that the recommendations contained in this report can be evaluated with respect to the revised plans. Changes in recommendations will be verified in writing. The findings in this report are valid as of the date of this report. Changes in the condition of the site can, however, occur with the passage of time, whether they are due to natural processes or work on this or adjacent areas. In addition, changes in the standards of practice and government regulations can occur. Thus, the findings in this report may be invalidated wholly or in part by changes beyond our control. This report should not be relied upon after a period of two years without a review by us verifying the suitability of the conclusions and recommendations to site conditions at that time.

In the performance of our professional services, we comply with that level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions and in the same locality. The client recognizes that subsurface conditions may vary from those encountered at the boring locations and that our data, interpretations, and recommendations are based solely on the information obtained by us. We will be responsible for those data, interpretations, and recommendations, but shall not be responsible for interpretations by others of the information developed. Our services consist of professional consultation and observation only, and no warranty of any kind whatsoever, express or implied, is made or intended in connection with the work performed or to be performed by us, or by our proposal for consulting or other services, or by our furnishing of oral or written reports or findings.

12. REFERENCES

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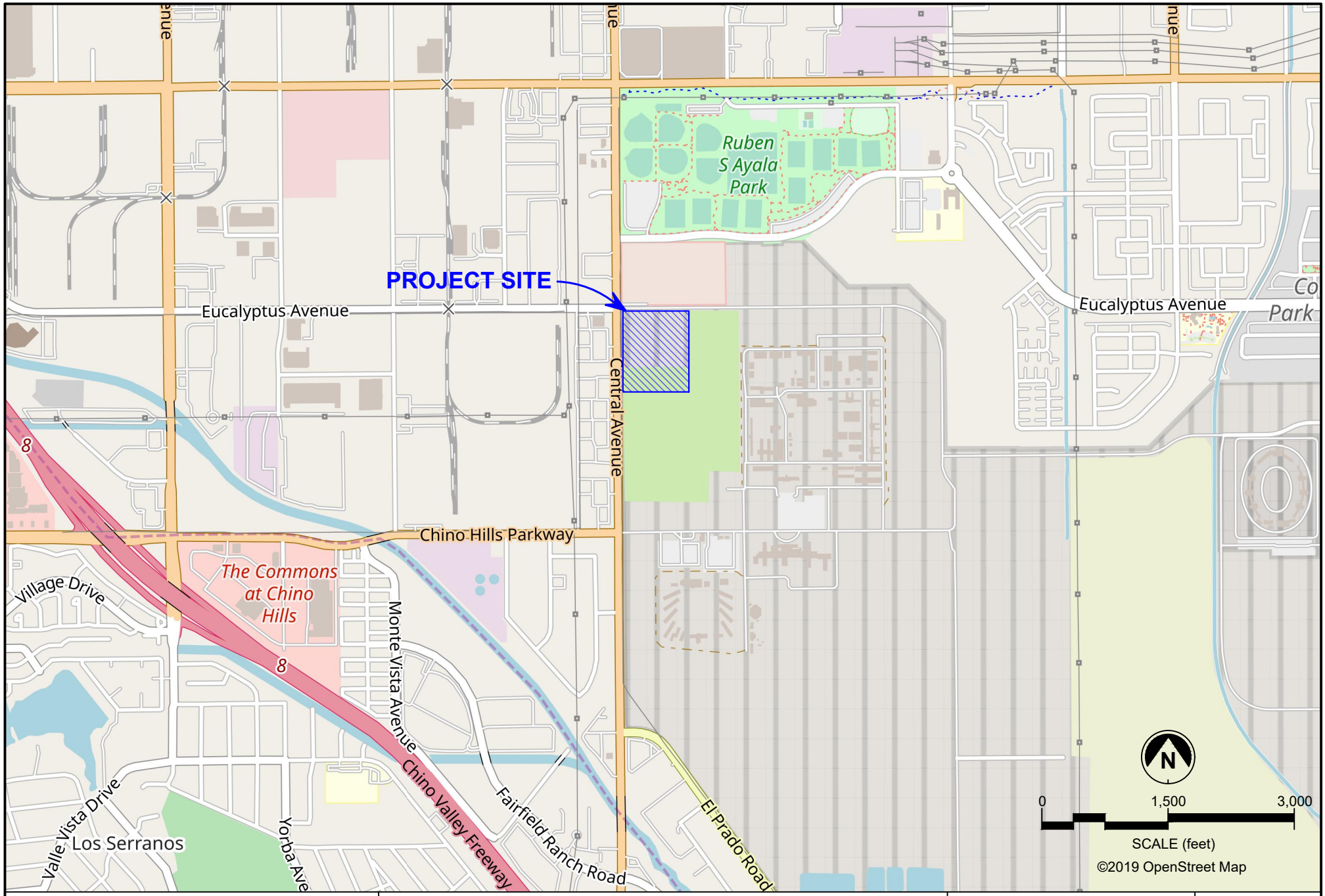
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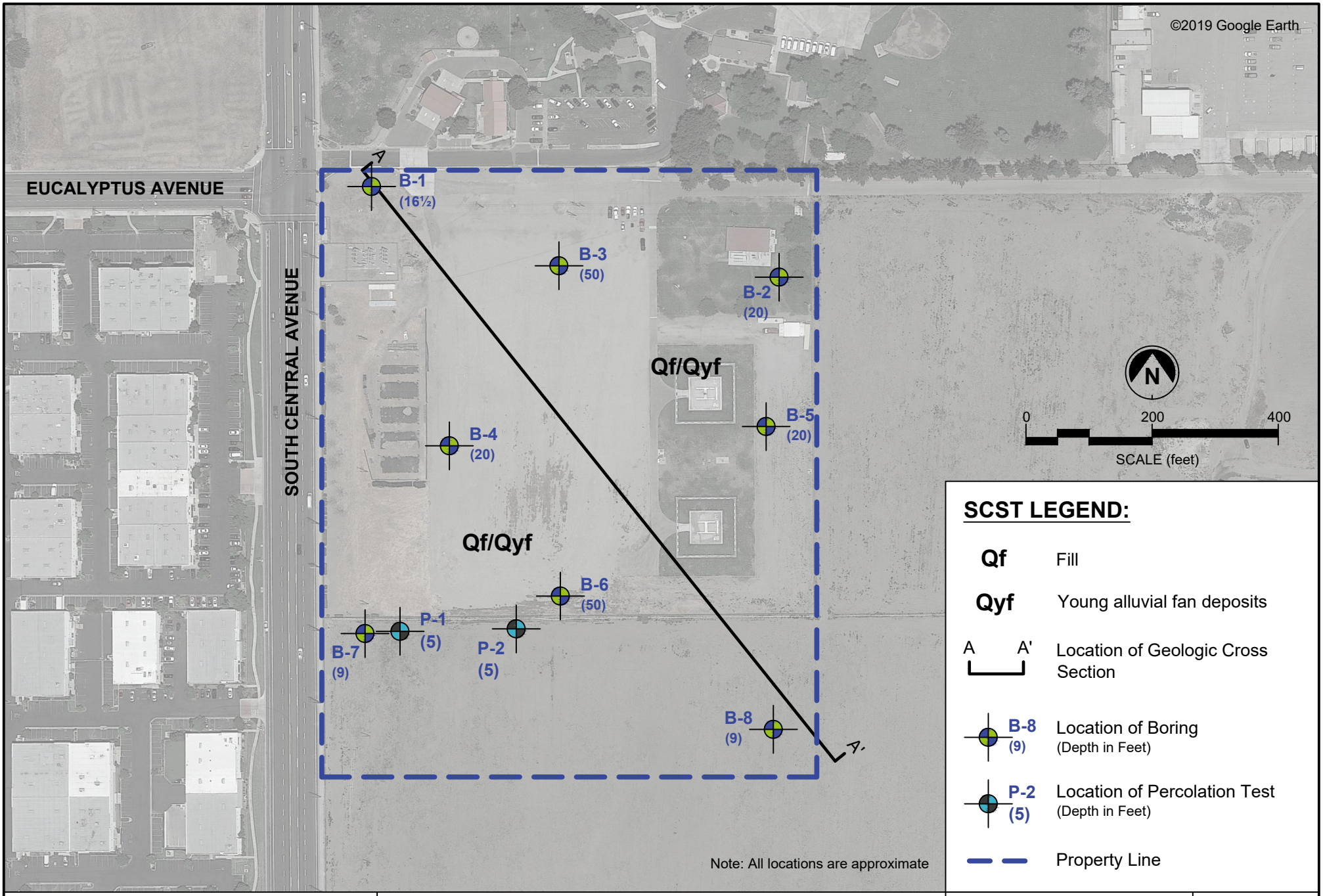


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SITE VICINITY MAP
Prado Helitack Base: New Facility
Chino, California

Date: August, 2019
By: THC
Job No.: 190068P4-1

Figure: 1



SCST LEGEND:

Qf	Fill
Qyf	Young alluvial fan deposits
A — A'	Location of Geologic Cross Section
B-8 (9)	Location of Boring (Depth in Feet)
P-2 (5)	Location of Percolation Test (Depth in Feet)
— —	Property Line

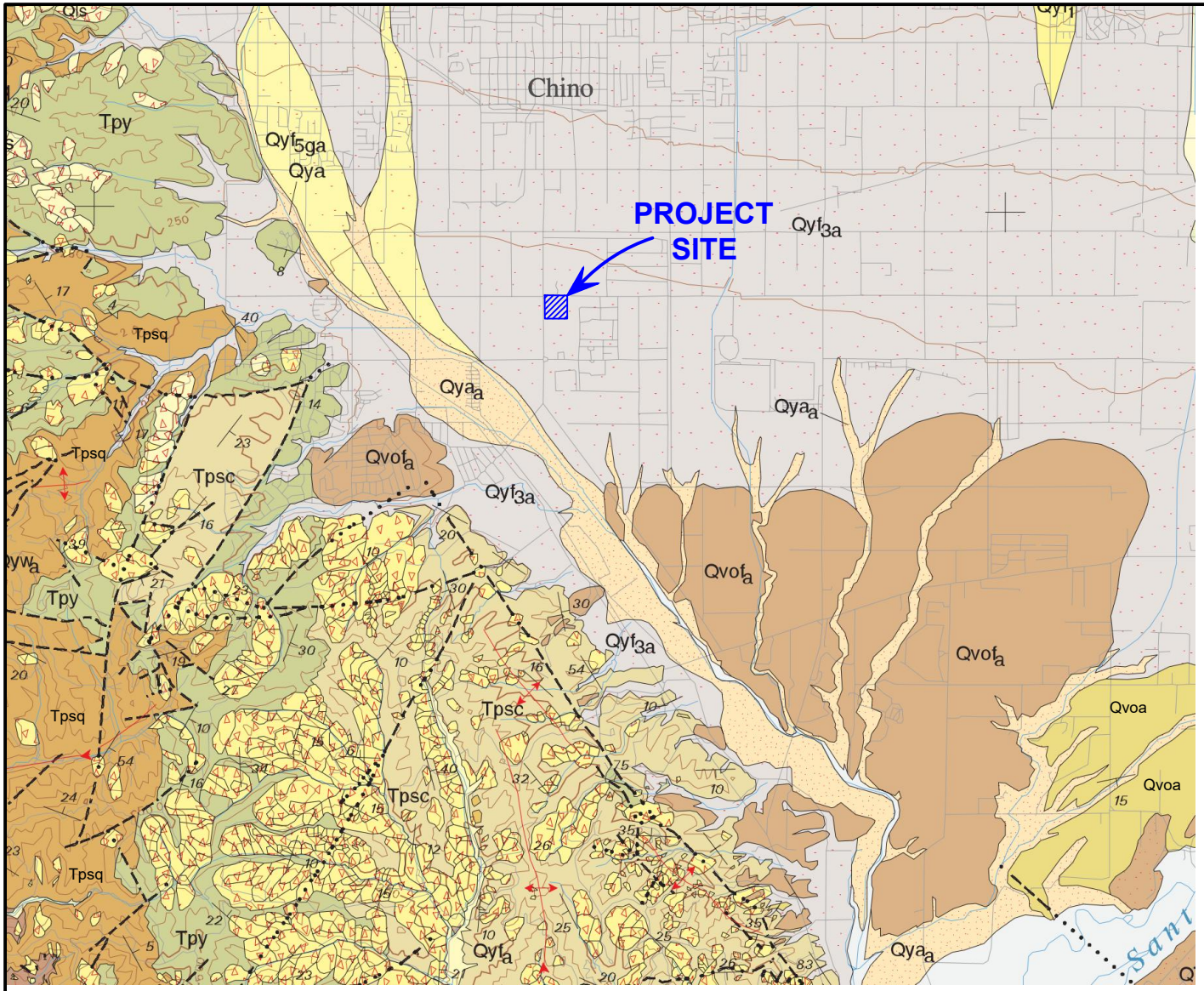
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GEOTECHNICAL MAP

Prado Helitack Base: New Facility
Chino, California

Date: August, 2019
By: THC
Job No.: 190068P4-1

Figure: 2



EXPLANATION:

- Qls — Landslide deposits
- Qyf — Young alluvial fan deposits
- Qyf_3 — Young alluvial fan deposits, Unit 3
- Qya — Young axial channel deposits
- Qye — Young eolian deposits
- Qvof — Very old alluvial fan deposits
- Qvoa — Very old axial channel deposits
- Tpsc — Sycamore Canyon
- Tpy — Yorba Member
- Tpsq — Soquel Member

Anticline Fold - Solid where well defined; short dash where inferred

Syncline Fold - Solid where well defined; short dash where inferred

Fault - Solid where accurately located; dashed where approximately located; dotted where concealed. U = upthrown block, D = downthrown block. Arrow and number indicate direction and angle of dip of fault plane.

70 U D

N

0 1.5 3

SCALE (mile)

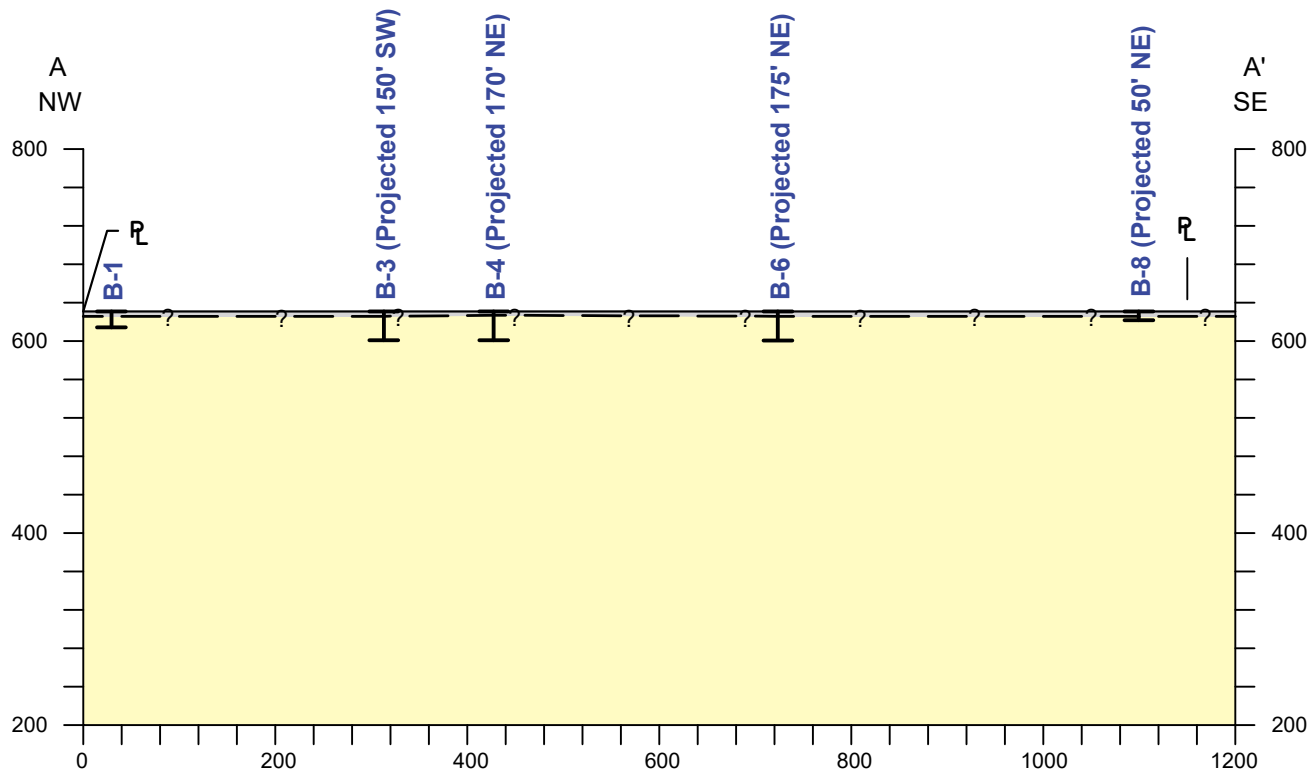
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REGIONAL GEOLOGY MAP
Prado Helitack Base: New Facility
Chino, California

Date: August, 2019
By: PFL/THC
Job No.: 190068P4-1

Figure: 3



SCST LEGEND:

B-3 — Location of Boring

PL — Property Line

—?— Geologic Contact, Queried Where Uncertain

Qf — Artificial fill

Qya — Young alluvial flood-plain deposits

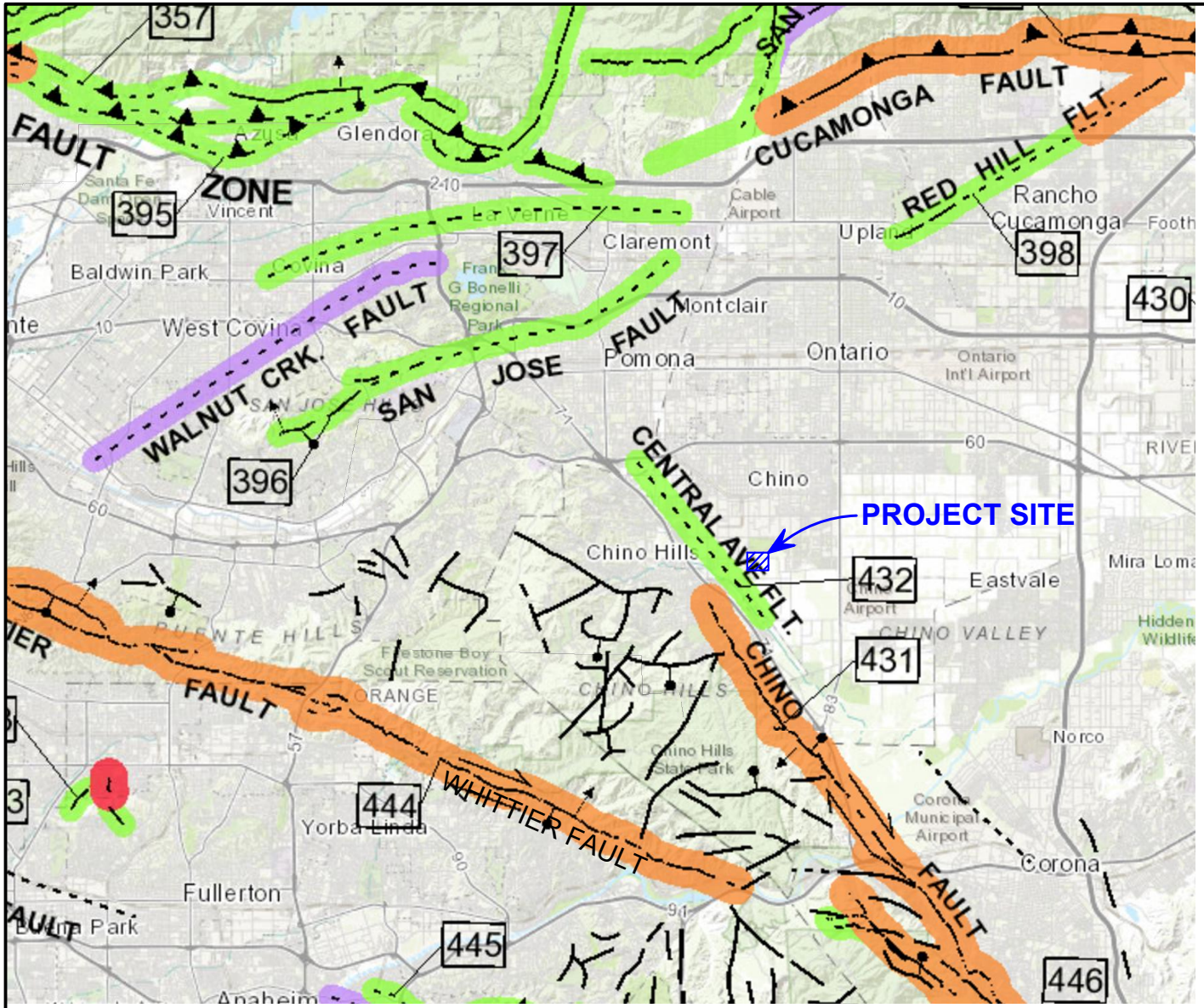
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GEOLOGIC CROSS SECTION A-A'

Prado Helitack Base: New Facility
Chino, California

Date: August, 2019
By: THC
Job No.: 190068P4-1

Figure: 4



EXPLANATION:

Fault along which historic (last 200 years) displacement has occurred

Holocene fault displacement (during past 11,700 years) without historic record.

Late Quaternary fault displacement (during past 700,000 years).

Quaternary fault (age undifferentiated).

Pre-Quaternary fault (older than 1.6 million years) or fault without recognized Quaternary displacement.

Low angle fault (barbs on upper plate).

431 Chino fault - Elsinore fault zone (concealed)

432 Central Avenue Fault - Central Avenue fault zone (concealed)

444 Whittier fault - Elsinore fault zone (concealed)

N

0 4 8

SCALE (miles)

Reference:
Jennings, C.W., Bryant W.A., Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, Fault Activity Map of California (2010)

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USGS FAULT MAP
Prado Helitack Base: New Facility
Chino, California

Date: August, 2019
By: THC
Job No.: 190068P4-1

Figure: 5

APPENDIX I
FIELD INVESTIGATION

Relatively undisturbed samples were obtained using a modified California (CAL) sampler in general accordance with ASTM D3550, which is ring-lined split tube sampler with a 3-inch outer diameter and 2½-inch inner diameter. Standard Penetration Tests (SPT) were performed in general accordance with ASTM D1586, using a 2-inch outer diameter and 1⅜-inch inner diameter split tube sampler. The CAL and SPT samplers were driven with a 140-pound weight dropping 30 inches. The number of blows needed to drive the samplers the final 12 inches of an 18-inch drive is noted on the borings logs as “Driving Resistance (blows/foot of drive).” SPT and CAL sampler refusal was encountered when 50 blows were applied during any one of the three 6-inch intervals, a total of 100 blows was applied, or there was no discernible sampler advancement during the application of 10 successive blows. The SPT penetration resistance was normalized to a safety hammer (cathead and rope) with a 60% energy transfer ratio in accordance with ASTM D6066. The normalized SPT penetration resistance is noted on the boring logs as “N_{60}.” Disturbed bulk samples were obtained from the SPT sampler and drill cuttings.

The soils are classified in accordance with the Unified Soil Classification System as illustrated on Figure I-1. Logs of the borings and test holes are presented in this appendix.

SUBSURFACE EXPLORATION LEGEND

UNIFIED SOIL CLASSIFICATION CHART

SOIL DESCRIPTION		GROUP SYMBOL	TYPICAL NAMES
I. COARSE GRAINED, more than 50% of material is larger than No. 200 sieve size.			
GRAVELS More than half of coarse fraction is larger than No. 4 sieve size but smaller than 3".	CLEAN GRAVELS	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels, gravel sand mixtures, little or no fines.
	GRAVELS WITH FINES (Appreciable amount of fines)	GM	Silty gravels, poorly graded gravel-sand-silt mixtures.
		GC	Clayey gravels, poorly graded gravel-sand, clay mixtures.
SANDS More than half of coarse fraction is smaller than No. 4 sieve size.	CLEAN SANDS	SW	Well-graded sand, gravelly sands, little or no fines.
		SP	Poorly graded sands, gravelly sands, little or no fines.
		SM	Silty sands, poorly graded sand and silty mixtures.
		SC	Clayey sands, poorly graded sand and clay mixtures.
II. FINE GRAINED, more than 50% of material is smaller than No. 200 sieve size.			
	SILTS AND CLAYS (Liquid Limit less than 50)	ML	Inorganic silts and very fine sands, rock flour, sandy silt or clayey-silt-sand mixtures with slight plasticity.
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		OL	Organic silts and organic silty clays or low plasticity.
	SILTS AND CLAYS (Liquid Limit greater than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		CH	Inorganic clays of high plasticity, fat clays.
		OH	Organic clays of medium to high plasticity.
III. HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils.

SAMPLE SYMBOLS

- ☒ - Bulk Sample
- CAL - Modified California Sampler
- CK - Undisturbed Chunk sample
- MS - Maximum Size of Particle
- ST - Shelby Tube
- SPT - Standard Penetration Test sampler

GROUNDWATER SYMBOLS

- ▽ - Water level at time of excavation or as indicated
- ≈ - Water seepage at time of excavation or as indicated

LABORATORY TEST SYMBOLS

- AL - Atterberg Limits
- CON - Consolidation
- COR - Corrosivity Tests (Resistivity, pH, Chloride, Sulfate)
- DS - Direct Shear
- EI - Expansion Index
- MAX - Maximum Density
- RV - R-Value
- SA - Sieve Analysis

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Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-1

LOG OF BORING B-1

Date Drilled: 7/18/2019 | Logged by: NR/DM
Equipment: Hand Auger and Drill Rig | Reviewed by: RS
Elevation (ft): Approximately 628 | Depth to Groundwater (ft): Not encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
1	ML	**FILL(Qf):** SANDY SILT, loose to medium dense, brown, moist, fine to medium grained, trace gravel		X					SA RV
2									
3									
4									
5	CL	**YOUNG ALLUVIAL FAN DEPOSITS (Qyf):** SANDY CLAY, stiff, gray, moist, fine grained, trace gravel							
6			CAL		14	12	17.4	94.9	CON
7									
8									
9									
10		LEAN CLAY with SAND, brown, very stiff							
11			SPT		13	17			SA AL
12									
13									
14									
15	SM	SILTY SAND, medium dense, light brown, moist, fine to coarse grained, trace gravel							
16			CAL		24	20	10.4	117.6	
17		**Boring Terminated - Utility Lines**							
18									
19									
20									

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Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-2

LOG OF BORING B-2

Date Drilled: 7/18/2019 | Logged by: NR/DM
Equipment: Hand Auger and Drill Rig | Reviewed by: RS
Elevation (ft): Approximately 628 | Depth to Groundwater (ft): Not encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
		6 inches of Gravel							
1	SC	**FILL (Qf):** CLAYEY SAND, loose, brown, moist, fine to medium grained		X					EI COR
2				X					
3	SM	SILTY SAND, medium dense, gray, moist, fine to coarse grained		X					
4				X					
5	SP-SM	**YOUNG ALLUVIAL FAN DEPOSITS (Qyf):** POORLY GRADED SAND with SILT, loose to medium dense, light brown, moist, fine		X					
6				X					
7	SM	SILTY SAND, loose to medium dense, brown, moist, fine grained		X					
	SP	POORLY GRADED SAND, loose to medium dense, light brown, moist, fine grained		X					
8	CL	CLAY, soft, brown, moist, fine grained		X					
9				X					
10				X					
11		Stiff	SPT		7	9			
12									
13									
14									
15									
16			CAL		13	11	24.0	101.9	DS
17									
18									
19		Very stiff	SPT		12	16			
20									

Boring Terminated at 20 Feet

SCST, LLC

Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-3

LOG OF BORING B-3

Date Drilled: 7/17/2019 | Logged by: NR/DM
Equipment: Hand Auger and Drill Rig | Reviewed by: RS
Elevation (ft): Approximately 628 | Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
		6 inches of Gravel							
1	SC	**FILL (Qf):** CLAYEY SAND, loose to medium dense, dark brown, moist, fine to medium grained, trace gravel							
2									
3									
4	CL	SANDY CLAY, medium stiff, gray, moist, fine grained		X					EI COR
5	SM	**YOUNG ALLUVIAL FAN DEPOSITS (Qyf):** SILTY SAND, medium dense, brown, moist, fine to medium grained							
6			SPT		18	23			SA
7									
8									
9									
10	SP-SM	POORLY GRADED SAND with SILT, dense, light brown, moist, fine grained							
11			CAL		41	35	2.8	104.0	
12									
13									
14									
15									
16	ML	SANDY SILT, very stiff, gray, fine grained	SPT		17	22			SA AL
17									
18									
19									
20									

Boring Continued on I-5

SCST, LLC

Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-4

LOG OF BORING B-3 (continued)

Date Drilled: 7/17/2019 | Logged by: NR/DM
Equipment: Hand Auger and Drill Rig | Reviewed by: RS
Elevation (ft): Approximately 628 | Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
21	CL	LEAN CLAY, stiff, mottled dark brown, moist, fine grained	CAL		23	20			
22									
23									
24									
25	GC	CLAYEY GRAVEL with SAND, medium dense, brown, moist, fine to coarse grained							
26			SPT		16	21			SA
27									
28									
29									
30	CL-ML	SILTY CLAY, medium stiff, light brown, wet, fine grained							
31		Higher moisture content	CAL		10	8	40.3	80.3	CON
32									
33									
34									
35									
36	ML	SANDY SILT, very stiff, reddish light brown, moist	SPT		12	16			SA AL
37									
38									
39									
40									

Boring Continued on I-6

SCST, LLC

Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-5

LOG OF BORING B-3 (continued)

Date Drilled: 7/17/2019 | Logged by: NR/DM
Equipment: Hand Auger and Drill Rig | Reviewed by: RS
Elevation (ft): Approximately 628 | Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
41	CL	SANDY CLAY, stiff, light brown, moist, fine grained							
			CAL		15	13	19.2	109.7	SA CON
42									
43									
44									
45	SC	CLAYEY SAND, dense, reddish brown, moist, fine to medium grained							
			SPT		24	31			SA
46									
47									
48									
49									
50		Very dense	CAL		70	59	16.2	111.1	
		Boring Terminated at 50 Feet							
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

SCST, LLC

Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-6

LOG OF BORING B-4

Date Drilled: 7/18/2019 | Logged by: NR/DM
Equipment: Hand Auger and Drill Rig | Reviewed by: RS
Elevation (ft): Approximately 626 | Depth to Groundwater (ft): Not encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
		6 inches of Gravel							
1	SM	**FILL (Qf):** SILTY SAND, loose to medium dense, brown, moist, fine to coarse grained, trace gravel		X					
2				X					
3	ML	SANDY SILT with GRAVEL, stiff, gray, moist, fine to medium grained		X					
4	CL	**YOUNG ALLUVIAL FAN DEPOSITS (Qyf):** SANDY CLAY, stiff, light brown, moist, fine grained		X					EI COR
5				X					
6			SPT		8	10			
7									
8									
9									
10	SP-SM	POORLY GRADED SAND with SILT, dense, light brown, moist, fine grained							
11			CAL		48	41	6.1	104.0	DS
12									
13									
14									
15	CL	SANDY CLAY, stiff, brown, moist, fine grained							
16			SPT		8	10			
17									
18									
19	SM	SILTY SAND, medium dense, reddish brown, moist, fine grained							
20			CAL		20	17	11.5	99.2	

Boring Terminated at 20 Feet

SCST, LLC

Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-7

LOG OF BORING B-5

Date Drilled: 7/18/2019 | Logged by: NR/DM
Equipment: Hand Auger and Drill Rig | Reviewed by: RS
Elevation (ft): Approximately 625 | Depth to Groundwater (ft): Not encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
		6 inches of Gravel							
1	SM	**FILL (Qf):** SILTY SAND with GRAVEL, medium dense, gray, moist, fine to coarse grained		X					
2				X					
3	SM	**YOUNG ALLUVIAL FAN DEPOSITS (Qyf):** SILTY SAND, medium dense, light brown, moist, fine to medium grained		X					
4				X					
5				X					
6			CAL		21	18	12.9	100.9	DS
7									
8									
9									
10	CL	SANDY CLAY, stiff, brown, moist, fine grained							
11			SPT		8	10			
12									
13									
14									
15									
16		Gray	CAL		12	10	24.5	101.1	CON
17									
18									
19									
20			SPT		10	13			

Boring Terminated at 20 Feet

SCST, LLC

Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-8

LOG OF BORING B-6

Date Drilled: 7/17/2019 | Logged by: NR/DM
Equipment: Hand Auger and Drill Rig | Reviewed by: RS
Elevation (ft): Approximately 624 | Depth to Groundwater (ft): Not encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
		6 inches of Gravel							
1	SM	**FILL (Qf):** SILTY SAND with GRAVEL, medium dense, olive brown, moist, fine to medium grained		X					
2									
3									
4									
5									
6	SC	**YOUNG ALLUVIAL FAN DEPOSITS (Qyf):** CLAYEY SAND, medium dense, olive brown, moist, fine to medium grained	CAL		33	28	14.6	116.7	
7									
8									
9									
10									
11	SM	SILTY SAND, medium dense, dark brown, moist, fine to medium grained	SPT		12	16			SA
12									
13									
14									
15									
16	CL	SANDY LEAN CLAY, stiff, light brown, moist, fine to medium grained	CAL		16	14	20.5	107.6	SA AL
17									
18									
19									
20									

Continued on I-10

SCST, LLC

Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-9

LOG OF BORING B-6 (continued)

Date Drilled: 7/17/2019 | Logged by: NR/DM
Equipment: Hand Auger and Drill Rig | Reviewed by: RS
Elevation (ft): Approximately 624 | Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
21	CL	SANDY LEAN CLAY, stiff, light brown, moist, fine grained	SPT		8	10			
22									
23									
24									
25	CL	LEAN CLAY with SAND, medium stiff, light brown, moist, fine to medium grained, interbeded clay layers							
26			CAL		8	7	35.2	86.3	SA AL CON
27									
28									
29									
30		Higher moisture content							
31	SM	SILTY SAND, medium dense, olive brown, fine to medium grained, moist	SPT		8	10			SA
32									
33									
34									
35	CL	SANDY CLAY, stiff, light brown, moist, fine grained							
36			CAL		23	20	22.6	105.6	SA
37									
38									
39									
40									

Continued on I-11

LOG OF BORING B-6 (continued)

Date Drilled: 7/17/2019 | Logged by: NR/DM
Equipment: Hand Auger and Drill Rig | Reviewed by: RS
Elevation (ft): Approximately 624 | Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
41	CL	SANDY CLAY, very stiff, reddish brown, moist, fine to medium grained	SPT		20	26			
42									
43									
44									
45	SC	CLAYEY SAND, very stiff, brown, moist, fine to medium grained							
46			CAL		30	25	18.4	112.9	SA
47									
48									
49	ML	SILT, hard, brown, moist, fine to medium grained	SPT		38	50			SA AL
50		**Boring Terminated at 50 Feet**							
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

SCST, LLC

Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-11

LOG OF BORING B-7

Date Drilled: 7/17/2019 | Logged by: NR/DM
Equipment: Hand Auger | Reviewed by: RS
Elevation (ft): Approximately 622 | Depth to Groundwater (ft): Not encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
1	SM	**FILL (Qf):** SILTY SAND, loose, brown, dry, fine to medium grained		X					
2	SC	CLAYEY SAND, medium dense, gray, moist, fine to coarse grained		X					EI RV COR
3				X					
4				X					
5				X					
6	ML	**YOUNG ALLUVIAL FAN DEPOSITS (Qyf):** SANDY SILT, soft, reddish brown, moist, fine grained		X					SA
7				X					
8	SP-SM	POORLY GRADED SAND with SILT, loose, reddish brown, fine grained		X					
9		**Boring Terminated at 9 Feet**							
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

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Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-12

LOG OF BORING B-8

Date Drilled: 7/17/2019 | Logged by: NR/DM
Equipment: Hand Auger | Reviewed by: RS
Elevation (ft): Approximately 621 | Depth to Groundwater (ft): Not encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
1	SM	**FILL (Qf):** SILTY SAND, loose, dark brown, dry, fine to coarse grained		X					
2				X					
3	ML	SANDY SILT with GRAVEL, loose, dark brown, dry, fine to coarse grained		X					SA
4	SM	SILTY SAND, loose, olive brown, moist, fine to coarse grained		X					
5				X					
6	SP-SM	**YOUNG ALLUVIAL FAN DEPOSITS (Qyf):** POORLY GRADED SAND with SILT, loose, olive brown, moist, fine to coarse grained		X					
7				X					
8	CL	SANDY CLAY, soft, brown to light brown, moist, fine to medium grained		X					
9	SM	SILTY SAND, loose, brown, moist, fine to medium grained		X					
10		**Boring Terminated at 9 Feet**							
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

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Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-13

LOG OF BORING P-1

Date Drilled: 7/17/2019 | Logged by: NR/DM
Equipment: Hand Auger | Reviewed by: RS
Elevation (ft): Approximately 622 | Depth to Groundwater (ft): Not encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0	SM	**FILL (Qf):** SILTY SAND, loose, brown, dry, fine to medium grained							
1									
2	CL	SANDY CLAY with GRAVEL, stiff, gray, moist, fine to coarse grained							
3									
4									
5	ML	SILT with SAND, soft, brown, moist, fine to medium grained		☒					SA
		Boring Terminated at 5 Feet							
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

SCST, LLC

Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-14

LOG OF BORING P-2

Date Drilled: 7/17/2019 | Logged by: NR/DM
Equipment: Hand Auger | Reviewed by: RS
Elevation (ft): Approximately 622 | Depth to Groundwater (ft): Not encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
1	SM	**FILL (Qf):** SILTY SAND, loose, brown, dry, fine to medium grained							
2	CL	SANDY CLAY with GRAVEL, stiff, gray, moist, fine to coarse grained							
3									
4	CL-ML	SANDY SILTY CLAY, medium stiff, light brown, moist, fine to medium grained		X					SA AL
5		**Boring Terminated at 5 Feet**							
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

SCST, LLC

Prado Helitack Base - New Facility
Chino, California

By:	TMB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	I-15

APPENDIX II
LABORATORY TESTING

A brief description of each type of test is presented below. Results are given on the following pages and on the boring logs in Appendix I.

- **CLASSIFICATION:** Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soil Classification System.

- **MOISTURE AND DENSITY DETERMINATIONS:** Moisture content and dry density tests were performed on select drive samples obtained from our borings. The tests were performed in general accordance with ASTM D2216, moisture content, and with ASTM D2937, dry unity weight. The results of the tests are presented on the boring logs in Appendix I.

- **PARTICLE-SIZE DISTRIBUTION:** The particle-size distribution was determined on select samples in accordance with ASTM D6913. The results are presented in this Appendix.

- **ATTERBERG LIMITS:** The Atterberg limits were determined on select soil samples to aid in soil classification and evaluate the plasticity characteristics. The tests were performed in accordance with ASTM D4318.

- **EXPANSION INDEX:** The expansion index was determined on select samples in accordance with ASTM D4829.

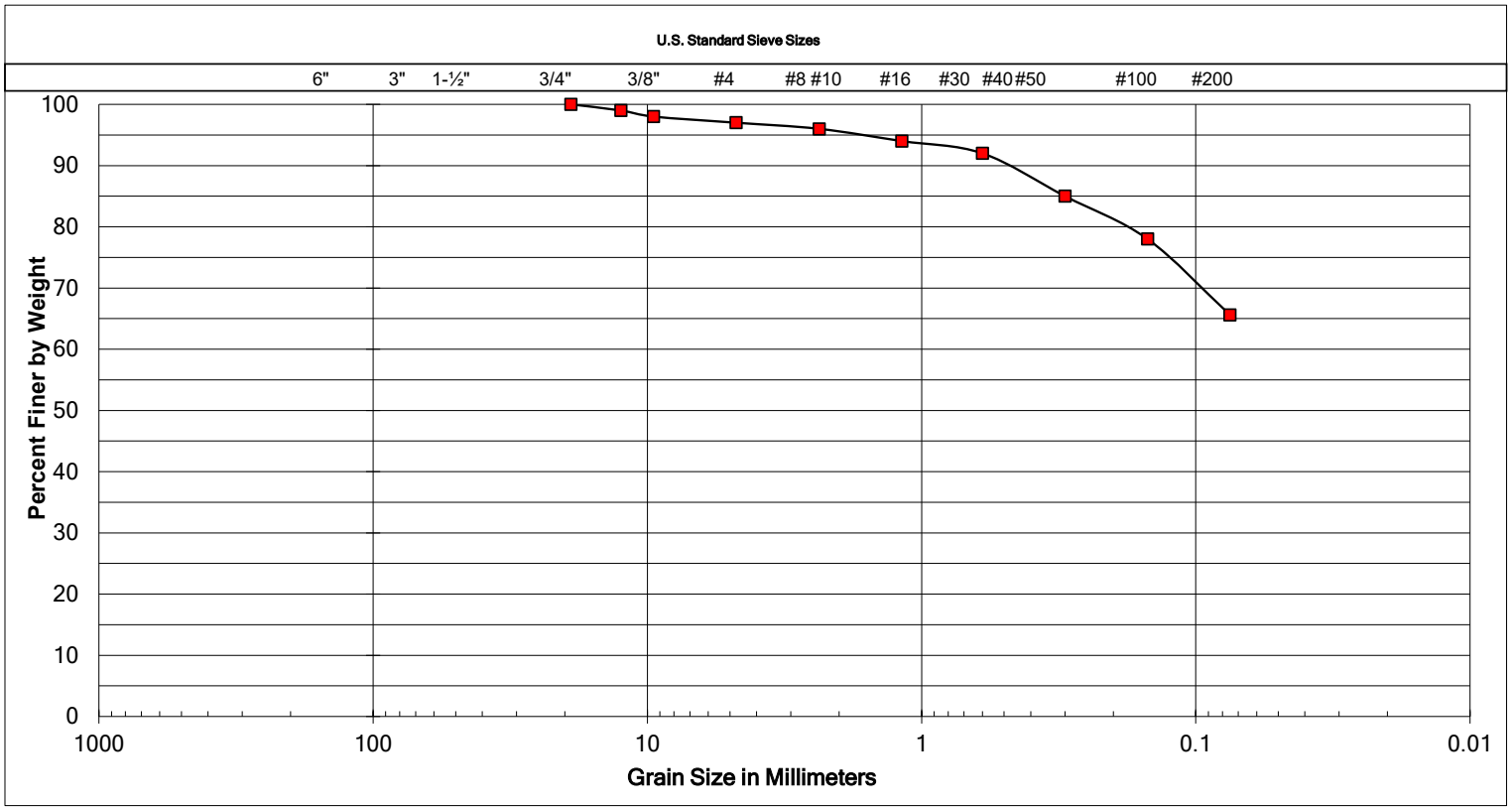
- **CONSOLIDATION:** One-dimensional consolidation tests were performed on select relatively undisturbed soil samples in general accordance with ASTM D2435.

- **CORROSIVITY**: Corrosivity tests were performed on select samples. The pH and minimum resistivity were determined in general accordance with California Test 643. The soluble sulfate content was determined in accordance with California Test 417. The total chloride ion content was determined in accordance with California Test 422.

- **RESISTANCE (R) VALUE:** R-value tests were performed on select samples in accordance with California Test Method 301.

- **DIRECT SHEAR:** Direct shear tests were performed on select soil samples in accordance with ASTM D3080. The shear stress was applied at a constant rate of strain of 0.003 inch per minute.

Soil samples not tested are now stored in our laboratory for future reference and analysis, if needed. Unless notified to the contrary, all samples will be disposed of 30 days from the date of this report.



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B1 @ 0-5'
SAMPLE NUMBER
44389

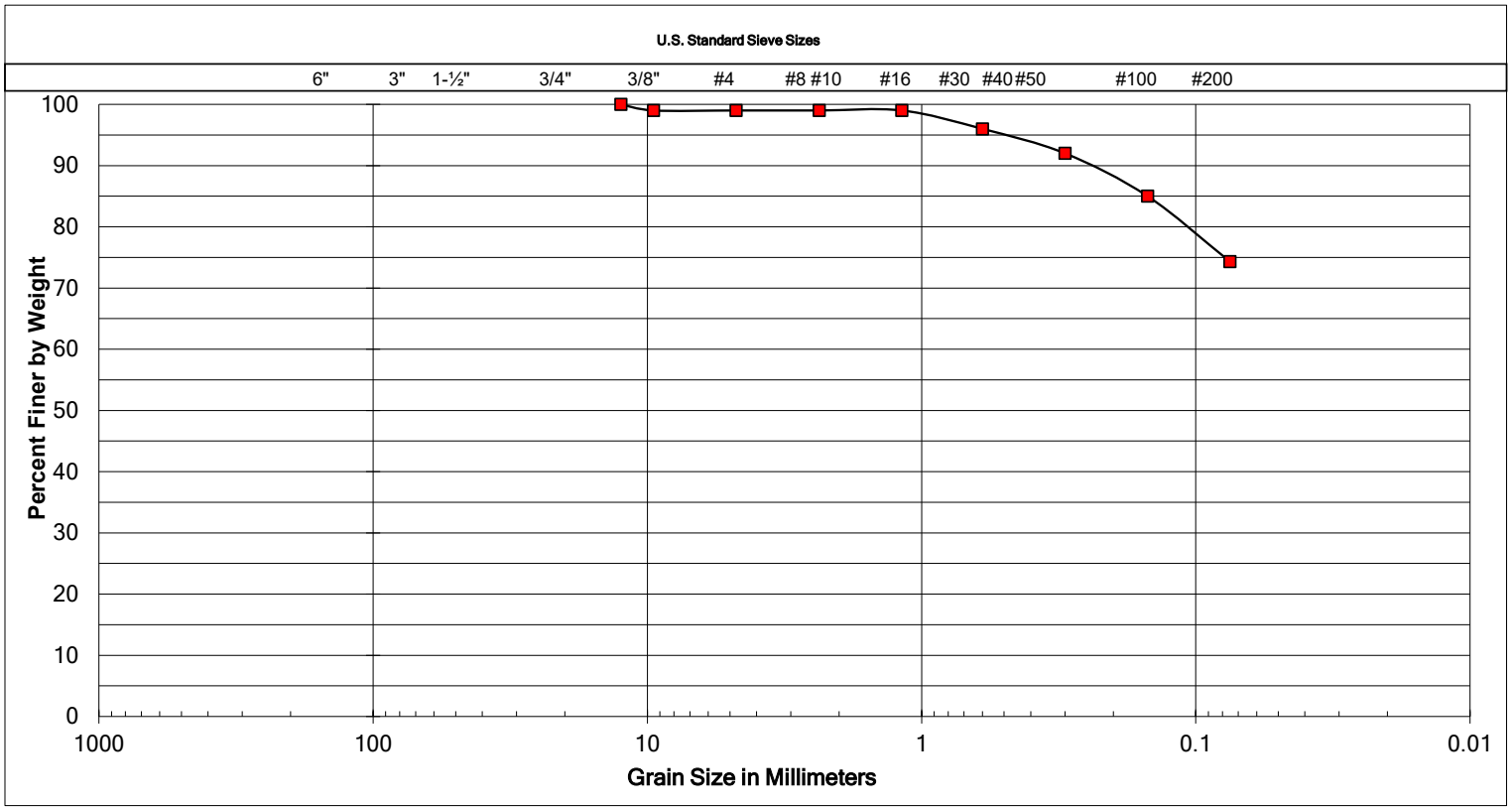
UNIFIED SOIL CLASSIFICATION:	ML
DESCRIPTION	SANDY SILT

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-1



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-1@10 ½ - 11 ½'
SAMPLE NUMBER
44391

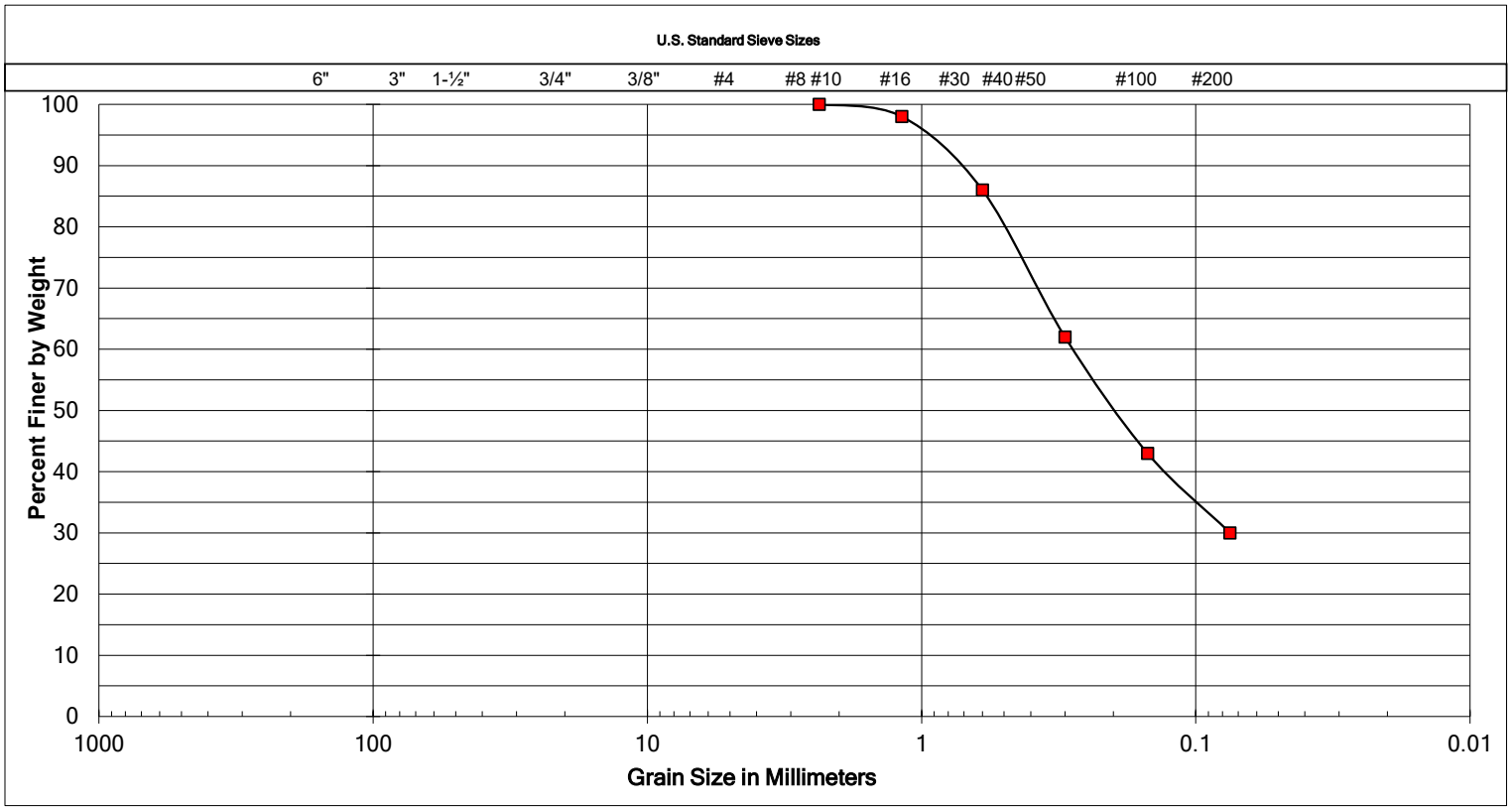
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	LEAN CLAY with SAND

ATTERBERG LIMITS	
LIQUID LIMIT	31
PLASTIC LIMIT	16
PLASTICITY INDEX	15

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Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-2



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B3 at 5 ½ to 6 ½ feet
SAMPLE NUMBER
44396

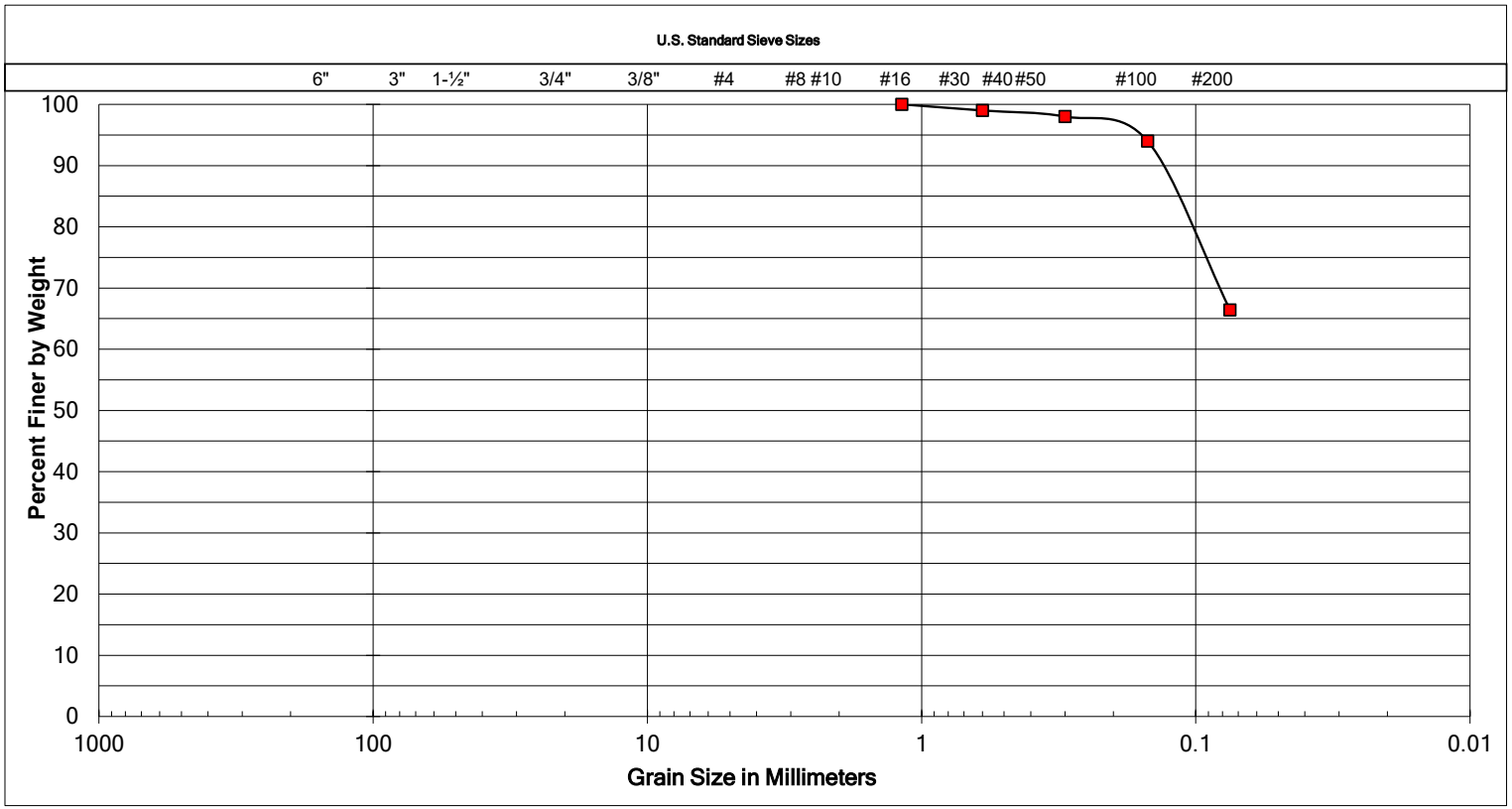
UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-3



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B3 at 16 to 16 ½ feet
SAMPLE NUMBER
44399

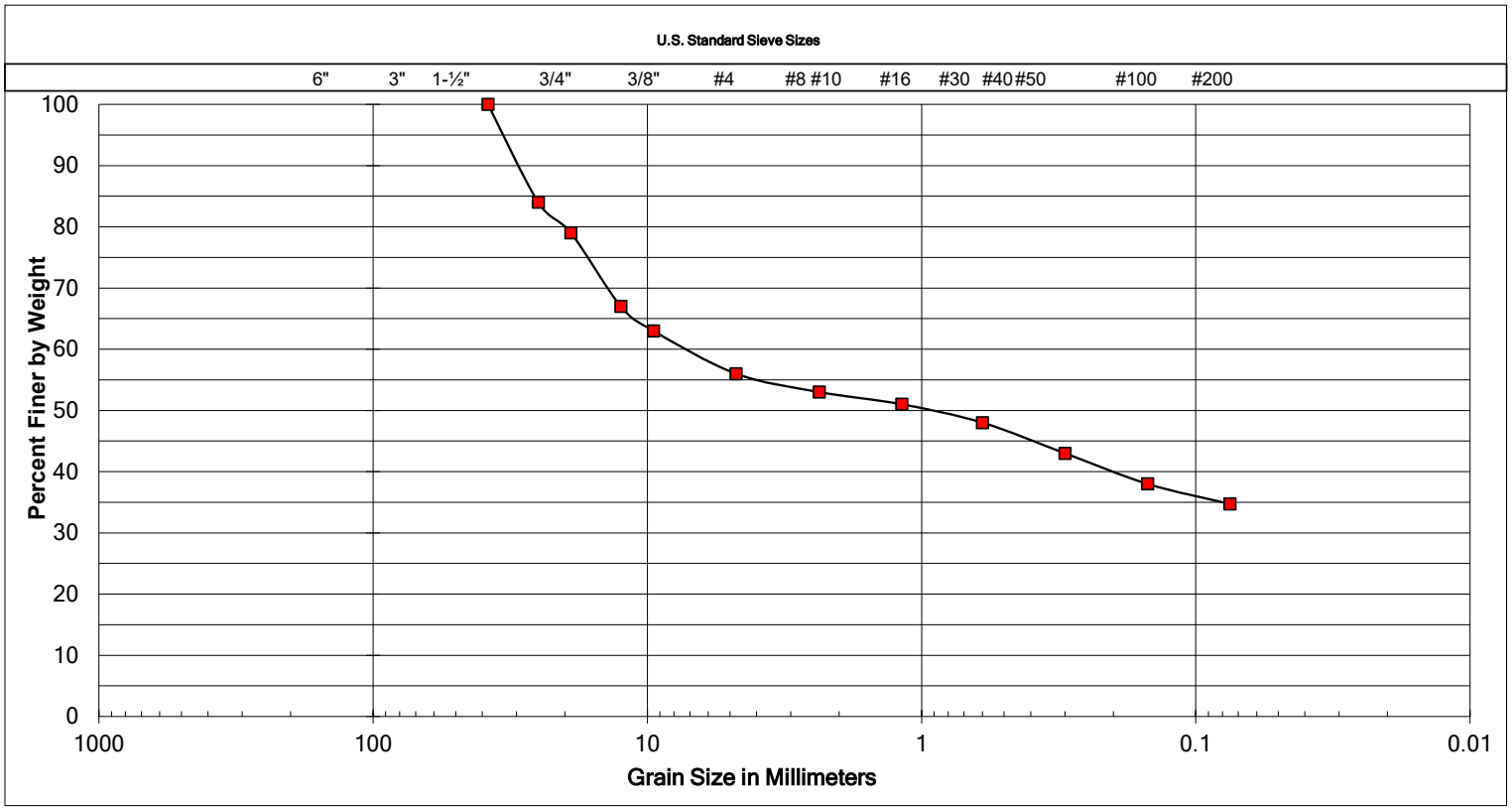
UNIFIED SOIL CLASSIFICATION:	ML
DESCRIPTION	SANDY SILT

ATTERBERG LIMITS	
LIQUID LIMIT	NP
PLASTIC LIMIT	NP
PLASTICITY INDEX	NP

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-4



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B3 at 26 to 26 ½ feet
SAMPLE NUMBER
44401

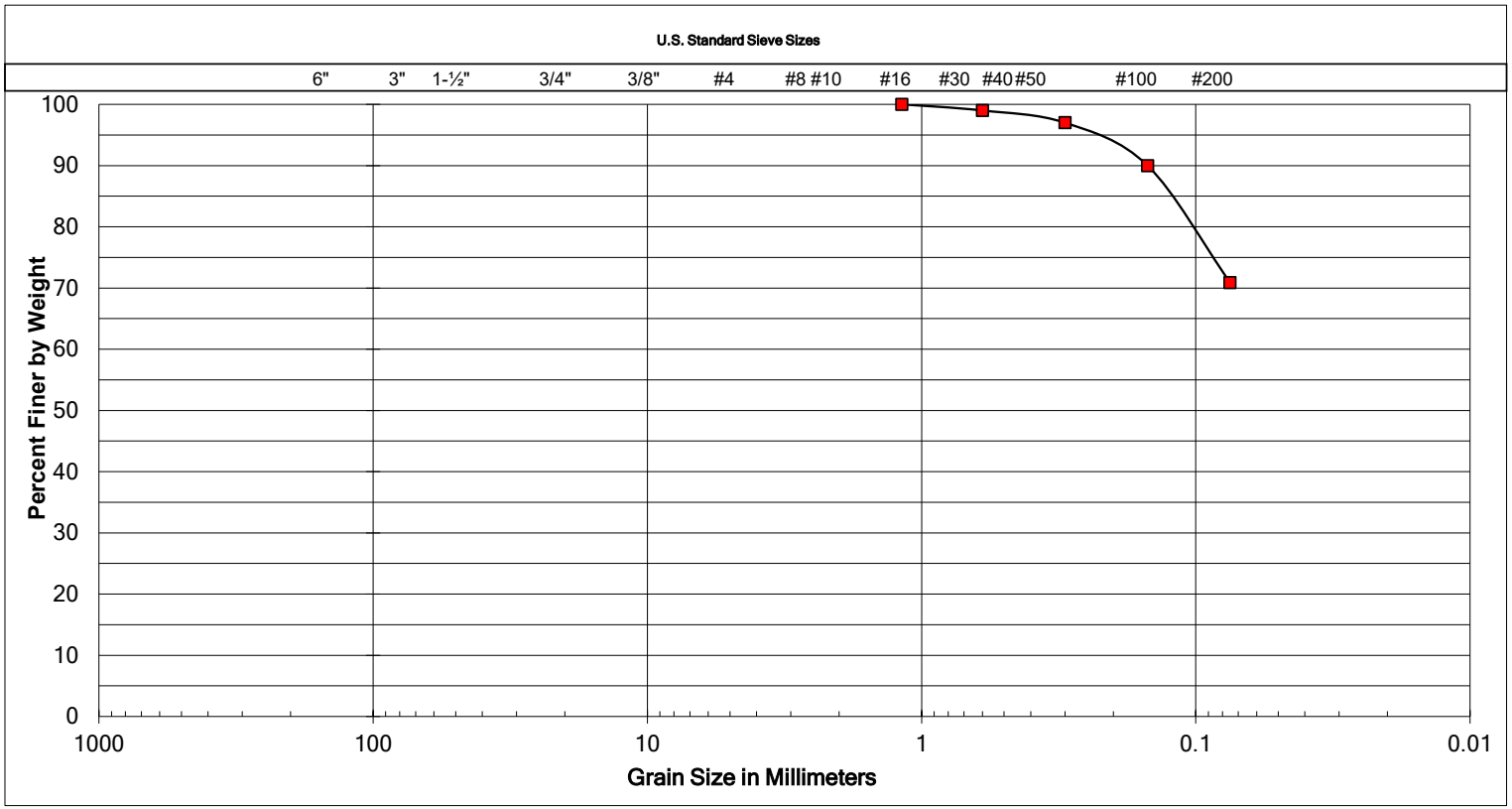
UNIFIED SOIL CLASSIFICATION:	GC
DESCRIPTION	CLAYEY GRAVEL with SAND

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-5



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B3 at 35 ½ to 36 ½ feet
SAMPLE NUMBER
44403

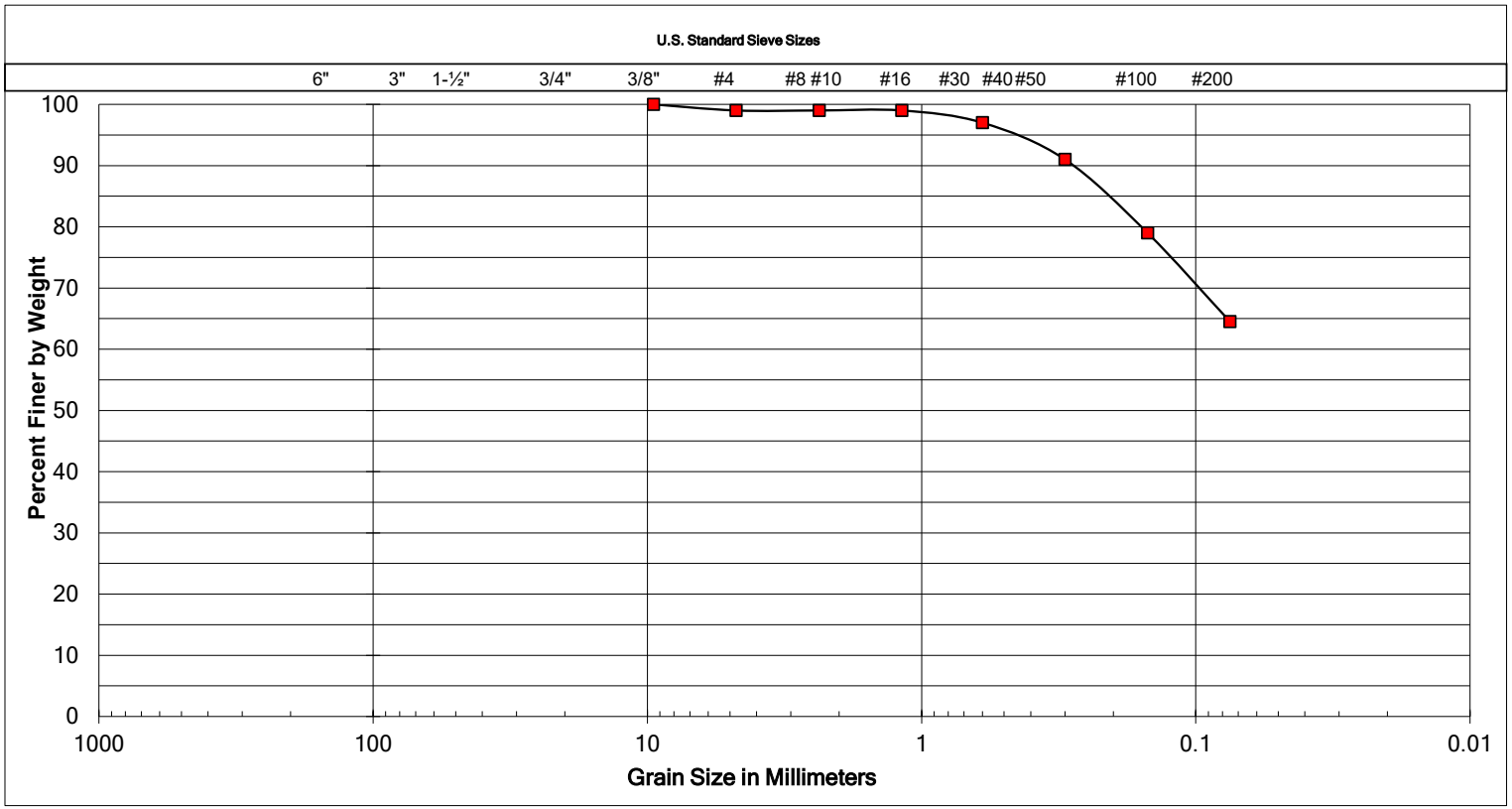
UNIFIED SOIL CLASSIFICATION:	ML
DESCRIPTION	SANDY SILT

ATTERBERG LIMITS	
LIQUID LIMIT	NP
PLASTIC LIMIT	NP
PLASTICITY INDEX	NP

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-6



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B3 at 41 to 41 ½ feet
SAMPLE NUMBER
44404

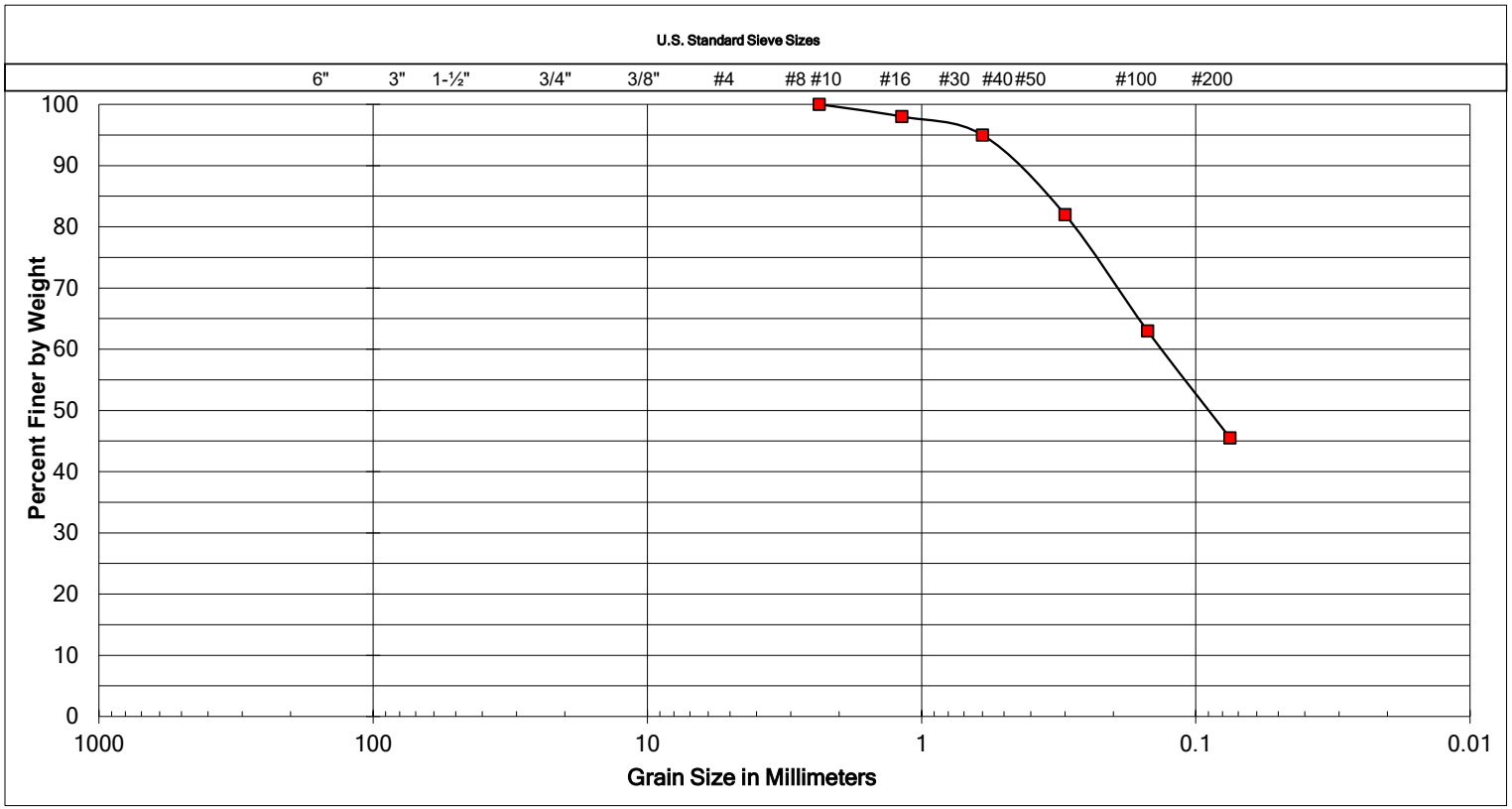
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-7



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B3 at 45 ½ to 46 ½ feet
SAMPLE NUMBER
44406

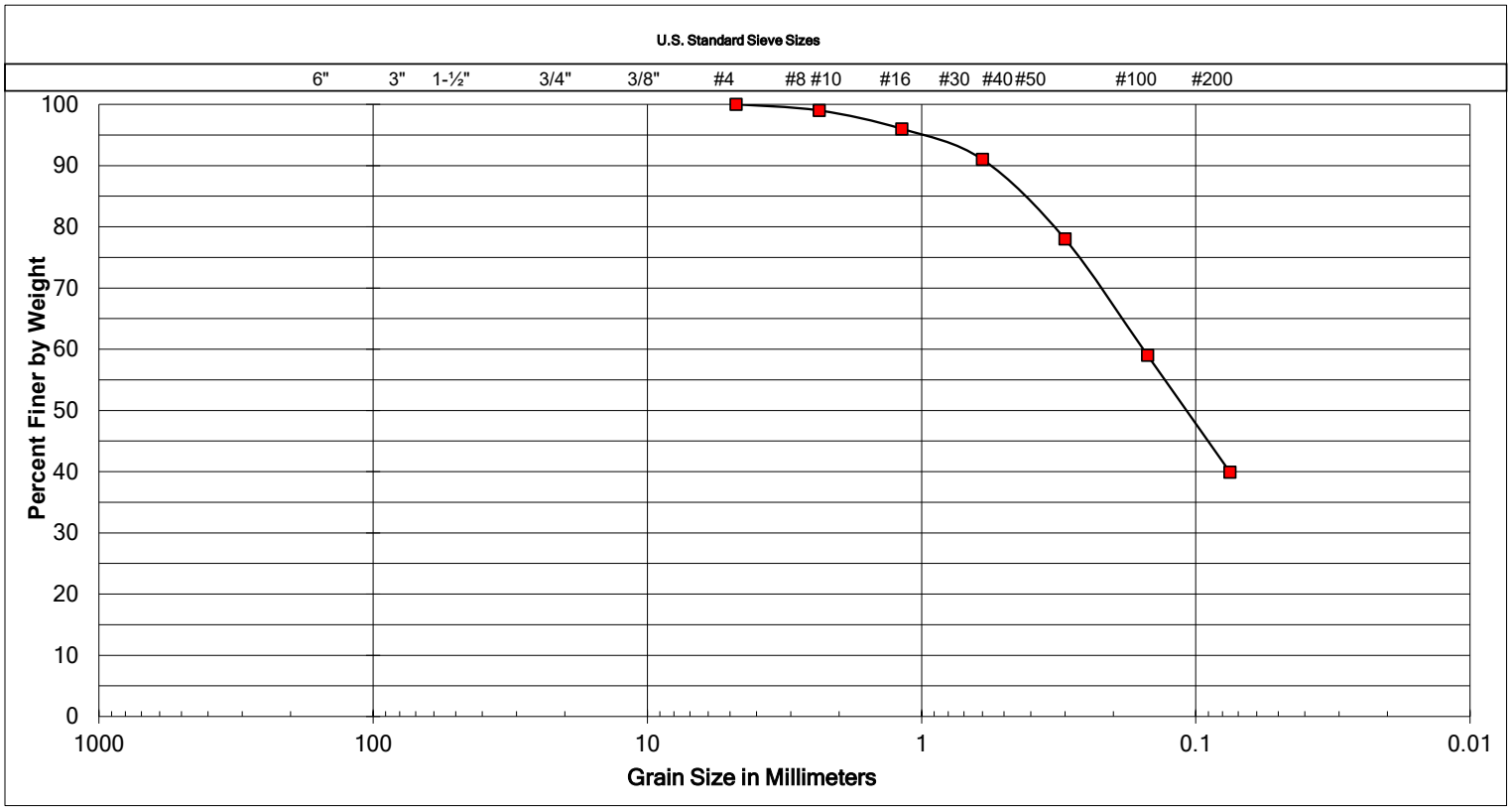
UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	CLAYEY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-8



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B6 at 10 ½ to 11 ½ feet
SAMPLE NUMBER
44415

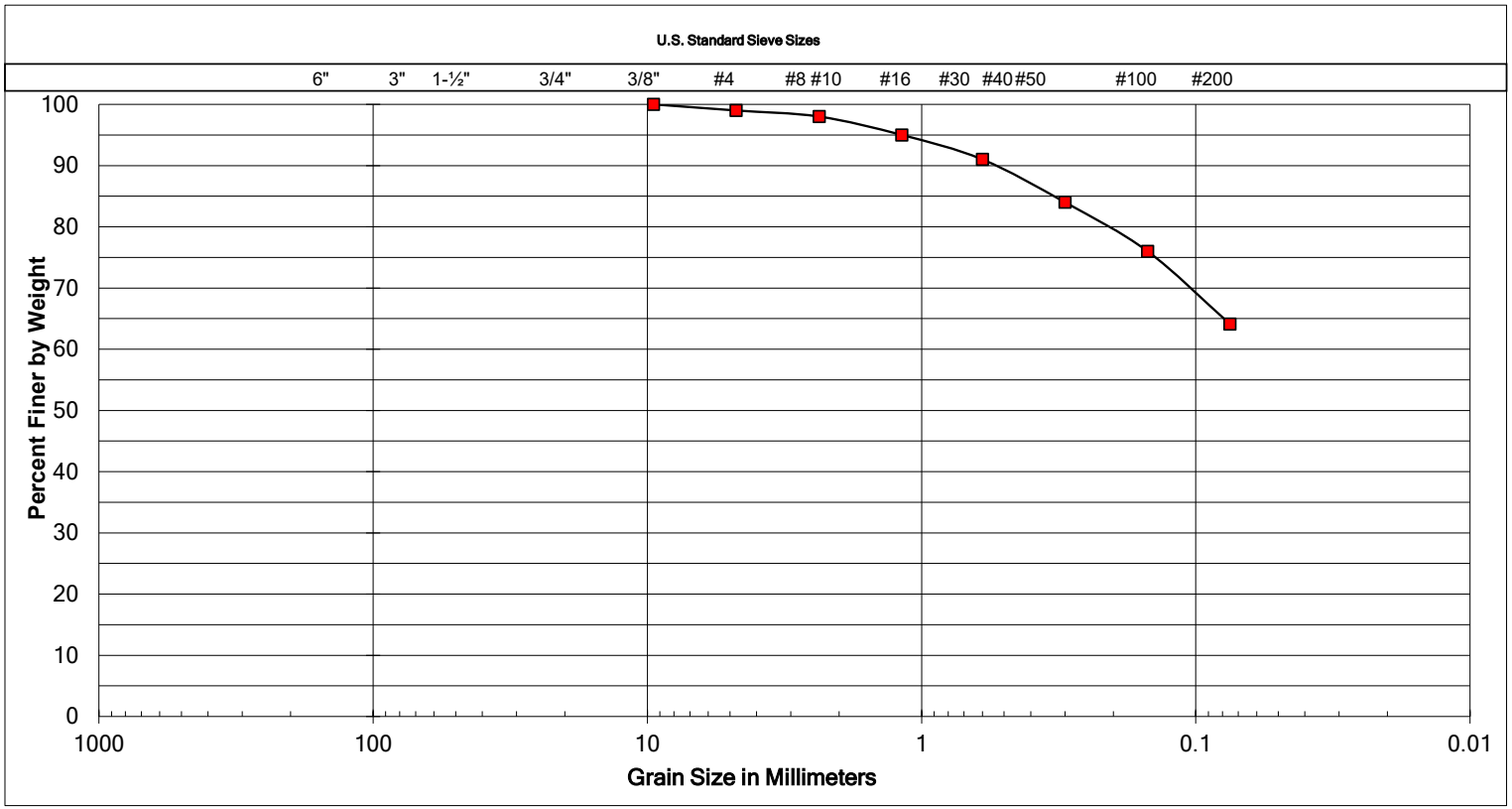
UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-9



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B6 at 16 to 16 ½ feet
SAMPLE NUMBER
44417

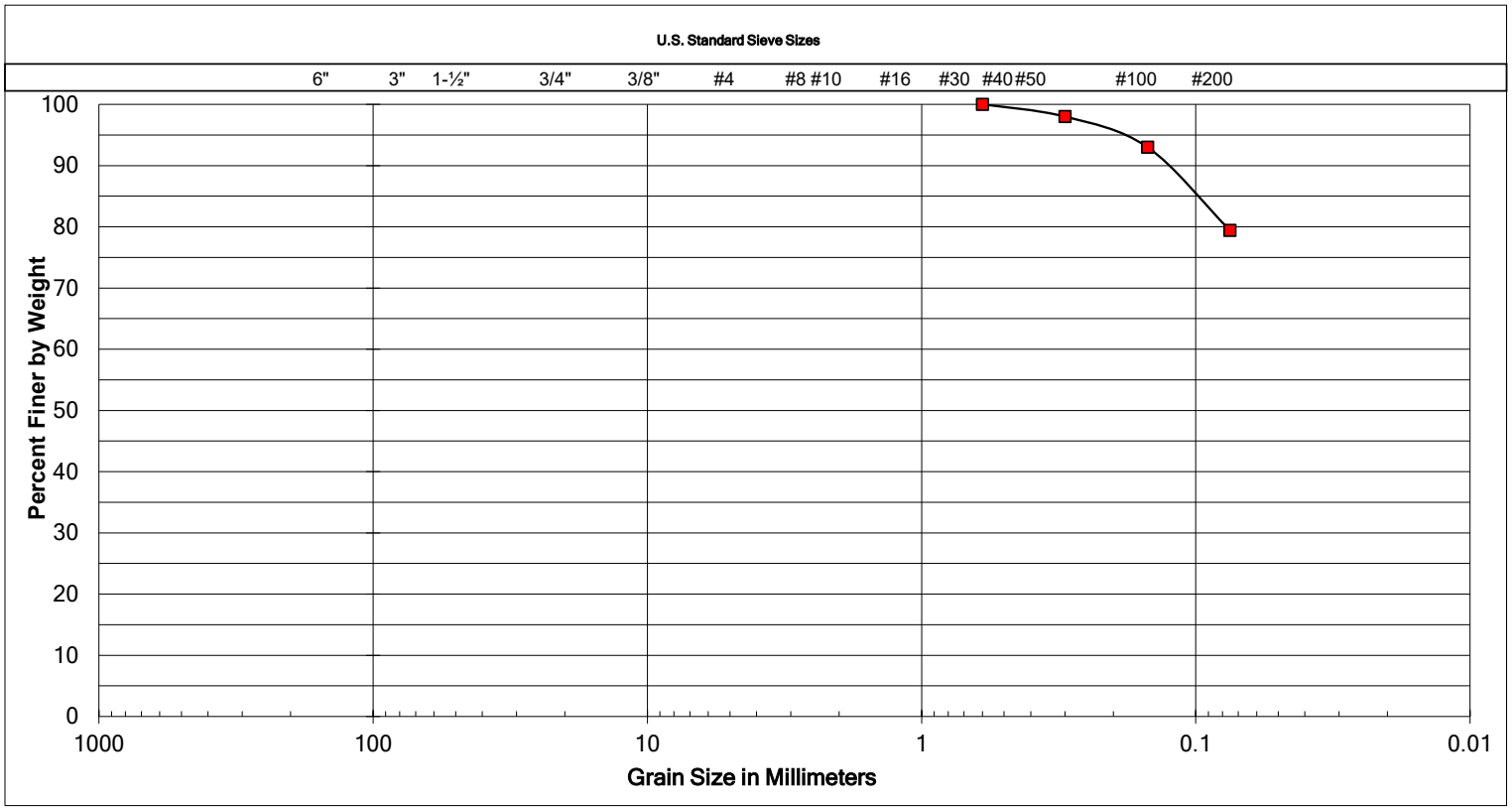
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY LEAN CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	33
PLASTIC LIMIT	22
PLASTICITY INDEX	11

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-10



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B6 at 26 to 26 ½ feet
SAMPLE NUMBER
44418

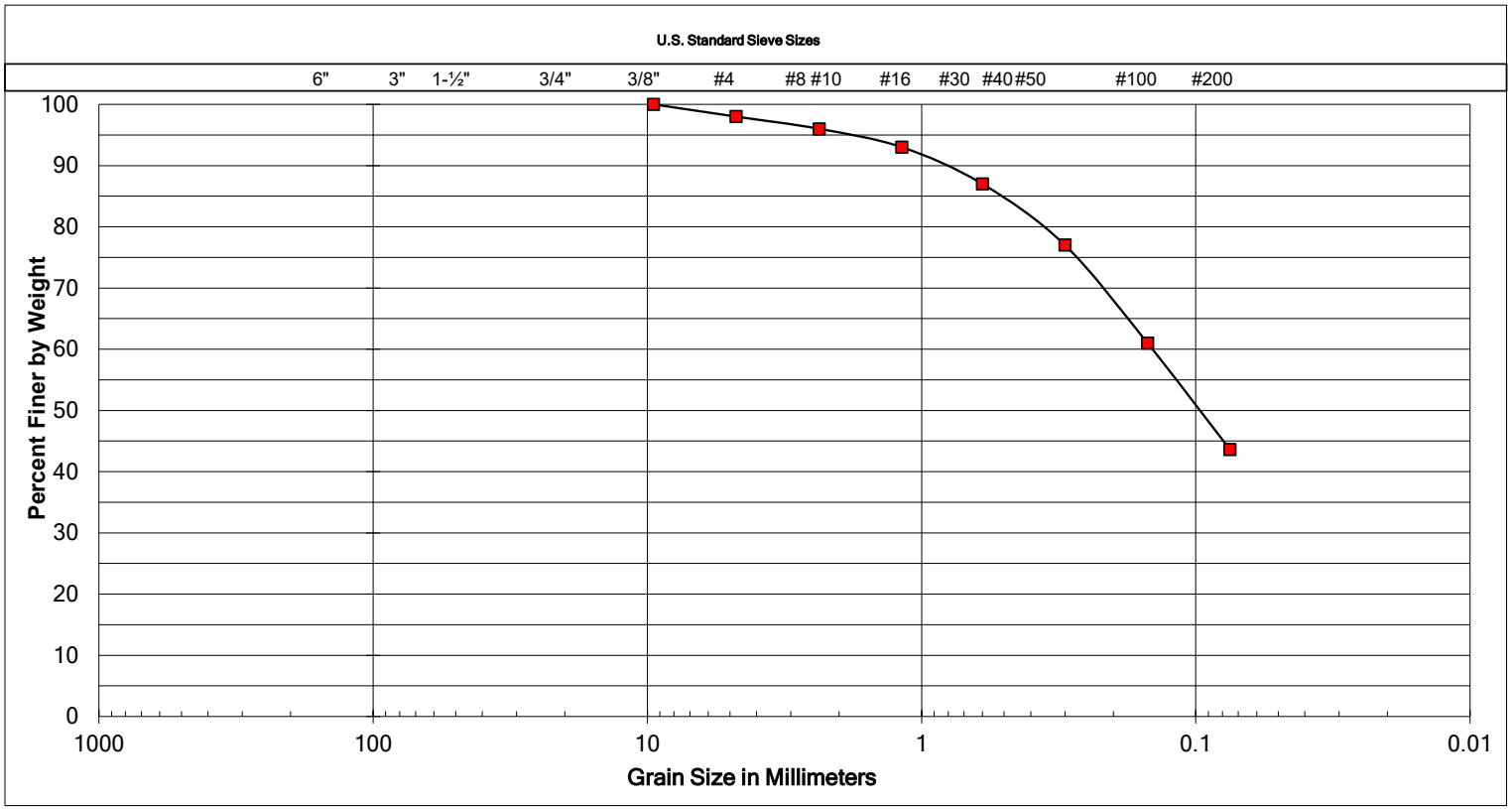
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	LEAN CLAY with SAND

ATTERBERG LIMITS	
LIQUID LIMIT	37
PLASTIC LIMIT	25
PLASTICITY INDEX	12

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-11



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B6 at 31 to 31 ½ feet
SAMPLE NUMBER
44419

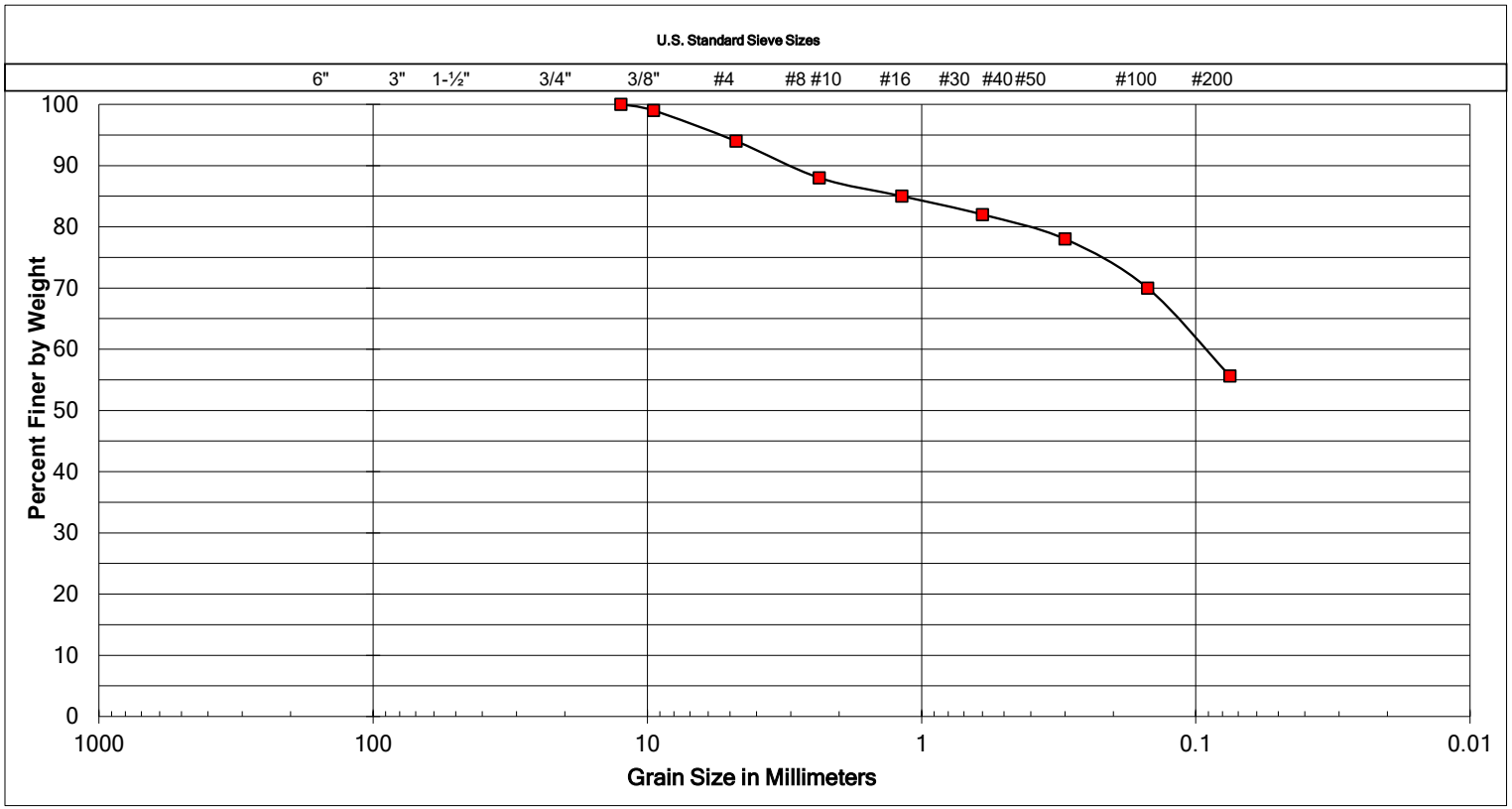
UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-12



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B6 at 36 to 36 ½ feet
SAMPLE NUMBER
44420

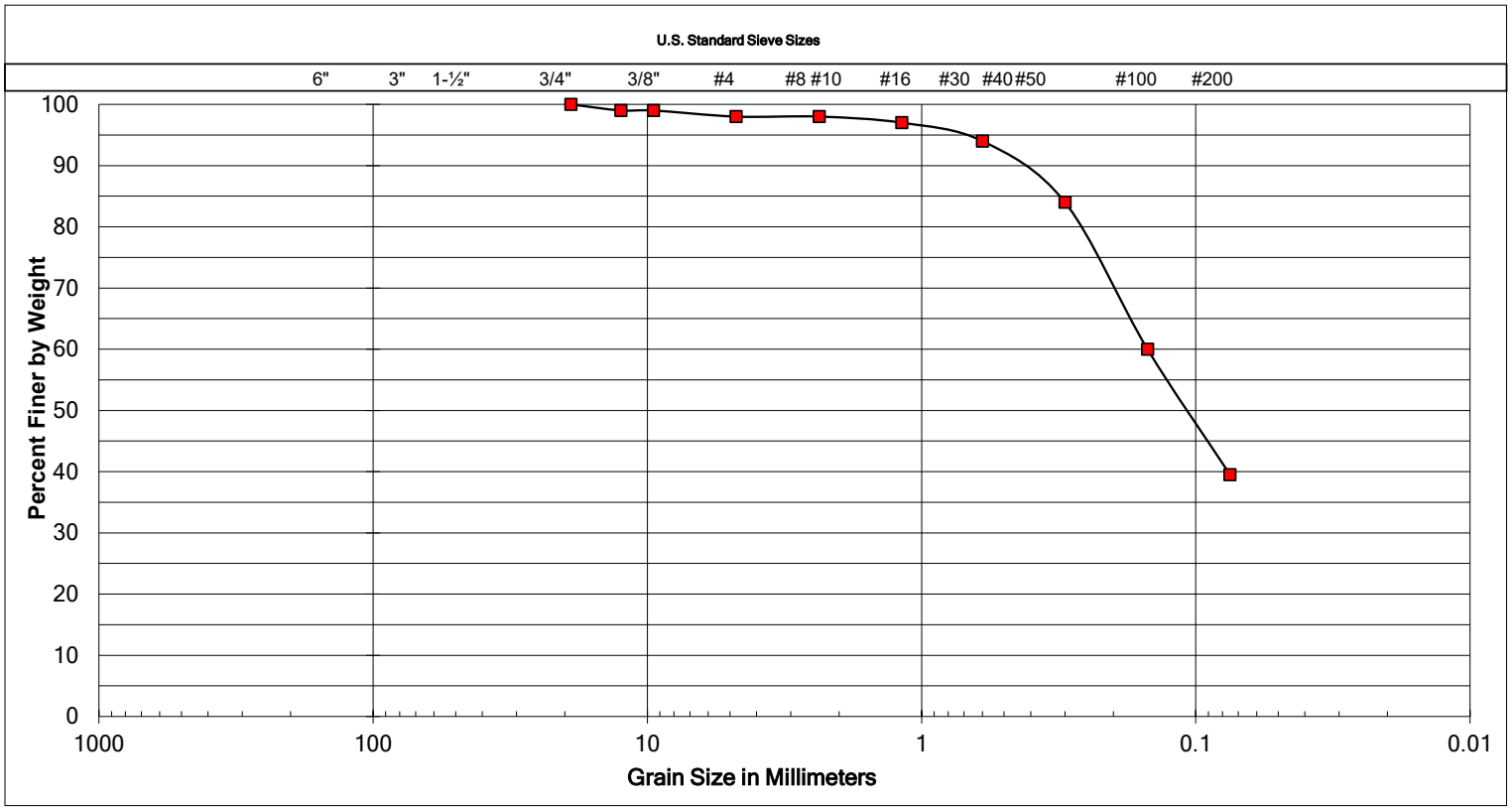
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-13



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B6 at 46 to 46 ½ feet
SAMPLE NUMBER
44421

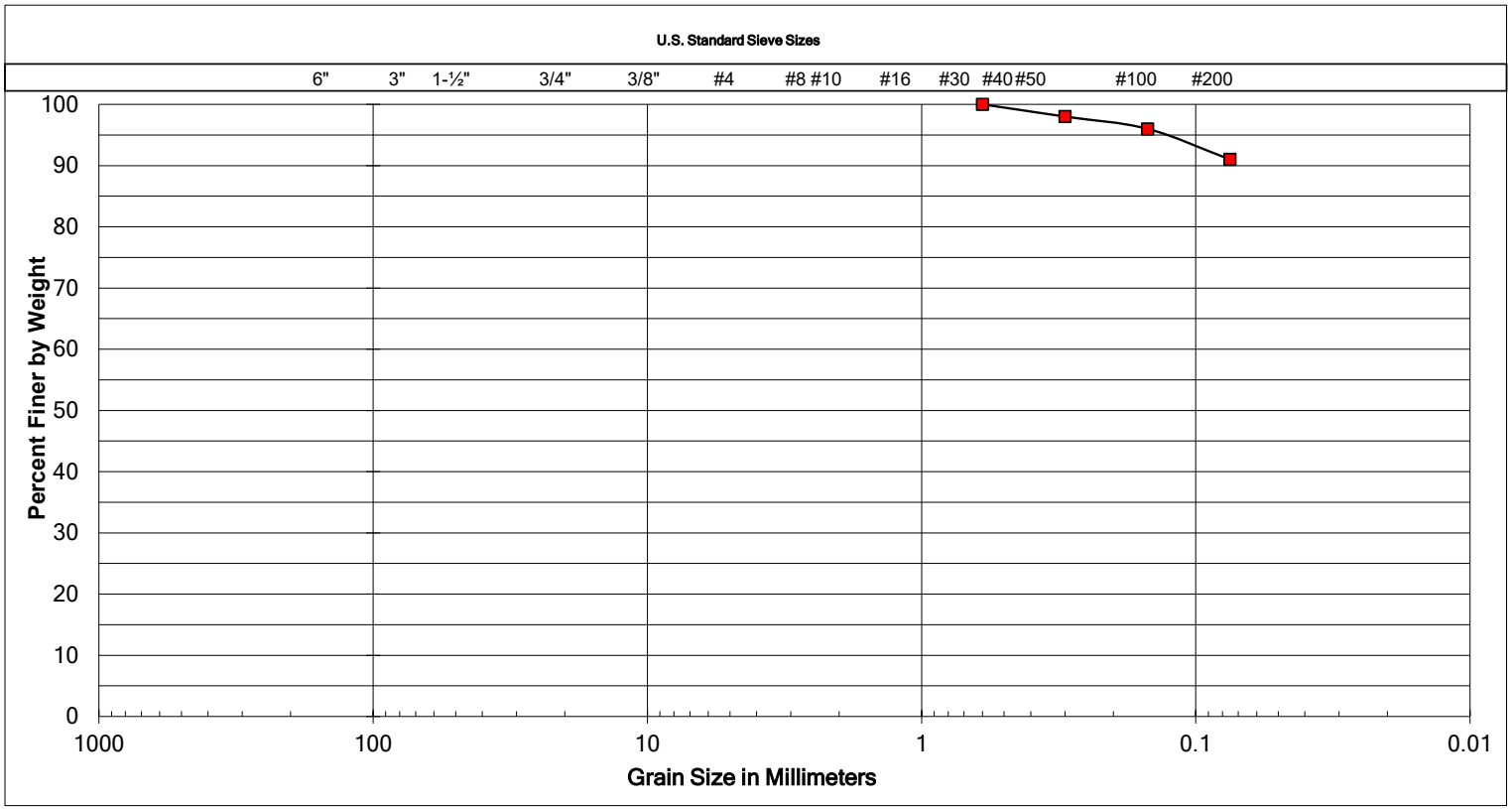
UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	CLAYEY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-14



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B6 at 49 to 50 feet
SAMPLE NUMBER
44422

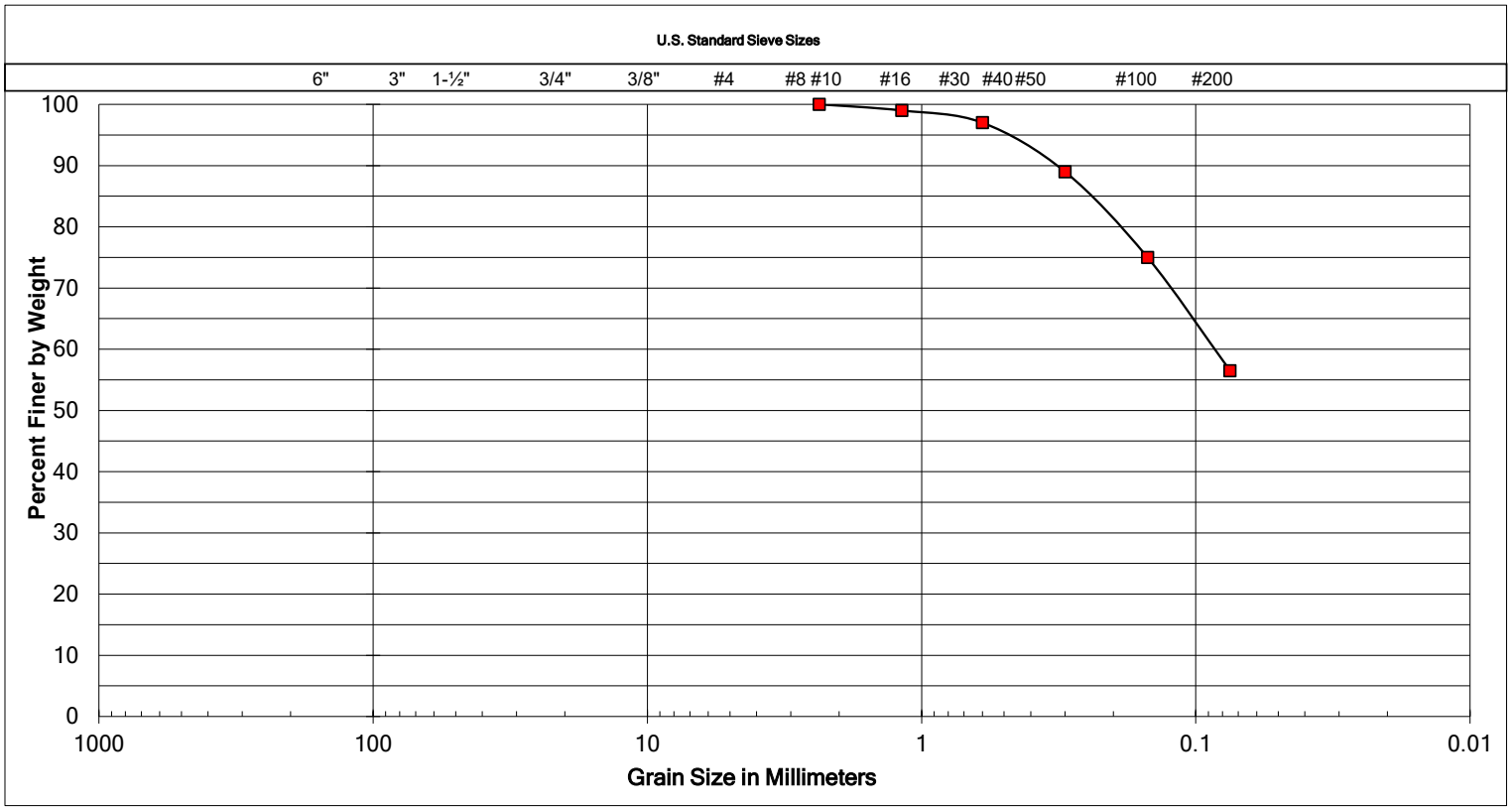
UNIFIED SOIL CLASSIFICATION:	ML
DESCRIPTION	SILT

ATTERBERG LIMITS	
LIQUID LIMIT	44
PLASTIC LIMIT	30
PLASTICITY INDEX	14

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-15



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B7 at 5 ½ to 7 ½ feet SA
SAMPLE NUMBER
44424

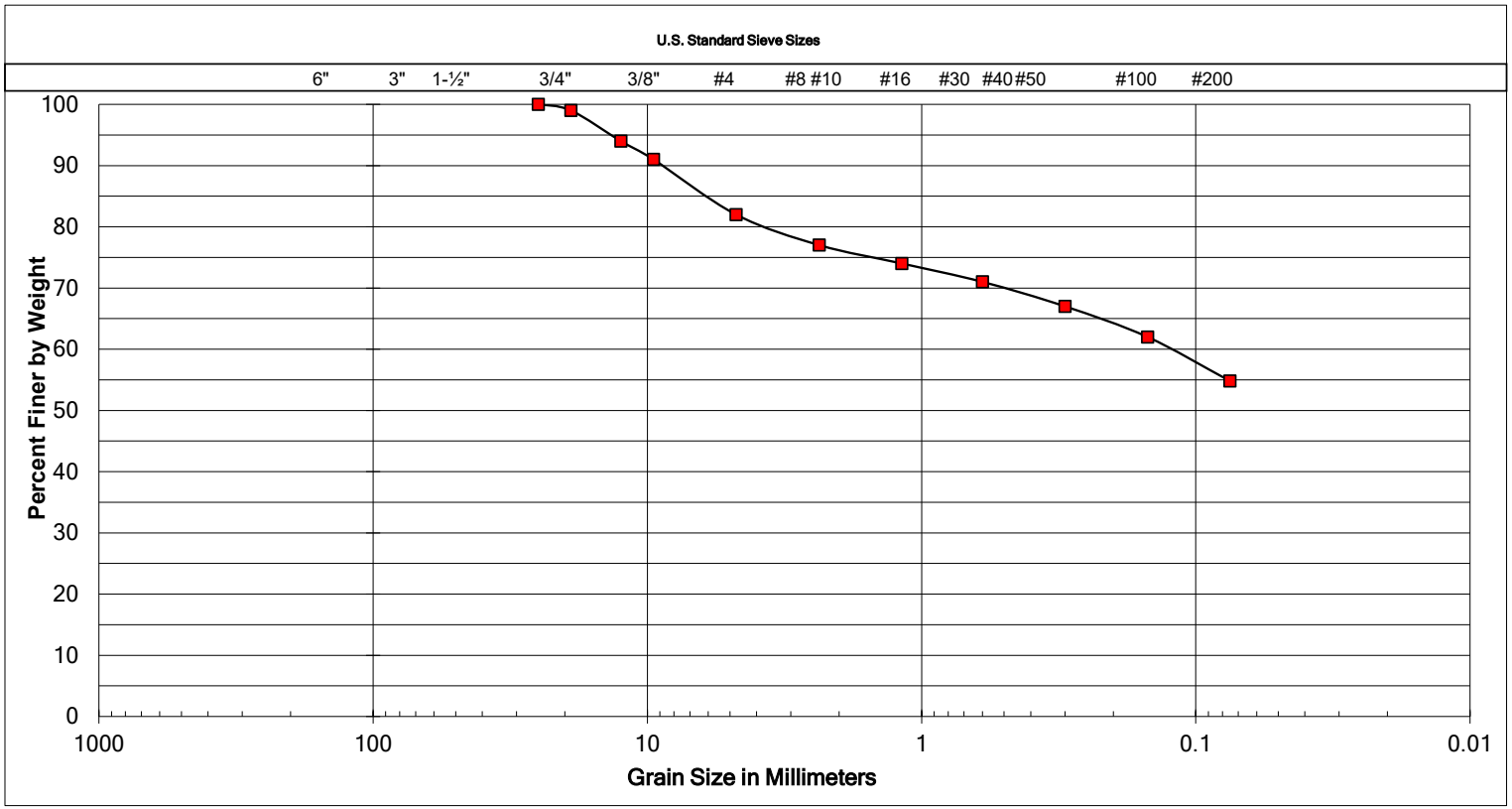
UNIFIED SOIL CLASSIFICATION:	ML
DESCRIPTION	SANDY SILT

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-16



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B8 at 2 ½ to 3 ½ feet
SAMPLE NUMBER
44425

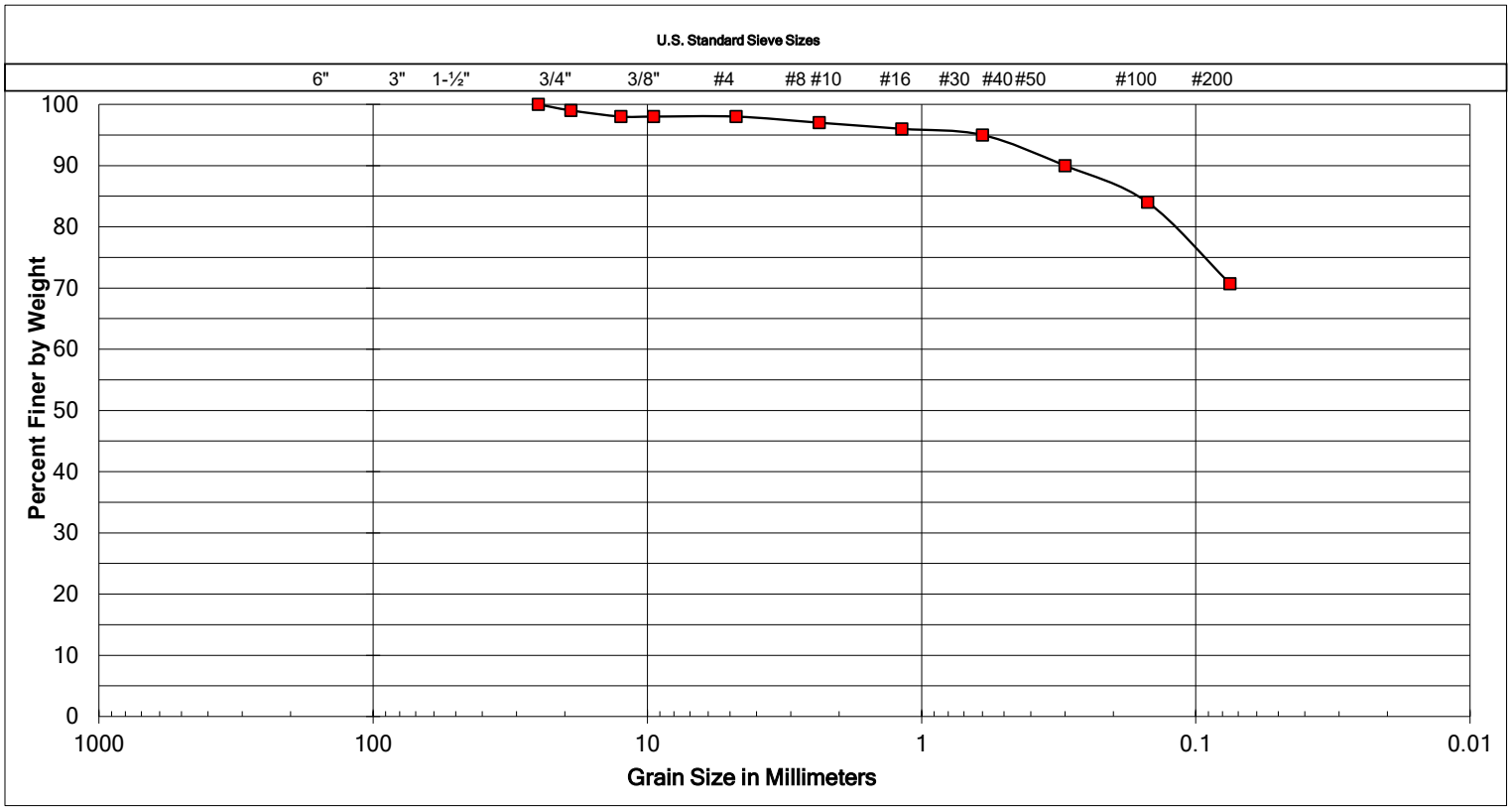
UNIFIED SOIL CLASSIFICATION:	ML
DESCRIPTION	SANDY SILT with GRAVEL

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-17



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
P1 at 4½ to 5 feet
SAMPLE NUMBER
44426

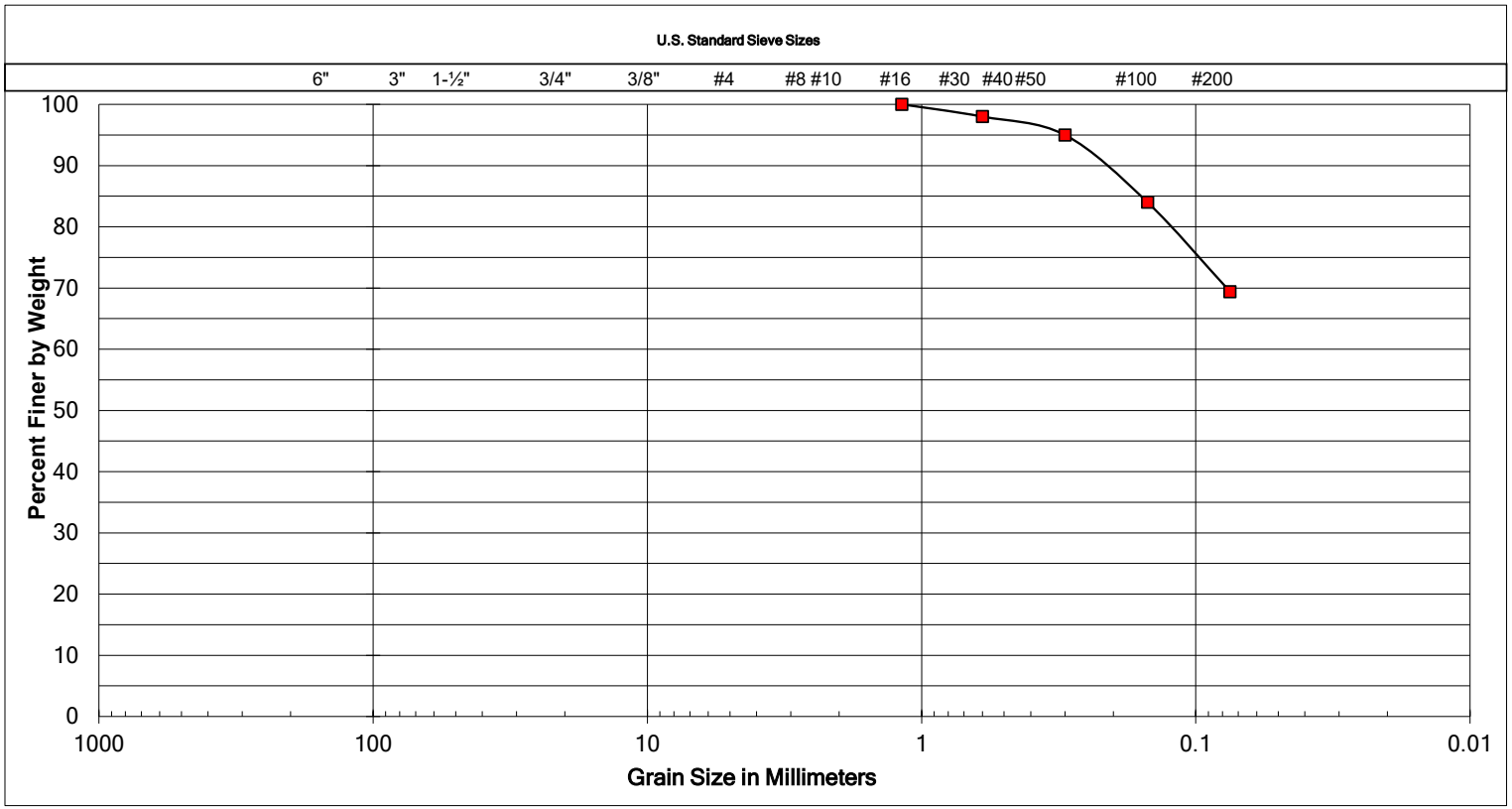
UNIFIED SOIL CLASSIFICATION:	ML
DESCRIPTION	SILT with SAND

ATTERBERG LIMITS	
LIQUID LIMIT	-
PLASTIC LIMIT	-
PLASTICITY INDEX	-

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-18



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
P2 at 4 to 5 feet
SAMPLE NUMBER
44427

UNIFIED SOIL CLASSIFICATION:	CL-ML
DESCRIPTION	SANDY SILTY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	25
PLASTIC LIMIT	20
PLASTICITY INDEX	5

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	NR	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-19

EXPANSION INDEX, RESISTIVITY, pH, SOLUBLE CHLORIDE SOLUBLE SULFATE, and R-VALUE

Expansion Index (ASTM, D4829)
pH & Resistivity (Cal 643, ASTM G51)
Soluble Chlorides (Cal 422)
Soluble Sulfate (Cal 417)
R-Value (Cal 301)

SAMPLE	EXPANSION INDEX	EXPANSION POTENTIAL	RESISTIVITY (Ω-cm)	pH	CHLORIDE (%)	SULFATE (%)	R-Value
B-1 at 0 to 5 Feet	N/A	N/A	N/A	N/A	N/A	N/A	33
B-2 at ½ to 2 ½ Feet	51	Medium (51-90)	1720	8.13	0.006	0.000	N/A
B-3 at 3 ½ to 5 Feet	10	Very Low (0-10)	1710	8.00	0.003	0.007	N/A
B-4 at 4 to 5 Feet	24	Low (21-50)	1830	8.33	0.008	0.005	N/A
B-7 at 2 to 5 ½ Feet	28	Low (21-50)	2110	8.22	0.003	0.007	19

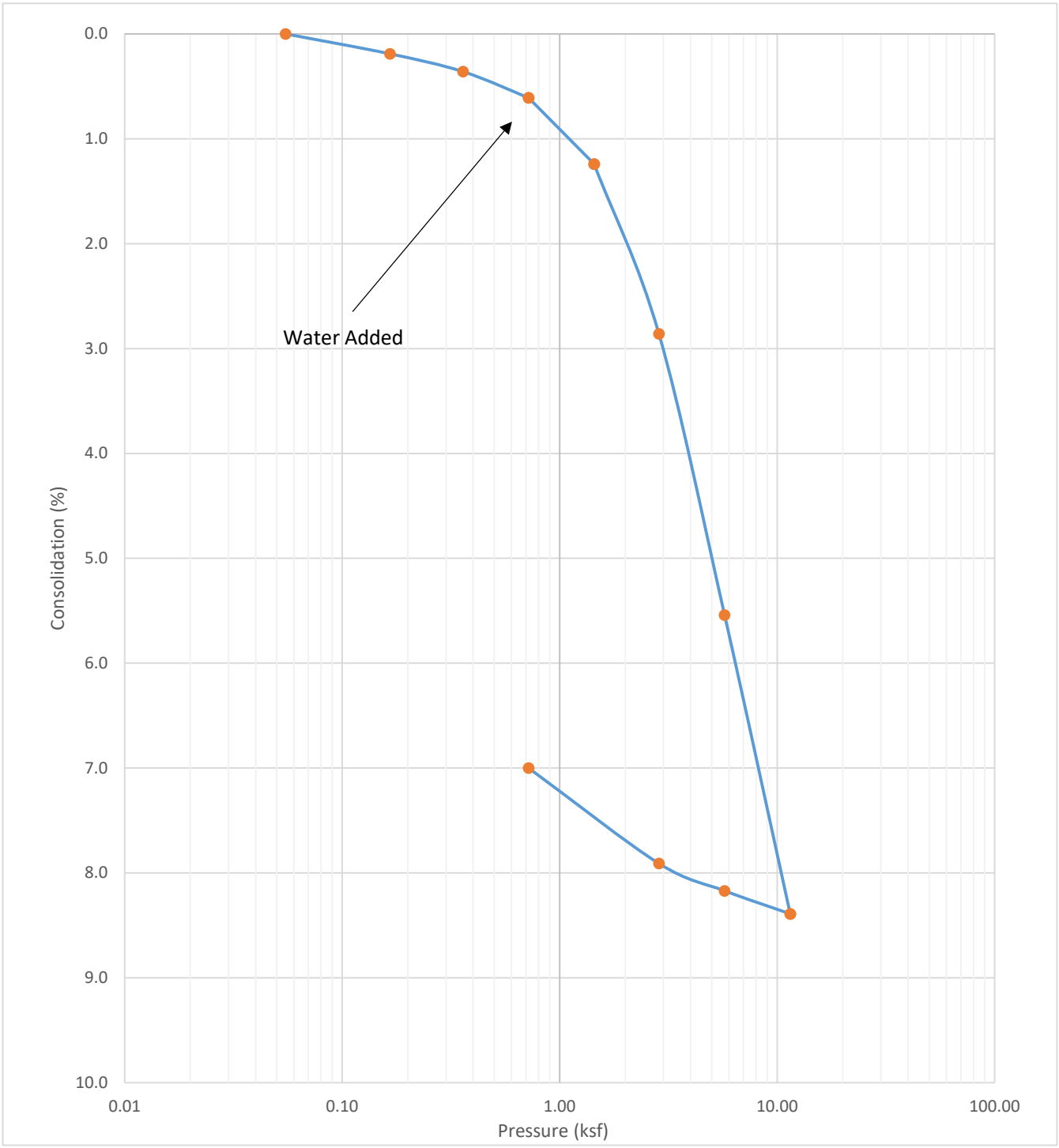
WATER-SOLUBLE SULFATE (SO_4^{2-}) EXPOSURE

Modified from ACI 318-14 Table 19.3.1.1 and Table 19.3.2.1

Water-soluble sulfate (SO_4^{2-}) in soil, percent by weight	Exposure Severity	Exposure Class	Cement Type (ASTM C150)	Max. w/cm	Min. f_c' (psi)
$SO_4^{2-} < 0.10$	Not applicable	S0	No type restriction	N/A	2,500
$0.10 \le SO_4^{2-} < 0.20$	Moderate	S1	II	0.50	4,000
$0.20 \le SO_4^{2-} < 2.00$	Severe	S2	V	0.45	4,500
$SO_4^{2-} > 2.00$	Very Severe	S3	V plus pozzolan or slag cement	0.45	4,500

Consolidation Test Results

ASTM D2435



Sample ID: B1 at 6 to 6 ½ Feet

Sample Description: GRAY SANDY CLAY

γ_d	94.9 pcf
Pre-consolidation w_c	17.4 %
Post-consolidation w_c	24.8 %

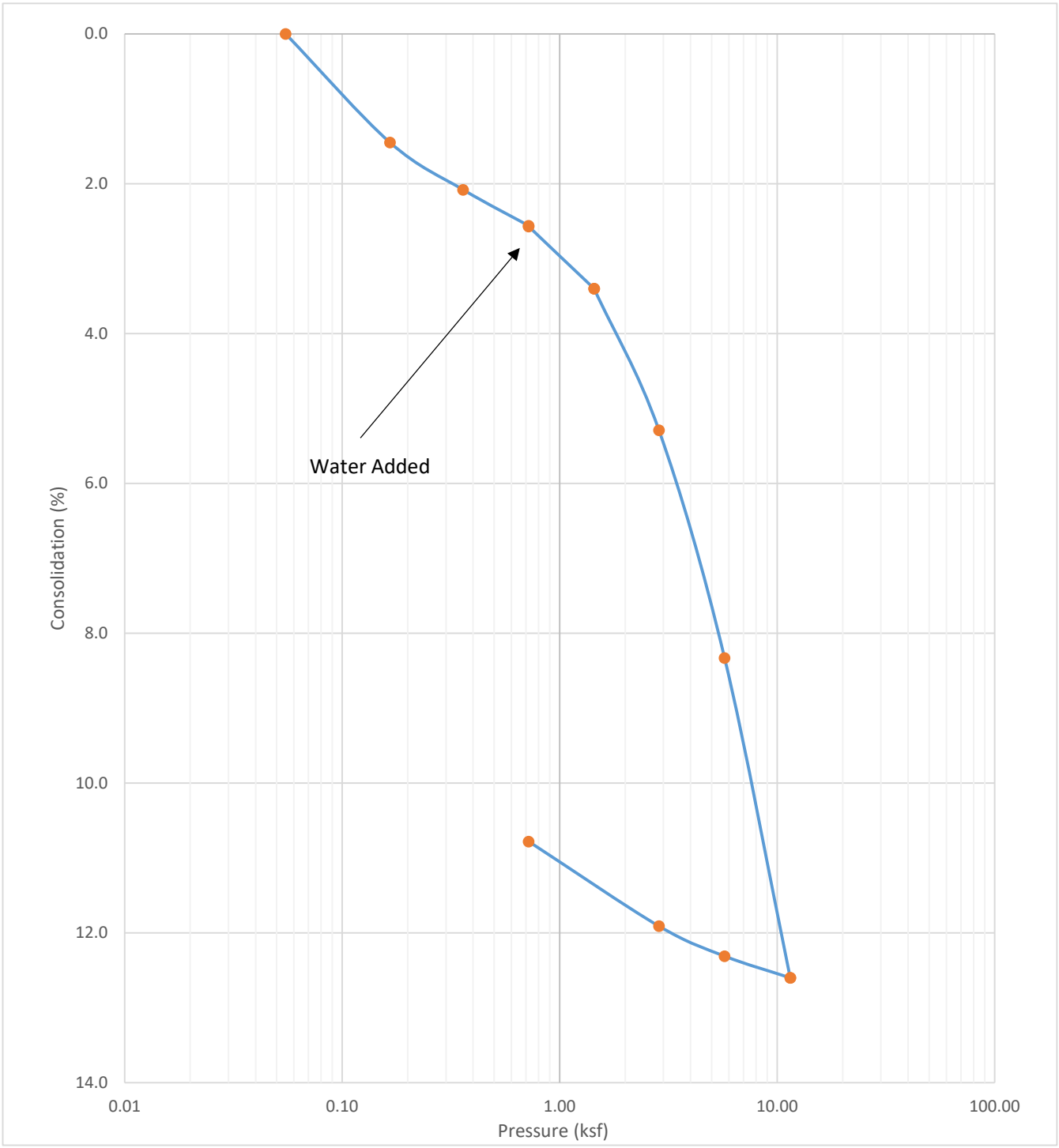
SCST, LLC

Prado Helitack Base - New Facility
Chino, California

By:	DRB	Date:	August, 2019
Job No:	190068P4-1	Figure:	II-21

Consolidation Test Results

ASTM D2435



Sample ID: B3 at 31 to 31½ Feet

Sample Description: LIGHT BROWN SILTY CLAY

γ_d	80.3 pcf
Pre-consolidation w_c	40.3 %
Post-consolidation w_c	33.5 %

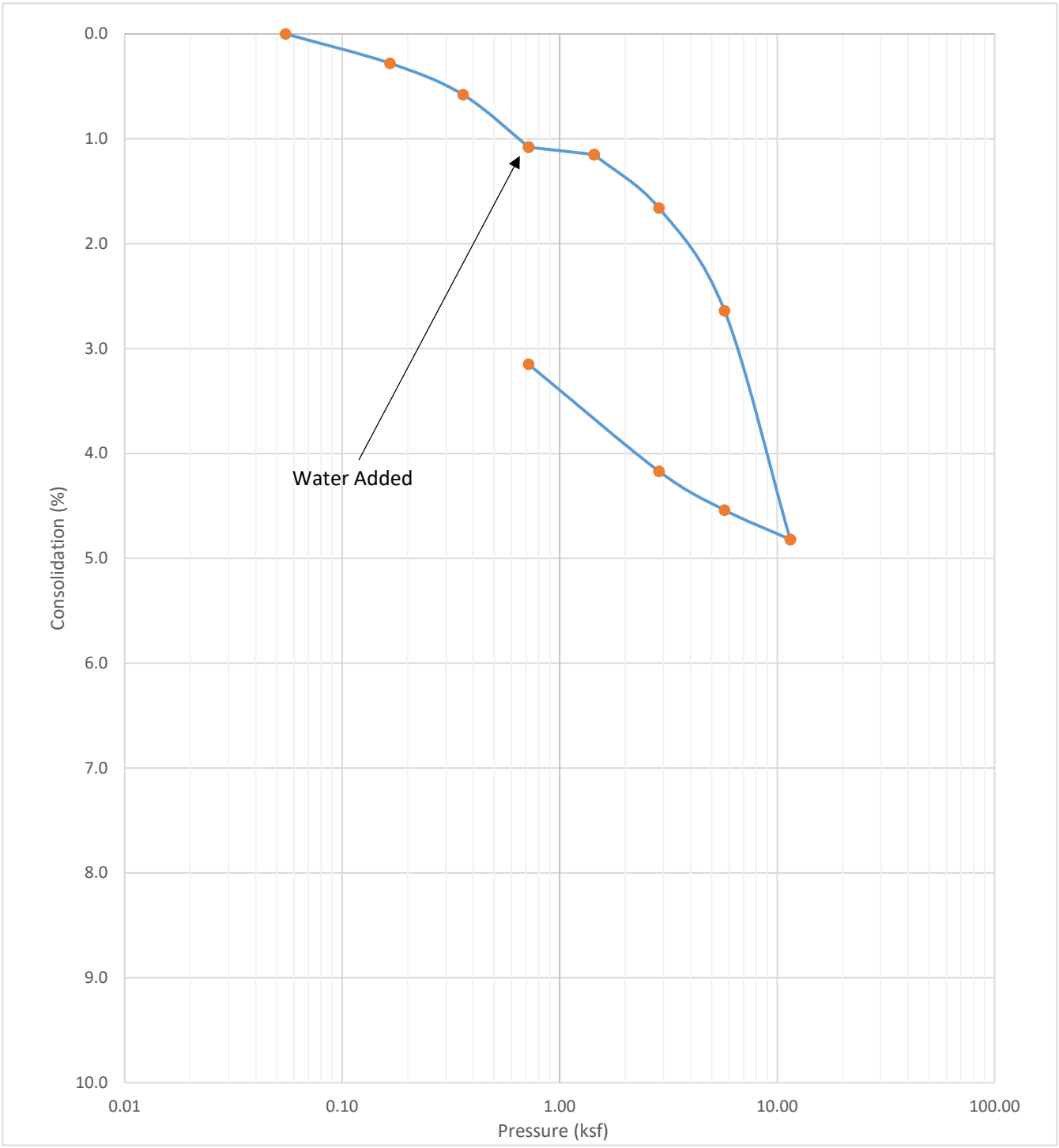
SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	DRB	Date:	August, 2019
Job No:	190068P4-1	Figure:	II-22

Consolidation Test Results

ASTM D2435



Sample ID: B3 at 41 to 41 ½

Sample Description: BROWN SANDY CLAY

γ_d	109.7 pcf
Pre-consolidation w_c	19.2 %
Post-consolidation w_c	19.5 %

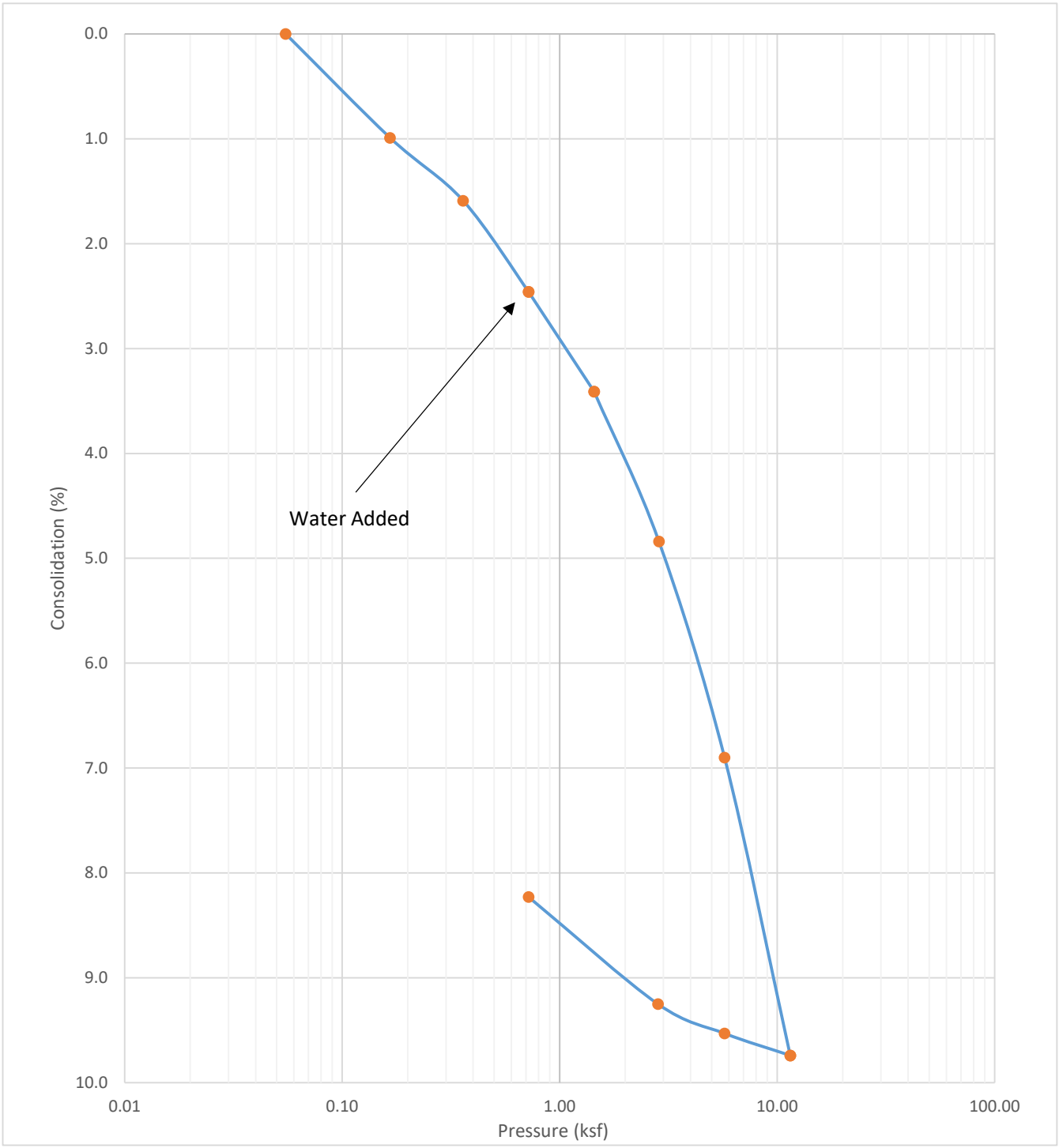
SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	DRB	Date:	August, 2019
Job No:	190068P4-1	Figure:	II-23

Consolidation Test Results

ASTM D2435



Sample ID: B5 at 16 to 16 ½ Feet

Sample Description: GRAY SANDY CLAY

γ_d	101.1 pcf
Pre-consolidation w_c	24.5 %
Post-consolidation w_c	21.0 %

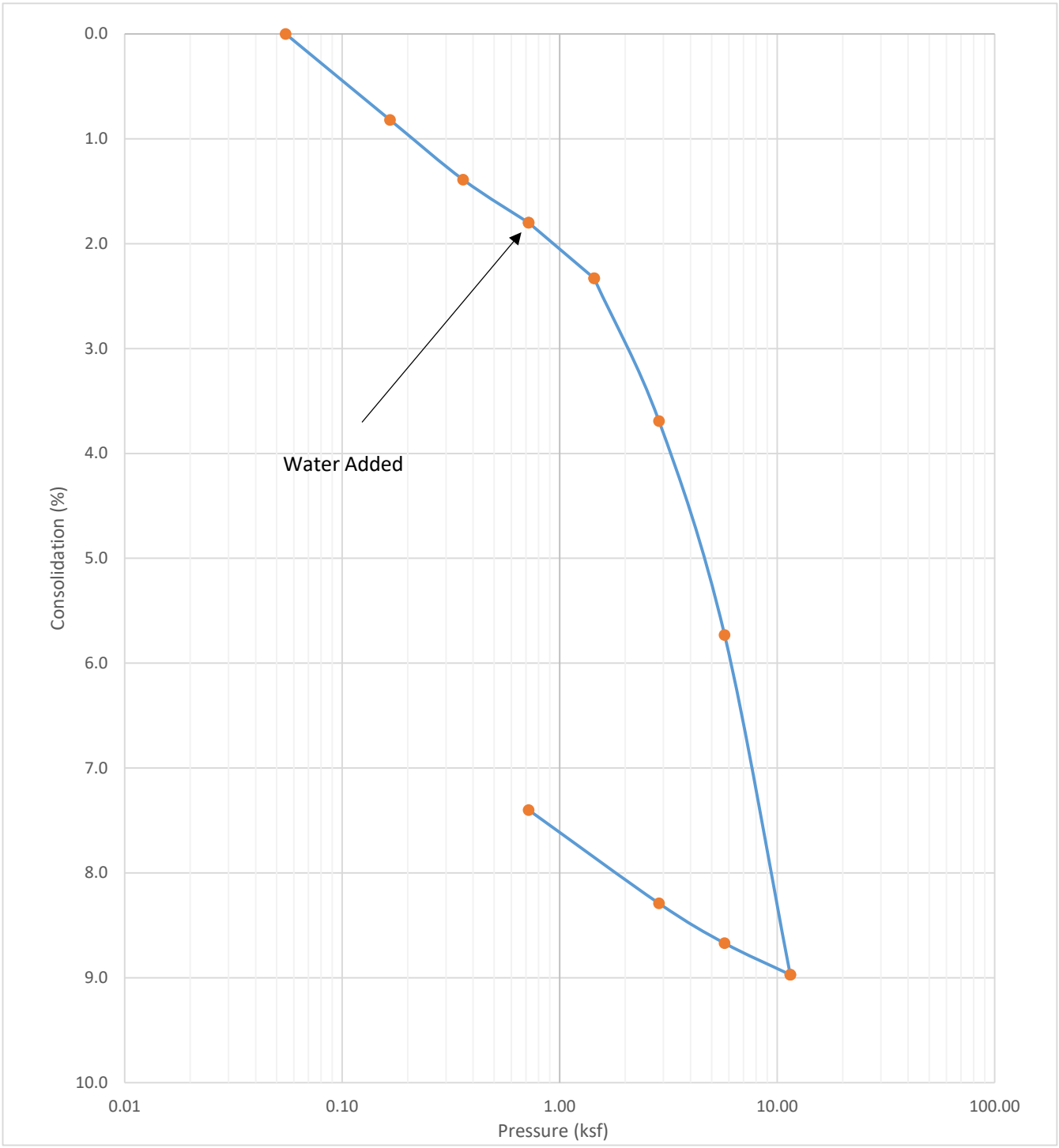
SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	DRB	Date:	August, 2019
Job No:	190068P4-1	Figure:	II-24

Consolidation Test Results

ASTM D2435



Sample ID: B6 at 26 to 26 ½ Feet

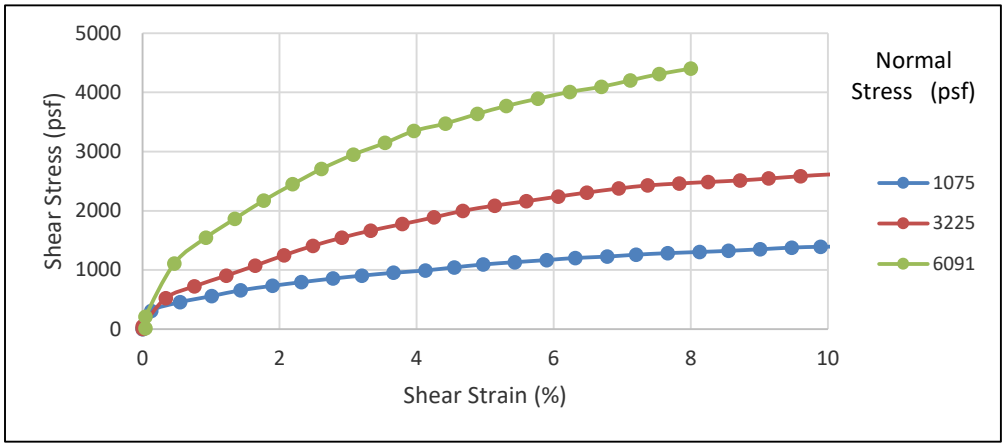
Sample Description: LEAN CLAY with SAND

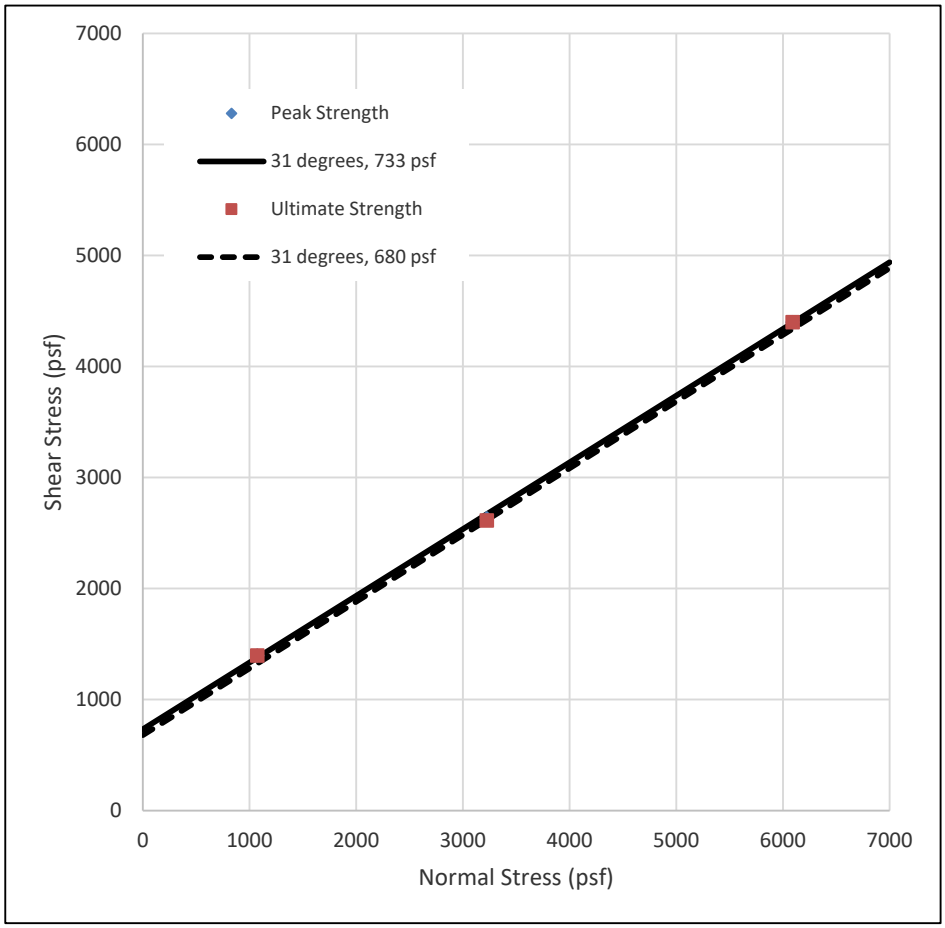
γ_d	86.3 pcf
Pre-consolidation w_c	35.2 %
Post-consolidation w_c	31.3 %

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	DRB	Date:	August, 2019
Job No:	190068P4-1	Figure:	II-25





SAMPLE ID: B2@16-16.5 Feet

BROWN CLAY

NOTES: Insitu

Strain Rate: 0.003 in/min

Sample was consolidated and drained

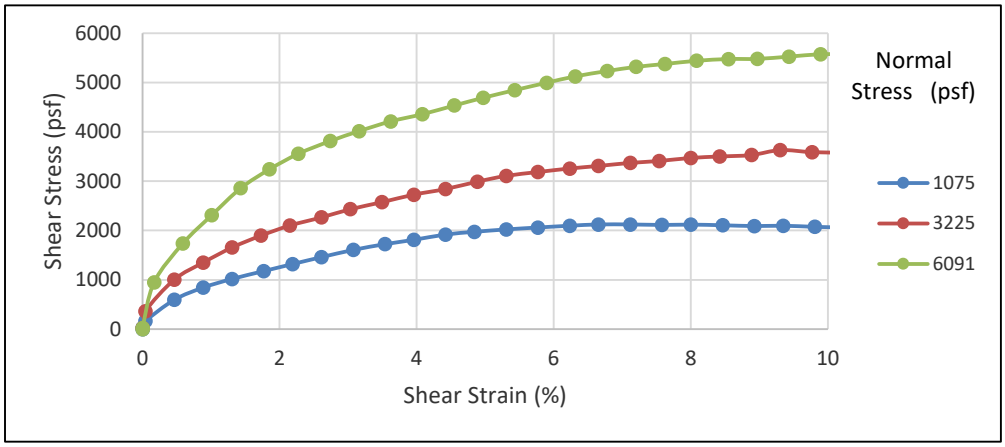
	Peak	Ultimate
Φ	31 °	31 °
c	733 psf	680 psf

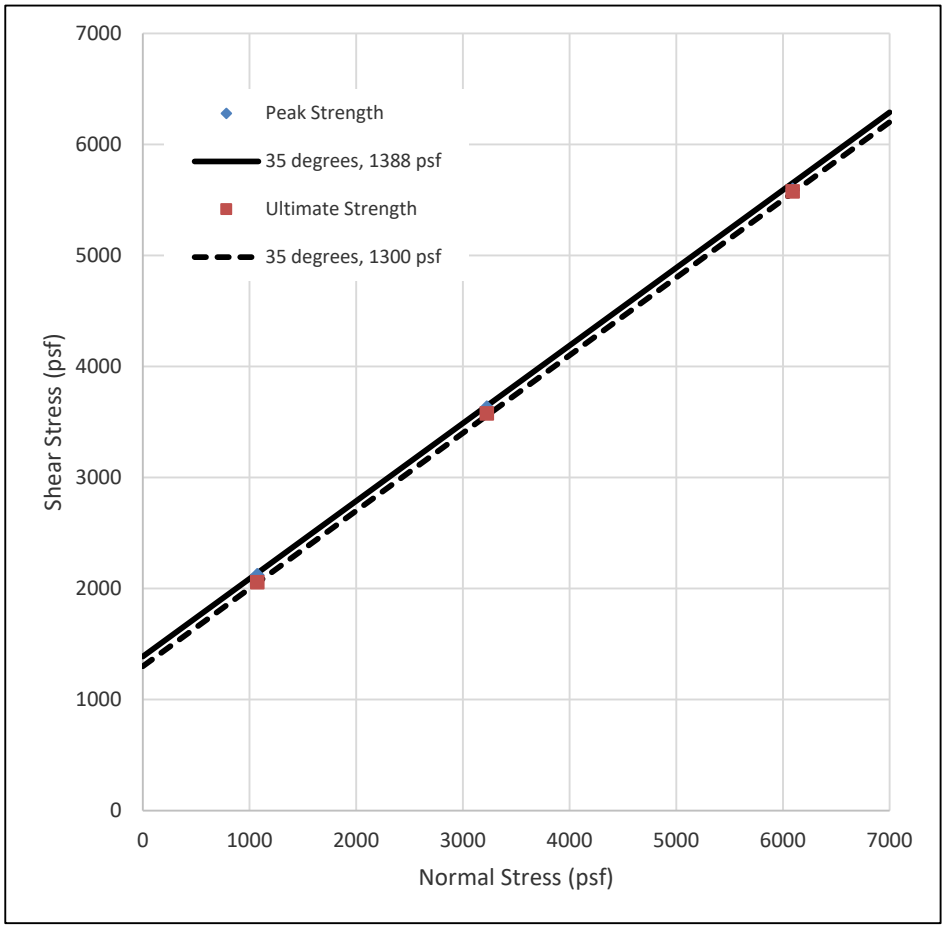
	Initial	Final
γ_d	101.9 pcf	103.7 pcf
w_c	24.0 %	24.4 %
Saturation	100 %	100 %

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	DRB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-26





SAMPLE ID: B4@11-11.5 Feet

LIGHT BROWN POORLY GRADED SAND with SILT

NOTES: Insitu

Strain Rate: 0.003 in/min

Sample was consolidated and drained

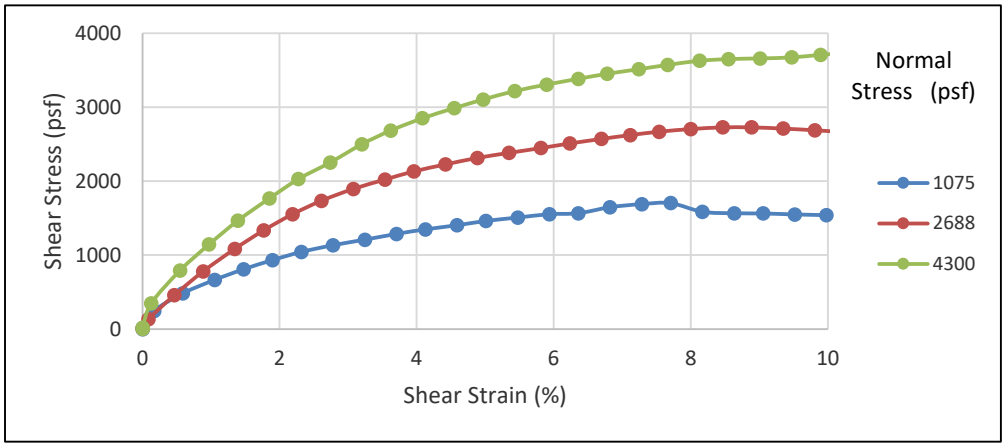
	Peak	Ultimate
Φ	35 °	35 °
c	1388 psf	1300 psf

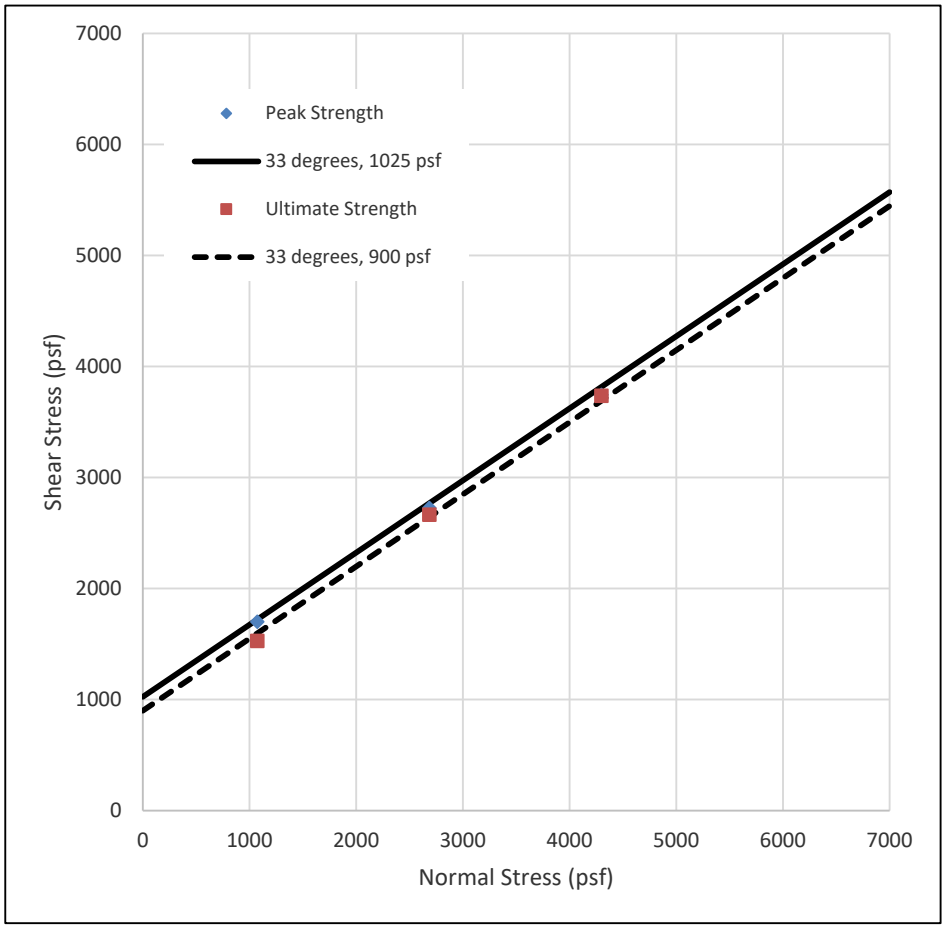
	Initial	Final
γ_d	104.0 pcf	104.9 pcf
w_c	6.1 %	19.8 %
Saturation	27 %	87 %

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	DRB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-27





SAMPLE ID: B5@6-6.5 Feet

BROWN SILTY SAND

NOTES: Insitu

Strain Rate: 0.003 in/min

Sample was consolidated and drained

	Peak	Ultimate
Φ	33 °	33 °
c	1025 psf	900 psf

	Initial	Final
γ_d	100.7 pcf	101.6 pcf
w_c	12.9 %	22.8 %
Saturation	52 %	92 %

SCST, LLC

Prado Helitack Base - New Facility
Chino, CA

By:	DRB	Date:	August, 2019
Job Number:	190068P4-1	Figure:	II-28

APPENDIX III
INFILTRATION TESTING

Report of Borehole Percolation Testing

Storm Water Infiltration

Project Name:	Prado Helitack Base: New Facility	Test Number:	**P-1**
Job Number:	190068P4	Tested By:	DJM
Date Drilled:	7/17/2019	Date Tested:	7/18/2019
Drilling Method:	Hand Auger	Presoak Time:	24 HR
Drilled Depth (feet):	5.2		
Test Hole Diameter (inches):	5		
Gravel Pack:	Y		
Pipe Diameter (inches):	3		

Trial No.	Time	Time Interval, ΔT (min)	Initial Water Height, H_o (ft)	Final Water Height, H_f (ft)	Change in Water Height, ΔH (in)	Percolation Rate (min/in)
1	1:37 1:47	0:10	0.90	0.75	1.80	6
2	1:47 1:57	0:10	0.75	0.65	1.20	8
3	1:57 2:07	0:10	0.80	0.70	1.20	8
4	2:07 2:17	0:10	0.80	0.70	1.20	8
5	2:19 2:29	0:10	0.80	0.70	1.20	8
6	2:30 2:40	0:10	0.80	0.70	1.20	8

Observed Percolation Rate:	8 7.2	min/in in/hr
Gravel Correction Factor:	1.62	
Corrected Percolation Rate:	14 4.4	min/in in/hr
***Tested Infiltation Rate, I_t:**	**0.9**	**in/hr**

*Tested infiltration rate using the Porchet Method:

$$I_t = \frac{\Delta H(60r)}{\Delta T(r + 2H_{avg})}$$

ΔH = Change in water head height over the time interval [in] = 1.2

r = Test hole radius [in] = 3

ΔT = Time interval [min] = 10

H_{avg} = Average water height over time interval = $12(H_o + H_f)/2$ [in] = 9.0

Report of Borehole Percolation Testing

Storm Water Infiltration

Project Name:	Prado Helitack Base: Replace Facility	Test Number:	**P-2**
Job Number:	190068P4	Tested By:	DJM
Date Drilled:	7/17/2019	Date Tested:	7/18/2019
Drilling Method:	Hand Auger	Presoak Time:	24 HR
Drilled Depth (feet):	5.2		
Test Hole Diameter (inches):	5		
Gravel Pack:	Y		
Pipe Diameter (inches):	3		

Trial No.	Time	Time Interval, ΔT (min)	Initial Water Height, H_o (ft)	Final Water Height, H_f (ft)	Change in Water Height, ΔH (in)	Percolation Rate (min/in)
1	1:33 1:43	0:10	1.35	0.90	5.40	2
2	1:43 1:53	0:10	0.90	0.75	1.80	6
3	1:53 2:03	0:10	0.75	0.35	4.80	2
4	2:03 2:13	0:10	0.75	0.55	2.40	4
5	2:13 2:23	0:10	0.75	0.50	3.00	3
6	2:25 2:35	0:10	0.90	0.60	3.60	3

Observed Percolation Rate:	3 21.6	min/in in/hr
Gravel Correction Factor:	1.62	
Corrected Percolation Rate:	5 13.3	min/in in/hr
***Tested Infiltation Rate, I_t:**	**2.6**	**in/hr**

*Tested infiltration rate using the Porchet Method:

$$I_t = \frac{\Delta H(60r)}{\Delta T(r + 2H_{avg})}$$

ΔH = Change in water head height over the time interval [in] = 3.6

r = Test hole radius [in] = 3

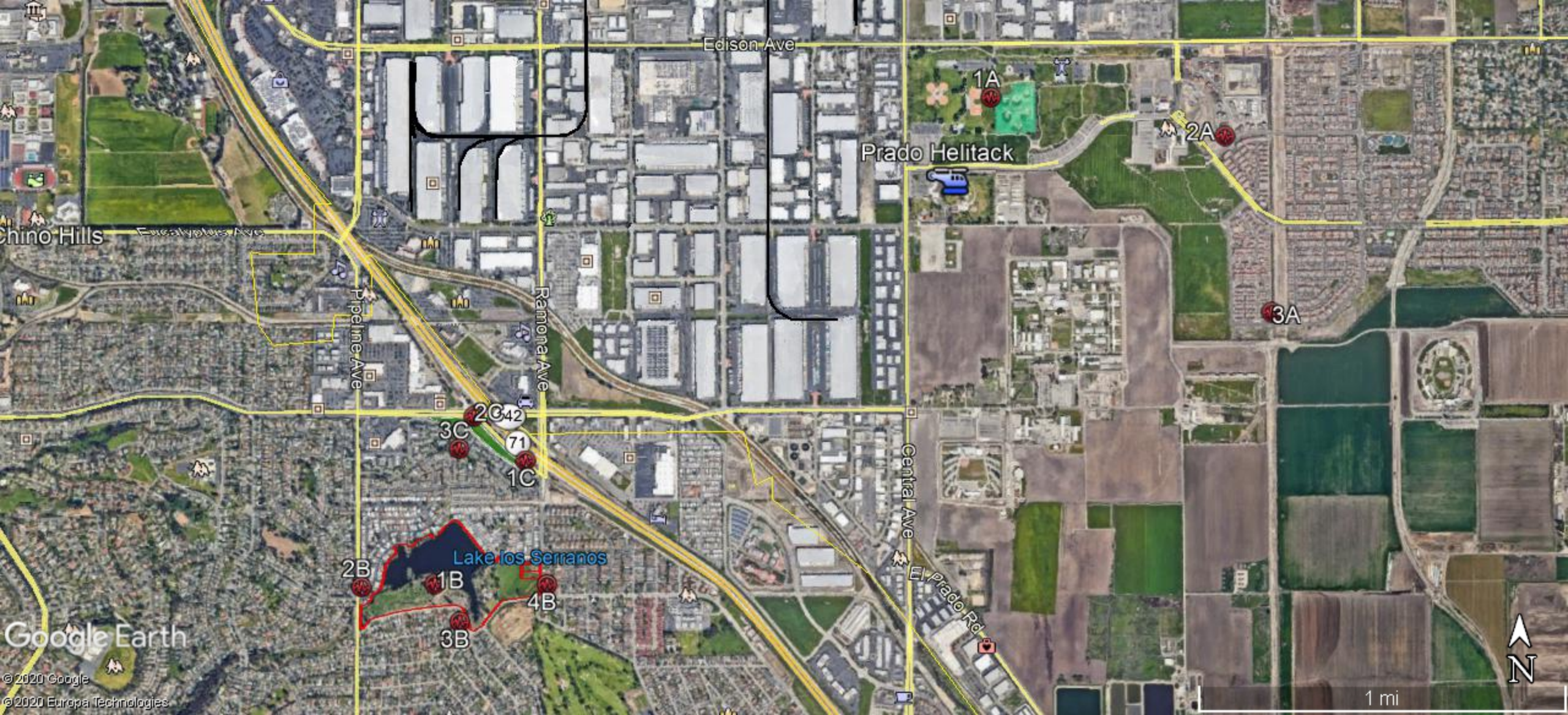
ΔT = Time interval [min] = 10

H_{avg} = Average water height over time interval = $12(H_o + H_f)/2$ [in] = 9.0

SCST, LLC	Prado Helitack Base - New Facility Chino, California			
	By:	DJM	Date:	August, 2019
	Job No:	190068P4-1	Figure:	III-2

APPENDIX H

Noise Analysis, ECORP Consulting, Inc. June 2020


Edison Ave
Prado Helitack
1A
2A
3A
Chino Hills
Eucalyptus Ave
Pipeline Ave
Ramona Ave
Central Ave
El Prado Rd
2C
42
3C
71
1C
Lake los Serranos
2B
1B
4B
3B
Google Earth
© 2020 Google
© 2020 Europa Technologies
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1 mi

Site Number: 1A			
Recorded By: Lindsay Liegler			
Job Number: 2018-116.008			
Date: 2/12/2020			
Time: 9:51 a.m.			
Location: At Ruben S. Ayala Park adjacent to the fenced golf area.			
Source of Peak Noise: Yard maintenance activity.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
46.9	44.4	51.4	88.3

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = 0.02		**Sensor Height (ft):** 4 ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	1-2	53	30.13

Photo of Measurement Location



Summary

File Name on Meter	LxT_Data.184
File Name on PC	SLM_0005120_LxT_Data_184.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Lindsay Liegler
Location	
Job Description	
Note	

Measurement

Description		
Start	2020-02-08	01:59:06
Stop	2020-02-08	02:09:02
Duration		00:09:56.2
Run Time		00:09:56.2
Pause		00:00:00.0
Pre Calibration	2020-02-08	01:53:56
Post Calibration		None
Calibration Deviation		---

Overall Settings

RMS Weight		A Weighting	
Peak Weight		Z Weighting	
Detector		Slow	
Preamp		PRMLxT1L	
Microphone Correction		Off	
Integration Method		Linear	
OBA Range		Low	
OBA Bandwidth		1/1 and 1/3	
OBA Freq. Weighting		A Weighting	
OBA Max Spectrum		Bin Max	
Overload		121.8 dB	
		A	**C**	**Z**
Under Range Peak		78.1	75.1	**80.1** dB
Under Range Limit		**26.1**	25.8	31.0 dB
Noise Floor		16.4	16.7	21.8 dB

Results

LAeq		46.9				
LAE		74.7				
EA		3.274 µPa²h				
LZpeak (max)	2020-02-08	01:59:06	88.3 dB			
LASmax	2020-02-08	02:03:11	51.4 dB			
LASmin	2020-02-08	02:06:24	44.4 dB			
SEA		-99.94 dB				
LAS > 85.0 dB (Exceedance Counts / Duration)		0	0.0 s			
LAS > 115.0 dB (Exceedance Counts / Duration)		0	0.0 s			
LZpeak > 135.0 dB (Exceedance Counts / Duration)		0	0.0 s			
LZpeak > 137.0 dB (Exceedance Counts / Duration)		0	0.0 s			
LZpeak > 140.0 dB (Exceedance Counts / Duration)		0	0.0 s			

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	56.9	-99.94	46.9	56.9	-99.94	-99.94

LCeq	66.9	dB
LAeq	46.9	dB
LCeq - LAeq	19.9	dB
LAIeq	48.2	dB
LAeq	46.9	dB
LAIeq - LAeq	1.2	dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	46.9		66.9			
LS(max)	51.4	2020/02/08 2:03:11				
LS(min)	44.4	2020/02/08 2:06:24				
LPeak(max)					88.3	2020/02/08 1:59:06

# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	0	
OBA Overload Duration	0.0	s

Statistics

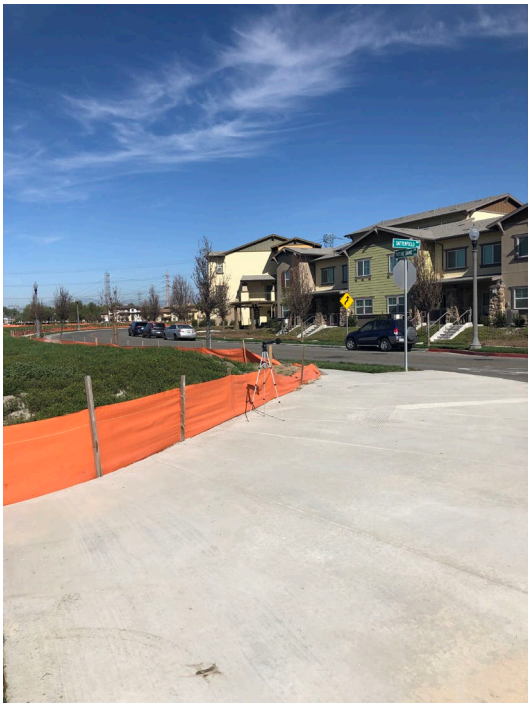
LAI5.00	49.3	dB
LAI10.00	48.6	dB
LAI33.30	47.0	dB
LAI50.00	46.4	dB
LAI66.60	46.0	dB
LAI90.00	45.2	dB

Site Number: 2A			
Recorded By: Lindsay Liegler			
Job Number: 2018-116.008			
Date: 2/12/2020			
Time: 10:16 a.m.			
Location: Residential neighborhood east of the Project site at the intersection of Satterfield Way and Notre Dame.			
Source of Peak Noise: Vehicles on adjacent roadways and dogs barking.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
53.3	40.9	68.2	86.5

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = 0.02		**Sensor Height (ft):** 4 ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	1-2	53	30.13

Photo of Measurement Location



Summary

File Name on Meter	LxT_Data.185
File Name on PC	SLM_0005120_LxT_Data_185.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Lindsay Liegler
Location	
Job Description	
Note	

Measurement

Description		
Start	2020-02-08 02:27:46	
Stop	2020-02-08 02:34:31	
Duration	00:06:45.1	
Run Time	00:06:45.1	
Pause	00:00:00.0	
Pre Calibration	2020-02-08 01:53:56	
Post Calibration	None	
Calibration Deviation	---	

Overall Settings

RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamp	PRMLxT1L		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Low		
OBA Bandwidth	1/1 and 1/3		
OBA Freq. Weighting	A Weighting		
OBA Max Spectrum	Bin Max		
Overload	121.8 dB		
	A	**C**	**Z**
Under Range Peak	78.1	75.1	**80.1** dB
Under Range Limit	**26.1**	25.8	31.0 dB
Noise Floor	16.4	16.7	21.8 dB

Results

LAeq	53.3					
LAE	79.3					
EA	9.537 µPa²h					
LZpeak (max)	2020-02-08 02:30:59	86.5 dB				
LASmax	2020-02-08 02:27:56	68.2 dB				
LASmin	2020-02-08 02:28:27	40.9 dB				
SEA	-99.94 dB					
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s				
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s				
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s				
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s				
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s				

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	63.3	-99.94	53.3	63.3	-99.94	-99.94

LCeq	66.0 dB	
LAeq	53.3 dB	
LCeq - LAeq	12.8 dB	
LAIeq	55.9 dB	
LAeq	53.3 dB	
LAIeq - LAeq	2.6 dB	

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	53.3		66.0			
LS(max)	68.2	2020/02/08 2:27:56				
LS(min)	40.9	2020/02/08 2:28:27				
LPeak(max)					86.5	2020/02/08 2:30:59

# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	0
OBA Overload Duration	0.0 s

Statistics

LAI5.00	58.1 dB
LAI10.00	55.1 dB
LAI33.30	49.7 dB
LAI50.00	47.5 dB
LAI66.60	46.3 dB
LAI90.00	42.2 dB

Site Number: 3A			
Recorded By: Lindsay Liegler			
Job Number: 2018-116.008			
Date: 2/12/2020			
Time: 10:52 a.m.			
Location: Residential neighborhood east of the Project site at the intersection of Magnolia Avenue and La Grange.			
Source of Peak Noise: Yard maintenance activity and vehicles on adjacent roadways.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
59.7	36.3	78.5	99.3

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = 0.02		**Sensor Height (ft):** 4 ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	1-2	53	30.13

Photo of Measurement Location



Summary

File Name on Meter	LxT_Data.185
File Name on PC	SLM_0005120_LxT_Data_185.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Lindsay Liegler
Location	
Job Description	
Note	

Measurement

Description		
Start	2020-02-08 02:27:46	
Stop	2020-02-08 02:34:31	
Duration	00:06:45.1	
Run Time	00:06:45.1	
Pause	00:00:00.0	
Pre Calibration	2020-02-08 01:53:56	
Post Calibration	None	
Calibration Deviation	---	

Overall Settings

RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamp	PRMLxT1L		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Low		
OBA Bandwidth	1/1 and 1/3		
OBA Freq. Weighting	A Weighting		
OBA Max Spectrum	Bin Max		
Overload	121.8 dB		
	A	**C**	**Z**
Under Range Peak	78.1	75.1	**80.1** dB
Under Range Limit	**26.1**	25.8	31.0 dB
Noise Floor	16.4	16.7	21.8 dB

Results

LAeq	53.3					
LAE	79.3					
EA	9.537 µPa²h					
LZpeak (max)	2020-02-08 02:30:59	86.5 dB				
LASmax	2020-02-08 02:27:56	68.2 dB				
LASmin	2020-02-08 02:28:27	40.9 dB				
SEA	-99.94 dB					
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s				
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s				
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s				
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s				
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s				

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	63.3	-99.94	53.3	63.3	-99.94	-99.94

LCeq	66.0 dB	
LAeq	53.3 dB	
LCeq - LAeq	12.8 dB	
LAIeq	55.9 dB	
LAeq	53.3 dB	
LAIeq - LAeq	2.6 dB	

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	53.3		66.0			
LS(max)	68.2	2020/02/08 2:27:56				
LS(min)	40.9	2020/02/08 2:28:27				
LPeak(max)					86.5	2020/02/08 2:30:59

# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	0
OBA Overload Duration	0.0 s

Statistics

LAI5.00	58.1 dB
LAI10.00	55.1 dB
LAI33.30	49.7 dB
LAI50.00	47.5 dB
LAI66.60	46.3 dB
LAI90.00	42.2 dB

Site Number: 1B			
Recorded By: Lindsay Liegler			
Job Number: 2019-194			
Date: 2/12/2020			
Time: 1:16 p.m.			
Location: South of fence along Los Serranos Boulevard adjacent to Project site			
Source of Peak Noise: Vehicles on adjacent roadways			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
56.3	39.6	72.0	95.7

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**315201**	**9/23/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**099947**	**10/10/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**10/18/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clean
	Note: dBA Offset = 0.018		**Sensor Height (ft): 4** ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	6	66	30.05

Photo of Measurement Location



Summary

File Name on Meter	LxT_Data.190
File Name on PC	SLM_0005120_LxT_Data_190.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Lindsay Liegler
Location	
Job Description	
Note	

Measurement

Description	
Start	2020-02-08 05:25:22
Stop	2020-02-08 05:35:26
Duration	00:10:04.3
Run Time	00:10:04.3
Pause	00:00:00.0
Pre Calibration	2020-02-08 05:20:19
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	122.0 dB

	A	**C**	**Z**
Under Range Peak	78.3	75.3	**80.3** dB
Under Range Limit	**26.3**	26.0	31.2 dB
Noise Floor	16.6	16.9	22.1 dB

Results

L_{Aeq}	**56.3**		
LAE	84.1		
EA	28.661 µPa²h		
$LZ_{peak\ (max)}$	2020-02-08 05:25:25	95.7	dB
LAS_{max}	2020-02-08 05:34:57	72.0	dB
LAS_{min}	2020-02-08 05:35:16	39.6	dB

SEA	-99.94	dB

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**	
	66.3	-99.94	56.3	66.3	-99.94	-99.94	56.3	dB

LCeq	63.0	dB
LAeq	56.3	dB
LCeq - LAeq	6.6	dB
LAIeq	59.2	dB
LAeq	56.3	dB
LAIeq - LAeq	2.9	dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	56.3		63.0			
LS(max)	72.0	2020/02/08 5:34:57				
LS(min)	39.6	2020/02/08 5:35:16				
LPeak(max)					95.7	2020/02/08 5:25:25

Site Number: 2B			
Recorded By: Lindsay Liegler			
Job Number: 2019-194			
Date: 2/12/2020			
Time: 1:38 p.m.			
Location: Pipeline/Glen Ridge Drive Intersection			
Source of Peak Noise: Vehicles on adjacent roadways			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
72.9	56.0	92.8	113.8

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**315201**	**9/23/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**099947**	**10/10/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**10/18/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** clear
	Note: dBA Offset = 0.018		**Sensor Height (ft): 4** ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	6	66	30.05

Photo of Measurement Location



Summary

File Name on Meter	LxT_Data.191
File Name on PC	SLM_0005120_LxT_Data_191.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Lindsay Liegler
Location	
Job Description	
Note	

Measurement

Description	
Start	2020-02-08 05:45:49
Stop	2020-02-08 05:56:43
Duration	00:10:48.8
Run Time	00:10:48.8
Pause	00:00:00.0
Pre Calibration	2020-02-08 05:20:19
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	122.0 dB

	A	**C**	**Z**
Under Range Peak	78.3	75.3	**80.3** dB
Under Range Limit	**26.3**	26.0	31.2 dB
Noise Floor	16.6	16.9	22.1 dB

Results

L_{Aeq}		**72.9**	
LAE		101.0	
EA		1.393 mPa²h	
$LZ_{peak\ (max)}$	2020-02-08 05:50:57	113.8	dB
LAS_{max}	2020-02-08 05:50:58	92.8	dB
LAS_{min}	2020-02-08 05:46:22	56.0	dB

Site Number: 3B			
Recorded By: Lindsay Liegler			
Job Number: 2019-194			
Date: 2/12/2020			
Time: 1:54 p.m.			
Location: El Molino/Los Serrano Boulevard Intersection			
Source of Peak Noise: Vehicles on adjacent roadways			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
62.8	44.2	83.9	108.1

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**315201**	**9/23/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**099947**	**10/10/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**10/18/2019**	

Weather Data			
Est.	**Duration:** 10 minutes	**Sky:** clear	
	Note: dBA Offset = 0.018	**Sensor Height (ft): 4** ft	
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	6	66	30.05

Photo of Measurement Location



Summary

File Name on Meter	LxT_Data.192
File Name on PC	SLM_0005120_LxT_Data_192.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Lindsay Liegler
Location	
Job Description	
Note	

Measurement

Description		
Start	2020-02-08	06:03:04
Stop	2020-02-08	06:13:00
Duration		00:09:55.5
Run Time		00:09:55.5
Pause		00:00:00.0
Pre Calibration	2020-02-08	05:20:19
Post Calibration		None
Calibration Deviation		---

Overall Settings

RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Slow			
Preamp	PRMLxT1L			
Microphone Correction	Off			
Integration Method	Linear			
OBA Range	Low			
OBA Bandwidth	1/1 and 1/3			
OBA Freq. Weighting	A Weighting			
OBA Max Spectrum	Bin Max			
Overload	122.0 dB			
	A	**C**	**Z**	
Under Range Peak	78.3	75.3	**80.3**	dB
Under Range Limit	**26.3**	26.0	31.2	dB
Noise Floor	16.6	16.9	22.1	dB

Results

LA_{eq}	**62.8**			
LAE	90.6			
EA	126.528	µPa²h		
$LZ_{peak\ (max)}$	2020-02-08	06:07:40	108.1	dB
LAS_{max}	2020-02-08	06:07:40	83.9	dB
LAS_{min}	2020-02-08	06:04:06	44.2	dB

SEA	-99.94	dB

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**	
	72.8	-99.94	62.8	72.8	-99.94	-99.94	62.8	dB

LCeq	75.9	dB
LAeq	62.8	dB
LCeq - LAeq	13.0	dB
LAIeq	66.0	dB
LAeq	62.8	dB
LAIeq - LAeq	3.2	dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	62.8		75.9			
LS(max)	83.9	2020/02/08 6:07:40				
LS(min)	44.2	2020/02/08 6:04:06				
LPeak(max)					108.1	2020/02/08 6:07:40

Site Number: 4B			
Recorded By: Lindsay Liegler			
Job Number: 2019-194			
Date: 2/12/2020			
Time: 2:07 p.m.			
Location: Valley Vista and Ramona Avenue Intersection			
Source of Peak Noise: Vehicles on adjacent roadways			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
67.9	49.3	90.8	112.5

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**315201**	**9/23/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**099947**	**10/10/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**10/18/2019**	

Weather Data			
Est.	**Duration:** 10 minutes	**Sky:** clear	
	Note: dBA Offset = 0.018	**Sensor Height (ft): 4** ft	
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	6	66	30.05

Photo of Measurement Location



Summary

File Name on Meter	LxT_Data.193
File Name on PC	SLM_0005120_LxT_Data_193.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Lindsay Liegler
Location	
Job Description	
Note	

Measurement

Description		
Start	2020-02-08	06:19:01
Stop	2020-02-08	06:29:09
Duration		00:10:07.3
Run Time		00:10:07.3
Pause		00:00:00.0
Pre Calibration	2020-02-08	05:20:19
Post Calibration		None
Calibration Deviation		---

Overall Settings

RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Slow			
Preamp	PRMLxT1L			
Microphone Correction	Off			
Integration Method	Linear			
OBA Range	Low			
OBA Bandwidth	1/1 and 1/3			
OBA Freq. Weighting	A Weighting			
OBA Max Spectrum	Bin Max			
Overload	122.0 dB			
	A	**C**	**Z**	
Under Range Peak	78.3	75.3	**80.3**	dB
Under Range Limit	**26.3**	26.0	31.2	dB
Noise Floor	16.6	16.9	22.1	dB

Results

LA_{eq}	**67.9**			
LAE	95.7			
EA	417.172	µPa²h		
$LZ_{peak\ (max)}$	2020-02-08	06:20:26	122.5	dB
LAS_{max}	2020-02-08	06:20:26	90.8	dB
LAS_{min}	2020-02-08	06:27:41	49.3	dB

SEA	132.5	dB
LAS > 85.0 dB (Exceedance Counts / Duration)	1	2.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**	
	77.9	-99.94	67.9	77.9	-99.94	-99.94	67.9	dB

LCeq	79.1	dB
LAeq	67.9	dB
LCeq - LAeq	11.2	dB
LAleq	78.5	dB
LAeq	67.9	dB
LAleq - LAeq	10.6	dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	67.9		79.1			
LS(max)	90.8	2020/02/08 6:20:26				
LS(min)	49.3	2020/02/08 6:27:41				
LPeak(max)					122.5	2020/02/08 6:20:26

Site Number: 1C			
Recorded By: Lindsay Liegler			
Job Number: 2020-038			
Date: 2/12/2020			
Time: 11:26 a.m. – 11:36 a.m.			
Location: On the northeastern corner of the Project site adjacent to SR 71.			
Source of Peak Noise: Vehicles on adjacent roadways.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
64.9	54.4	77.6	99.0

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = 0.01		**Sensor Height (ft):** 3.5 feet
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	1-2	61	30.13

Photo of Measurement Location



Summary

File Name on Meter	LxT_Data.187
File Name on PC	SLM_0005120_LxT_Data_187.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Lindsay Liegler
Location	
Job Description	
Note	

Measurement

Description	
Start	2020-02-08 03:36:06
Stop	2020-02-08 03:46:15
Duration	00:10:09.7
Run Time	00:10:09.7
Pause	00:00:00.0
Pre Calibration	2020-02-08 03:35:06
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	121.8 dB

	A	**C**	**Z**
Under Range Peak	78.2	75.2	**80.2** dB
Under Range Limit	**26.2**	25.9	31.0 dB
Noise Floor	16.5	16.8	21.9 dB

Results

LAeq	64.9	
LAE	93.4	
EA	243.435 µPa²h	
LZpeak (max)	2020-02-08 03:36:47	99.0 dB
LASmax	2020-02-08 03:36:47	77.6 dB
LASmin	2020-02-08 03:40:01	54.4 dB
SEA	-99.94 dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	75.6	-99.94	65.6	75.6	-99.94	-99.94

LCeq	73.5 dB
LAeq	65.6 dB
LCeq - LAeq	8.0 dB
LAleq	67.1 dB
LAeq	65.6 dB
LAleq - LAeq	1.5 dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	65.6		73.5			
LS(max)	77.6	2020/02/08 3:36:47				
LS(min)	54.4	2020/02/08 3:40:01				
LPeak(max)					99.0	2020/02/08 3:36:47

# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	15
OBA Overload Duration	41.2 s

Statistics

LAI5.00	70.7 dB
LAI10.00	69.6 dB
LAI33.30	64.8 dB
LAI50.00	61.9 dB
LAI66.60	59.5 dB
LAI90.00	58.0 dB

Site Number: 2C	
Recorded By: Lindsay Liegler	
Job Number: 2020-038	
Date: 2/12/2020	
Time: 11:46 a.m. – 11:56 a.m.	
Location: On the north corner of the Project site adjacent to SR 71.	
Source of Peak Noise: Vehicles on adjacent roadways.	

Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
63.0	55.7	74.2	98.0

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = 0.01		**Sensor Height (ft):** 3.5 feet
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	1-2	61	30.13

Photo of Measurement Location



Summary

File Name on Meter	LxT_Data.188
File Name on PC	SLM_0005120_LxT_Data_188.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Lindsay Liegler
Location	
Job Description	
Note	

Measurement

Description		
Start	2020-02-08 03:54:55	
Stop	2020-02-08 04:05:01	
Duration	00:10:06.1	
Run Time	00:10:06.1	
Pause	00:00:00.0	
Pre Calibration	2020-02-08 03:35:06	
Post Calibration	None	
Calibration Deviation	---	

Overall Settings

RMS Weight	A Weighting	
Peak Weight	Z Weighting	
Detector	Slow	
Preamp	PRMLxT1L	
Microphone Correction	Off	
Integration Method	Linear	
OBA Range	Low	
OBA Bandwidth	1/1 and 1/3	
OBA Freq. Weighting	A Weighting	
OBA Max Spectrum	Bin Max	
Overload	121.8 dB	

	A	**C**	**Z**	
Under Range Peak	78.2	75.2	**80.2**	dB
Under Range Limit	**26.2**	25.9	31.0	dB
Noise Floor	16.5	16.8	21.9	dB

Results

LAeq	63.0			
LAE	90.8			
EA	133.904	µPa²h		
LZpeak (max)	2020-02-08 03:56:26		98.0	dB
LASmax	2020-02-08 03:56:25		74.2	dB
LASmin	2020-02-08 03:55:04		55.7	dB
SEA	-99.94	dB		
LAS > 85.0 dB (Exceedance Counts / Duration)	0		0.0	s
LAS > 115.0 dB (Exceedance Counts / Duration)	0		0.0	s
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0		0.0	s
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0		0.0	s
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0		0.0	s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	73.0	-99.94	63.0	73.0	-99.94	-99.94

LCeq	76.7	dB
LAeq	63.0	dB
LCeq - LAeq	13.8	dB
LAIeq	64.1	dB
LAeq	63.0	dB
LAIeq - LAeq	1.1	dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	63.0		76.7			
LS(max)	74.2	2020/02/08 3:56:25				
LS(min)	55.7	2020/02/08 3:55:04				
LPeak(max)					98.0	2020/02/08 3:56:26

# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	21	
OBA Overload Duration	92.9	s

Statistics

LAI5.00	67.4	dB
LAI10.00	65.4	dB
LAI33.30	62.5	dB
LAI50.00	61.4	dB
LAI66.60	60.6	dB
LAI90.00	59.2	dB

Site Number: 3C			
Recorded By: Lindsay Liegler			
Job Number: 2020-038			
Date: 2/12/2020			
Time: 1:54 p.m. – 2:04 p.m.			
Location: On Timberwood Court adjacent to Village Drive.			
Source of Peak Noise: Vehicles on adjacent roadways.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
50.9	43.6	73.2	97.6

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = 0.01		**Sensor Height (ft):** 3.5 feet
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	1-2	61	30.13

Photo of Measurement Location



Summary

File Name on Meter	LxT_Data.189
File Name on PC	SLM_0005120_LxT_Data_189.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Lindsay Liegler
Location	
Job Description	
Note	

Measurement

Description		
Start	2020-02-08 04:14:23	
Stop	2020-02-08 04:24:38	
Duration	00:10:14.3	
Run Time	00:10:14.3	
Pause	00:00:00.0	
Pre Calibration	2020-02-08 03:35:06	
Post Calibration	None	
Calibration Deviation	---	

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	121.8 dB

	A	**C**	**Z**
Under Range Peak	78.2	75.2	**80.2** dB
Under Range Limit	**26.2**	25.9	31.0 dB
Noise Floor	16.5	16.8	21.9 dB

Results

LAeq	50.9	
LAE	78.8	
EA	8.372 µPa²h	
LZpeak (max)	2020-02-08 04:21:27	97.6 dB
LASmax	2020-02-08 04:21:27	73.2 dB
LASmin	2020-02-08 04:16:48	43.6 dB
SEA	-99.94 dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	60.9	-99.94	50.9	60.9	-99.94	-99.94

LCeq	64.1 dB
LAeq	50.9 dB
LCeq - LAeq	13.2 dB
LAIeq	57.7 dB
LAeq	50.9 dB
LAIeq - LAeq	6.8 dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	50.9		64.1			
LS(max)	73.2	2020/02/08 4:21:27				
LS(min)	43.6	2020/02/08 4:16:48				
LPeak(max)					97.6	2020/02/08 4:21:27

# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	1
OBA Overload Duration	2.2 s

Statistics

LAI5.00	53.2 dB
LAI10.00	51.8 dB
LAI33.30	48.1 dB
LAI50.00	46.9 dB
LAI66.60	46.0 dB
LAI90.00	45.1 dB

SEA	-99.94	dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	3	9.0	s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0	s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**	
	82.9	-99.94	72.9	82.9	-99.94	-99.94	72.9	dB

LCeq	83.7	dB
LAeq	72.9	dB
LCeq - LAeq	10.8	dB
LAIeq	75.4	dB
LAeq	72.9	dB
LAIeq - LAeq	2.5	dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	72.9		83.7			
LS(max)	92.8	2020/02/08 5:50:58				
LS(min)	56.0	2020/02/08 5:46:22				
LPeak(max)					113.8	2020/02/08 5:50:57

APPENDIX I

Transportation Assessment Memorandum. Fehr & Peers. May 2020

FEHR PEERS

DRAFT MEMORANDUM

Date: May 21, 2020

To: Amberly Morgan, ECORP Consulting Inc.

From: Saima Musharrat and Spencer Reed, PE

Subject: CAL FIRE Prado Helitack Base Replacement; Transportation Assessment

OC19-0657

This memorandum documents an assessment of trip generation, site access, and collision analysis conducted by Fehr & Peers for a proposed helitack base and associated facilities (Project) located at 14521 Central Avenue in Chino, California. The purpose of this study is to assess the transportation effects of the Project for CEQA compliance.

PROJECT DESCRIPTION

The Project involves the redevelopment of an existing helitack base that provides fire protection and emergency-response service operated by California Department of Forestry and Fire Protection (CAL FIRE). Currently, the base responds to an average of 55 fire calls per year. Project construction is expected to begin in spring 2021 and be completed within a year to a year and a half.

Location

The Project is located at the southeast corner of the intersection of Central Avenue and Eucalyptus Avenue in Chino, San Bernardino County, as shown in **Figure 1**. The site currently has two helicopter pads, several small storage structures, and a modular building used for office space and barracks. The rest of the site is primarily undeveloped open land with vegetative cover.

Proposed Facilities

The 17-acre site is planned for new construction of a 26-bed barracks, mess hall, and resources management office building. The barracks would house approximately 26 and includes 13 dorm-style rooms with bathrooms, a communal kitchen, laundry rooms, activity rooms, and four offices. The barracks will be used as needed during major fire events.

Other facilities will include a warehouse, training tower, helicopter hangar, garage, electrical building, storage building, and several on- and off-site utility improvements for a total building area of approximately 24,175 square feet (SF). Additional utility improvements will be carried out in an expansion area that is currently part of an adjacent prison property of California Institution of Men. A site plan is shown on Error! Reference source not found.. The building sizes and number of full-time staff for each building are outlined in **Table 1**.

Operational Characteristics

Currently, the base has approximately eight full-time staff and 12 seasonal firefighters. The base receives visitors and deliveries with an estimated ten visitors and five deliveries each day.

Once complete, the site will include 18 full-time staff including pilots, fire captains, fire apparatus engineers, administration, and 12 seasonal firefighters. Similar to the existing site, the proposed site will have an estimated ten visitors and five deliveries each day.

Full-time staff and seasonal firefighters commute to the base each day they are working. During major fire events, staff and firefighters may stay on-site.

All full-time staff, seasonal firefighters, and visitors are assumed to drive alone in a personal vehicle and arrive and depart during the peak hours from the site. Delivery vehicles, including USPS, UPS, FedEx, solid waste pick up, and supply and food deliveries, are expected to access the site during off-peak hours.

Table 1: Proposed Project Site Buildings and Staff

Building	Square Footage (SF)	Staff
Barracks	7,465	26
Warehouse	4,800	-
Garage	2,990	-
Training Tower	406	-
Vehicle Wash Rack	1,093	-
Hangar	7,421	-
Total	**24,175**	**26**

Source: Fehr & Peers, 2020

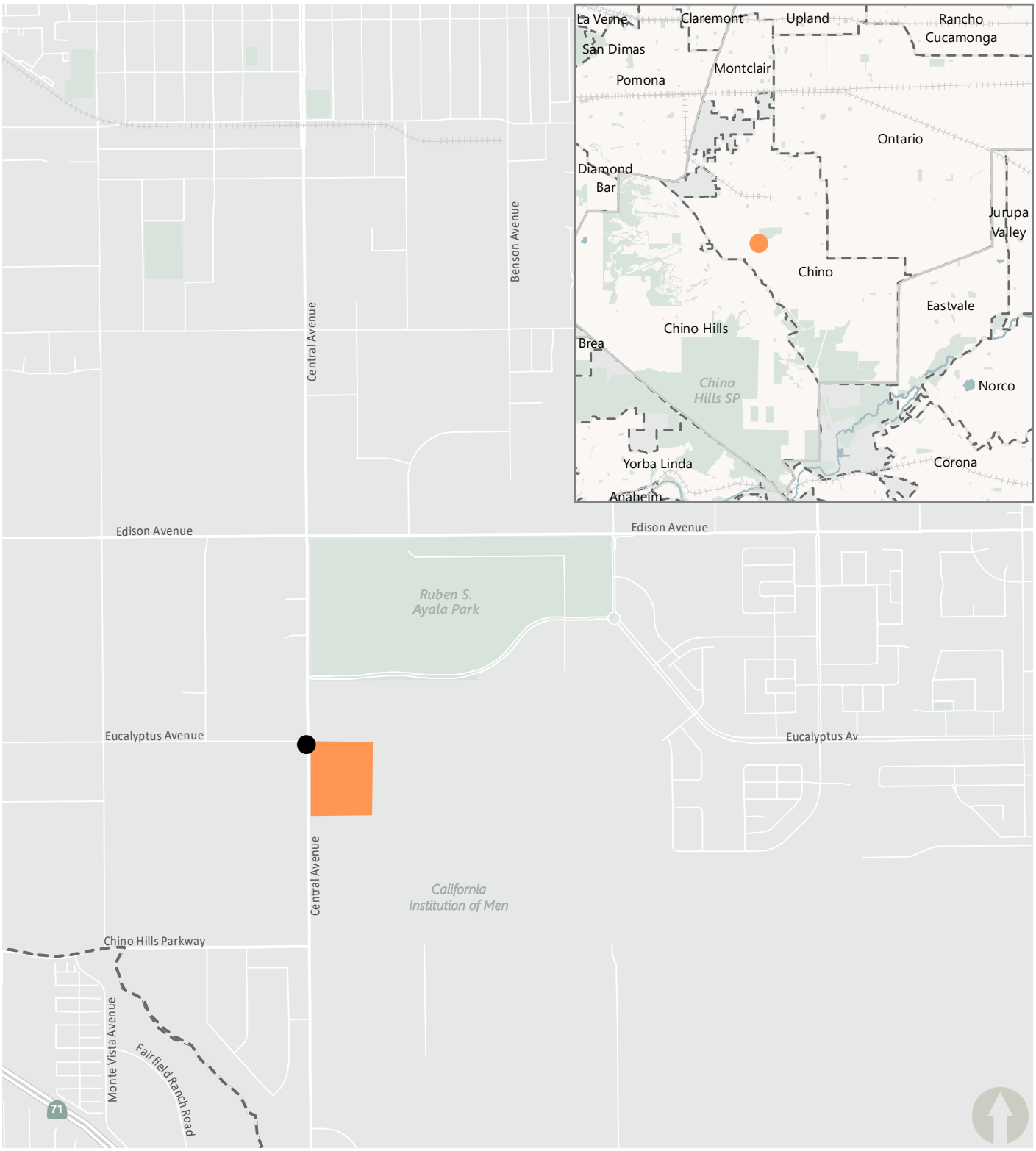
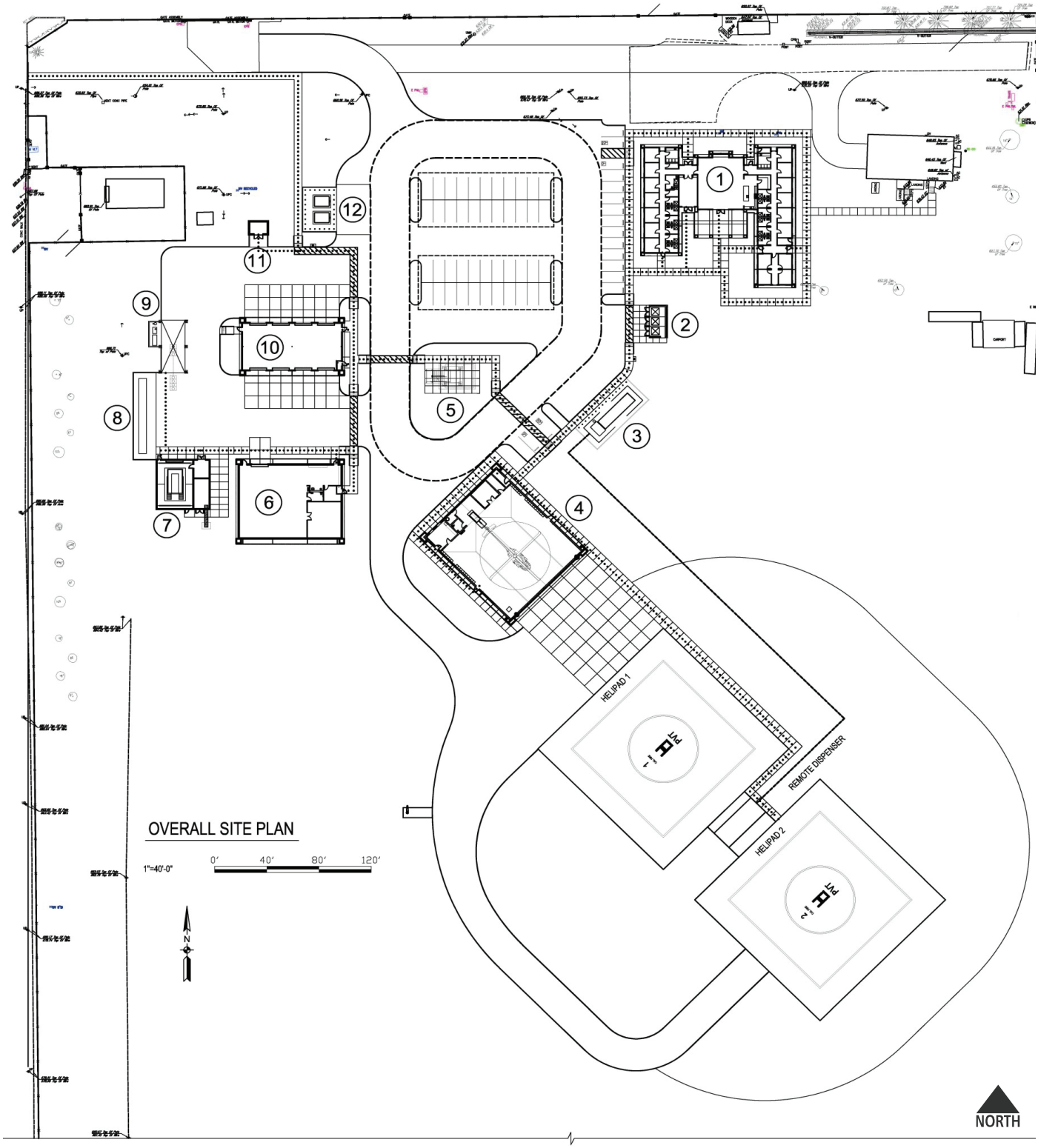


Figure 1

Study Area



①	26 Bed Barracks	④	Hangar	⑦	Generator	⑩	Garage
②	Trash Enclosure	⑤	Training Tower	⑧	Hose Rack	⑪	Storage
③	Jet Fuel Tank	⑥	Warehouse/Shop	⑨	Vehicle Wash Rack Canopy	⑫	Vehicle Fuel Tank

Figure 2

Site Plan

PROJECT TRIP GENERATION ESTIMATES

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Estimates are created for the daily condition and for the peak one-hour period during the morning and evening commute when traffic volumes on the adjacent streets are typically the highest.

Fehr & Peers developed trip generation estimates for both existing and future use. It is acknowledged that some of the small auxiliary uses in Prado Helitack Base, such as the warehouse, vehicle wash rack, and training tower, are not likely to generate any additional trips as they are going to be used by the staff already working on-site. Due to the unique nature of the Project, the trip generation was based on the proposed operational characteristics of the site, including the number of full-time staff and seasonal firefighters, visitors, deliveries hours of operation, and types of activities that occur on-site. Project trip generation estimates are presented in **Table 2**.

The trip generation estimate takes into consideration of applicable trip credits such as existing use credits. Thus, the Project is expected to generate an estimated net new external 20 daily trips, including 10 trips during the AM peak hour and 10 trips during the PM peak hour.

Table 2: Project Trip Generation Estimate

	Quantity (Vehicles)	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed								
Staff								
Full-time Staff	18	36	18	0	18	0	18	18
Seasonal Staff								
Firefighters	12	12	6	0	6	0	6	6
Other								
Visitors	10	20	10	0	10	0	10	10
Deliveries	5	5	0	0	0	0	0	0
Proposed Sub-total		**73**	**34**	**0**	**34**	**0**	**34**	**34**
Existing								
Staff								
Full-time Staff	8	16	8	0	8	0	8	8
Seasonal Staff								
Firefighters	12	12	6	0	6	0	6	6
Other								
Visitors	10	20	10	0	10	0	10	10
Deliveries	5	5	0	0	0	0	0	0
Existing Sub-total		**53**	**24**	**0**	**24**	**0**	**24**	**24**
Net New Total		**20**	**10**	**0**	**10**	**0**	**10**	**10**

Source: Fehr & Peers, 2020

Note: To be conservative, all trips are assumed as single-occupancy trips (i.e. no reduction in trip generation for carpool or transit use).

VMT Assessment

On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law and started a process that will fundamentally change transportation impact analysis conducted as part of California Environmental Quality Act (CEQA) compliance. The Governor's Office of Planning and Research (OPR) was charged with developing new guidelines for evaluating transportation impacts under CEQA using methods that no longer focus on measuring automobile delay and level of service (LOS).

OPR issued proposed updates to the CEQA guidelines in support of these goals in November 2017 and a supporting technical advisory in December 2018. The updates establish vehicle miles traveled (VMT) as the metric for evaluating a project's environmental impacts on the transportation system. Lead agencies, including the City of Chino, have until July 1, 2020 to implement these new requirements. The City of Chino has not yet adopted specific VMT metrics or thresholds of significance for transportation studies.

OPR has recommended that land use projects within metropolitan planning organization (MPO) areas achieve a 15 percent reduction in VMT per capita or per worker as compared to the existing regional average.

OPR also recommends that impact analysis be streamlined through Project screening. Projects identified as VMT reducing or VMT efficient projects have a presumption of a less-than significant impact on VMT, and therefore do not require a full VMT assessment. OPR identifies the following project types as appropriate for screening:

- Projects that generate fewer than 110 daily trips
- Projects located in low-VMT areas
- Projects located in a Transit Priority Area (TPA)
    - TPAs are defined as areas within ½ mile of an existing major transit stop or existing stop along a high-quality transit corridor with headways of 15 minutes of less
- Projects that are affordable housing developments

The Project meets one of these screening criteria as it generates less than 110 net new daily trips. Therefore, according to OPR guidance, the Project can be considered to have a less-than-significant impact on VMT.

SITE ACCESS REVIEW

A data collection effort was undertaken to develop a detailed description of existing transportation conditions in the study area. The assessment of conditions relevant to this study includes a description of the study area, an inventory of the local street system in the vicinity of the Project site, a review of traffic volumes on these facilities, an assessment of the resulting operating conditions, and the current transit service in the study area. A detailed description of these elements is presented in this chapter.

Existing Street System

Central Avenue is a north-south major arterial that connects to SR-71 to the south and runs along the west side of the project site. Adjacent to the infill site, Central Avenue is a four-lane roadway with left-turn pockets at intersections and bicycle lanes in both directions south of Edison Avenue. According to the City's General Plan, Central Avenue between Schaefer Avenue and SR-71 is categorized as a large truck route.

Eucalyptus Avenue is an east-west primary arterial between Oaks Avenue and the City's eastern border and between Pipeline Avenue and Ramona Avenue. It is a secondary arterial between Ramona Avenue and Central Avenue. Eucalyptus Avenue is a four-lane facility with bicycle lanes in each direction. The posted speed limit on Eucalyptus Avenue near the project is 45 mph. According to the City's General Plan, between Pipeline Avenue & Central Avenue, Eucalyptus Avenue is categorized as a truck route.

Transit Lines

Figure 3 shows the various transit lines providing service in the Project vicinity.

- OmniTrans Route 83 – Route 83 serves Upland and Chino and runs along Euclid Avenue. Service headways during weekday peak periods and weekend service headways are approximately 60 minutes.

- OmniTrans Route 365 – Route 365 provides local service to Chino and Chino Hills. In the study area, the route runs along Chino Hills Parkway, Schaefer Avenue, and Central Avenue. Service headways during weekday peak periods and weekend service headways are approximately 60 minutes.

Bicycle and Pedestrian Facilities

As illustrated in **Figure 4**, Central Avenue provides a Class II facility between Edison Avenue and Fairfield Ranch Road. Class II bicycle facilities, known as bicycle lanes, are lanes on the outside edge of roadways reserved for the exclusive use of bicycles, and designated with special signing and pavement markings. Bicycle parking is not currently identified on the site plan. It is not expected that corps members, staff, or visitors would typically use a bicycle to access the Project site.

Along the western edge of the Project site (Central Avenue), sidewalks between nine and 12 feet wide are present on the western side of Central Avenue. Along the northern edge of the Project site, there is a private driveway access with no sidewalks. The Project proposes to install accessible curb ramps at the southern and eastern crosswalks of the Central Avenue and Eucalyptus Avenue intersection.

Existing Traffic Volumes

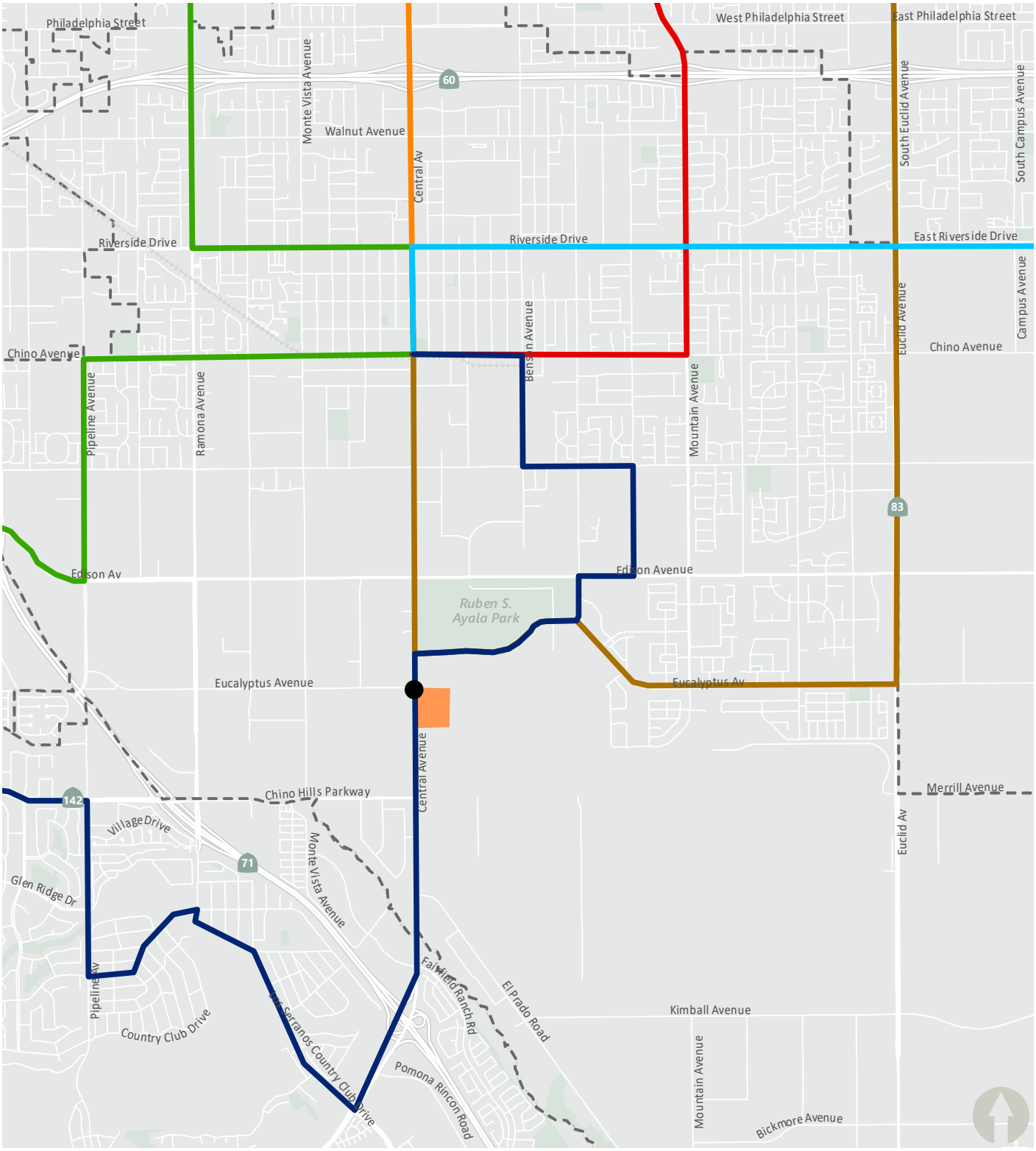
Intersection turning movement counts were conducted at the Central Avenue and Eucalyptus Avenue intersection during the weekday AM peak period (between 7:00 and 9:00 AM) and weekday PM peak period (between 4:00 PM and 6:00 PM) in May 2018. Existing weekday AM and PM peak hour volumes at the study intersections are represented in **Figure 5**. AM and PM peak hour intersection Level of Service (LOS) analysis was conducted for the intersection. The results of this analysis are presented in **Table 3**. The intersection was found to operate acceptably at LOS A and LOS B.

The Project is anticipated to add 10 or less trips during the peak hours, and Project traffic distribution is assumed to assign traffic in all directions. Therefore, the traffic added to the street network by the Project is not expected to result in significant changes to intersection operations or increases in queuing.

Table 3: Existing Year (2018) Intersection Level of Service

Intersection	Traffic Control	Peak Hour	Delay	LOS
Central Avenue & Eucalyptus Avenue	Signal	AM	7.8	A
		PM	12.1	B

Source: Fehr & Peers, 2017
Note: Delay is calculated using Synchro using HCM 6th Edition Methodology



Project Site

Study Intersections

Parks

Transit Lines

365

81

83

84

85

88

Figure 3

Study Area Transit Service

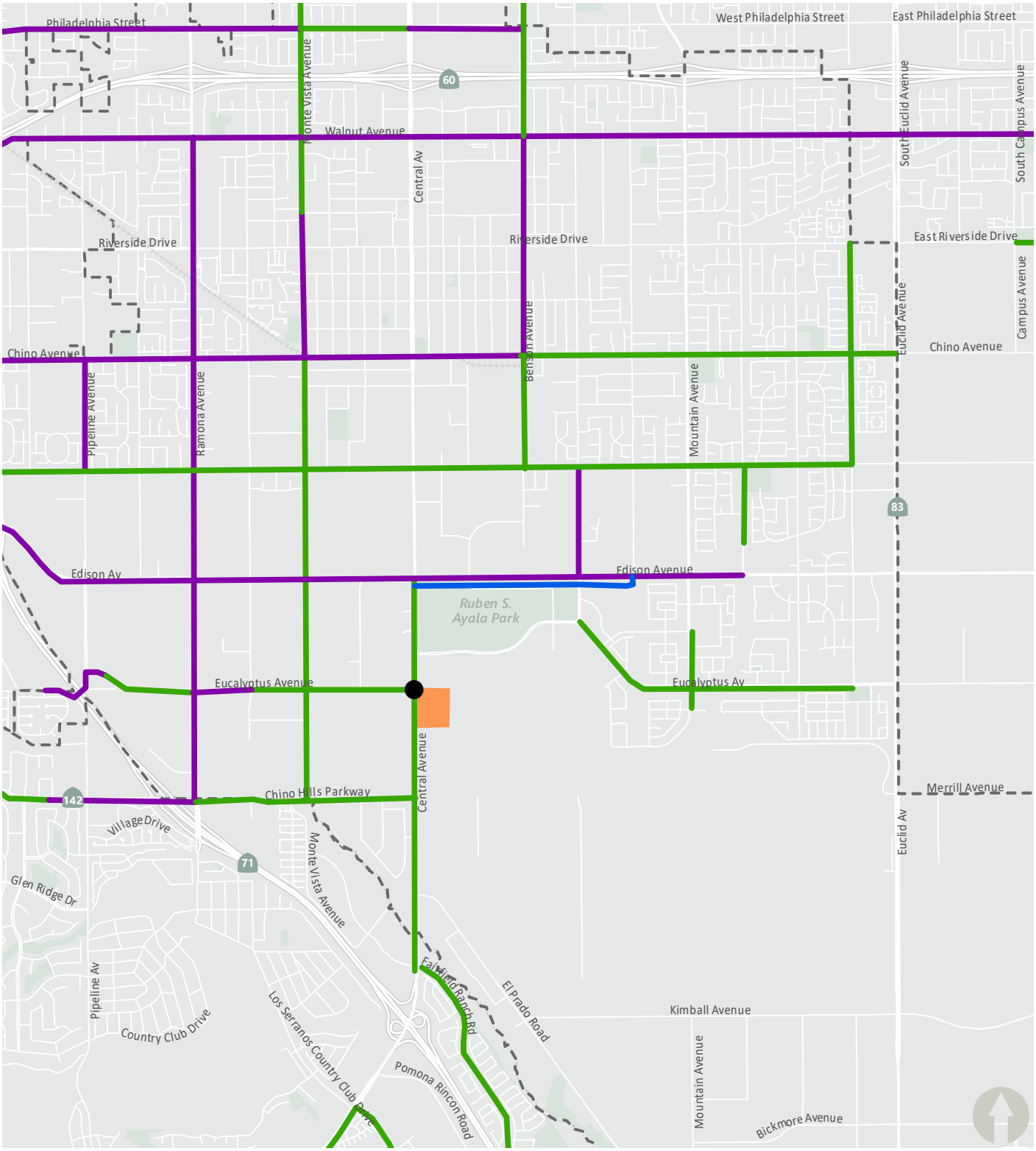
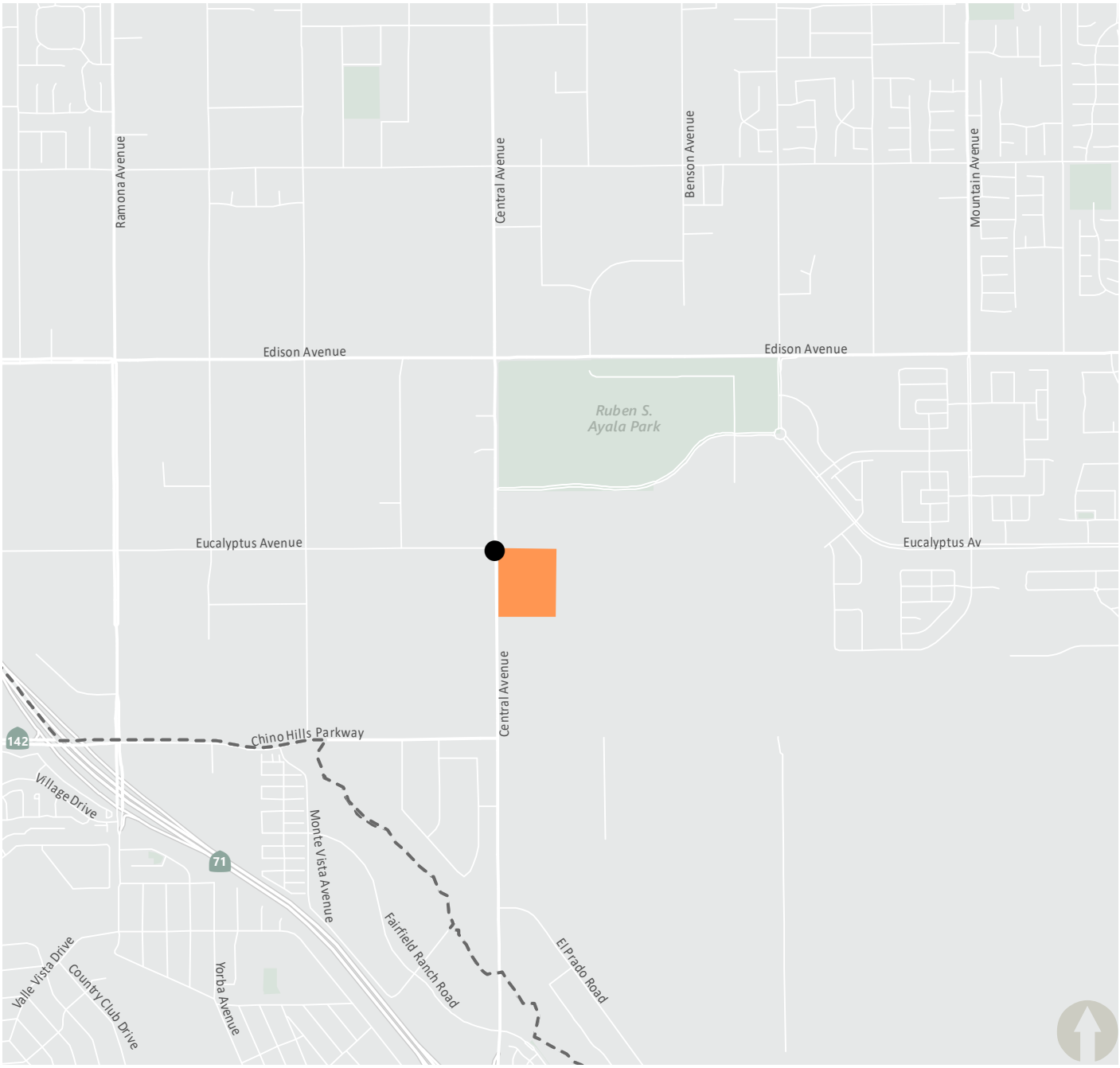


Figure 4

Study Area Bike Facilities



- Project Site
- Study Intersections
- Cities
- Parks
- Water
- Railroad

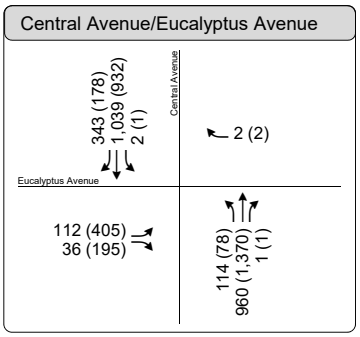


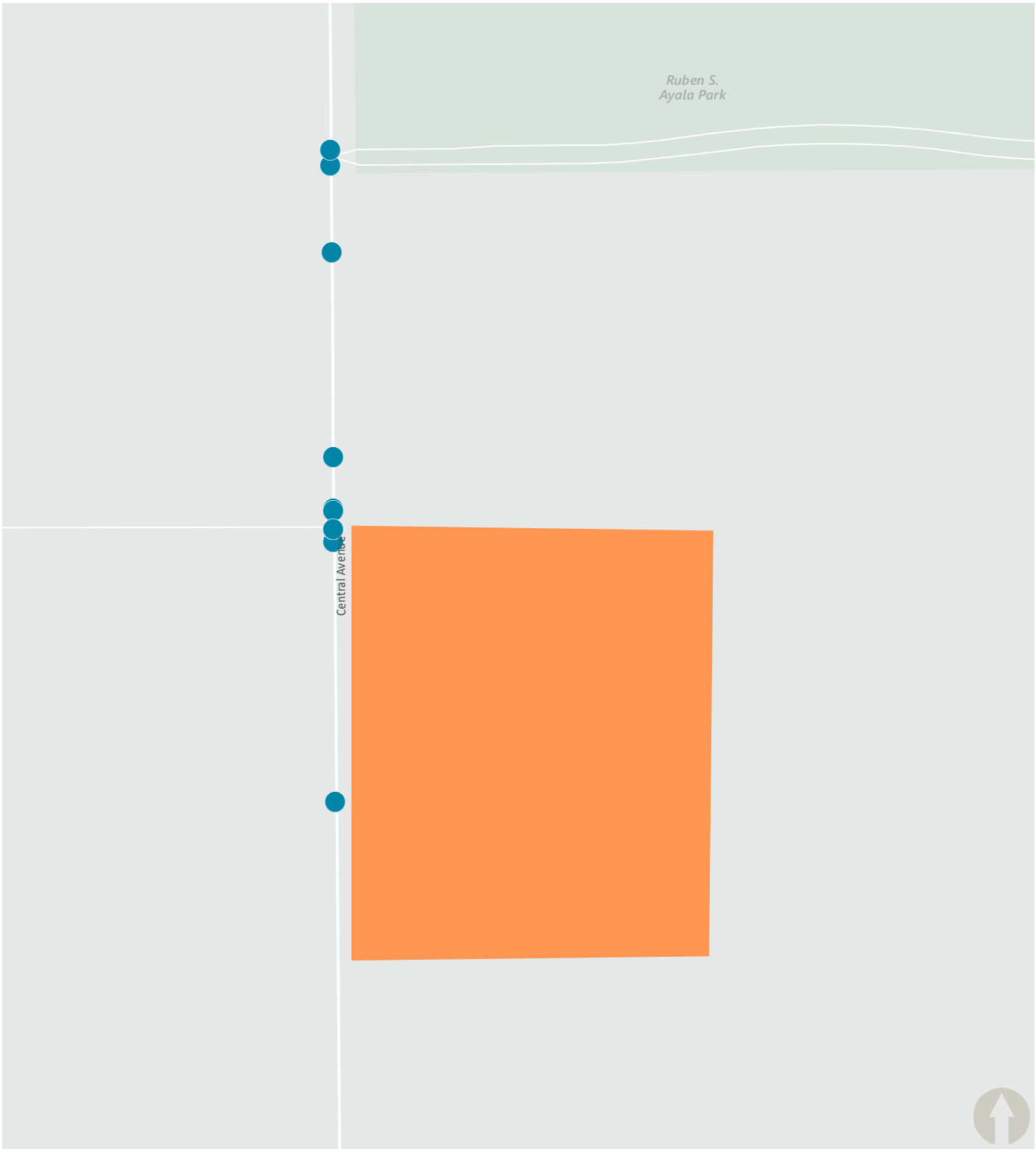
Figure 5

Existing Peak Hour Traffic Volumes (2018)

COLLISION ANALYSIS

Five years of collision data within the vicinity of the Central Avenue and Eucalyptus Avenue was collected from the Statewide Integrated Traffic Records System (SWITRS). Collision data between 2015 and 2019 is presented on **Figure 6.** There have been fourteen total collisions on Central Avenue near the Project site during this five-year time period. Two collisions resulted in at least one person being seriously injured. The intersection of Central Avenue and Eucalyptus Avenue has experienced nine out of the fourteen collisions identified in the five years of available data. One pedestrian and one bicyclist have been involved in the collisions during this time period.

The most common collision type was rear-ending, followed by broadside collision, as shown in **Figure 7**. The most common violation category was unsafe speed, followed by other categories such as following too closely, improper turning, traffic signals and signs, and DUI (**Figure 8**).



Collisions
Project Site
Parks

Collisions	2015	2016	2017	2018	2019	Total
Total Collisions	3	5	3	2	1	**14**
Fatal or Severe Injury	1	1	0	0	0	**2**

Figure 6

Collisions (2015-2019)

Figure 7: Collision Type (2015-2019)

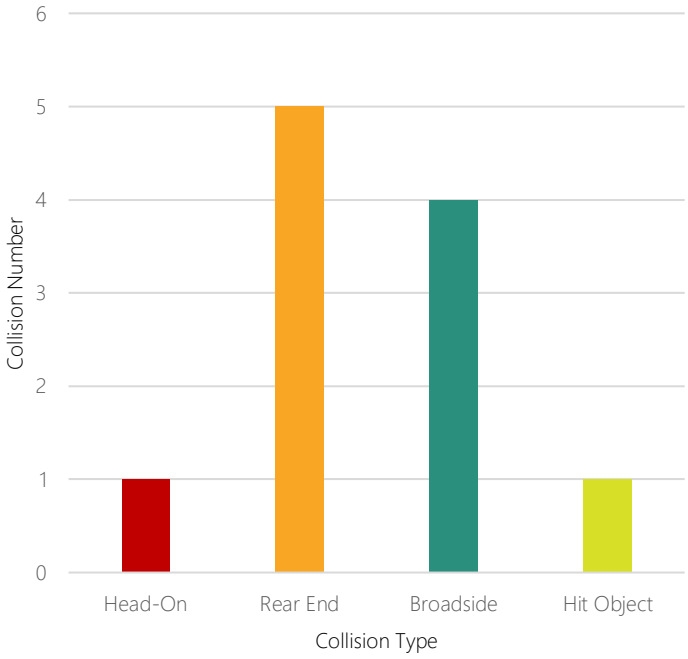
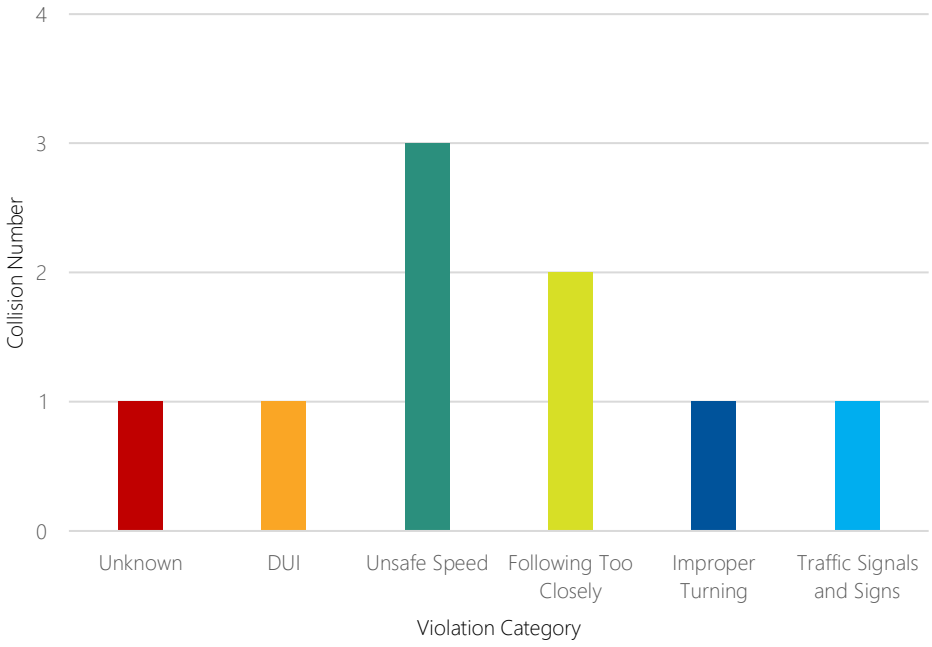


Figure 8: Causes of Collisions (2015-2019)



CEQA CHECKLIST ASSESSMENT

Based on the review, the Project proposes land uses with characteristics that will generate trips that are not likely to result in significant impacts. **Table 4** includes the review and assessment of each of the sections in the Transportation/Traffic factor of the CEQA Checklist.

Table 4: CEQA Checklist of Transportation Assessment

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			x	
The nearby intersection of Central Avenue and Eucalyptus Avenue operates acceptably during the AM and PM peak hours. The trip generation estimates show that the Project's added vehicular traffic will not result in a conflict with a transportation system performance at the intersection of Central Avenue and Eucalyptus Avenue. Thus, a traffic impact analysis is not required to calculate the Project's effect on the transportation system.				
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?				x
The City of Chino has not yet adopted specific VMT metrics or thresholds of significance for transportation studies in accordance with CEQA Guidelines section 15064.3, subdivision (b). However, OPR has identified projects generated less than 110 daily trips as appropriate for screening from VMT analysis. The project generates less than 110 daily net new trips and would therefore be screened from VMT analysis according to the OPR recommendations.				
d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?			x	
The on-site circulation pattern is adequate for the proposed use and the site plan provides separate pathways for pedestrian circulation. The Project would not introduce transportation hazards and related impacts are less than significant. No mitigation is required.				
e) Result in inadequate emergency access?			x	
During the City of Chino and County of San Bernardino Fire Department's required review of the Project's applications, the Project's design would be reviewed to ensure that adequate access to and from the site is provided for emergency vehicles. The Project itself provides fire protection and emergency response to other areas. Impacts are expected to be less than significant, and no further analysis is required on this subject.				

Source: Fehr & Peers, 2020



www.ecorpconsulting.com

REDLANDS, CA
(909) 307 0046

SAN DIEGO, CA

ROCKLIN, CA
(916) 782 9100

CHICO, CA
(530) 805 2585

SANTA ANA, CA
(714) 648 0630

SANTA FE, NM
(714) 222 5932